



**Dominion
Energy[®]**

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

**Before the State Corporation
Commission of Virginia**

**Cirrus-Keyser 230 kV Loop and
Related Projects**

Application No. 320

Case No. PUR-2022-00198

Filed: November 21, 2022

Volume 2 of 2

BEFORE THE
STATE CORPORATION COMMISSION
OF VIRGINIA

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

Cirrus – Keyser 230 kV Loop and Related Projects

Application No. 320

DEQ Supplement

Case No. PUR-2022-00198

Filed: November 21, 2022

Table of Contents

	Page
1. Project Description	1
2. Environmental Analysis	3
A. Air Quality	3
B. Water Source.....	3
C. Discharge of Cooling Waters.....	4
D. Tidal and Non-tidal Wetlands	4
E. Floodplains.....	5
F. Solid and Hazardous Waste	5
G. Natural Heritage, Threatened and Endangered Species.....	5
H. Erosion and Sediment Control	7
I. Archaeological, Historic, Scenic, Cultural or Architectural Resources.....	7
J. Chesapeake Bay Preservation Areas.....	9
K. Wildlife Resources.....	9
L. Recreation, Agricultural and Forest Resources	10
M. Use of Pesticides and Herbicides	11
N. Geology and Mineral Resources	12
O. Transportation Infrastructure	12
Attachments	14

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

1. Project Description

In order to provide service to a Rappahannock Electric Cooperative (“REC”) data center customer (“REC Customer”) to serve a new data center campus (the “Campus”), to maintain reliable service for the overall growth in the Project area, and to comply with mandatory Northern American Electric Reliability Corporation (“NERC”) Reliability Standards, Virginia Electric and Power Company (“Dominion Energy Virginia” or the “Company”) proposes in Culpeper County, Virginia to:

- Construct a new, approximately 5.2-mile overhead 230 kV double circuit transmission line-loop. This 5.2 mile line-loop will be built entirely on the existing 100-foot-wide right-of-way and will result in three separate lines: (i) 230 kV Gordonsville-Cirrus Line #2199, (ii) 230 kV Cirrus-Keyser Line #2278, and (iii) 230 kV Keyser-Germanna Line #2276 (collectively, the “Cirrus-Keyser 230 kV Loop”).
- Remove a portion of one existing 115 kV double circuit transmission line (Line #2 and Line #70) located entirely within the existing right-of-way between existing Structures #2/1201-1253 and Structures #70/53-1 and install a new, overhead single circuit 115 kV line which will require an additional 25 feet of permanent right-of-way from the edge of the existing 100 feet of right-of-way for approximately 0.02-miles from proposed Structure #2/486A to proposed Structure #2/486B to connect Lines #2 and #70 at the Mountain Run Junction.¹
- Construct two overhead 230 kV transmission Lines, Line #2283 and Line #2284. Line #2283 will be 0.15 miles in length, and Line #2284 will be 0.10 miles in length. Both will be built in new right-of-way provided by the REC Customer and will run from the proposed Keyser Switching Station (“Keyser Station”) to the existing REC Mountain Run Substation (“Mountain Run Substation” or “Mountain Run 1 and 2”).²
- Construct two overhead 230 kV transmission lines, Line #2288 and Line #2289, approximately 0.01-miles in length. Lines #2288 and #2289 will run from the proposed Cirrus Switching Station (“Cirrus Station”) to the proposed REC Mountain Run 3 Substation (“Mountain Run 3 Substation”) and will not require any new right-of-way.³

¹This portion of the Project would qualify as an “ordinary extension[] or improvement[] in the usual course of business” pursuant to § 56-265.2 A 1 of the Code of Virginia. However, for the sake of completeness and because it helps resolves the reliability concerns, it has been included in this Project.

² See *supra* n.1.

³ See *supra* n.1.

- Build a new section of overhead 115 kV single circuit transmission line (Line #70), approximately 0.07-miles in length in new right-of-way provided by the REC Customer. This new section of Line #70 will run from the proposed Cirrus Station to existing Structure #70/1255.⁴
- Construct two new 230 kV switching stations located along Frank Turnage Drive, the Cirrus Station and the Keyser Station, on land purchased by the Company from the REC Customer.
- Update line protection settings at the Company's existing Remington, Germanna, Gordonsville, Oak Green, and Culpeper Substations.

The Cirrus-Keyser 230 kV Loop, construction of Lines #2283, #2284, #2288, and #2289, additional line work, construction of the Cirrus and Keyser Stations and related substation work are collectively referred to as the "Project."

The electric transmission facilities proposed in this Application are necessary to assure that Dominion Energy Virginia can provide service requested by the REC Customer in Culpeper County, Virginia, maintain reliable service for the overall growth in the Project area, and comply with mandatory NERC Reliability Standards.

The Project is located entirely in Culpeper County, VA and includes the construction of two new switching stations and interconnecting lines, as well as the construction of a new, approximately 5.2-mile overhead 230 kV double circuit transmission line loop. The proposed Cirrus and Keyser Switching Stations will be constructed adjacent to Frank Turnage Drive and southwest of the existing Mountain Run Substation. The 230 kV transmission line loop will consist of three 230 kV lines; (i) 230 kV Gordonsville-Cirrus Line #2199, (ii) 230 kV Cirrus-Keyser Line #2278, and (iii) 230 kV Keyser-Germanna Line #2276 (collectively, the "Cirrus-Keyser 230 kV Loop"). The Cirrus-Keyser 230 kV Loop will be constructed within an existing 100-foot wide right-of-way originating at the existing Mountain Run Substation and extending approximately 5.2 miles east to the Mountain Run Junction. The two existing 115 kV Lines #2 and #70 will be removed between existing Structures #2/1201-1253 and Structures #70/53-1 and a new overhead single circuit 115 kV line, which will require an additional 25 feet of permanent right-of-way from the edge of the existing 100 feet of right-of-way for approximately 0.02-miles from proposed Structure #2/486A to proposed Structure #2/486B, will be constructed to connect Lines #2 and #70 at the Mountain Run Junction.

Two new 230 kV lines, Lines #2283 and #2284, will be constructed in 0.15 miles and 0.10 miles of new right-of-way, respectively, between the Keyser Switching Station and connect to the existing Mountain Run Substation. Proposed 230 kV Lines #2288

⁴ See *supra* n.1.

and #2289 will also be constructed, both approximately 0.01-miles in length, and will run from the proposed Cirrus Switching Station to a proposed substation to be constructed by Rappahannock Electric Cooperative. No new right-of-way is required for these lines.

2. Environmental Analysis

The Company solicited comments from all relevant state and local agencies about the proposed Project on October 12, 2022. Copies of these letters are included as Attachment 2. DEQ provided a letter in response to the Company's request for the proposed Project on October 13, 2022. A copy of this letter is included as Attachment 2.1.

A. Air Quality

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

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

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

The proposed Project is located within the Rapidan-Upper Rappahannock watershed, Hydrologic Unit Code 02080103. According to the U.S. Geological Survey ("USGS") topographic quadrangle, Culpeper East, Virginia (2019) and the Virginia Department of Conservation and Recreation's ("DCR") National Hydrography Dataset, the existing transmission line corridor crosses Mountain Run, a named perennial stream, in two separate locations, and unnamed tributaries to Mountain Run and Potato Run.

The transmission line structures are located to span these waterbodies with no foundations being located below ordinary high water. Any clearing required in the vicinity of streams will be performed by hand within 100 feet of both sides, and vegetation less than three inches in diameter will be left undisturbed.

A subaqueous encroachment permit is not expected to be required as there are no stream crossings with a drainage area of five square miles or greater or tidal waters within the project area. A Joint Permit Application will be submitted for review by the VMRC, DEQ and the U.S. Army Corps of Engineers (the “Corps”) to authorize jurisdictional crossings and for any impacts to jurisdictional features.

C. Discharge of Cooling Waters

No discharge of cooling waters is associated with the Project.

D. Tidal and Non-tidal Wetlands

No tidal wetlands were identified within the Project area. Non-tidal wetlands are summarized below.

Wetlands and other waters of the United States were field delineated by Vanasse Hangen Brustlin, Inc. (“VHB”) in July 2022 using the *Routine Determination Method*, as outlined in the *1987 Corps of Engineers Wetland Delineation Manual* and methods described in the *2012 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)*. Total jurisdictional resources within the proposed Project area are provided in Table D-1 and detailed in Attachment 2.D.1. The Company will obtain any necessary permits to impact jurisdictional resources.

Table D-1. Delineated Jurisdictional Resources within the Project Area

Resource	Area/Length (±)
Palustrine Emergent Wetland	8.7 AC
Palustrine Forested Wetland	0.15 AC
Perennial Stream Channel	887 LF
Intermittent Stream Channel	704 LF
Ephemeral Stream Channel	546 LF
Jurisdictional Ditch	350 LF

The Company solicited comments from DEQ Office of Wetlands and Stream Protection on October 12, 2022. See Attachment 2.D.2. The Company has sited structures to avoid wetlands and streams to the extent practicable. Temporary impacts will be restored to pre-existing conditions, and permanent impacts will be compensated for in accordance with all applicable state regulations and laws. A Joint Permit Application will be submitted for further evaluation and final permit need

determination by DEQ. The Company will obtain any necessary permits to impact jurisdictional resources.

E. Floodplains

As depicted on the Federal Emergency Management Agency's (FEMA) on-line Flood Insurance Rate Maps #51047C0230D and #51047C0250D, effective date 6/18/2007, and #51137C0020D and #51137C0025D, effective date 01/02/2008, the Project area lies within Zone X, areas of minimal flood hazard with a 0.2% annual chance of flood hazard. As such, the Project is not located in any 100-year floodplains.

F. Solid and Hazardous Waste

On behalf of the Company, C2 Environmental, Inc. ("C2") conducted database searches for solid and hazardous wastes and petroleum release sites within a 0.5-mile radius of the Project.

C2 obtained publicly available data from the Environmental Protection Agency ("EPA") Facility Registry System, which provides information about facilities, sites, or places subject to environmental regulation or of environmental interest. Although this data set includes all sites subject to environmental regulation by the EPA or other state authority, such as sites that fall under air emissions or wastewater programs, the results reported here only include those sites which fall under the EPA's hazardous waste, solid waste, remediation, and underground storage tank programs. These sites include *Comprehensive Environmental Response, Compensation and Liability Act* ("CERCLA")/Superfund; *Resource Conservation and Recovery Act* ("RCRA"); and brownfield sites. Per this database, there are no registered Superfund or brownfield sites and one RCRA site present within a 0.5-mile radius of the project area.

DEQ records also were searched for the presence of solid waste permits, Voluntary Remediation Program sites, petroleum releases, and registered tank facilities. Zero solid waste permits, zero VRP sites, three petroleum release sites, and two registered tank facilities were identified as present within a 0.5-mile radius of the Project. None of these sites fall within the transmission line right-of-way. All three petroleum release sites have been closed. Both registered tank facilities are active, federally registered, and contain active above ground storage tanks. There are no active underground storage tanks at either facility. The Company has a procedure in place to handle petroleum contaminated soil, if encountered. Tables listing these sites are included in Attachment 2.F.1.

G. Natural Heritage, Threatened and Endangered Species

On behalf of the Company, C2 conducted online database searches for threatened and endangered species in the vicinity of the Project, including USFWS Information for Planning and Consultation system, the USFWS Critical Habitat for Threatened and Endangered Species Mapper, the USFWS Bald Eagle Concentration Area Map, the Virginia Department of Wildlife Resources ("DWR") Virginia Fish and Wildlife

Information Service (“VAFWIS”), the DWR Northern Long-eared Bat (“NLEB”) Winter Habitat and Roost Trees Map, the DCR, the Natural Heritage Data Explorer (“NHDE”), and the Center for Conservation Biology (“CCB”) Bald Eagle Nest Locator. The results are presented in Table G-1 below.

Table G-1. Threatened and endangered species within the vicinity of the Project

Species Name (Scientific Name)	Status	Results
Northern long-eared bat (<i>Myotis septentrionalis</i>) Database: USFWS	FT, ST	No known hibernacula or summer roosts are identified in the vicinity of the Project. Clearing for temporary right-of-way will be required along the 5.2-mile corridor and is expected to adhere to applicable time of year restrictions.
Monarch butterfly (<i>Danaus plexippus</i>) Database: USFWS	FC	Suitable habitat may be present in the right-of-way. Vegetation may be temporarily disturbed due to construction activity; however, no long term or adverse effects are expected.
Dwarf wedgemussel (<i>Alasmidonta heterodon</i>) Database: DCR	FE, SE	No in stream work is proposed for this project. Erosion and sediment controls will be used during construction as appropriate. No adverse effects are expected.
Yellow lance (<i>Elliptio lanceolata</i>) Database: DCR	FT, ST	No in stream work is proposed for this project. Erosion and sediment controls will be used during construction as appropriate. No adverse effects are expected.
Bald eagle (<i>Haliaeetus leucocephalus</i>) Database: USFWS, CCB	FP	No known bald eagle nests are located within 660 feet of the Project area, nor are any bald eagle concentration areas present within the Project vicinity. Therefore, no adverse effects are expected.

Note: FT denotes federally threatened; FE denotes federally endangered; FC denotes federal candidate; ST denotes state threatened; SE denotes state endangered; FP denotes federally protected.

A copy of the database search results can be found in [Attachment 2.G.1](#). Additionally, the Company requested comments from the USFWS, DWR and DCR regarding the proposed Project on October 12, 2022, and a Project Review request was submitted to DCR in August 2022. In a letter dated September 7, 2022, DCR noted that the project intersects the karst bedrock screening area in the eastern portion of the Project area as well as potential habitat for natural heritage resources based on predictive models. However, DCR did not recommend any surveys for the resources. Tree removal outside of the existing right-of-way was noted as potentially impacting Ecological Core (C5). The clearing required for the temporary right-of-way does not intersect the mapped Ecological Core areas. The Project is not expected to affect any documented state-listed plants or insects, and there are no State Natural Preserves under DCR’s jurisdiction in the Project vicinity. See [Attachment 2.G.2](#).

New and updated information is continually added to the DCR's Biotics database. Following the DCR-Natural Heritage Program SCC planning stage project review, the Company shall resubmit a project review request through the Natural Heritage Data Explorer service. This review shall occur during the final stage of engineering and upon any major modifications of the project during construction (e.g., deviations, permanent or temporary, from the original study area and/or the relocation of a tower(s) into sensitive areas) for an update on natural heritage information and coordination of potential project modifications to avoid and minimize impacts to natural heritage resources. The Company will also obtain all necessary permits prior to construction, including authorization from the VMRC, DEQ, and the Corps, and coordination with the DWR, DCR, and USFWS, as necessary, will take place through the respective permit processes to avoid and minimize impacts to listed species.

H. Erosion and Sediment Control

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

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

The Company solicited comments from the Virginia Department of Historic Resources ("VDHR") on October 12, 2022. The Company retained Dutton + Associates to prepare a Stage I Pre-Application Analysis ("Stage I Analysis") that follows the *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia*. This analysis was completed in October 2022 and submitted to VDHR on November 8, 2022. The Stage I Analysis is included as Attachment 2.I.1. As detailed by VDHR guidance, consideration was given to:

- National Historic Landmark ("NHL") or Virginia Landmark Register ("VLR") properties located within a 1.5-mile radius of the Project centerline;
- National Register of Historic Places ("NRHP") listed properties, battlefields, and historic landscapes located within a 1.0-mile radius of the Project centerline;
- NRHP-eligible sites located within a 0.5-mile radius of the Project centerline; and
- Archaeological sites located within the Project right-of-way.

Summaries of the considered resources identified in the vicinity of the Project are provided in the following discussion. Based on the Project details, the Project is expected to have no more than a minimal impact on any resources that are designated

as a National Historic Landmark, listed in the National Register of Historic Places, or determined eligible or potentially eligible for listing.

Archaeological Resources

There is one documented archaeological resource located within the Project right-of-way (DHR ID 44CU0137). This resource has not been evaluated for listing on the NHRP.

Architectural Resources

Sixteen architectural resources listed or eligible for listing on the NHRP are located within 1.5 miles of the Project centerline. Additionally, two battlefields that are potentially eligible for NHRP listing are located within 0.5 miles of the Project centerline. These resources are provided in Table I-1 below.

Table I-1. NHL/VLR, NRHP-listed, eligible, and battlefield resources within 1.5 miles of the vicinity of the proposed Project.

Buffer (miles)	Considered Resources	VDHR #	Description
1.5	National Historic Landmarks	None	N/A
1.0	National Historic Landmarks	None	N/A
	National Register-Listed	023-0020	La Grange (Historic), Salubria (NRHP Listing)
	Battlefields	None	N/A
	Historic Landscapes	023-0068	Hansbrough Ridge Winter Encampment District (NRHP Listing), Hansbrough's Ridge Winter Encampment (Historic), Jenkins Tract on Hansbrough's Ridge (Current Name), Jenkins Tract, Brandy Station Battlefields (Function/Location)
		023-5441	Mountain Run Historic District (Historic/Current)
0.5	National Historic Landmarks	None	N/A
	National Register-Listed	None	N/A
	Battlefields	None	N/A
	Historic Landscapes	None	N/A
	National Register –	023-5162	Zimmerman's Tavern

Buffer (miles)	Considered Resources	VDHR #	Description
	Eligible		(Historic/Current)
0.0	National Historic Landmarks	None	N/A
	National Register-Listed	023-0018	Rose Hill (NRHP Listing), Rose Hill Farm (Historic), Rose Hill Game Preserve (Current)
		023-5023	Mount Castle (Historic), Signal Hill (Historic/Current)
		023-5040	Croftburn Farm (NRHP Listing), Grassland (Historic/Current), Mount Pony Farm (Historic)
	Battlefields	023-5055	Brandy Station Battlefields (Historic)
		068-5007	Battle of Morton's Ford (Historic), Rapidan River Battlefield (Historic)
	Historic Landscapes	023-0084	Mount Pony Rural Historic District (Historic/Current)
	National Register – Eligible	023-5494	House, 19564 Alvere Road (Function/Location)

Correspondence from Dominion Energy Virginia to VDHR is included in Attachment 2.

J. Chesapeake Bay Preservation Areas

The proposed Project is not located in a locality subject to the Chesapeake Bay Preservation Act. Construction, installation, operation and maintenance of electric transmission lines are conditionally exempt from the Chesapeake Bay Act as stated in the exemption for public utilities, railroads, public roads, and facilities in 9 VAC 25-830-150. The Company will meet those conditions.

K. Wildlife Resources

Relevant agency databases were reviewed and requests for comments from the USFWS, DWR, and DCR were submitted to determine if the proposed Project has the potential to affect any threatened or endangered species, as described in Section 2.G and included in Attachment 2.G.1. As discussed in Section 2.G, certain federal and state listed species were identified as confirmed and potentially occurring in the Project area. The Company will coordinate with the USFWS, DWR, and DCR as appropriate to determine whether surveys are necessary and to minimize impacts on wildlife resources. The proposed Project is predominantly a rebuild of a transmission line within existing right-of-way. While clearing is required to provide a temporary construction easement, these areas will not be grubbed, and no root disturbance will occur. The areas will be allowed to revegetate through natural succession upon

construction activities. The Company will further minimize potential effects by cutting trees outside of the time-of-year restriction from April 1 to November 14 to avoid bat maternity roosting locations and impacts to songbirds, to the extent practicable. Based on the scope of the project, there is limited clearing required for new, permanent right-of-way, and no significant loss of wildlife habitat is anticipated.

L. Recreation, Agricultural and Forest Resources

The Project is expected to have minimal impacts on recreational, agricultural, and forest resources as the Project will largely be constructed in existing right-of-way. Additional right-of-way will be required at the Mountain Run Junction but is not expected to adversely affect agricultural resources as these activities are compatible with the operation of the electric transmission line. While clearing for a temporary construction easement is also required, the area will be allowed to revegetate through natural succession. No permanent impacts to recreation or agricultural resources are expected to occur as a result of the Project. The Project will require minimal clearing of new right-of-way adjacent to the existing Mountain Run Substation. However, based on the extent of clearing required, the Project is not expected to result in significant impacts to forest resources.

The Virginia Scenic Rivers Act seeks to identify, designate, and protect rivers and streams that possess outstanding scenic, recreational, historic, and natural characteristics of statewide significance for future generations. There are no designated scenic rivers crossed by the proposed Project.

There are no local parks located within one mile of the transmission line right-of-way.

Prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. Land that does not meet the criteria for prime farmland can be considered “farmland of statewide importance.” The criteria for defining and delineating farmland of statewide importance are determined by the Virginia Department of Agriculture and Consumer Services. Generally, this land includes areas of soils that nearly meet the requirements for prime farmland and that economically produce high yields of crops when treated and managed according to acceptable farming methods. Other areas that are not identified as having national or statewide importance can be considered to be “farmland of local importance.” This farmland is identified by the appropriate local agencies. Farmland of local importance may include tracts of land that have been designated for agriculture by local ordinance. There are approximately 11.1 acres of prime farmland and 47.2 acres of farmland of statewide importance within the Project right-of-way.

Culpeper County has designated Agricultural and Forestal Districts within its jurisdiction under Va. Code § 3.2-205 B. The proposed Project area includes approximately 2.54 miles (30.8 acres) of agricultural and forestal districts. Where agricultural uses are present, these activities have been occurring within the right-of-

way while the existing transmission line has been in operation. The Project may result in temporary impacts to farmland during construction but would otherwise not be expected to impact farmlands and would not alter the agricultural use. According to Culpeper County's existing zoning map, the majority of the existing transmission line corridor is located within areas designated as agricultural, and a portion within areas designated as rural areas.

Under the Virginia Open-Space Land Act, any public body can acquire title or rights to real property to provide means of preservation of open-space land. Such conservation easements must be held for no less than five years in duration and can be held in perpetuity. The proposed Project crosses one Virginia Outdoors Foundation ("VOF") easement (CUL-VOF-273), and two other VOF easements (CUL-VOF-517 and CUL-VOF-4326) are located within one mile of the Project. There are two DHR easements and one Old Dominion Land Conservancy ("ODLC") easement located within one mile of the Project but are not crossed by the right-of-way.

The width of the existing transmission line right-of-way is approximately 100 feet. The Project proposes to retain the existing right-of-way as currently utilized but will require additional permanent right-of-way at the Mountain Run Junction as well as additional right-of-way to connect the Cirrus Station to the existing Line #70. A temporary construction easement will also be required along the 5.2-mile line corridor. Additional trimming of tree limbs along the right-of-way edges and/or trimming for access roads along the corridor to support construction activities may also be required. Trees and brush located within 100 feet of streams will be cleared by hand in accordance with the Company-approved Electric Transmission Annual Standards and Specifications.

Any tree along the right-of-way that is tall enough to endanger the conductors if it were to break at the stump or uproot and fall directly towards the conductors and exhibits signs or symptoms of disease or structural defect that make it an elevated risk for falling will be designated as a "danger tree" and may be removed. The Company's arborist will contact the property owner if possible before any danger trees are cut, except in emergency situations. The Company's Forestry Coordinator will field inspect the right-of-way and designate any danger trees present. Qualified contractors working in accordance with the Company's Electric Transmission Annual Standards and Specifications will perform all danger tree cutting. The Project is expected to have minimal, if any, impact on forest resources as the proposed Project utilizes existing, cleared right-of-way to the maximum extent feasible and requires only temporary clearing for construction of a temporary line during construction.

M. Use of Pesticides and Herbicides

Of the techniques available, selective foliar is the preferred method of herbicide application. The Company typically maintains transmission line right-of-way by means of selective, low volume applications of EPA-approved, non-restricted use herbicides. The goal of this method is to exclude tall growing brush species from the

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

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

Additionally, based on a discussion between the Company and VDCR DNH representatives on August 23, 2022, the Company will review its Integrated Vegetation Management Plan (“IVMP”) for application to both woody and herbaceous species, based on the species list available on the DCR website. The Company will submit its updated IVMP to VDCR DNH for review once it is complete.⁵

N. Geology and Mineral Resources

According to the Virginia Division of Geology and Mineral Resources Interactive Geologic Map, the Project area consists primarily of shale, siltstone, sandstone, diabase, and conglomerate rock types. According to the USGS topographic maps and aerial imagery, there are no active mines within the limits of the Project. One stone quarry owned by Luck Stone lies directly adjacent to the right-of-way.

The Company does not anticipate that the rebuild and conversion of the existing transmission line will result in negative impacts on the geology or mineral resources in the proposed Project area.

O. Transportation Infrastructure

The width of the existing transmission line right-of-way is 100 feet in width and is currently maintained for operation of the existing transmission facilities. The transmission line corridor extends approximately 5.2 miles from the Mountain Run

⁵ See, *Application of Virginia Electric and Power Company, for approval and certification of electric transmission facilities: 230 kV Line #293 and 115 kV Line #83 Rebuild Project*, Case No. PUR-2021-00272, Report of Alexander F. Skirpan, Jr., Chief Hearing Examiner (June 22, 2022) at 22 (*recommending that the Company meet with VDCR DNH regarding its IVMP and report the results of the meeting in the next transmission CPCN filing*).

Junction to the proposed Cirrus and Keyser Stations in Culpeper County, Virginia, crossing six roads. Major road crossings include James Madison Highway (US Highway 15), Germanna Highway (VA Route 3), and Blackjack Road (VA Route 661).

On October 12, 2022, the Company solicited comments from the Virginia Department of Transportation (“VDOT”) on the proposed Project. The Company will submit applications for land use permits and traffic control plans for the aerial crossings of VDOT maintained roads and construction entrances from the VDOT right-of-way as needed. These permits will be obtained prior to construction.

The Company solicited comments from the Virginia Department of Aviation (“DOAv”) on October 12, 2022. Form 7460 will be submitted to the Federal Aviation Administration (“FAA”) upon final design and engineering to initiate an aeronautical study to ensure that the proposed Project will not constitute a hazard to air navigation.

Finally, the Company has reviewed the FAA’s website (<https://oeaaa.faa.gov/oeaaa/external/portal.jsp>) to identify airports within 10 miles of the Project. Based on this review, two FAA-restricted airports, air stations, or heliports are located within 10 miles of the Project:

- Culpeper Regional, 6.5 miles north of Mountain Run Junction
- Berryvale Airport, a private airfield, is located 4.4 miles north of the proposed Cirrus Substation.
- The UVA Culpeper Medical Center heliport is 2.1 miles southwest of the Cirrus Substation.

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

ATTACHMENTS

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



October 12, 2022

BY E-MAIL

RE: Dominion Energy Virginia's Proposed Cirrus – Keyser 230 kV Loop and Related Projects in Culpeper County, Virginia

To Whom it may Concern,

Dominion Energy Virginia (the “Company”) is proposing to construct a new, approximately 5.2-mile overhead 230 kV double circuit transmission line-loop utilizing an existing 100-foot-wide right-of-way (ROW) resulting in three separate lines: (i) the 230 kV Gordonsville-Cirrus Line #2199, (ii) the 230 kV Cirrus-Keyser Line #2278, and (iii) the 230 kV Keyser-Germanna Line #2276 (collectively, the “Cirrus-Keyser 230 kV Loop”). Two new substations, the Cirrus Substation and the Keyser Substation, will be constructed on customer and Company-owned property. The Project is largely located within existing ROW or on Company-owned property. However, additional permanent ROW is needed on customer property to connect the Cirrus Substation to the existing 115 kV Line #70 and at the Mountain Run Junction. Temporary ROW is also needed for the 5.2-mile corridor to install a temporary line during construction.

The Project is needed to provide service to a Rappahannock Electric Cooperative data center customer, to maintain reliable service for the overall growth in the region, and to comply with mandatory North American Electric Reliability Corporation Reliability Standards.

The Company is in the process of preparing an application for a Certificate of Public Convenience and Necessity (“CPCN”) from the State Corporation Commission of Virginia (the “Commission”). In advance of the filing of an application for a CPCN from the Commission, the Company respectfully requests that you submit any comments or additional information that would have bearing on the proposed Project within 30 days of the date of this letter.

Enclosed is a Project Overview Map depicting the proposed Cirrus-Keyser 230 kV Loop and Related Projects, as well as the general Project location. If you would like to receive a GIS shapefile of the route to assist in your project review or if you have any questions, please do not hesitate to contact Ginny Gills at (804) 201-3635 or virginia.b.gills@dominionenergy.com.

The Company appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Dominion Energy Virginia

A handwritten signature in black ink, appearing to read "DRS", located below the printed name of Darrell R. Shier.

Darrell R. Shier
Authorized Representative
Manager, Environmental Services

Attachment: Project Map

PROJECT NOTICE MAP

Cirrus - Keyser 230 kV Loop and Related Projects

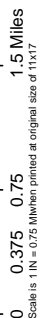
Culpeper County, Virginia

Owner/ Applicant:

Dominion Energy Virginia

C2 Env Project: Prepared By: Date:

0245	TMP	07/28/22
------	-----	----------



LEGEND

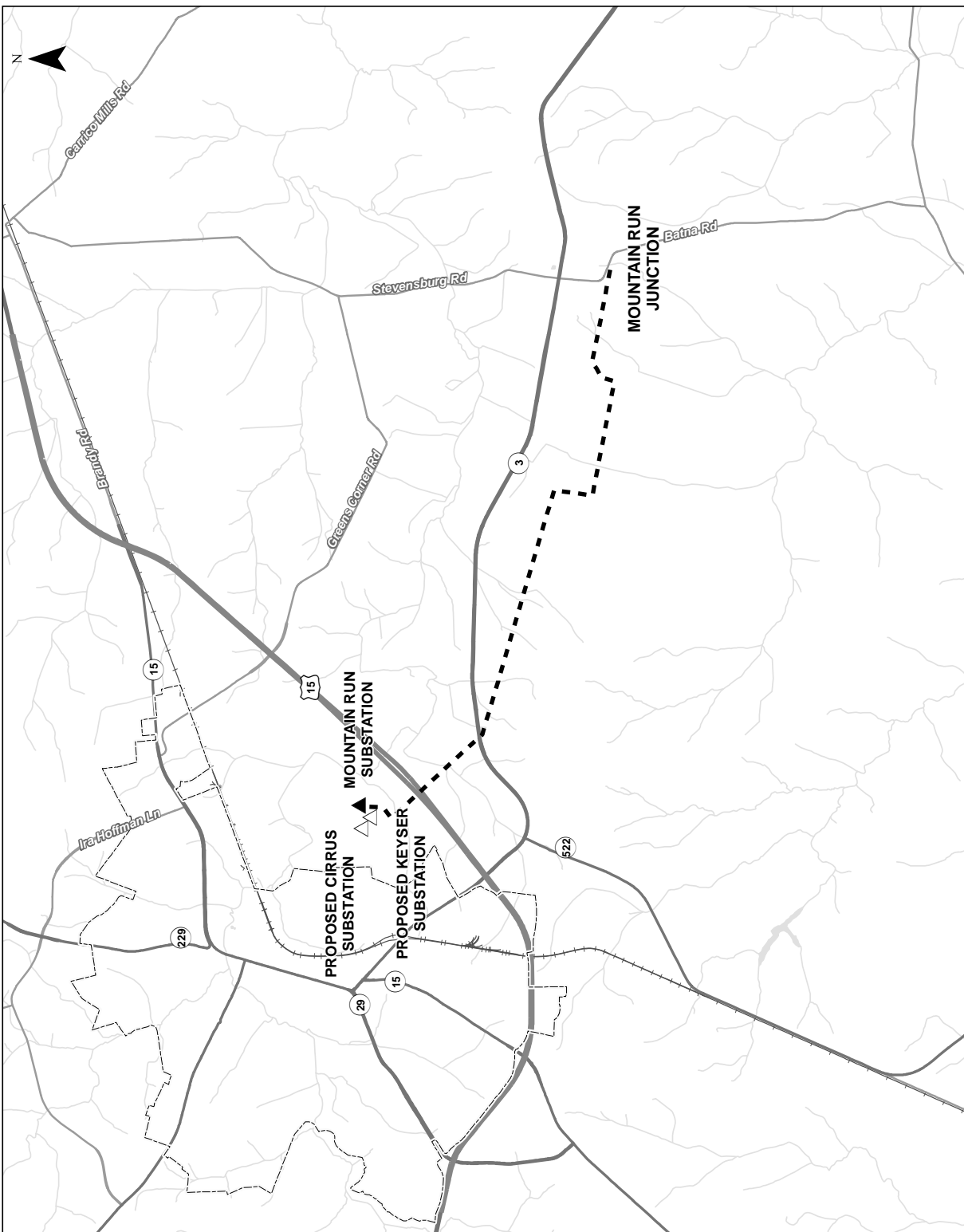
- Project Centerline
 △ Proposed Dominion Substation
 ▲ Existing NOVEC Substation
 — Limited Access Highway
 — US or VA Primary Highway
 — Local or Main Road
 + Railroad
 — NHD Stream/River
 ■ NHD Waterbody
 □ Town of Culpeser

Notes:

1. Basemap from ESRI Topographic Map
2. Project centerline provided by Dominion Energy
3. Roads and railroads from VGIN
4. Streams, rivers and waterbodies from USGS National Hydrography Data



SHEET 1 OF 1





Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219

P.O. Box 1105, Richmond, Virginia 23218

(800) 592-5482 FAX (804) 698-4178

www.deq.virginia.gov

Travis A. Voyles
Acting Secretary of Natural and Historic Resources

Michael S. Rolband, PE, PWD, PWS Emeritus
Director
(804) 698-4020

October 13, 2022

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

RE: Dominion Energy Virginia's Cirrus Keyser 230 kV Loop and Related
Projects in Culpeper County, Virginia

Dear Mr. Shier:

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

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

DOCUMENT SUBMISSIONS

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

ENVIRONMENTAL REVIEW UNDER VIRGINIA CODE 56-46.1

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

Department of Environmental Quality:

- DEQ Regional Office
 - Air Division
 - Office of Wetlands and Stream Protection
 - Office of Local Government Programs
 - Division of Land Protection and Revitalization
 - Office of Stormwater Management
- Department of Conservation and Recreation
Department of Health
Department of Agriculture and Consumer Services
Department of Wildlife Resources
Virginia Marine Resources Commission
Department of Historic Resources
Department of Mines, Minerals, and Energy
Department of Forestry
Department of Transportation

DATA BASE ASSISTANCE

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

- DEQ Online Database: Virginia Environmental Geographic Information Systems

Information on Permitted Solid Waste Management Facilities, Impaired Waters, Petroleum Releases, Registered Petroleum Facilities, Permitted Discharge (Virginia Pollution Discharge Elimination System Permits) Facilities, Resource Conservation and Recovery Act (RCRA) Sites, Water Monitoring Stations, National Wetlands Inventory:

- www.deq.virginia.gov/ConnectWithDEQ/VEGIS.aspx

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

Virginia's coastal resource data and maps; coastal laws and policies; facts on coastal resource values; and direct links to collaborating agencies responsible for current data:

- <http://128.172.160.131/gems2/>

- MARCO Mid-Atlantic Ocean Data Portal

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

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

- DHR Data Sharing System.

Survey records in the DHR inventory:

- www.dhr.virginia.gov/archives/data_sharing_sys.htm
- DCR Natural Heritage Search

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

Information about Virginia's Wildlife resources:
 - <http://vafwis.org/fwis/>
- Total Maximum Daily Loads Approved Reports
 - <https://www.deq.virginia.gov/programs/water/waterqualityinformationtmdls/tmdl/tmdldevelopment/approvedtmdlreports.aspx>
- Virginia Outdoors Foundation: Identify VOF-protected land
 - <http://vof.maps.arcgis.com/home/index.html>
- Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) Database: Superfund Information Systems

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

Information on hazardous waste facilities:
 - www.epa.gov/enviro/facts/rcrainfo/search.html
- Total Maximum Daily Loads Approved Reports
 - <https://www.deq.virginia.gov/programs/water/waterqualityinformationtmdls/tmdl/tmdldevelopment/approvedtmdlreports.aspx>
- EPA Envirofacts Database

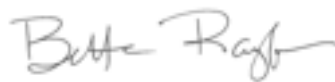
EPA Environmental Information, including EPA-Regulated Facilities and Toxics Release Inventory Reports:
 - www.epa.gov/enviro/index.html
- EPA NEPAassist Database

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

If you have questions about the environmental review process, please feel free to contact me (telephone (804) 659-1915 or e-mail bettina.rayfield@deq.virginia.gov).

I hope this information is helpful to you.

Sincerely,

A handwritten signature in dark ink, appearing to read "Bettina Rayfield". The signature is fluid and cursive, with a long horizontal stroke extending from the end.

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

Christine Conrad

From: Warren, Arlene <arlene.warren@vdh.virginia.gov>
Sent: Thursday, October 20, 2022 11:22 AM
To: Virginia B Gills (Services - 6)
Cc: rr Environmental Impact Review
Subject: [EXTERNAL] Re: NEW SCOPING Cirrus Keyser 230 kV Loop and Related Projects, Culpeper County, Virginia

CAUTION! This message was NOT SENT from DOMINION ENERGY

Are you expecting this message to your DE email? Suspicious? Use PhishAlarm to report the message. Open a browser and type in the name of the trusted website instead of clicking on links. DO NOT click links or open attachments until you verify with the sender using a known-good phone number. Never provide your DE password.

Project Name: NEW SCOPING Cirrus Keyser 230 kV Loop and Related Projects

Project #: N/A

UPC #: N/A

Location: Culpeper County

VDH – Office of Drinking Water has reviewed the above project. Below are our comments as they relate to proximity to **public drinking water sources** (groundwater wells, springs and surface water intakes). Potential impacts to public water distribution systems or sanitary sewage collection systems **must be verified by the local utility.**

The following public groundwater wells are located within a 1 mile radius of the project site:

PWS ID Number	City/County	System Name	Facility Name
6047500	CULPEPER CO	CULPEPER, TOWN OF	NALLES MILL COMPLEX WELL TOC-X1B
6047500	CULPEPER CO	CULPEPER, TOWN OF	NALLES MILL WELL TOC-X1C
6047500	CULPEPER CO	CULPEPER, TOWN OF	TOC-C3 CHANDLER ST COMPLEX WELL 3
6047500	CULPEPER CO	CULPEPER, TOWN OF	TOC-C6 CHANDLER ST COMPLEX WELL 6
6047500	CULPEPER CO	CULPEPER, TOWN OF	TOC-C1 CHANDLER ST COMPLEX WELL 1
6047200	CULPEPER CO	NAVCC-LIBRARY OF CONGRESS PACKARD CAMPUS	WELL 1
6047200	CULPEPER CO	NAVCC-LIBRARY OF CONGRESS PACKARD CAMPUS	WELL 3
6047200	CULPEPER CO	NAVCC-LIBRARY OF CONGRESS PACKARD CAMPUS	WELL 2

The following surface water intakes are located within a 5 mile radius of the project site:

PWS ID Number	System Name	Facility Name
6047500	CULPEPER, TOWN OF	MOUNTAIN RUN-LAKE PELHAM

The project is within the watershed of the following public surface water sources:

PWS ID Number	System Name	Facility Name
6177300	SPOTSYLVANIA COUNTY UTILITIES	RAPPAHANNOCK RIVER INTAKE
6179100	STAFFORD COUNTY UTILITIES	RAPPAHANNOCK RIVER TRANSFER INTAKE

Best Management Practices should be employed, including Erosion & Sedimentation Controls and Spill Prevention Controls & Countermeasures on the project site.

Materials should be managed while on site and during transport to prevent impacts to nearby surface water.

The Virginia Department of Health – Office of Drinking Water appreciates the opportunity to provide comments. If you have any questions, please let me know.

Best Regards,

Arlene F. Warren
GIS Program Support Technician
Virginia Department of Health, Office of Drinking Water
109 Governor Street, 6th Floor
Richmond, VA 23219
804-356-6658 (office/cell/text)

On Thu, Oct 13, 2022 at 4:17 PM Fulcher, Valerie <valerie.fulcher@deq.virginia.gov> wrote:

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

Dominion Energy Virginia's Proposed Cirrus Keyser 230 kV Loop and Related Projects in Culpeper County, Virginia

If you choose to make comments, please send them directly to the project sponsor (virginia.b.gills@dominionenergy.com) and copy the DEQ Office of Environmental Impact Review: eir@deq.virginia.gov. We will coordinate a review when the environmental document is completed.

DEQ-OEIR's scoping response and Shapefiles for the project are also attached.

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

Valerie

--

Valerie A. Fulcher, CAP, OM, Admin/Data Coordinator Senior

Department of Environmental Quality

Environmental Enhancement - Office of Environmental Impact Review

1111 East Main Street

Richmond, VA 23219

NEW PHONE NUMBER: 804-659-1550

Email: Valerie.Fulcher@deq.virginia.gov

<https://www.deq.virginia.gov/permits-regulations/environmental-impact-review>

OUR ENFORCEABLE POLICIES HAVE BEEN UPDATED FOR 2021: <https://www.deq.virginia.gov/permits-regulations/environmental-impact-review/federal-consistency>

For program updates and public notices please subscribe to Constant
Contact: <https://lp.constantcontact.com/su/MVcCump/EIR>



August 10, 2022

Ref: 39441.00

Regulator of the Day
U.S. Army Corps of Engineers
Regulatory Branch
803 Front Street
Norfolk, VA 23510

**Re: Request for Preliminary Jurisdictional Determination
Cirrus – Keyser 230 kV Loop and Related Projects, Culpeper County, VA**

Dear ROD,

On behalf of Dominion Energy Virginia (Client), Vanasse Hangen Brustlin, Inc. (VHB) is requesting a Preliminary Jurisdictional Determination (PJD) for an approximate 6-mile electric transmission line right-of-way (ROW) project located in Culpeper County, Virginia, identified as the Cirrus – Keyser 230 kV Loop and Related Projects. This PJD request letter provides the information required by the United States Army Corps of Engineers (USACE) to verify the boundaries of potential Waters of the United States, including wetlands (WOTUS) within the 6-mile project area. Attachments to this letter include project area mapping (Attachment 1), Wetland Determination Data Forms (Attachment 2), Antecedent Precipitation Tool Data (Attachment 3), a USACE Jurisdictional Waters Determination Request Form (Attachment 4), Wetland Delineation Report Site Summary Form (Attachment 5), the Norfolk District Pre-application and Jurisdictional Determination Checklist (Attachment 6), and representative site photographs (Attachment 7). This package will also be accompanied by a separate excel version of the OMBIL Regulatory Module.

Methodology: The WOTUS delineation to support this PJD request was conducted by VHB scientists Phillip Bailey and Dakota Hunter. The WOTUS field investigation was performed July 18 - 20, 2022. Prior to the onsite investigation, offsite research was conducted using the following sources:

- Natural Resources Conservation Service (NRCS) Web Soil Survey
- U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Mapper
- U.S. Geological Survey (USGS) Quadrangle Map for Culpeper East, Virginia

Engineers | Scientists | Planners | Designers

351 McLaws Circle

Suite 3

Williamsburg, Virginia 23185

P 757.220.0500

F 757.903.2794

Regulator of the Day
Ref: 39441.00
August 10, 2022
Page 2



Datasets and mapping were downloaded from each of these sources and overlaid onto project area mapping. Layers were processed using ESRI's ArcMap 10.6.1 and included as base maps for mobile data collection using ESRI's ArcGIS Field Maps.

VHB applied the technical criteria outlined in 1987 *Corps of Engineers Wetland Delineation Manual* and the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* to complete the WOTUS delineation. The boundaries of potentially jurisdictional WOTUS were demarcated using individual pink flags with the label "WETLAND DELINEATION" and geo-located using Global Navigation Satellite System (GNSS) receivers capable of sub-meter accuracy (Attachment 1, Figure 4). Field data was collected to describe hydrology, soil, and vegetation parameters using data sampling points and then transcribed to a USACE Wetland Determination Data Form (Attachment 2). Vegetation data was recorded on data forms based on the USACE 2020 *National Wetland Plant List*.

Potentially jurisdictional features were identified and mapped using the 1979 Cowardin et al. WETLANDS AND DEEPWATER HABITATS CLASSIFICATION system: freshwater forested wetlands (PFO), freshwater scrub-shrub (PSS) wetlands, freshwater emergent (PEM) wetlands, perennial (R3) stream channel, intermittent (R4) stream channel, and fresh open water/unconsolidated bottom (PUB). Stream channels that convey flow in direct response to precipitation are identified as ephemeral (EPH).

Streams were identified by VHB using the definition of ordinary high-water mark (OHWM) provided in USACE Regulatory Guidance Letter (RGL) No. 05-05, dated December 7, 2005. The term *ordinary high water mark* refers to that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas formed by physical characteristics such as defined bed/bank conditions and sorting of streambed substrate materials.

Site Description: The 75-acre project area extends from west to east and continuing for approximately 6 miles (see Project Location Map in Attachment 1). This project starts at the substation located on the western side of James Madison Highway in Culpeper, Virginia, moving east until it connects with another transmission line outside of Stevensburg, Virginia. Most of this project goes through active livestock fields and agricultural lands. The USGS Quadrangle for Ladysmith, Virginia shows site elevations ranging from 300-500 feet above mean sea level. There are no USGS named streams located within the project area, but several unnamed streams that drain into Mountain Run. According to NRCS soil mapping, there are 13 soil map units within the project area and can be found in Attachment 1, Figure 2. NRCS soil map units include:

- 9A - Clover-Penn complex, 0-2% slopes

Regulator of the Day
Ref: 39441.00
August 10, 2022
Page 3



- 9B - Clover-Penn complex, 2-7% slopes
- 11B - Codorus and Meadowville soils, 2-7% slopes, occasionally flooded
- 16A - Dulles-Nestoria complex, 0-2% slopes
- 20A - Elbert silt loam, 0-2% slopes, occasionally ponded
- 43B - Ott-Kelly complex, 2-7% slopes
- 45B - Penn-Nestoria complex, 2-7% slopes
- 45C - Penn-Nestoria complex, 7-15% slopes
- 46 - Pits, quarry
- 47B - Rapidan silty clay loam, 2-7% slopes
- 48C - Rapidan-Penn complex, 7-15% slopes, rocky
- 51A - Sycoline-Kelly complex, 0-2% slopes
- 52 - Udorthents, smoothed-Urban land, 0-7% slopes

NWI features include freshwater ponds (PuBhh), riverine (R5UBH, R4SBA, R4SBC, R4SBCx, R2UBH), freshwater wetland (PFO1C, PFO1A, PFO4C, PFO1/4A, PEM1B, PEM1C) within the project area (Attachment 1, Figure 3).

Delineation Results: The delineation conducted by VHB determined that WOTUS may be present within the approximate 75-acre project area. Based on VHB's investigation, potentially jurisdictional WOTUS include approximately 8.7 acres of PEM, 0.15 acres of PFO, 887 linear feet (LF) of R3 stream channel, 704 LF of R4 stream channel, 546 LF of EPH stream channel, and 350 LF of jurisdictional ditch (Attachment 1, Figure 4). Data summarizing potentially jurisdictional features identified by VHB are provided in the OBMIL Regulator Module (ORM) as a separate attachment.

All wetlands were observed with positive indicators of wetland hydrology, hydric soil, and hydrophytic vegetation. Indicators of wetland hydrology included: primary indicators A1 (Surface Water), A2 (High Water Table), A3 (Saturation), B2 (Sediment Deposits), B4 (Algal Mat), and C3 (Oxidized Rhizospheres on Living Roots); and secondary indicators D2 (Geomorphic Position), D3 (Shallow Aquitard), and D5 (FAC-Neutral Test). Wetland soils were identified as meeting Hydric Soil Indicators F3 (Reduced Matrix), F6 (Redox Dark Surface), F8 (Redox Depressions), and F21 (Red Parent Material). Vegetation in wetlands was dominated by species with a facultative (FAC), facultative-wet (FACW), or obligate wetland (OBL) indicator status, and met either Hydrophytic Vegetation Indicator 1 (Rapid Test) or Hydrophytic Vegetation Indicator 2 (Dominance Test). In most cases, where Vegetation Indicators 1 or 2 were met, Vegetation Indicator 3 (Prevalence Index) was also met. Data forms for each data point used to document onsite conditions are provided in Attachment 2.

Summary: The results of the WOTUS delineation conducted by VHB on the Cirrus – Keyser 230 kV Loop and Related Projects shows that potentially jurisdictional aquatic resources may be present in the 75-acre project area. As the authorized agent acting on behalf of Dominion

Regulator of the Day
Ref: 39441.00
August 10, 2022
Page 4



Energy Virginia and C2 Environmental Inc., VHB would like the USACE to review the information provided in this letter (including attachments) for the purpose of providing a PJD for the project. If a field visit is required to verify the results of the onsite investigation, a VHB scientist can attend a site visit with the USACE as soon as possible. Should additional information be required please contact me at (757) 279 2878, or via email at PBailey@vhb.com.

Sincerely,

Vanasse Hangen Brustlin, Inc.

A handwritten signature in black ink, appearing to read "Phillip Bailey", written over a horizontal line.

Phillip Bailey

Environmental Scientist

PBailey@vhb.com

CC: Christine F. Conrad, PhD., Principal/Owner - C2 Environmental, Inc.
Jennifer B. Johnson, Senior Project Manager - C2 Environmental, Inc.

Attachment 1 – Project Area Figures

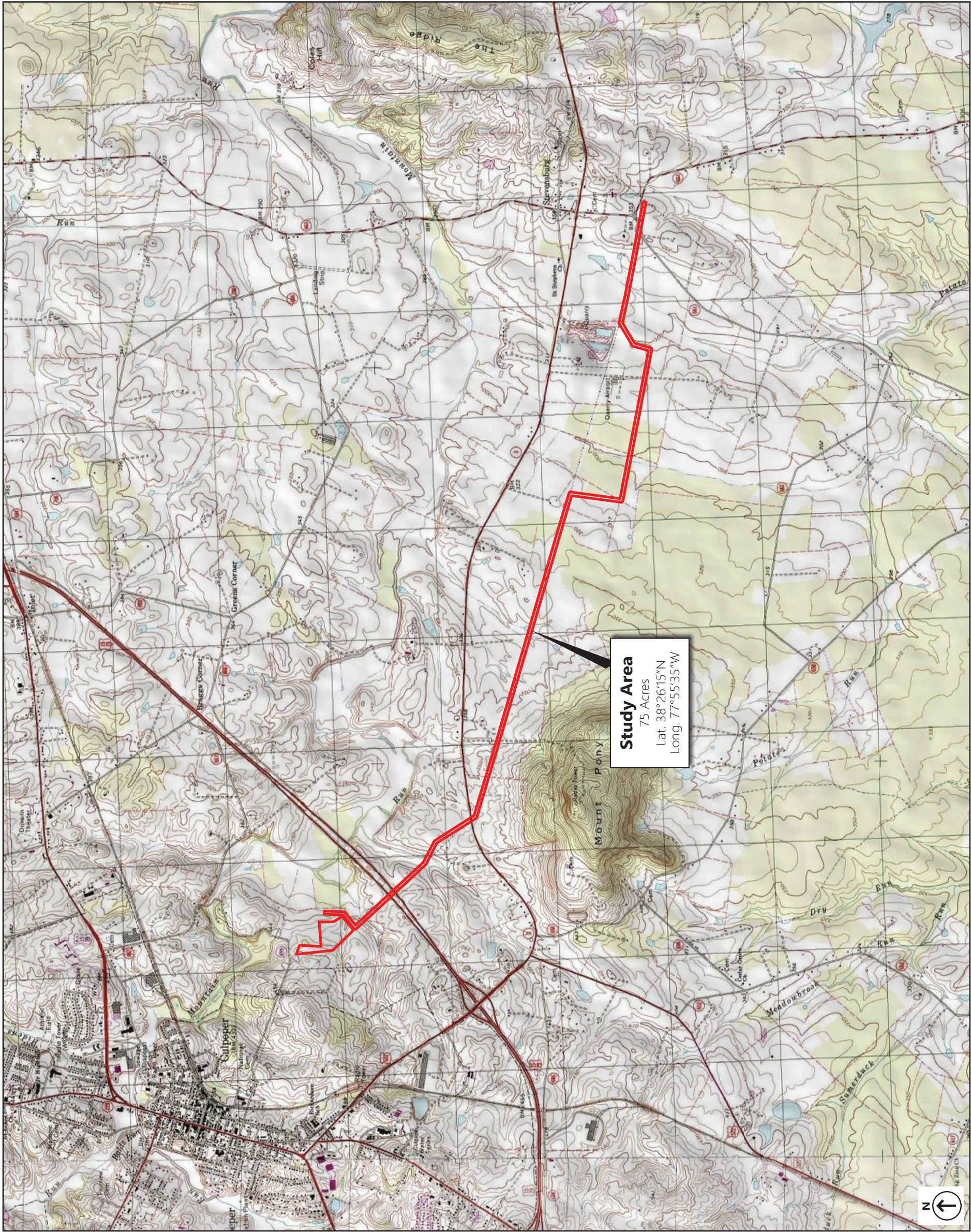


FIGURE 1.
Project Location Map
Cirrus – Keyser 230 kV Loop and
Related Projects
Culpeper County, Virginia

Client:
Dominion Energy Virginia

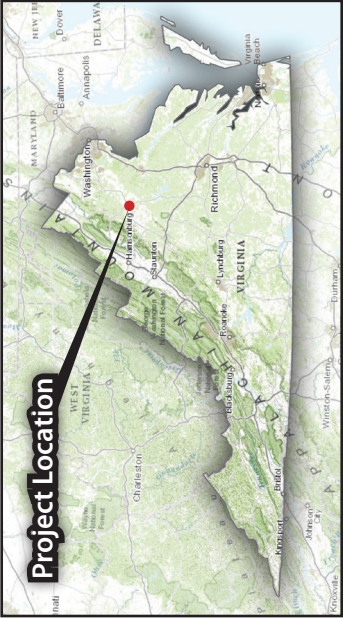
Prepared By:
MKB

Date:
10/03/2022

0 1,500 3,000 Feet
Scale is 1 in = 3,000 Feet when printed at original size of 11x17

SITE DATA
 Project Area (75 Ac)

- Notes:
1. Basemap Source: USGS 15 min Quadrangles Covering 7.5 min Culpeper East, Virginia Quadrangles
 2. Inset Map Source: National Geographic, Esri, Garmin, HERE, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, increment P Corp.



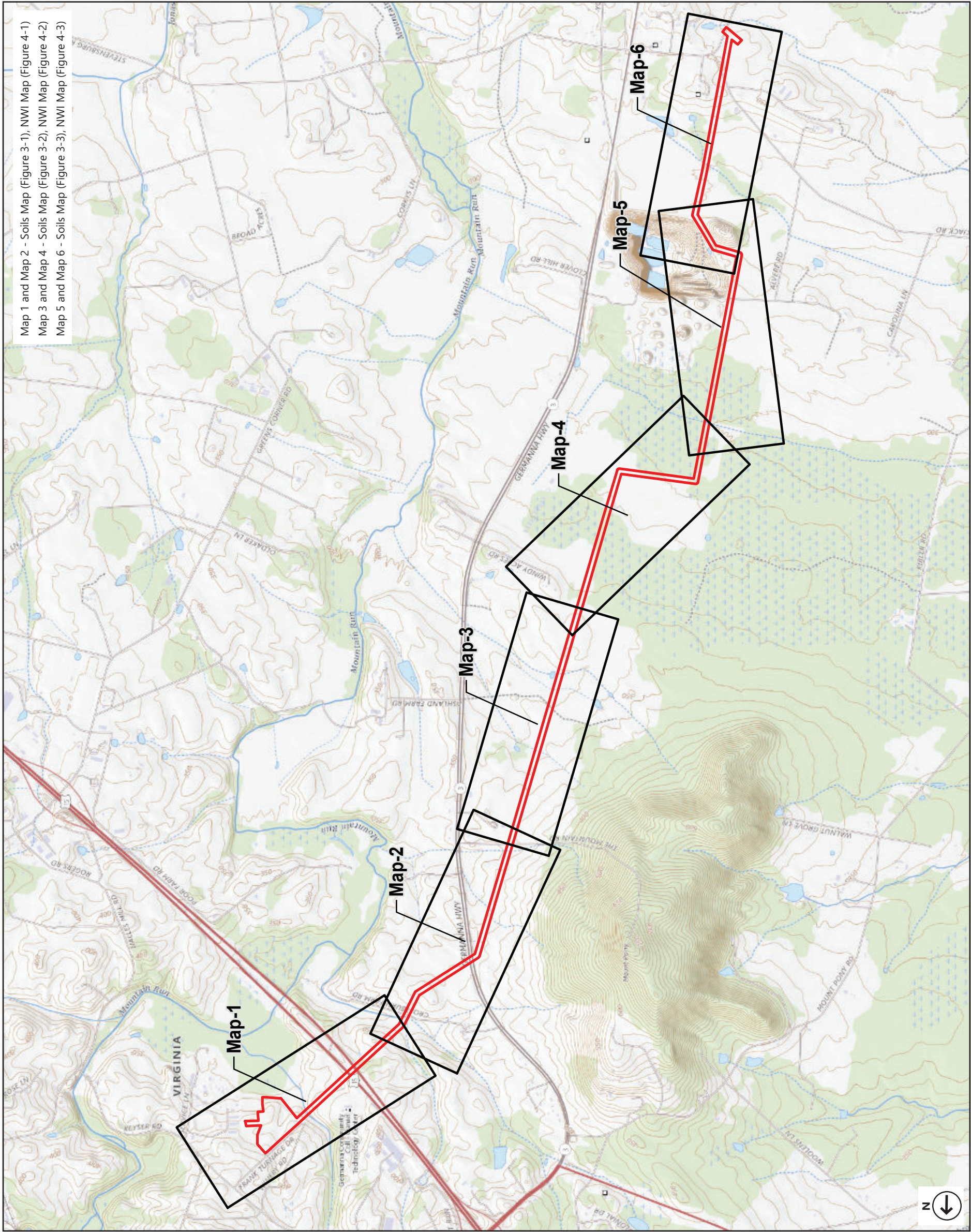


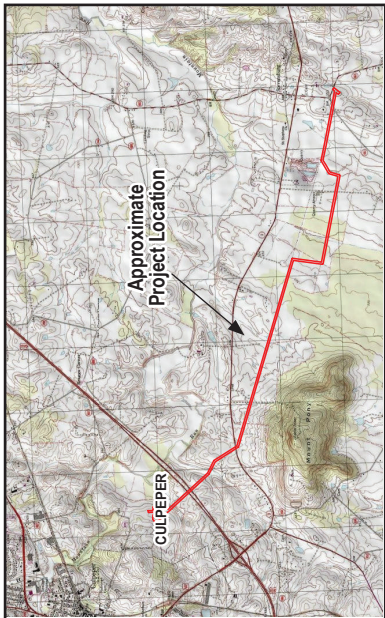
FIGURE 2.
Index Map for Soils and NWI Sheets
Cirrus – Keyser 230 kV Loop and Related Projects
Culpeper County, Virginia

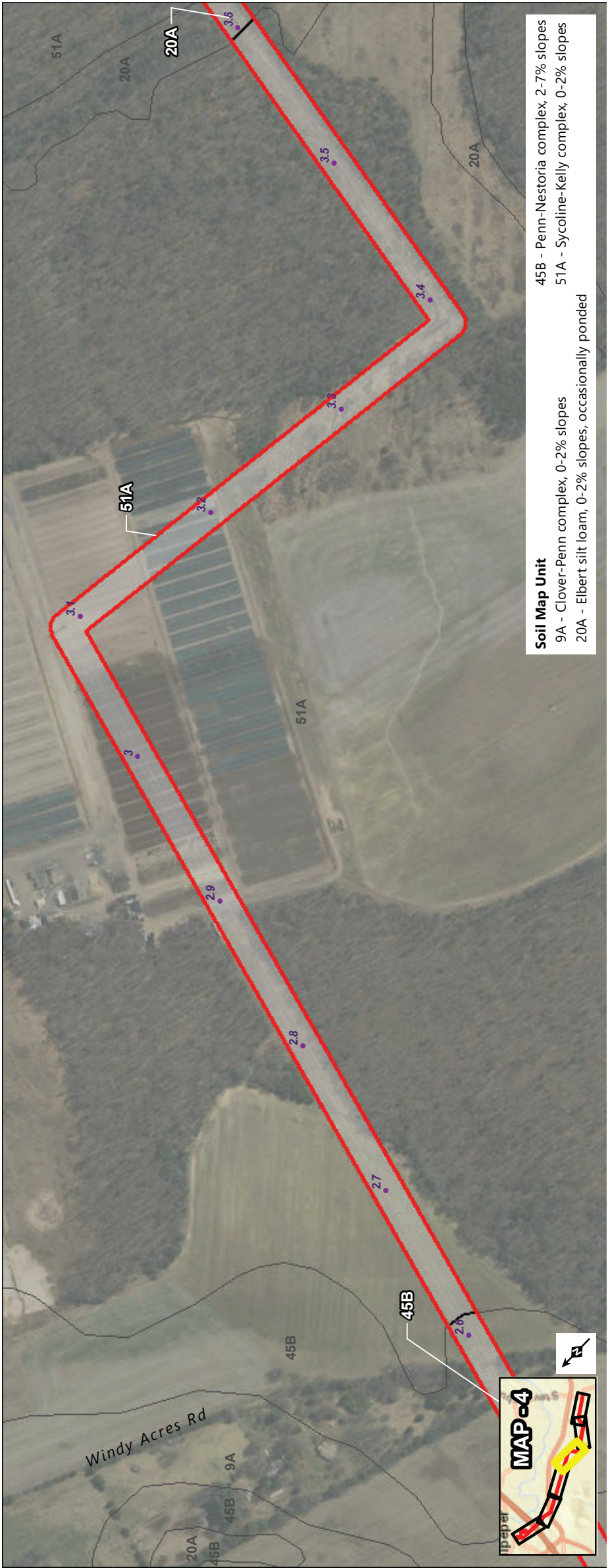
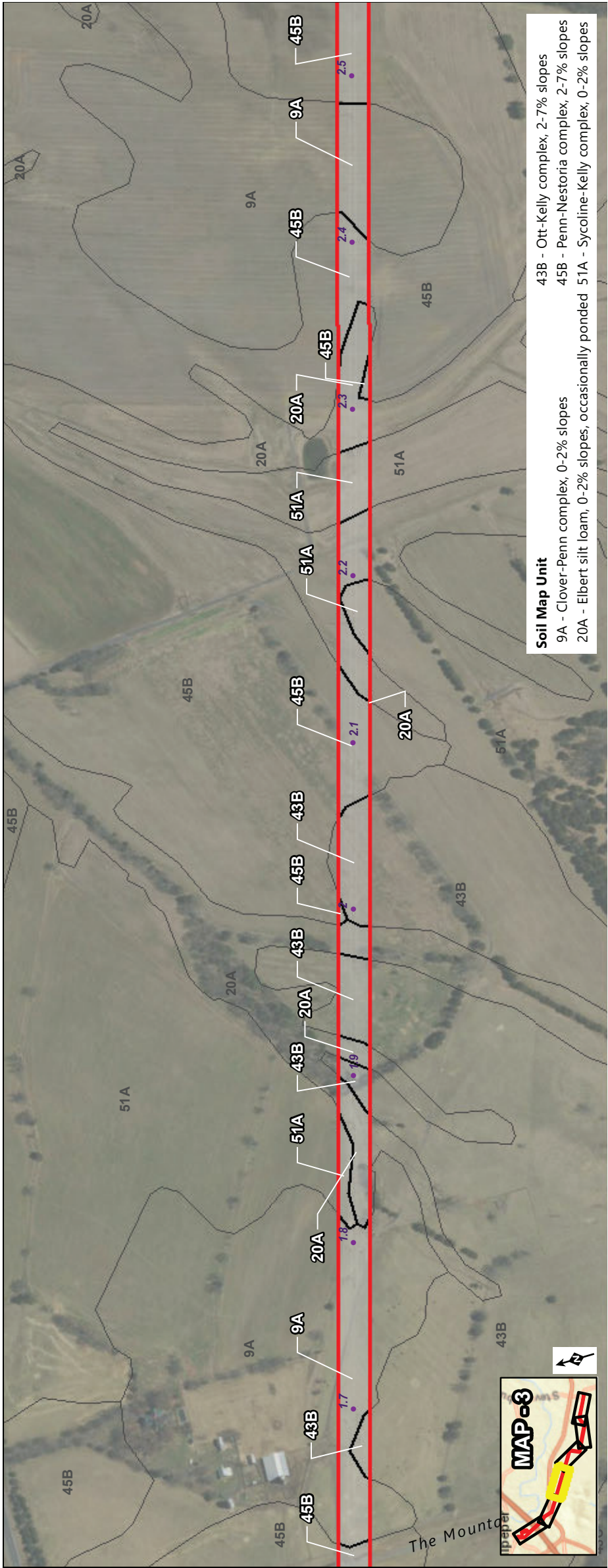
Client: Dominion Energy Virginia
Prepared By: MKB
Date: 10/03/2022

0 2,000 Feet
Scale is 1 in = 2,000 Feet when printed at original size of 11x17

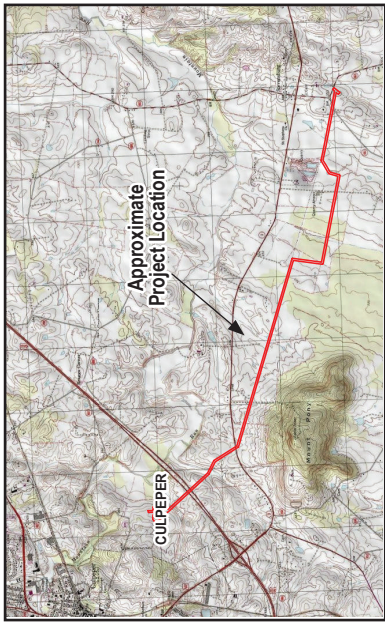
SITE DATA
 Project Area (75 Ac)

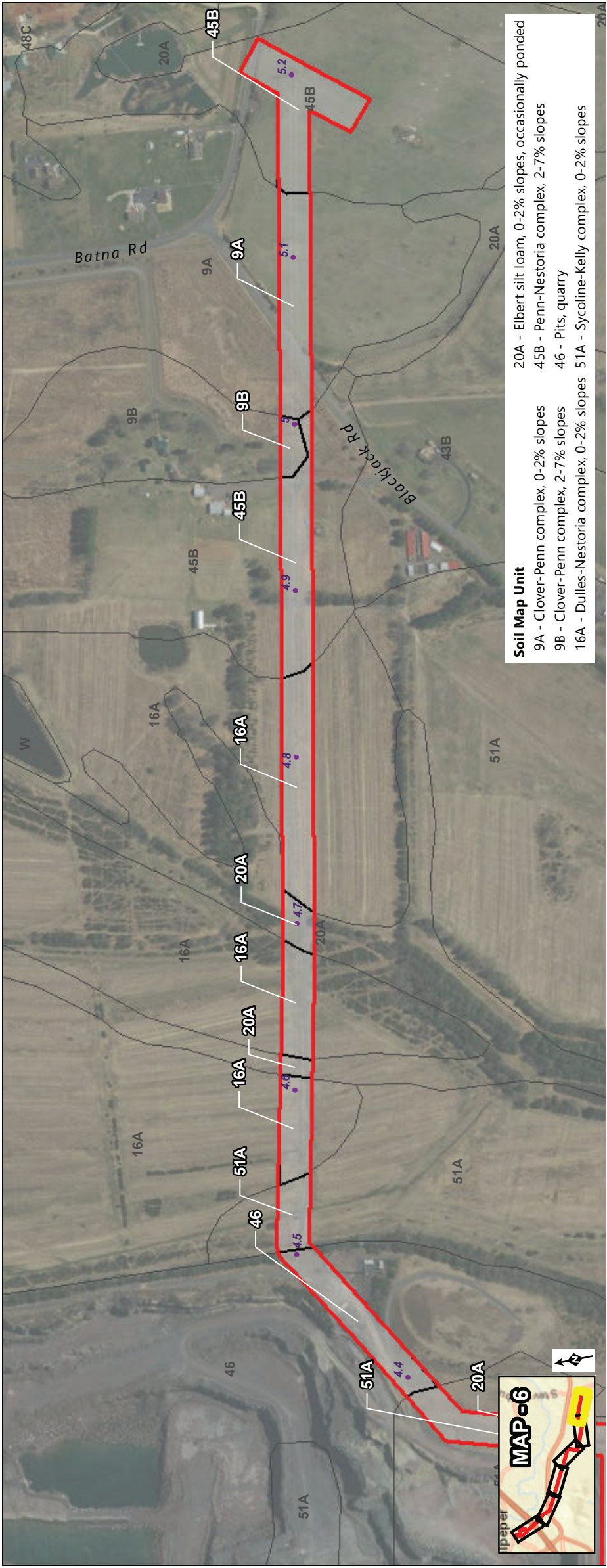
Notes:
1. Source: USGS The National Map





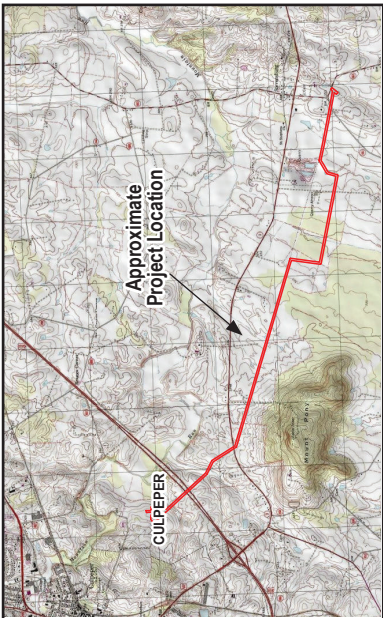
Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
2. NRCS/USDA Soil Survey for Culpeper County, Virginia
3. Inset Map Source: USGS The National Map





Notes:

1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
2. NRCS/USDA Soil Survey for Culpeper County, Virginia
3. Inset Map Source: USGS The National Map



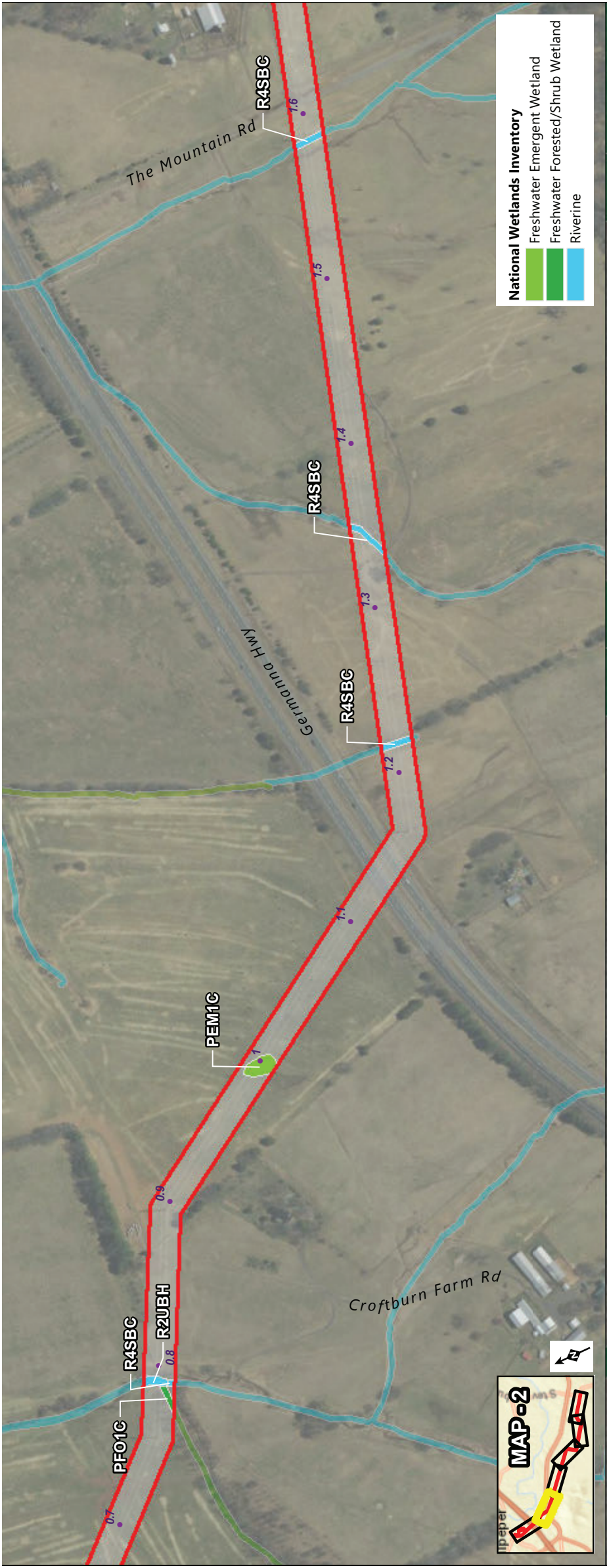
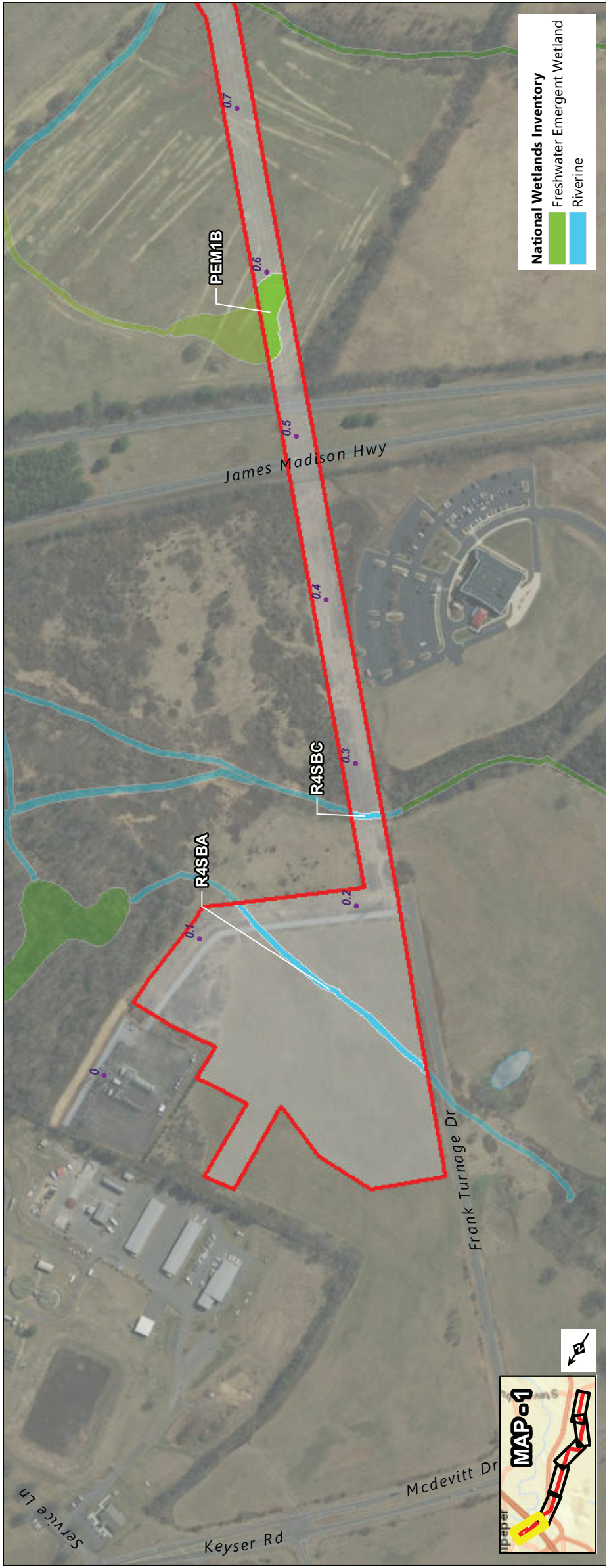


FIGURE 3.

National Wetlands Inventory Map

Cirrus – Keyser 230 kV Loop and Related Projects

Culpeper County, Virginia

Client: Dominion Energy Virginia

Prepared By: MKB

Date: 10/03/2022

0 200 400 Feet

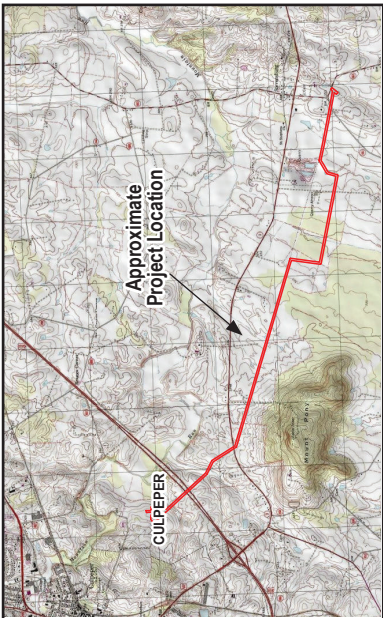
Scale is 1 in = 400 FT when printed at original size of 11x17

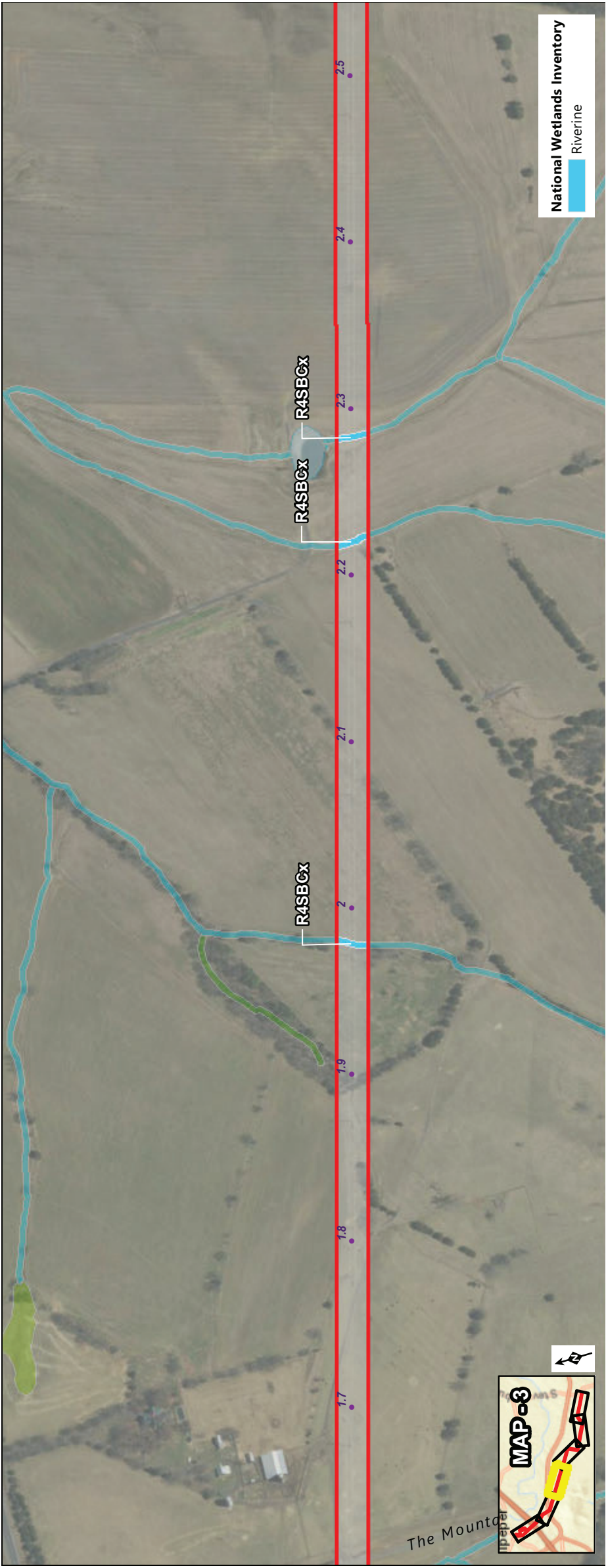
SITE DATA

Project Area (75 Ac)

Milepost

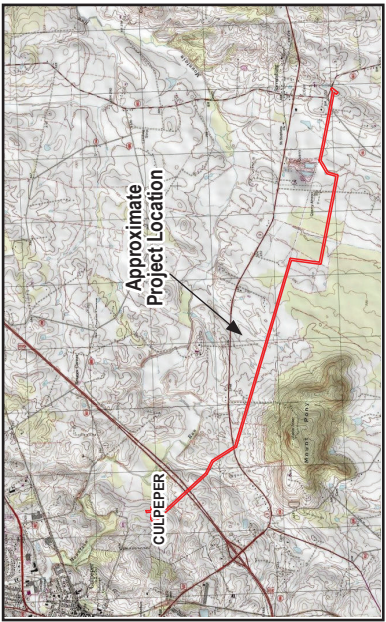
- Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthomagery
 2. USFWS National Wetlands Inventory Data for Virginia
 3. Inset Map Source: USGS The National Map

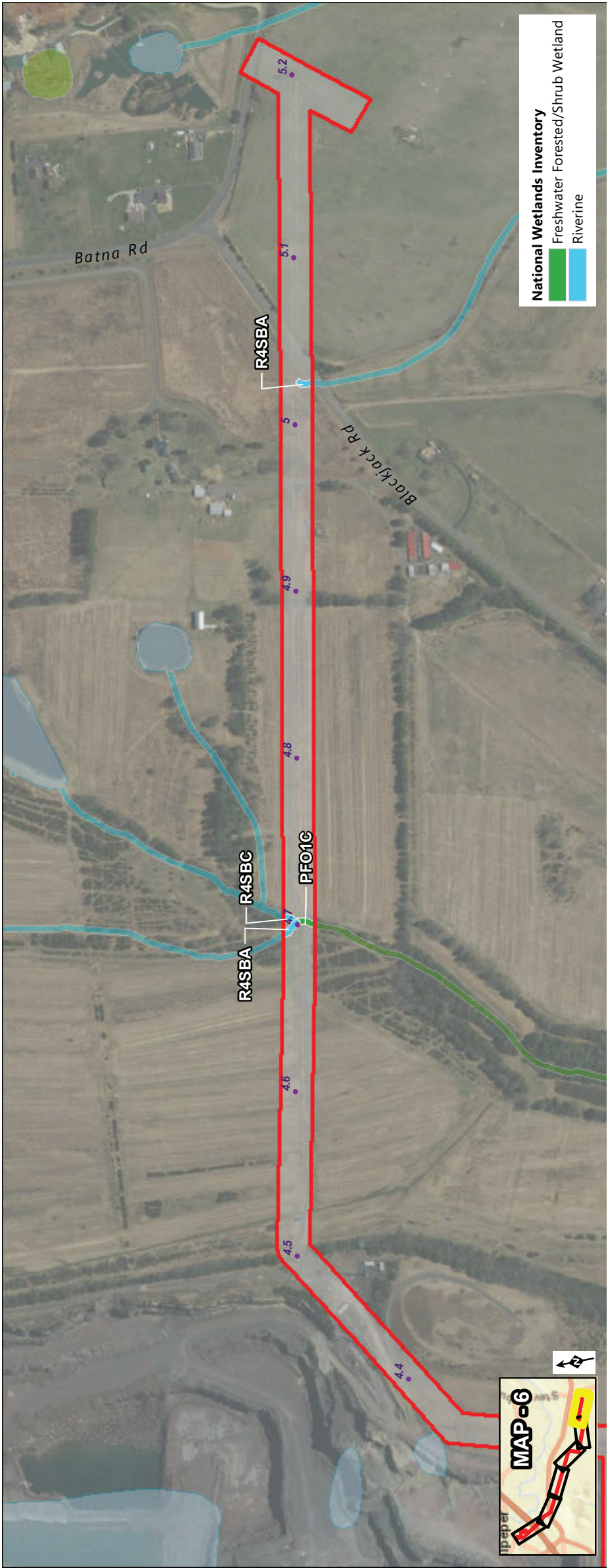




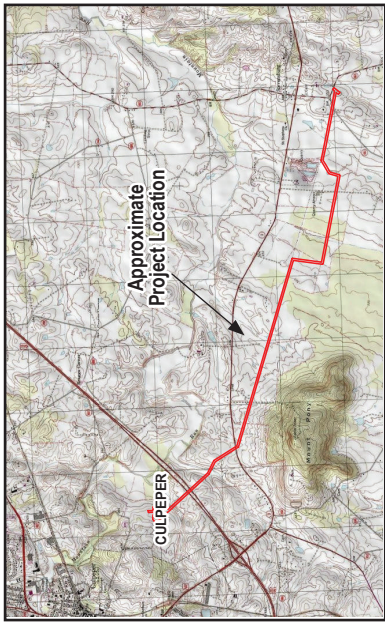
Notes:

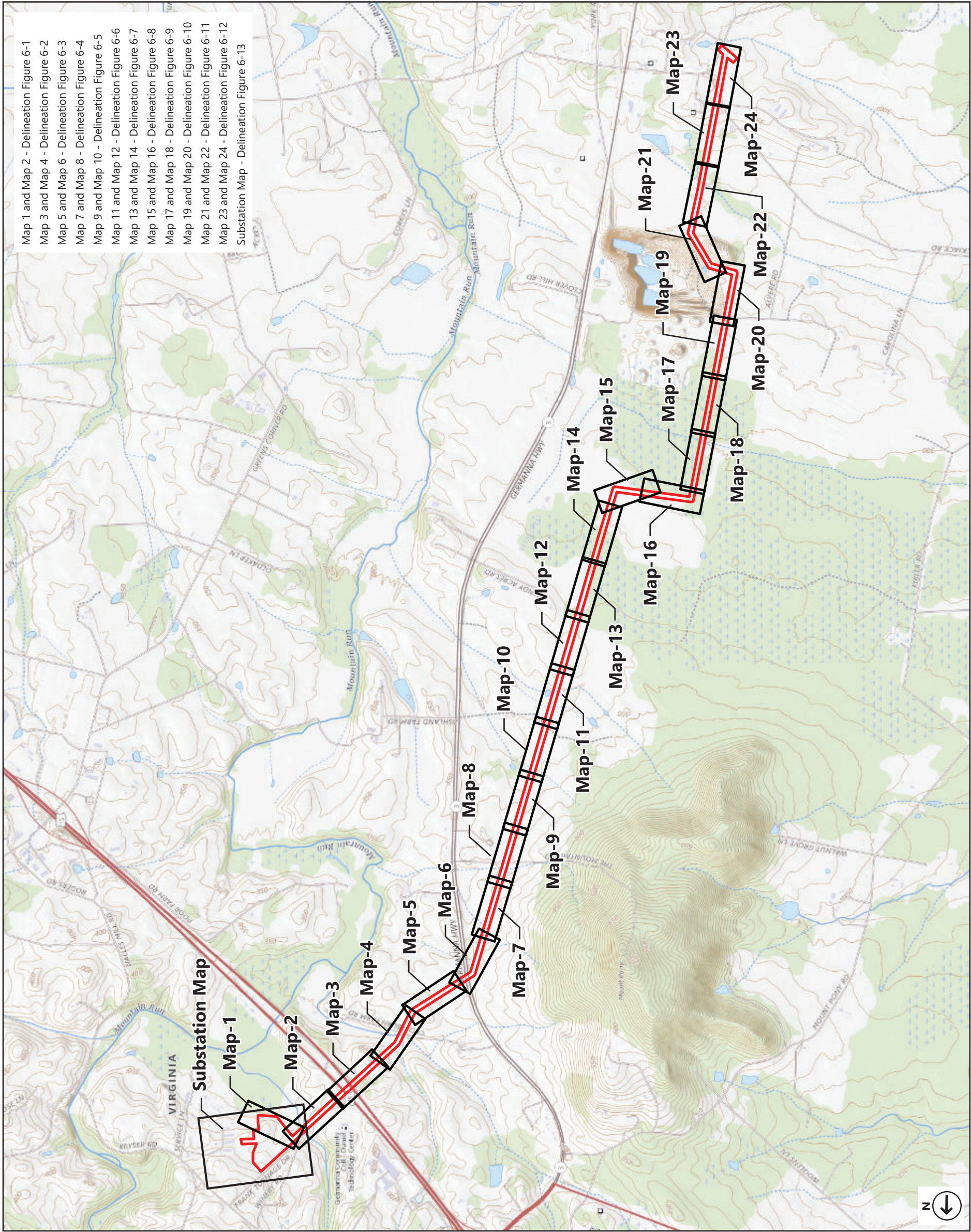
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
2. USFWS National Wetlands Inventory Data for Virginia
3. Inset Map Source: USGS The National Map





Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
2. USFWS National Wetlands Inventory Data for Virginia
3. Inset Map Source: USGS The National Map





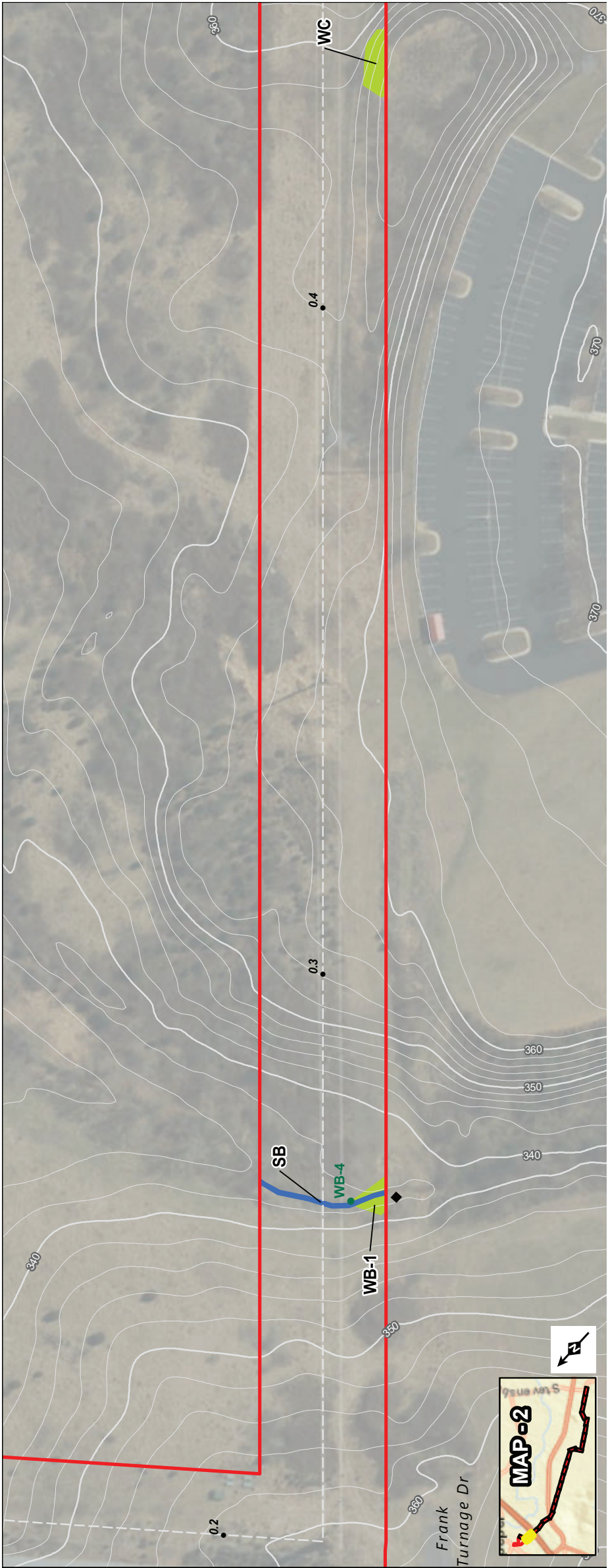
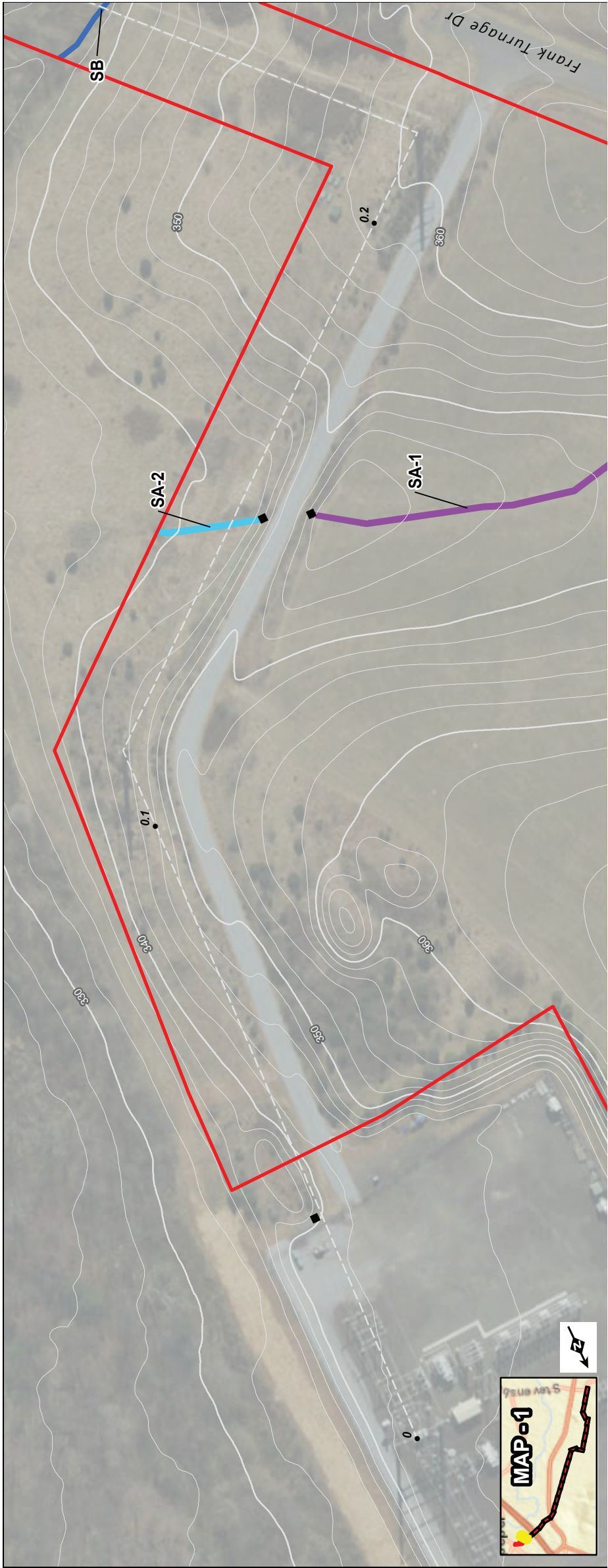


FIGURE 6-1.
Waters of the U.S., including Wetlands
Delineation Map
Cirrus – Keyser 230 kV Loop and
Related Projects
Culpeper County, Virginia

Client:
Dominion Energy Virginia

Prepared By:
MKB

Date:
10/03/2022

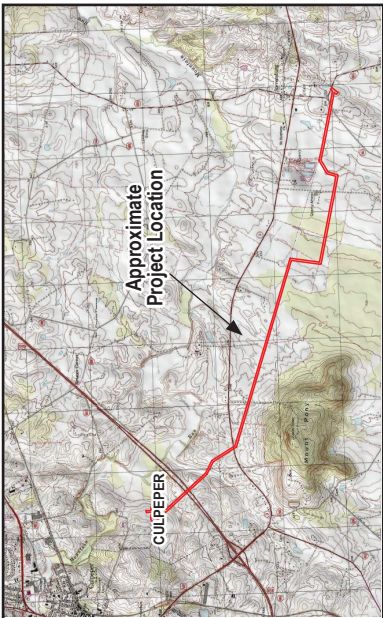


SITE DATA

- Study Area (75 Ac)
- Milepost
- Palustrine Emergent (PEM) Wetland (8.70 Ac)
- Palustrine Forested (PFO) Wetland (0.15 Ac)
- Perennial Stream Channel (887 LF)
- Intermittent Stream Channel (704 LF)
- Ephemeral Stream Channel (546 LF)
- Jurisdictional Ditch (JD) (350 LF)
- Non-Jurisdictional Ditch (NJD) (494 LF)

- Flag Identifier
- Data Point
- Contour Data (2')
- Culvert

- Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
 2. Inset Map Source: USGS The National Map



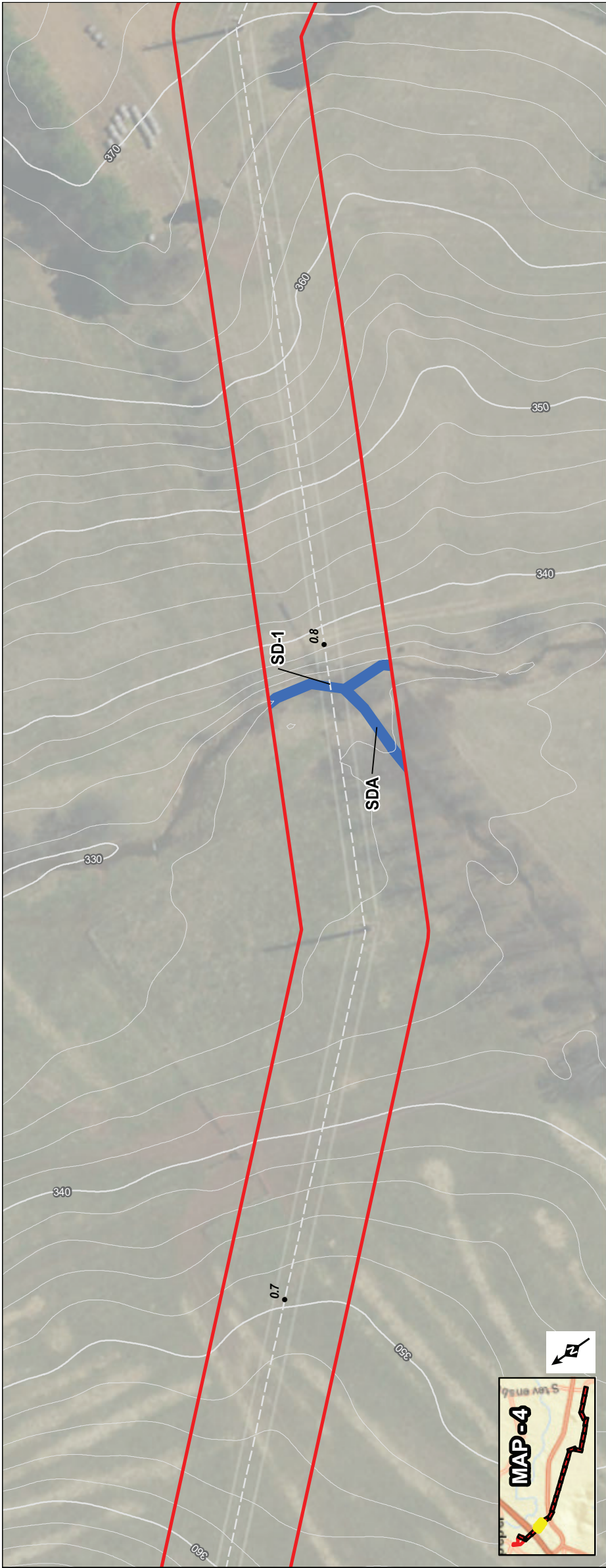
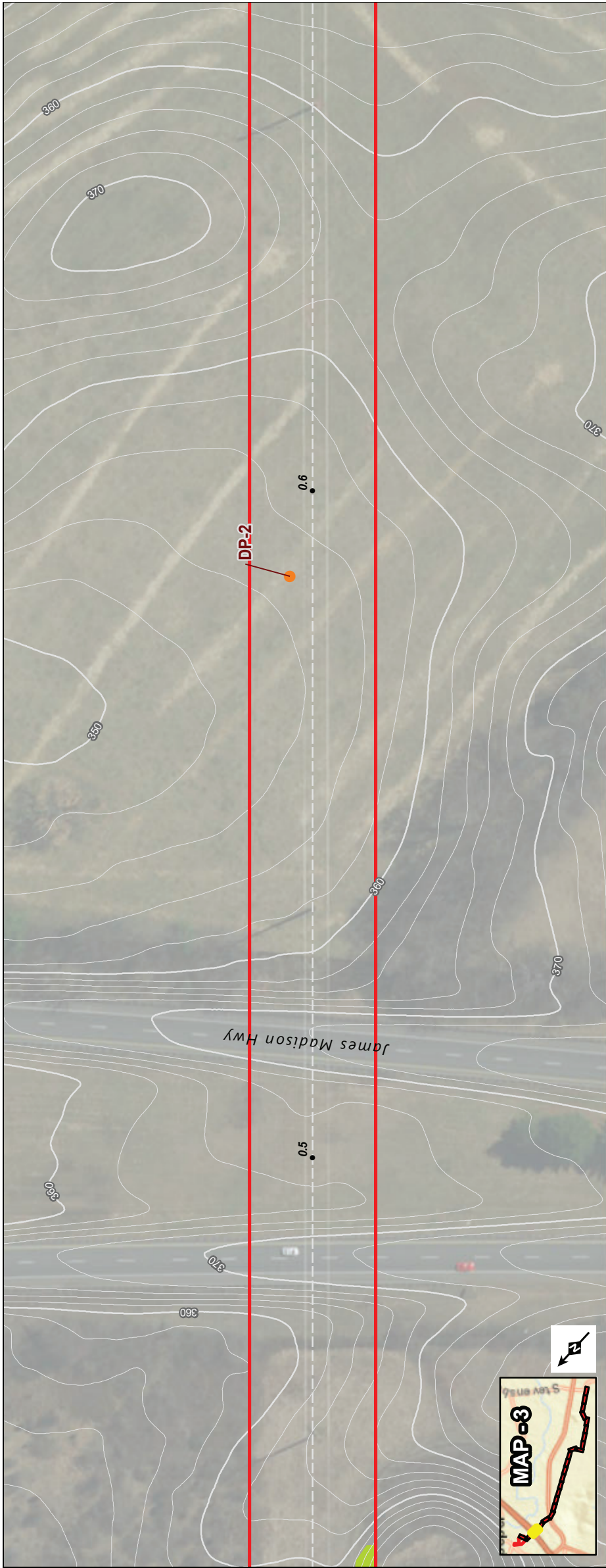


FIGURE 6-2.
Waters of the U.S., including Wetlands
Delineation Map

Cirrus – Keyser 230 kV Loop and
Related Projects
Culpeper County, Virginia

Client:
Dominion Energy Virginia

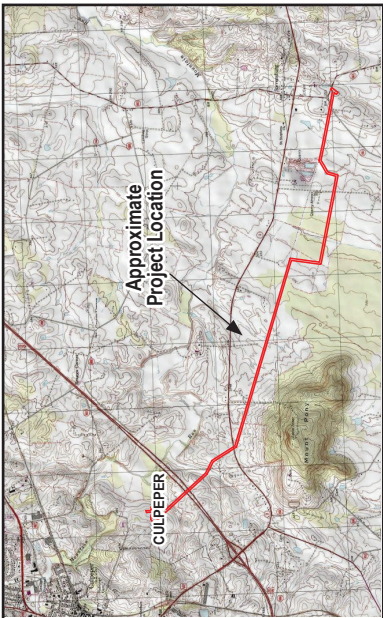
Prepared By:
MKB

Date:
10/03/2022



- SITE DATA**
- Study Area (75 Ac)
 - Milepost
 - Palustrine Emergent (PEM) Wetland (8.70 Ac)
 - Palustrine Forested (PFO) Wetland (0.15 Ac)
 - Perennial Stream Channel (887 LF)
 - Intermittent Stream Channel (704 LF)
 - Ephemeral Stream Channel (546 LF)
 - Jurisdictional Ditch (JD) (350 LF)
 - Non-Jurisdictional Ditch (NJD) (494 LF)
 - Flag Identifier
 - Data Point
 - Contour Data (2')
 - Culvert

Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
2. Inset Map Source: USGS The National Map



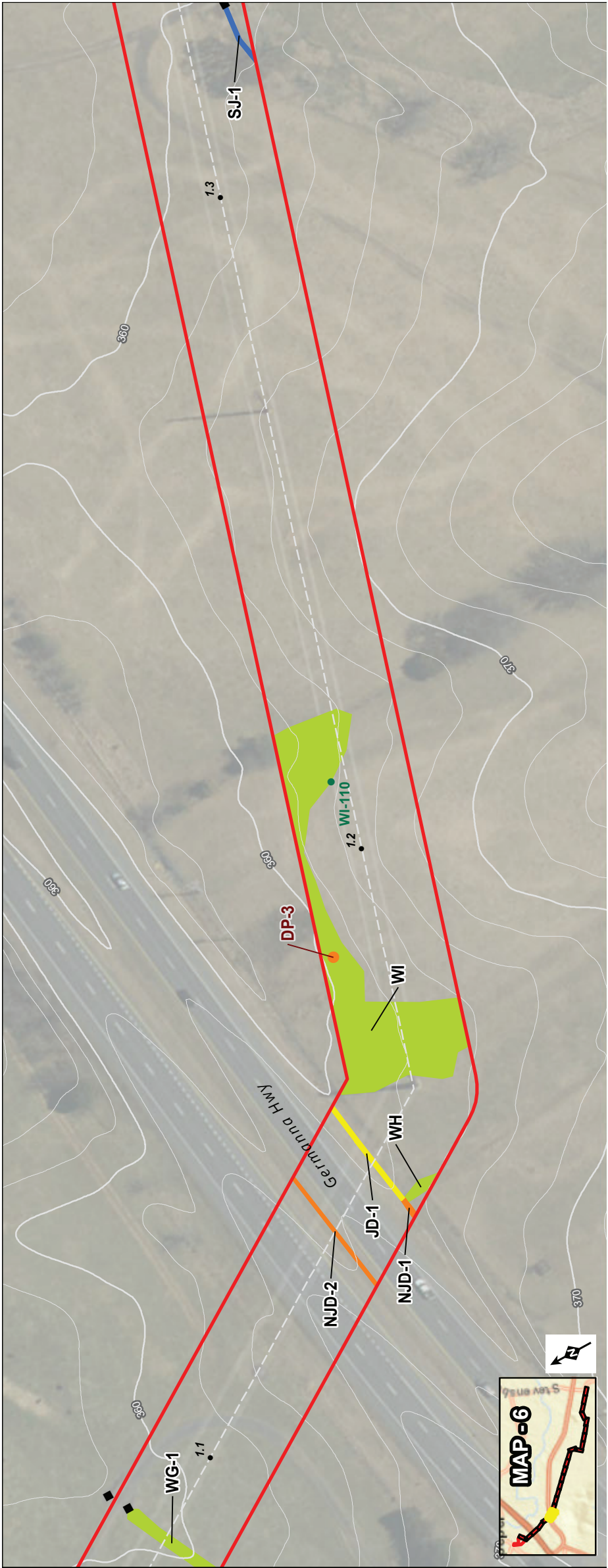
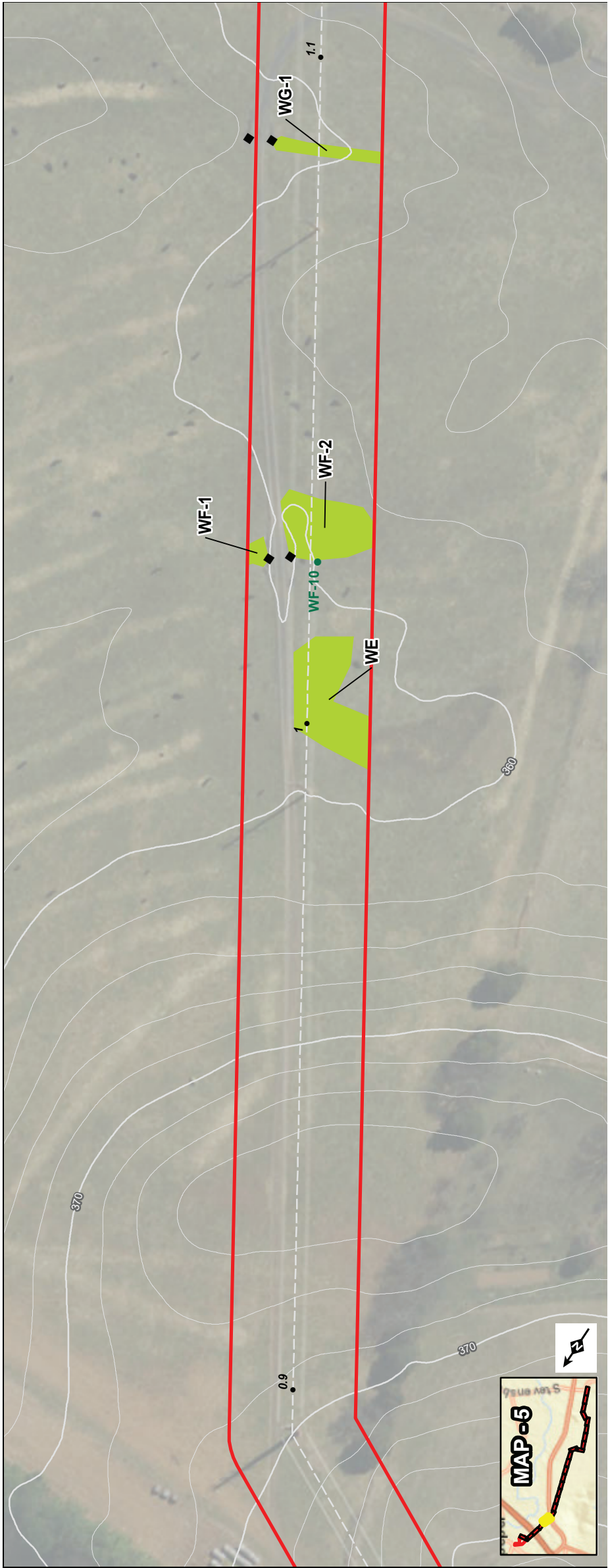


FIGURE 6-3.
Waters of the U.S., including Wetlands
Delineation Map

**Cirrus – Keyser 230 kV Loop and
Related Projects**
Culpeper County, Virginia

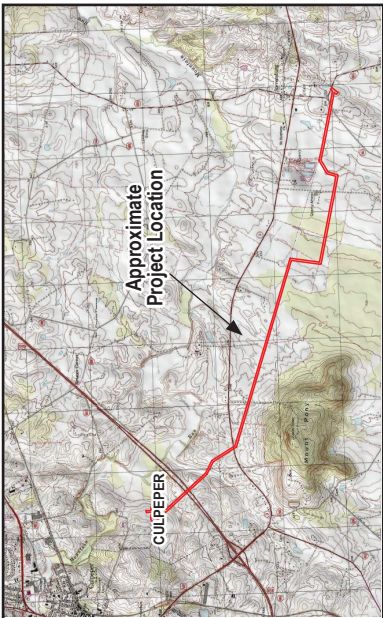
Client:	Dominion Energy Virginia
Prepared By:	MKB
Date:	10/03/2022



SITE DATA

- Study Area (75 Ac)
- Milepost
- Palustrine Emergent (PEM) Wetland (8.70 Ac)
- Palustrine Forested (PFO) Wetland (0.15 Ac)
- Perennial Stream Channel (887 LF)
- Intermittent Stream Channel (704 LF)
- Ephemeral Stream Channel (546 LF)
- Jurisdictional Ditch (JD) (350 LF)
- Non-Jurisdictional Ditch (NJD) (494 LF)
- Flag Identifier
- Data Point
- Contour Data (2')
- Culvert

- Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
 2. Inset Map Source: USGS The National Map



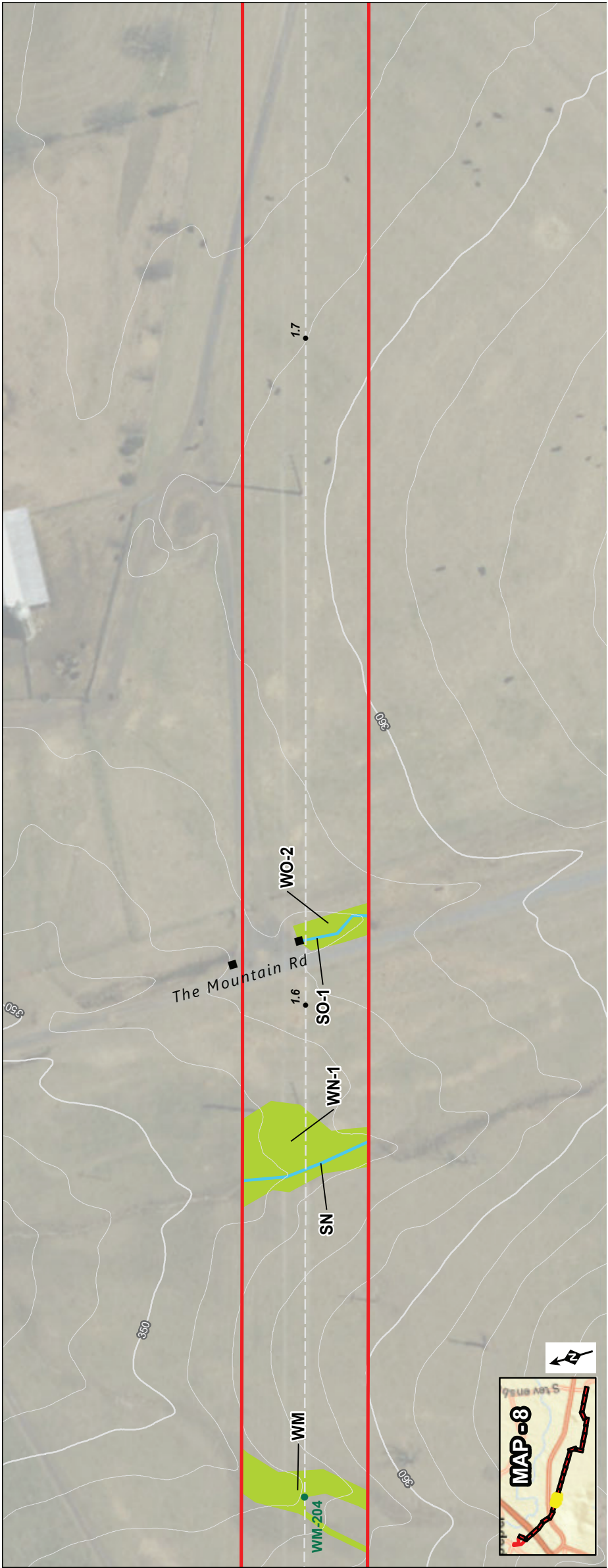
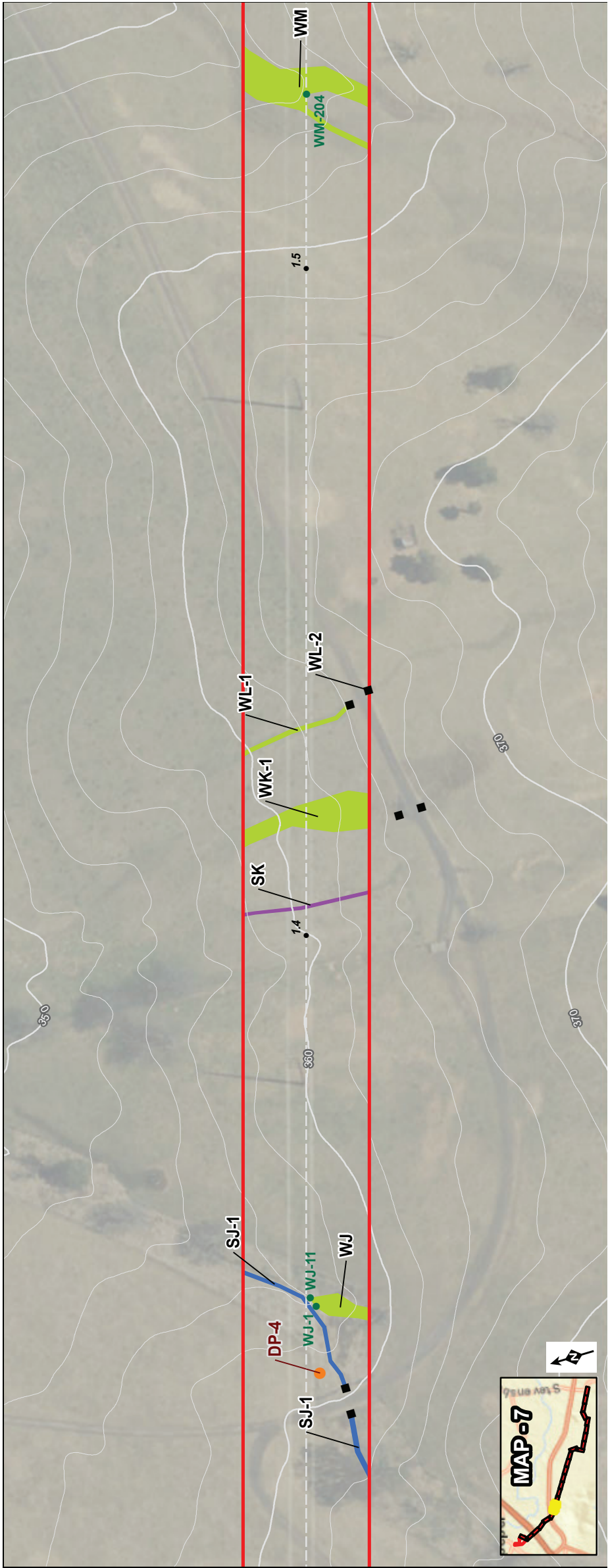


FIGURE 6-4.
Waters of the U.S., including Wetlands
Delineation Map

Cirrus – Keyser 230 kV Loop and
Related Projects
Culpeper County, Virginia

Client:
Dominion Energy Virginia

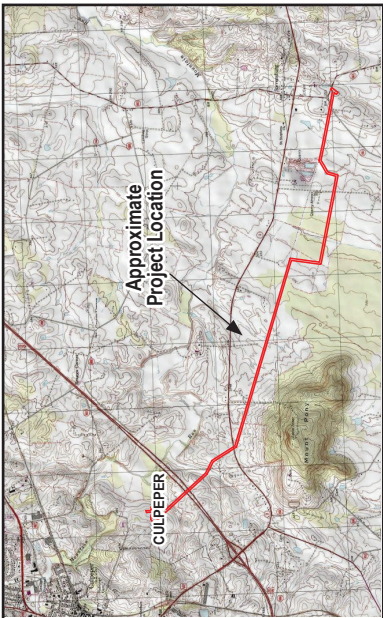
Prepared By:
MKB

Date:
10/03/2022



- SITE DATA**
- Study Area (75 Ac)
 - Milepost
 - Palustrine Emergent (PEM) Wetland (8.70 Ac)
 - Palustrine Forested (PFO) Wetland (0.15 Ac)
 - Perennial Stream Channel (887 LF)
 - Intermittent Stream Channel (704 LF)
 - Ephemeral Stream Channel (546 LF)
 - Jurisdictional Ditch (JD) (350 LF)
 - Non-Jurisdictional Ditch (NJD) (494 LF)
 - Flag Identifier
 - Data Point
 - Contour Data (2')
 - Culvert

Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
2. Inset Map Source: USGS The National Map



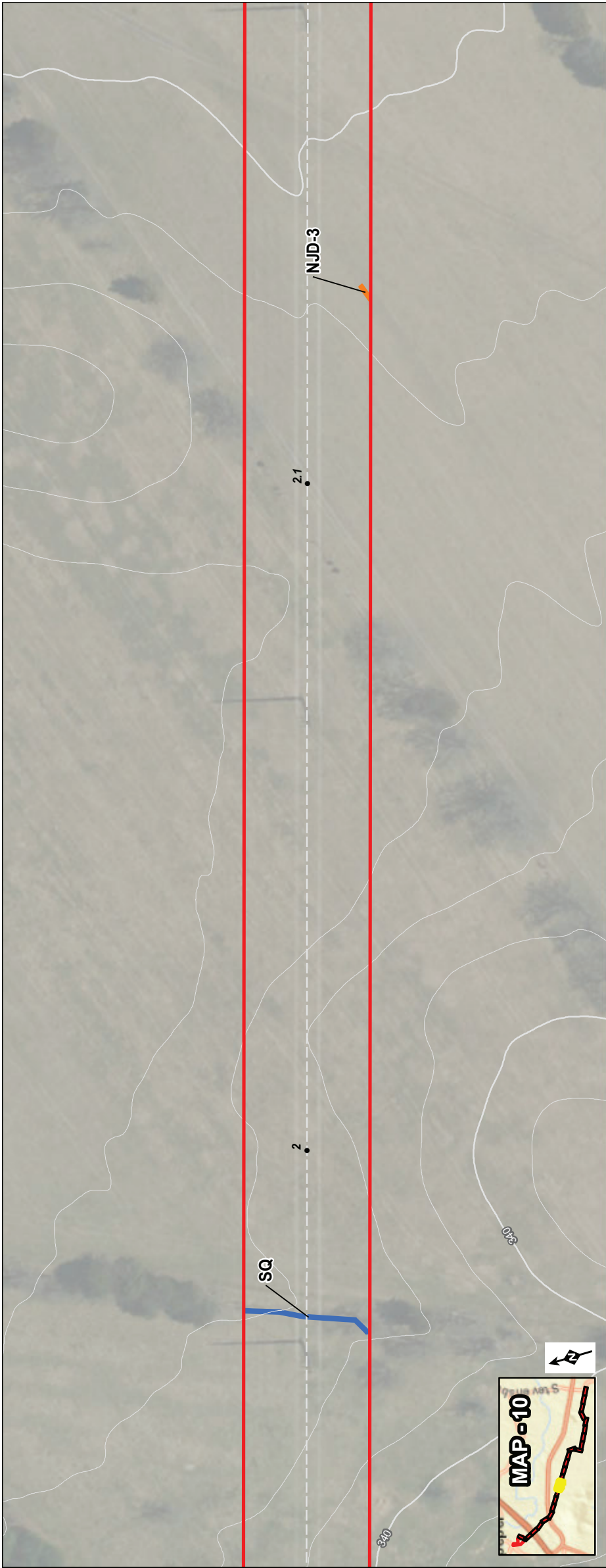
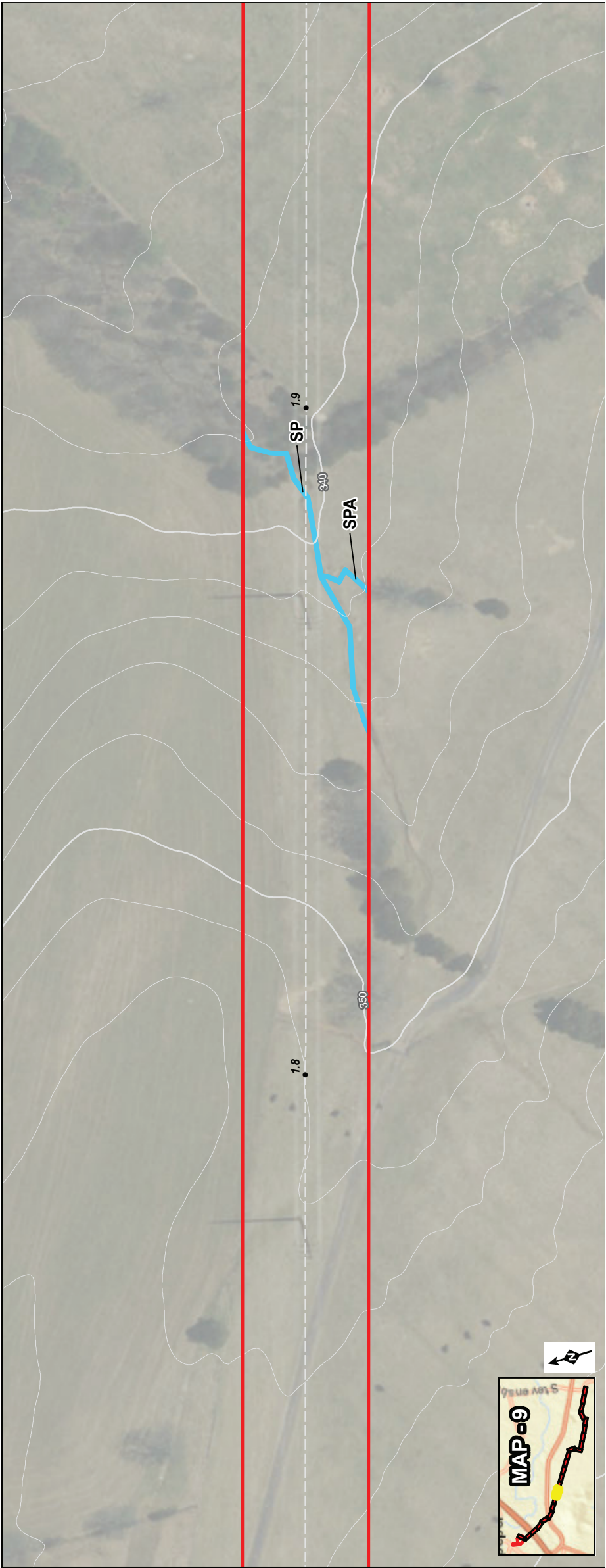


FIGURE 6-5.
Waters of the U.S., including Wetlands
Delineation Map

Cirrus – Keyser 230 kV Loop and
Related Projects
Culpeper County, Virginia

Client:
Dominion Energy Virginia

Prepared By:
MKB

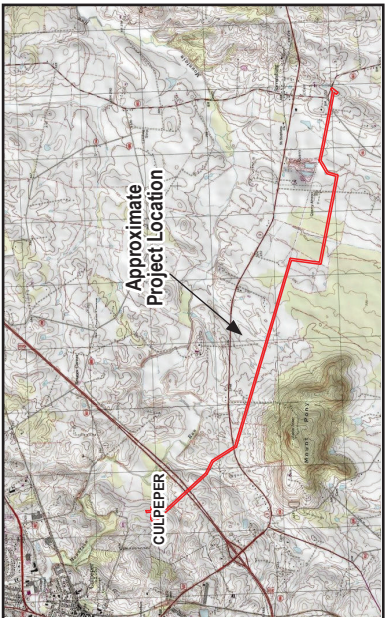
Date:
10/03/2022



SITE DATA

- Study Area (75 Ac)
- Milepost
- Palustrine Emergent (PEM) Wetland (8.70 Ac)
- Palustrine Forested (PFO) Wetland (0.15 Ac)
- Perennial Stream Channel (887 LF)
- Intermittent Stream Channel (704 LF)
- Ephemeral Stream Channel (546 LF)
- Jurisdictional Ditch (JD) (350 LF)
- Non-Jurisdictional Ditch (NJD) (494 LF)
- Flag Identifier
- Data Point
- Contour Data (2')
- Culvert

- Notes:
- 1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
 - 2. Inset Map Source: USGS The National Map



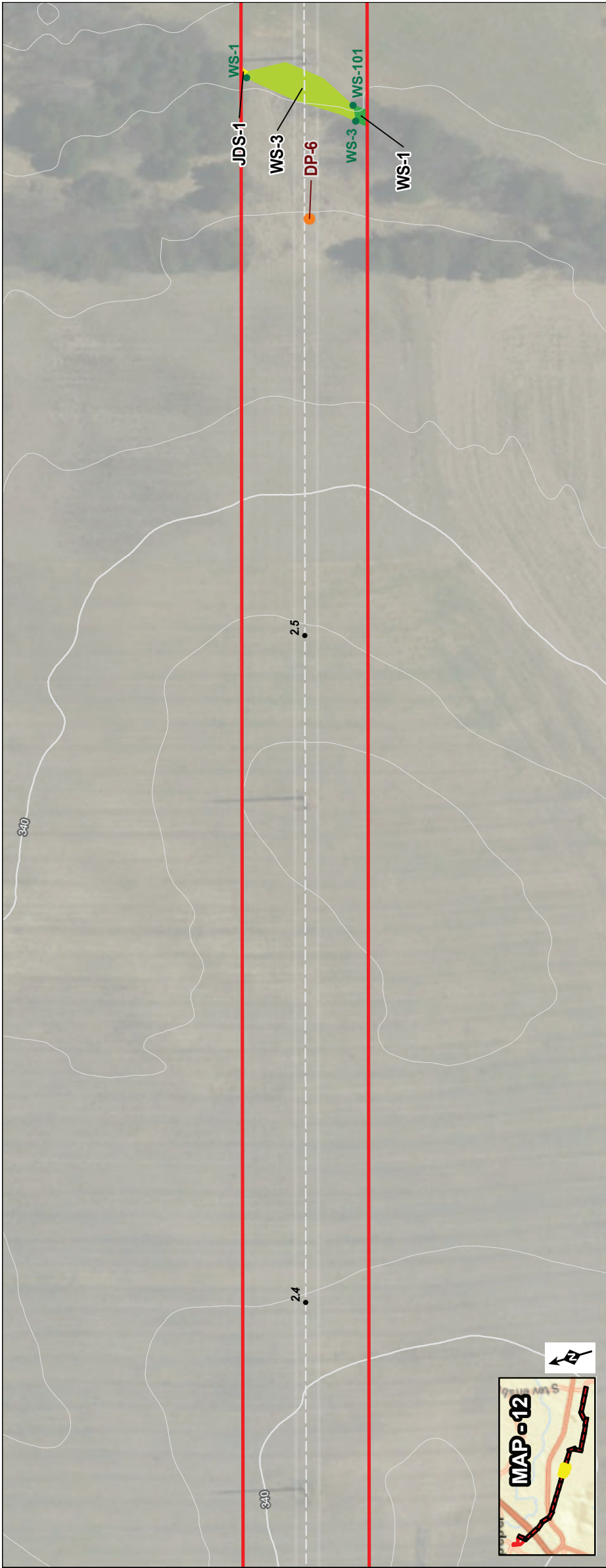
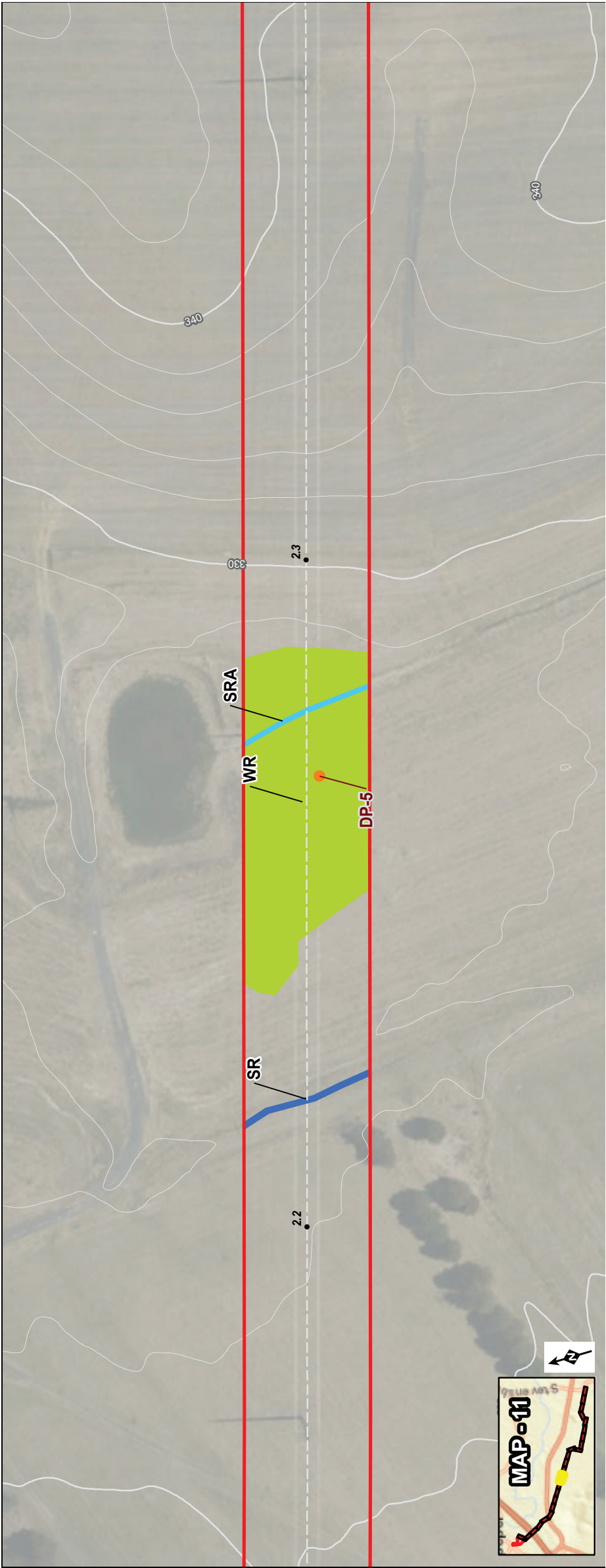


FIGURE 6-6.
Waters of the U.S., including Wetlands
Delineation Map

**Cirrus – Keyser 230 kV Loop and
Related Projects**
Culpeper County, Virginia

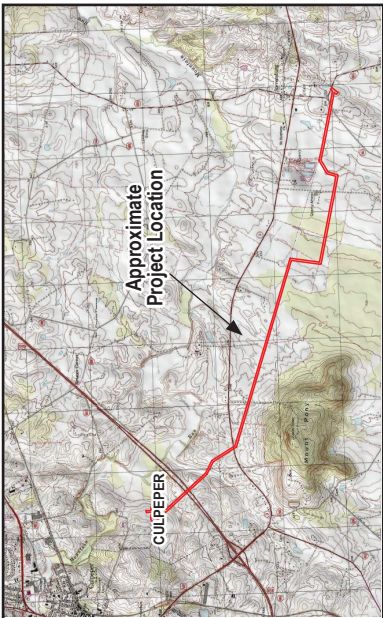
Client:	Dominion Energy Virginia
Prepared By:	MKB
Date:	10/03/2022

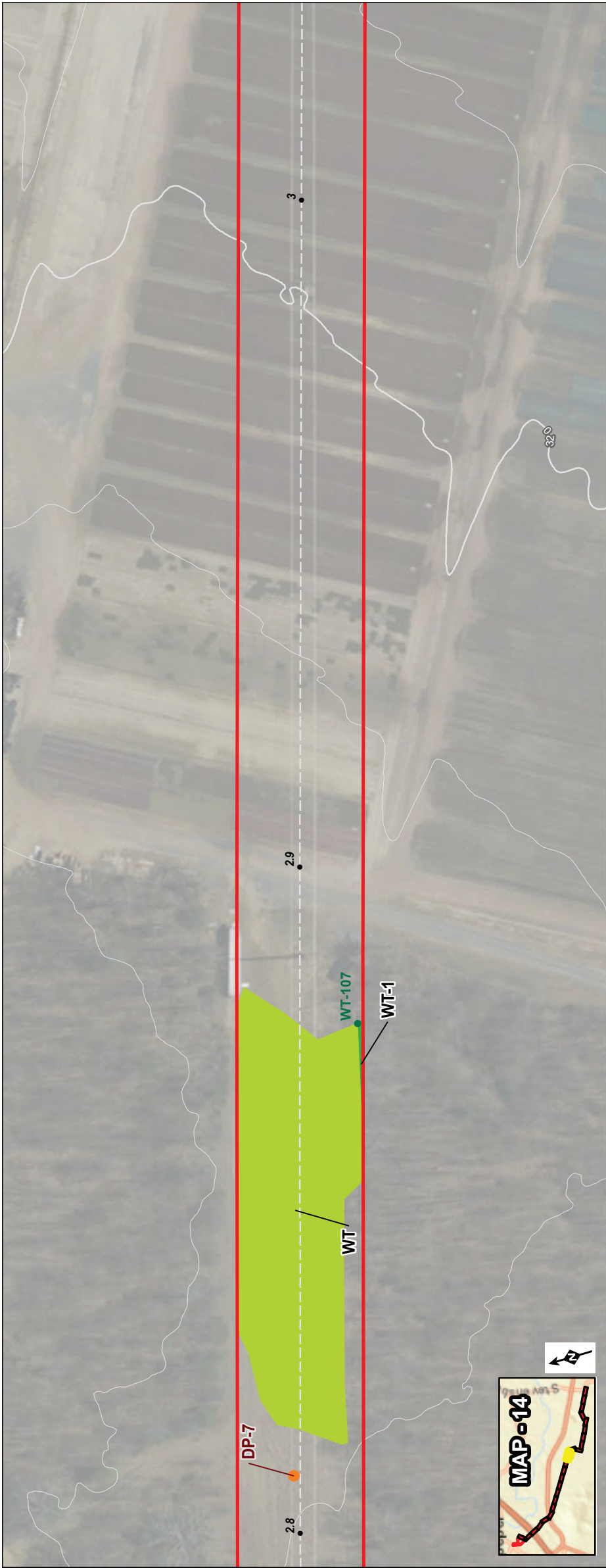


SITE DATA

- Study Area (75 Ac)
- Milepost
- Palustrine Emergent (PEM) Wetland (8.70 Ac)
- Palustrine Forested (PFO) Wetland (0.15 Ac)
- Perennial Stream Channel (887 LF)
- Intermittent Stream Channel (704 LF)
- Ephemeral Stream Channel (546 LF)
- Jurisdictional Ditch (JD) (350 LF)
- Non-Jurisdictional Ditch (NJD) (494 LF)
- Flag Identifier
- Data Point
- Contour Data (2')
- Culvert

- Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
 2. Inset Map Source: USGS The National Map





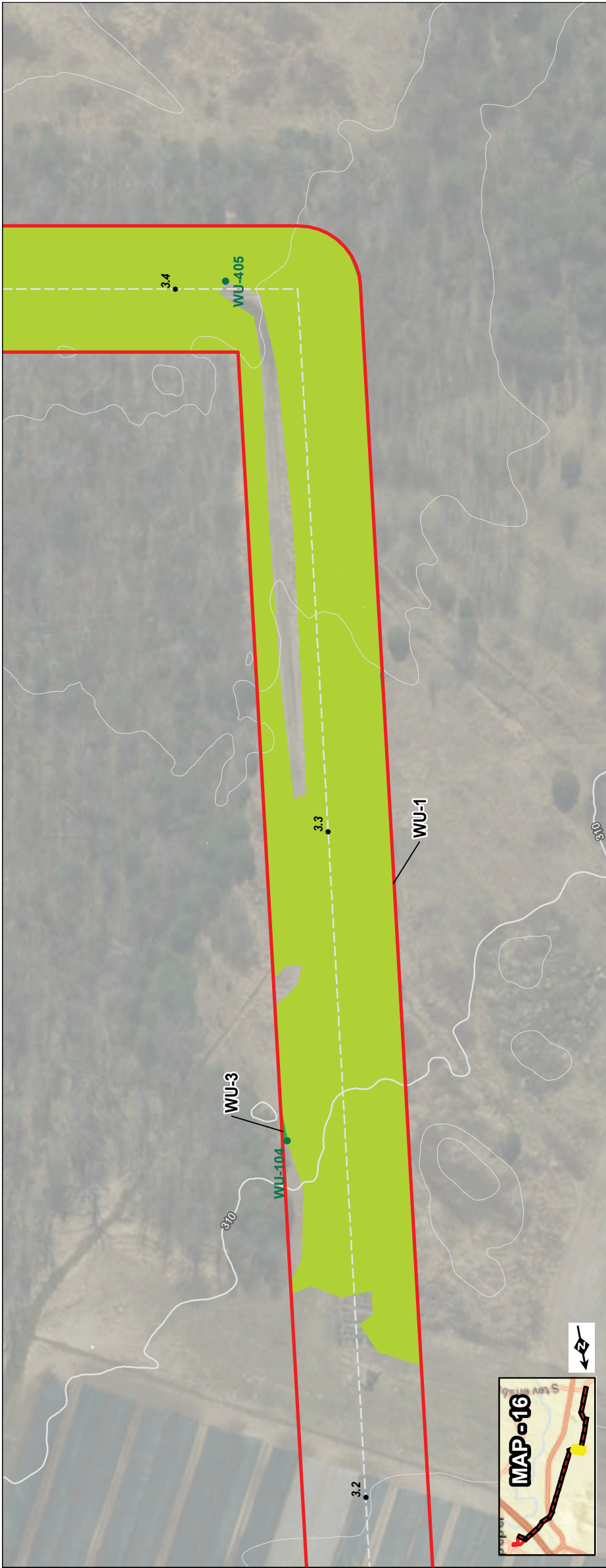
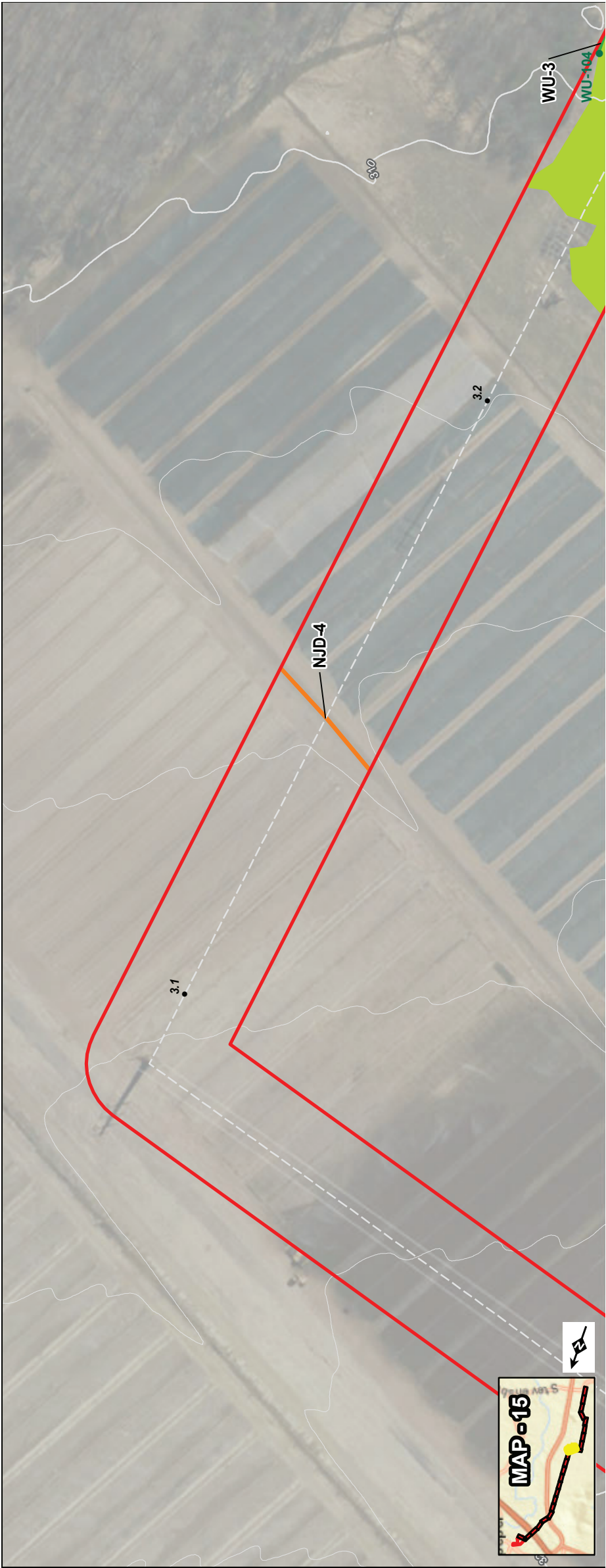


FIGURE 6-8.
Waters of the U.S., including Wetlands
Delineation Map

**Cirrus – Keyser 230 kV Loop and
Related Projects**
Culpeper County, Virginia

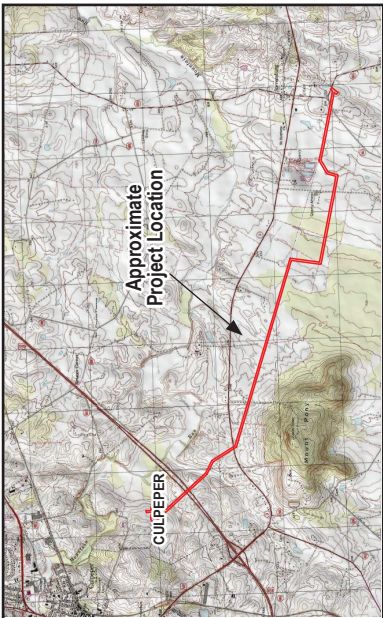
Client:	Dominion Energy Virginia
Prepared By:	MKB
Date:	10/03/2022



SITE DATA

- Study Area (75 Ac)
- Milepost
- Palustrine Emergent (PEM) Wetland (8.70 Ac)
- Palustrine Forested (PFO) Wetland (0.15 Ac)
- Perennial Stream Channel (887 LF)
- Intermittent Stream Channel (704 LF)
- Ephemeral Stream Channel (546 LF)
- Jurisdictional Ditch (JD) (350 LF)
- Non-Jurisdictional Ditch (NJD) (494 LF)
- Flag Identifier
- Data Point
- Contour Data (2')
- Culvert

- Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
 2. Inset Map Source: USGS The National Map



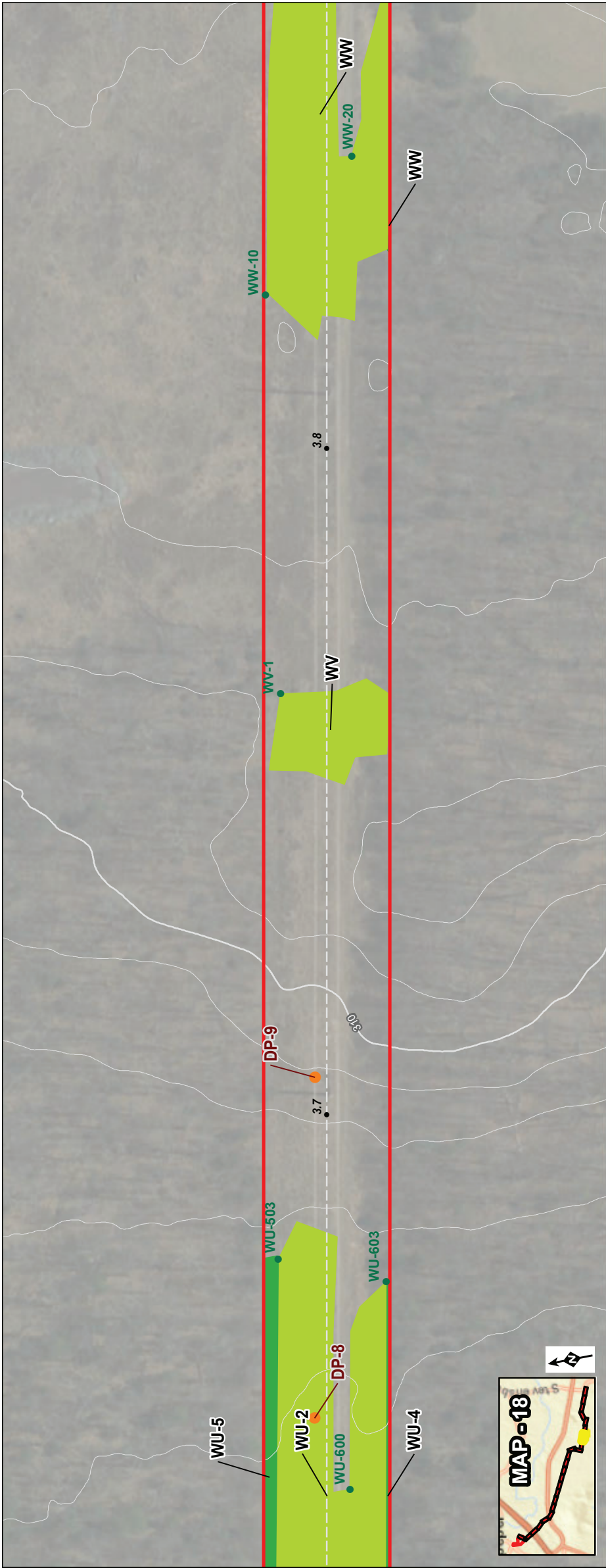
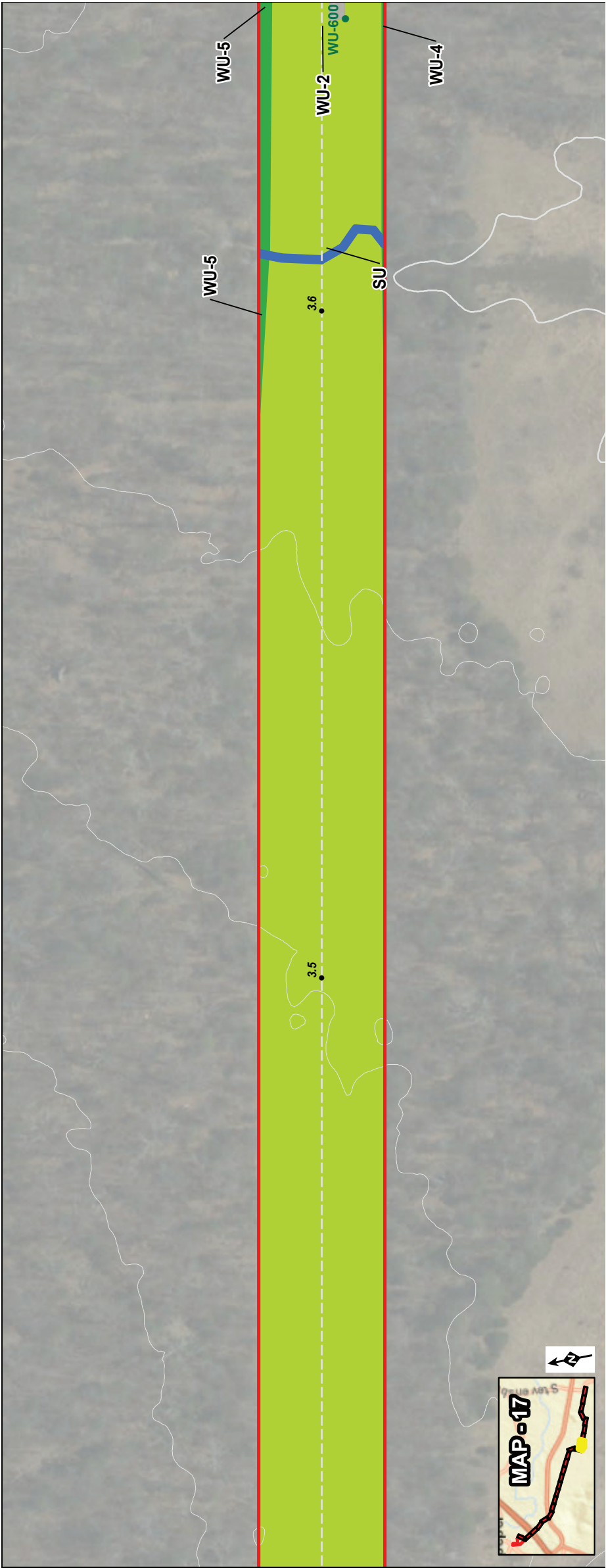


FIGURE 6-9.
Waters of the U.S., including Wetlands
Delineation Map

**Cirrus – Keyser 230 kV Loop and
Related Projects**
Culpeper County, Virginia

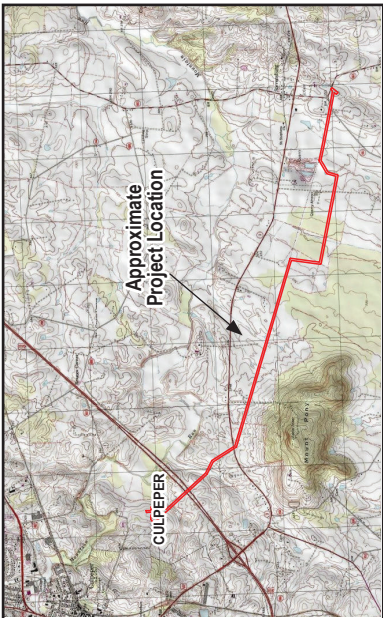
Client:	Dominion Energy Virginia
Prepared By:	MKB
Date:	10/03/2022



SITE DATA

- Study Area (75 Ac)
- Milepost
- Palustrine Emergent (PEM) Wetland (8.70 Ac)
- Palustrine Forested (PFO) Wetland (0.15 Ac)
- Perennial Stream Channel (887 LF)
- Intermittent Stream Channel (704 LF)
- Ephemeral Stream Channel (546 LF)
- Jurisdictional Ditch (JD) (350 LF)
- Non-Jurisdictional Ditch (NJD) (494 LF)
- Flag Identifier
- Data Point
- Contour Data (2')
- Culvert

- Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
 2. Inset Map Source: USGS The National Map



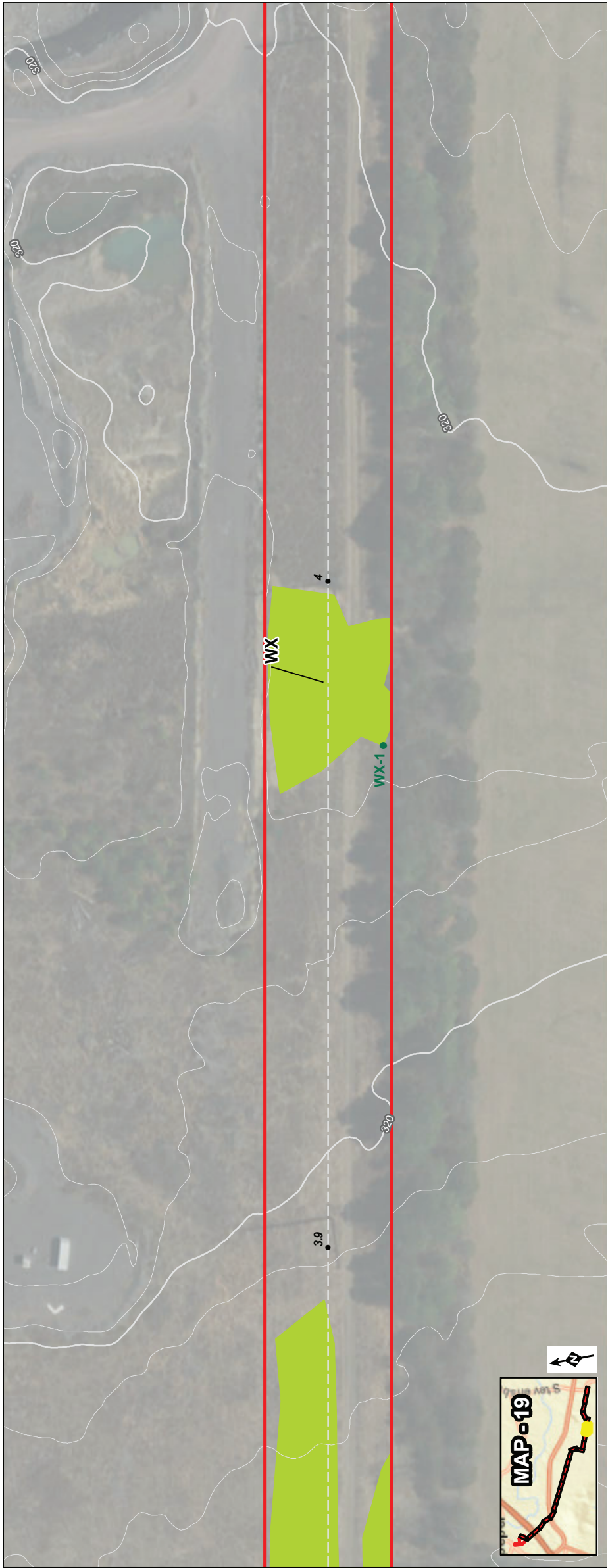


FIGURE 6-10.
Waters of the U.S., including Wetlands
Delineation Map

Cirrus – Keyser 230 kV Loop and
Related Projects
Culpeper County, Virginia

Client:
Dominion Energy Virginia

Prepared By:
MKB

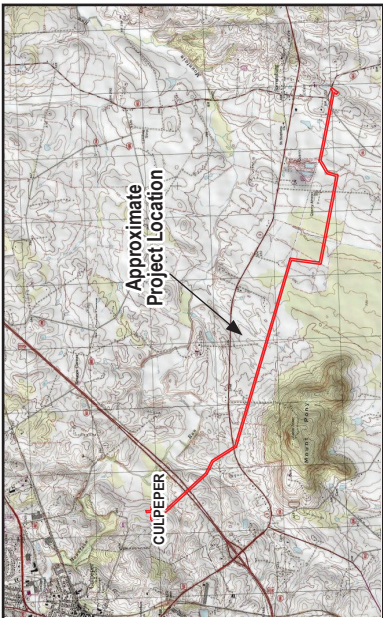
Date:
10/03/2022



SITE DATA

- Study Area (75 Ac)
- Milepost
- Palustrine Emergent (PEM) Wetland (8.70 Ac)
- Palustrine Forested (PFO) Wetland (0.15 Ac)
- Perennial Stream Channel (887 LF)
- Intermittent Stream Channel (704 LF)
- Ephemeral Stream Channel (546 LF)
- Jurisdictional Ditch (JD) (350 LF)
- Non-Jurisdictional Ditch (NJD) (494 LF)
- Flag Identifier
- Data Point
- Contour Data (2')
- Culvert

Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
2. Inset Map Source: USGS The National Map



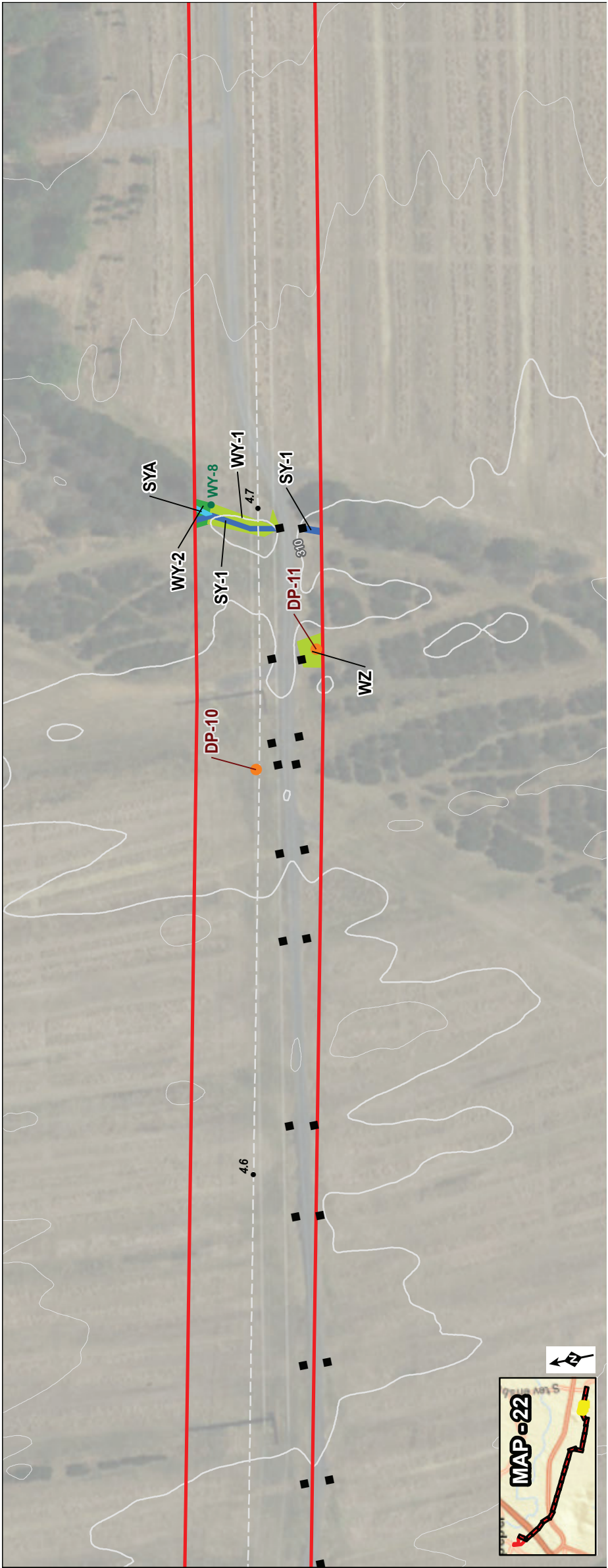


FIGURE 6-11.
Waters of the U.S., including Wetlands
Delineation Map
Cirrus – Keyser 230 kV Loop and
Related Projects
Culpeper County, Virginia

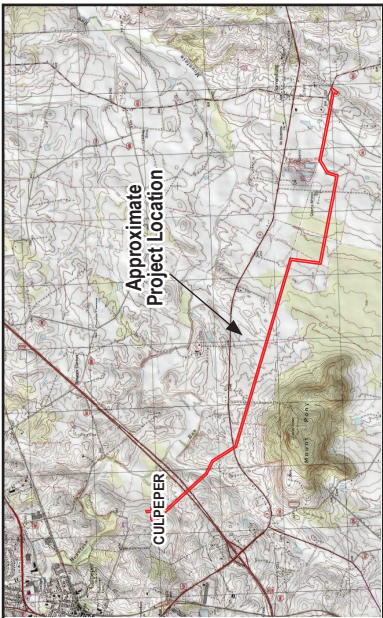
Client:
Dominion Energy Virginia
Prepared By:
MKB
Date:
10/03/2022

0 50 100 Feet
Scale is 1 in = 100 FT when printed at original size of 11x17

SITE DATA

- Study Area (75 Ac)
- Milepost
- Palustrine Emergent (PEM) Wetland (8.70 Ac)
- Palustrine Forested (PFO) Wetland (0.15 Ac)
- Perennial Stream Channel (887 LF)
- Intermittent Stream Channel (704 LF)
- Ephemeral Stream Channel (546 LF)
- Jurisdictional Ditch (JD) (350 LF)
- Non-Jurisdictional Ditch (NJD) (494 LF)
- Flag Identifier
- Data Point
- Contour Data (2')
- Culvert

Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
2. Inset Map Source: USGS The National Map





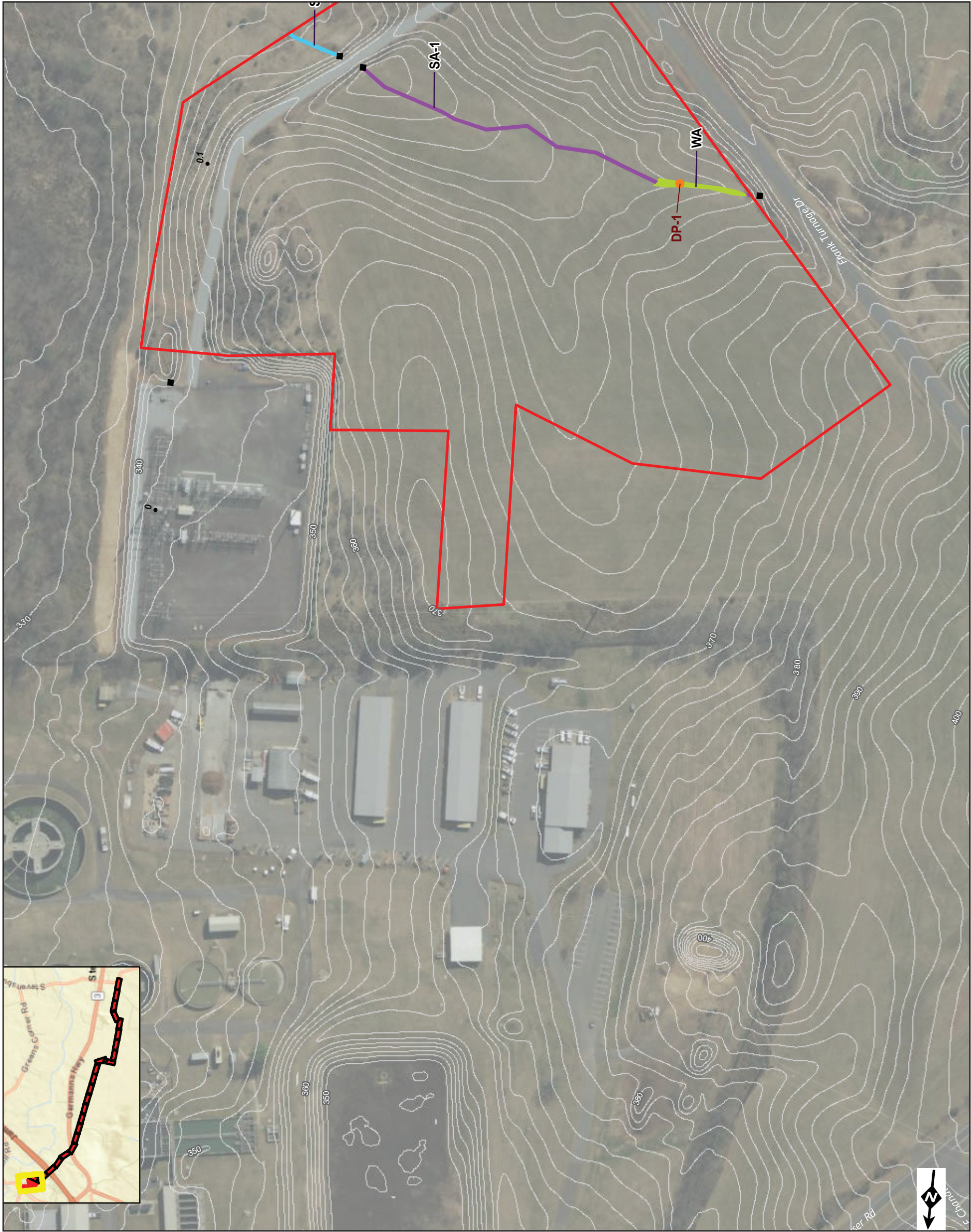


FIGURE 6-13.
Waters of the U.S., including Wetlands
Delineation Map

Cirrus – Keyser 230 kV Loop and
Related Projects
Culpeper County, Virginia

Client:
Dominion Energy Virginia

Prepared By:
MKB

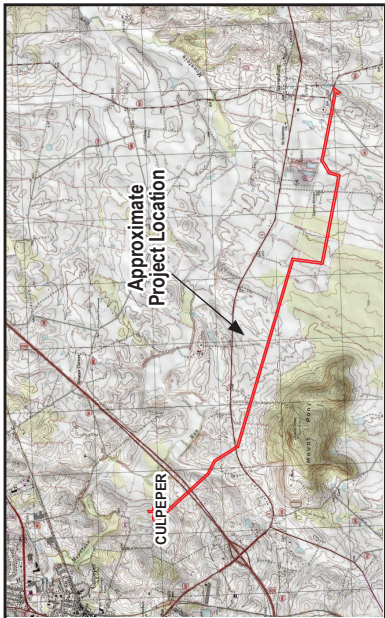
Date:
10/03/2022



SITE DATA

- Study Area (75 Ac)
- Milepost
- Palustrine Emergent (PEM) Wetland (8.70 Ac)
- Palustrine Forested (PFO) Wetland (0.15 Ac)
- Perennial Stream Channel (887 LF)
- Intermittent Stream Channel (704 LF)
- Ephemeral Stream Channel (546 LF)
- Jurisdictional Ditch (JD) (350 LF)
- Non-Jurisdictional Ditch (NJD) (494 LF)
- Flag Identifier
- Data Point
- Contour Data (2')
- Culvert

Notes:
1. Basemap Source: VGIN/VBMP Most Recent Orthoimagery
2. Inset Map Source: USGS The National Map



Attachment 2 – USACE Wetland Determination Forms

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

 Project/Site: Cirrus – Keyser 230 kV Loop and Related Projects City/County: Culpeper/ Culpeper County Sampling Date: 7/18/2022

 Applicant/Owner: Dominion Energy Virginia State: VA Sampling Point: DP-1

 Investigator(s): Phil Bailey and Dakota Hunter, VHB, Inc. Section, Township, Range: N/A

 Landform (hillside, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 2-4%

 Subregion (LRR or MLRA): LRR N, MLRA 130A Lat: 38.46136 Long: -77.97623 Datum: WGS 84

 Soil Map Unit Name: Codorus and Meadowville soils, 2-7% slopes, occasionally flooded NWI classification: R4SBA

 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If no, explain in Remarks.)

 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: The Antecedent Precipitation Tool shows wetter than normal conditions on the day of sampling. Linear wetland on hillside. In NWI Riverine wetland.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>1</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Parameter is met. Sporadic thunderstorms day prior. Saturation at surface.	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP-1

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>No rooted trees</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
=Total Cover																				
50% of total cover: _____		20% of total cover: _____																		
Sapling Stratum (Plot size: <u>30'</u>)																				
1. <u>No rooted saplings</u>				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>3</u></td> <td>x 1 = <u>3</u></td> </tr> <tr> <td>FACW species <u>9</u></td> <td>x 2 = <u>18</u></td> </tr> <tr> <td>FAC species <u>38</u></td> <td>x 3 = <u>114</u></td> </tr> <tr> <td>FACU species <u>116</u></td> <td>x 4 = <u>464</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>166</u> (A)</td> <td><u>599</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.61</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>3</u>	x 1 = <u>3</u>	FACW species <u>9</u>	x 2 = <u>18</u>	FAC species <u>38</u>	x 3 = <u>114</u>	FACU species <u>116</u>	x 4 = <u>464</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>166</u> (A)	<u>599</u> (B)	Prevalence Index = B/A = <u>3.61</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>3</u>	x 1 = <u>3</u>																			
FACW species <u>9</u>	x 2 = <u>18</u>																			
FAC species <u>38</u>	x 3 = <u>114</u>																			
FACU species <u>116</u>	x 4 = <u>464</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>166</u> (A)	<u>599</u> (B)																			
Prevalence Index = B/A = <u>3.61</u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
=Total Cover																				
50% of total cover: _____		20% of total cover: _____																		
Shrub Stratum (Plot size: <u>30'</u>)																				
1. <u>No rooted shrubs</u>				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
=Total Cover																				
50% of total cover: _____		20% of total cover: _____																		
Herb Stratum (Plot size: <u>30'</u>)																				
1. <u>Festuca arundinacea</u>	63	Yes	FACU	Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, <u>and</u> woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody Vine – All woody vines, regardless of height.																
2. <u>Echinochloa crus-galli</u>	38	Yes	FAC																	
3. <u>Sorghum halepense</u>	38	Yes	FACU																	
4. <u>Apocynum cannabinum</u>	15	No	FACU																	
5. <u>Persicaria lapathifolia</u>	3	No	FACW																	
6. <u>Cyperus esculentus</u>	3	No	FACW																	
7. <u>Carex frankii</u>	3	No	OBL																	
8. <u>Platanthera lacera</u>	3	No	FACW																	
9. _____																				
10. _____																				
11. _____																				
166 =Total Cover																				
50% of total cover: <u>83</u>		20% of total cover: <u>34</u>																		
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. <u>No rooted woody vines</u>				Hydrophytic Vegetation Present? Yes <u> </u> No <u> X </u>																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
=Total Cover																				
50% of total cover: _____		20% of total cover: _____																		
Remarks: (Include photo numbers here or on a separate sheet.) Parameter is not met.																				

SOILSampling Point: DP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	5YR 4/4	95	2.5YR 3/6	5	C	PL/M	Loamy/Clayey	Distinct redox concentrations
4-20	5YR 4/4	85	2.5YR 3/6	15	C	M	Loamy/Clayey	Distinct redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Saturation at surface. Gravely clay soil. Parameter is met.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

 Project/Site: Cirrus – Keyser 230 kV Loop and Related Projects City/County: Culpeper/ Culpeper County Sampling Date: 7/18/2022

 Applicant/Owner: Dominion Energy Virginia State: VA Sampling Point: DP-2

 Investigator(s): Phil Bailey and Dakota Hunter, VHB, Inc. Section, Township, Range: N/A

 Landform (hillside, terrace, etc.): Upland swale Local relief (concave, convex, none): Concave Slope (%): 1-3%

 Subregion (LRR or MLRA): LRR N, MLRA 130A Lat: 38.45641 Long: -77.97056 Datum: WGS 84

 Soil Map Unit Name: Rapidan-Penn complex, 7-15% slopes, rocky NWI classification: PEM1B

 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: The Antecedent Precipitation Tool shows wetter than normal conditions on the day of sampling. In NWI freshwater emergent wetland.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Parameter is not met. Sporadic thunderstorms day prior.	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP-2

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>No rooted trees</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
		=Total Cover		Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>102</u> x 4 = <u>408</u> UPL species <u>3</u> x 5 = <u>15</u> Column Totals: <u>105</u> (A) <u>423</u> (B) Prevalence Index = B/A = <u>4.03</u>
50% of total cover: _____		20% of total cover: _____		
Sapling Stratum (Plot size: <u>30'</u>)				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>Problematic Hydrophytic Vegetation¹ (Explain)</u> ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>No rooted saplings</u>				
2. _____				
3. _____				
4. _____				
5. _____				
		=Total Cover		Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, <u>and</u> woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody Vine – All woody vines, regardless of height.
50% of total cover: _____		20% of total cover: _____		
Shrub Stratum (Plot size: <u>30'</u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u> X </u>
1. <u>No rooted shrubs</u>				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
		=Total Cover		
50% of total cover: _____		20% of total cover: _____		
Herb Stratum (Plot size: <u>30'</u>)				
1. <u>Festuca arundinacea</u>	<u>63</u>	<u>Yes</u>	<u>FACU</u>	
2. <u>Cichorium intybus</u>	<u>15</u>	<u>No</u>	<u>FACU</u>	
3. <u>Trifolium pratense</u>	<u>15</u>	<u>No</u>	<u>FACU</u>	
4. <u>Plantago rugelii</u>	<u>3</u>	<u>No</u>	<u>FACU</u>	
5. <u>Solanum carolinense</u>	<u>3</u>	<u>No</u>	<u>FACU</u>	
6. <u>Plantago lanceolata</u>	<u>3</u>	<u>No</u>	<u>UPL</u>	
7. <u>Cynodon dactylon</u>	<u>3</u>	<u>No</u>	<u>FACU</u>	
8. _____				
9. _____				
10. _____				
11. _____				
		105 =Total Cover		
50% of total cover: <u>53</u>		20% of total cover: <u>21</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. <u>No rooted woody vines</u>				
2. _____				
3. _____				
4. _____				
5. _____				
		=Total Cover		
50% of total cover: _____		20% of total cover: _____		
Remarks: (Include photo numbers here or on a separate sheet.) Parameter is not met.				

SOIL

Sampling Point: DP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-18	5YR 4/4	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 2 cm Muck (A10) (MLRA 147) <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147) <input type="checkbox"/> Red Parent Material (F21) (outside MLRA 127, 147, 148) <input type="checkbox"/> Very Shallow Dark Surface (F22) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
--	--	---

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
---	---

Remarks:
 Parameter is not met. Some organic matter has been lost through oxidation since the site has been in agriculture/pasture since 1950.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

 Project/Site: Cirrus – Keyser 230 kV Loop and Related Projects City/County: Culpeper/ Culpeper County Sampling Date: 7/18/2022

 Applicant/Owner: Dominion Energy Virginia State: VA Sampling Point: DP-3

 Investigator(s): Phil Bailey and Dakota Hunter, VHB, Inc. Section, Township, Range: N/A

 Landform (hillside, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 4-6

 Subregion (LRR or MLRA): LRR N, MLRA 130A Lat: 38.45036 Long: -77.96320 Datum: WGS 84

 Soil Map Unit Name: Penn-Nestoria complex, 2-7% slopes NWI classification: N/A

 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If no, explain in Remarks.)

 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: The Antecedent Precipitation Tool shows wetter than normal conditions on the day of sampling.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input checked="" type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>6</u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Parameter is met. Sporadic thunderstorms day prior. Refusal at 9 inches due to gravel.	

VEGETATION (Five Strata) – Use scientific names of plants.Sampling Point: DP-3

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>No rooted trees</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
=Total Cover				
50% of total cover: _____		20% of total cover: _____		
Sapling Stratum (Plot size: <u>30'</u>)				
1. <u>No rooted saplings</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
=Total Cover				
50% of total cover: _____		20% of total cover: _____		
Shrub Stratum (Plot size: <u>30'</u>)				
1. <u>No rooted shrubs</u>				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
=Total Cover				
50% of total cover: _____		20% of total cover: _____		
Herb Stratum (Plot size: <u>30'</u>)				
1. <u>Arthraxon hispidus</u>	63	Yes	FAC	Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, <u>and</u> woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody Vine – All woody vines, regardless of height.
2. <u>Juncus effusus</u>	38	Yes	FACW	
3. <u>Carex frankii</u>	38	Yes	OBL	
4. <u>Vernonia fasciculata</u>	15	No	FAC	
5. <u>Festuca arundinacea</u>	15	No	FACU	
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
169 =Total Cover				
50% of total cover: <u>85</u>		20% of total cover: <u>34</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. <u>No rooted woody vines</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
=Total Cover				
50% of total cover: _____		20% of total cover: _____		
Remarks: (Include photo numbers here or on a separate sheet.)				
Parameter is met.				

SOIL

Sampling Point: DP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-9	7.5YR 4/2	85	5YR 3/3	15	C	PL/M	Loamy/Clayey	Faint redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)	Indicators for Problematic Hydric Soils³: <input type="checkbox"/> 2 cm Muck (A10) (MLRA 147) <input type="checkbox"/> Coast Prairie Redox (A16) (MLRA 147, 148) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 136, 147) <input type="checkbox"/> Red Parent Material (F21) (outside MLRA 127, 147, 148) <input type="checkbox"/> Very Shallow Dark Surface (F22) <input type="checkbox"/> Other (Explain in Remarks) ³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
--	---	---

Restrictive Layer (if observed): Type: <u>Gravel</u> Depth (inches): <u>9</u>	Hydric Soil Present? Yes <u>X</u> No <u> </u>
--	---

Remarks:
 Parameter is met. Refusal at 9 inches due to gravel. Some organic matter has been lost through oxidation since the site has been in agriculture/pasture since 1950.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

 Project/Site: Cirrus – Keyser 230 kV Loop and Related Projects City/County: Culpeper/ Culpeper County Sampling Date: 7/18/2022

 Applicant/Owner: Dominion Energy Virginia State: VA Sampling Point: DP-4

 Investigator(s): Phil Bailey and Dakota Hunter, VHB, Inc. Section, Township, Range: N/A

 Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): None Slope (%): 0-2

 Subregion (LRR or MLRA): LRR N, MLRA 130A Lat: 38.44959 Long: -77.96062 Datum: WGS 84

 Soil Map Unit Name: Elbert silt loam, 0-2% slopes, occasionally flooded NWI classification: N/A

 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)

 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐

 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: The Antecedent Precipitation Tool shows wetter than normal conditions on the day of sampling.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>14</u> Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <input type="text"/> (includes capillary fringe)	Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Parameter is not met. Sporadic thunderstorms day prior. Water table present at 14 inches.	

VEGETATION (Five Strata) – Use scientific names of plants.Sampling Point: DP-4

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>No rooted trees</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
		=Total Cover		Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>3</u></td> <td>x 2 = <u>6</u></td> </tr> <tr> <td>FAC species <u>3</u></td> <td>x 3 = <u>9</u></td> </tr> <tr> <td>FACU species <u>99</u></td> <td>x 4 = <u>396</u></td> </tr> <tr> <td>UPL species <u>15</u></td> <td>x 5 = <u>75</u></td> </tr> <tr> <td>Column Totals: <u>120</u> (A)</td> <td><u>486</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>4.05</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>3</u>	x 2 = <u>6</u>	FAC species <u>3</u>	x 3 = <u>9</u>	FACU species <u>99</u>	x 4 = <u>396</u>	UPL species <u>15</u>	x 5 = <u>75</u>	Column Totals: <u>120</u> (A)	<u>486</u> (B)	Prevalence Index = B/A = <u>4.05</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>3</u>	x 2 = <u>6</u>																			
FAC species <u>3</u>	x 3 = <u>9</u>																			
FACU species <u>99</u>	x 4 = <u>396</u>																			
UPL species <u>15</u>	x 5 = <u>75</u>																			
Column Totals: <u>120</u> (A)	<u>486</u> (B)																			
Prevalence Index = B/A = <u>4.05</u>																				
50% of total cover: _____		20% of total cover: _____																		
Sapling Stratum (Plot size: <u>30'</u>)				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
1. <u>No rooted saplings</u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
		=Total Cover																		
50% of total cover: _____		20% of total cover: _____																		
Shrub Stratum (Plot size: <u>30'</u>)				Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, <u>and</u> woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody Vine – All woody vines, regardless of height.																
1. <u>Prunus cerasus</u>	15	Yes	UPL																	
2. <u>Diodia virginiana</u>	3	No	FACW																	
3. <u>Ostrya virginiana</u>	3	No	FACU																	
4. <u>Cercis canadensis</u>	3	No	FACU																	
5. _____																				
		24 =Total Cover																		
50% of total cover: <u>12</u>		20% of total cover: <u>5</u>																		
Herb Stratum (Plot size: <u>30'</u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u> X </u>																
1. <u>Festuca rubra</u>	63	Yes	FACU																	
2. <u>Cirsium vulgare</u>	15	No	FACU																	
3. <u>Allium vineale</u>	15	No	FACU																	
4. <u>Verbesina alternifolia</u>	3	No	FAC																	
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
		96 =Total Cover																		
50% of total cover: <u>48</u>		20% of total cover: <u>20</u>																		
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. <u>No rooted woody vines</u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
		=Total Cover																		
50% of total cover: _____		20% of total cover: _____																		
Remarks: (Include photo numbers here or on a separate sheet.) Parameter is not met.																				

[illegible]

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

 Project/Site: Cirrus – Keyser 230 kV Loop and Related Projects City/County: Culpeper/ Culpeper County Sampling Date: 7/19/2022

 Applicant/Owner: Dominion Energy Virginia State: VA Sampling Point: DP-5

 Investigator(s): Phil Bailey and Dakota Hunter, VHB, Inc. Section, Township, Range: N/A

 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0

 Subregion (LRR or MLRA): LRR N, MLRA 130A Lat: 38.44569 Long: -77.94415 Datum: WGS 84

 Soil Map Unit Name: Sycoline-Kelly complex, 0-2% slopes NWI classification: N/A

 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: The Antecedent Precipitation Tool shows normal conditions on the day of sampling.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input checked="" type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input checked="" type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>2</u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Parameter is met. Surface water present. Heavy thunderstorms day prior.	

VEGETATION (Five Strata) – Use scientific names of plants.Sampling Point: DP-5

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>No rooted trees</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
=Total Cover				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
50% of total cover: _____		20% of total cover: _____		
Sapling Stratum (Plot size: <u>30'</u>)				
1. <u>No rooted saplings</u>				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
=Total Cover				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
50% of total cover: _____		20% of total cover: _____		
Shrub Stratum (Plot size: <u>30'</u>)				
1. <u>No rooted shrubs</u>				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
=Total Cover				Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, <u>and</u> woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody Vine – All woody vines, regardless of height.
50% of total cover: _____		20% of total cover: _____		
Herb Stratum (Plot size: <u>30'</u>)				
1. <u>Echinochloa crus-galli</u>	38	Yes	FAC	
2. <u>Diodia virginiana</u>	38	Yes	FACW	
3. <u>Eclipta prostrata</u>	38	Yes	FAC	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
=Total Cover				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
50% of total cover: <u>57</u>		20% of total cover: <u>23</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. <u>No rooted woody vines</u>				
2. _____				
3. _____				
4. _____				
5. _____				
=Total Cover				
50% of total cover: _____		20% of total cover: _____		
Remarks: (Include photo numbers here or on a separate sheet.)				
Parameter is met.				

SOIL

Sampling Point: DP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	10YR 4/2	92	10YR 4/6	8	C	PL/M	Loamy/Clayey	Prominent redox concentrations
8-18	10YR 3/1	85	7.5YR 6/8	15	C	PL/M	Loamy/Clayey	Prominent redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)	<input type="checkbox"/> (MLRA 147, 148)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> (outside MLRA 127, 147, 148)
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (F22)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N,	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> MLRA 136)	
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)	³ Indicators of hydrophytic vegetation and
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)	wetland hydrology must be present,
<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)	unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____		Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: Parameter is met.		

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

 Project/Site: Cirrus – Keyser 230 kV Loop and Related Projects City/County: Culpeper/ Culpeper County Sampling Date: 7/19/2022

 Applicant/Owner: Dominion Energy Virginia State: VA Sampling Point: DP-6

 Investigator(s): Phil Bailey and Dakota Hunter, VHB, Inc. Section, Township, Range: N/A

 Landform (hillside, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

 Subregion (LRR or MLRA): LRR N, MLRA 130A Lat: 38.44449 Long: -77.93893 Datum: WGS 84

 Soil Map Unit Name: Penn-Nestoria complex, 2-7% slopes NWI classification: N/A

 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: The Antecedent Precipitation Tool shows normal conditions on the day of sampling. Vegetated upland between farms.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Parameter is not met. Heavy thunderstorms day prior.	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP-6

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>No rooted trees</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Sapling Stratum (Plot size: <u>30'</u>)			
1. <u>No rooted saplings</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Shrub Stratum (Plot size: <u>30'</u>)			
1. <u>No rooted shrubs</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Herb Stratum (Plot size: <u>30'</u>)			
1. <u>Rubus pensilvanicus</u>	38	Yes	FAC
2. <u>Ambrosia artemisiifolia</u>	38	Yes	FACU
3. <u>Solidago rugosa</u>	15	No	FAC
4. <u>Bidens frondosa</u>	15	No	FACW
5. <u>Festuca rubra</u>	15	No	FACU
6. <u>Juncus tenuis</u>	15	No	FAC
7. <u>Lespedeza cuneata</u>	3	No	FACU
8. <u>Allium vineale</u>	3	No	FACU
9. _____			
10. _____			
11. _____			
142 = Total Cover			
50% of total cover: <u>71</u> 20% of total cover: <u>29</u>			
Woody Vine Stratum (Plot size: <u>30'</u>)			
1. <u>Lonicera japonica</u>	38	Yes	FACU
2. _____			
3. _____			
4. _____			
5. _____			
38 = Total Cover			
50% of total cover: <u>19</u> 20% of total cover: <u>8</u>			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>15</u>	x 2 = <u>30</u>
FAC species <u>68</u>	x 3 = <u>204</u>
FACU species <u>97</u>	x 4 = <u>388</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>180</u> (A)	<u>622</u> (B)
Prevalence Index = B/A = <u>3.46</u>	

Hydrophytic Vegetation Indicators:

1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

Remarks: (Include photo numbers here or on a separate sheet.)
Parameter is not met.

SOIL

Sampling Point: DP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	10YR 4/3	100					Loamy/Clayey	
4-12	10YR 4/4	100					Loamy/Clayey	
12-18	10YR 5/6	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)

☐ 2 cm Muck (A10) (**MLRA 147**)
☐ Coast Prairie Redox (A16) (**MLRA 147, 148**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
☐ Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
---	---

Remarks:
 Parameter is not met. Some organic matter has been lost through oxidation since the site has been in agriculture/pasture since 1950.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

 Project/Site: Cirrus – Keyser 230 kV Loop and Related Projects City/County: Culpeper/ Culpeper County Sampling Date: 7/19/2022

 Applicant/Owner: Dominion Energy Virginia State: VA Sampling Point: DP-7

 Investigator(s): Phil Bailey and Dakota Hunter, VHB, Inc. Section, Township, Range: N/A

 Landform (hillside, terrace, etc.): Upland terrace Local relief (concave, convex, none): None Slope (%): 0-2

 Subregion (LRR or MLRA): LRR N, MLRA 130A Lat: 38.44349 Long: -77.93457 Datum: WGS 84

 Soil Map Unit Name: Sycoline-Kelly complex, 0-2% slopes NWI classification: N/A

 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: The Antecedent Precipitation Tool shows normal conditions on the day of sampling. Upland terrace between NWI wetlands.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Parameter is not met. Heavy thunderstorms day prior.	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP-7

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>No rooted trees</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>20.0%</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
		=Total Cover		Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>18</u> x 3 = <u>54</u> FACU species <u>51</u> x 4 = <u>204</u> UPL species <u>41</u> x 5 = <u>205</u> Column Totals: <u>110</u> (A) <u>463</u> (B) Prevalence Index = B/A = <u>4.21</u>
50% of total cover: _____		20% of total cover: _____		
Sapling Stratum (Plot size: <u>30'</u>)				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>Problematic Hydrophytic Vegetation¹ (Explain)</u> ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>No rooted saplings</u>				
2. _____				
3. _____				
4. _____				
5. _____				
		=Total Cover		Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, <u>and</u> woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody Vine – All woody vines, regardless of height.
50% of total cover: _____		20% of total cover: _____		
Shrub Stratum (Plot size: <u>30'</u>)				Hydrophytic Vegetation Present? Yes <u> </u> No <u> X </u>
1. <u>No rooted shrubs</u>				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
		=Total Cover		
50% of total cover: _____		20% of total cover: _____		
Herb Stratum (Plot size: <u>30'</u>)				
1. <u>Setaria faberi</u>	<u>38</u>	<u>Yes</u>	<u>UPL</u>	
2. <u>Festuca rubra</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>	
3. <u>Apocynum cannabinum</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>	
4. <u>Cuphea viscosissima</u>	<u>15</u>	<u>Yes</u>	<u>FAC</u>	
5. <u>Solidago altissima</u>	<u>15</u>	<u>Yes</u>	<u>FACU</u>	
6. <u>Desmodium paniculatum</u>	<u>3</u>	<u>No</u>	<u>FACU</u>	
7. <u>Polygala curtissii</u>	<u>3</u>	<u>No</u>	<u>UPL</u>	
8. <u>Setaria pumila</u>	<u>3</u>	<u>No</u>	<u>FAC</u>	
9. <u>Erechtites hieraciifolius</u>	<u>3</u>	<u>No</u>	<u>FACU</u>	
10. _____				
11. _____				
		<u>110</u> =Total Cover		
50% of total cover: <u>55</u>		20% of total cover: <u>22</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. <u>No rooted woody vines</u>				
2. _____				
3. _____				
4. _____				
5. _____				
		=Total Cover		
50% of total cover: _____		20% of total cover: _____		
Remarks: (Include photo numbers here or on a separate sheet.)				
Parameter is not met.				

SOIL

Sampling Point: DP-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	2.5Y 5/3	95	7.5YR 4/4	5	C	M	Loamy/Clayey	Distinct redox concentrations
6-18	5YR 5/8	50	10YR 5/3	50			Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)

☐ 2 cm Muck (A10) (**MLRA 147**)
☐ Coast Prairie Redox (A16) (**MLRA 147, 148**)
☐ Piedmont Floodplain Soils (F19) (**MLRA 136, 147**)
☐ Red Parent Material (F21) (**outside MLRA 127, 147, 148**)
☐ Very Shallow Dark Surface (F22)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):	Hydric Soil Present?
Type: _____ Depth (inches): _____	Yes _____ No <u>X</u>

Remarks:
 Parameter is not met. Some organic matter has been lost through oxidation since the site has been in agriculture/pasture since 1950.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

 Project/Site: Cirrus – Keyser 230 kV Loop and Related Projects City/County: Culpeper/ Culpeper County Sampling Date: 7/19/2022

 Applicant/Owner: Dominion Energy Virginia State: VA Sampling Point: DP-8

 Investigator(s): Phil Bailey and Dakota Hunter, VHB, Inc. Section, Township, Range: N/A

 Landform (hillside, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

 Subregion (LRR or MLRA): LRR N, MLRA 130A Lat: 38.437358 Long: -77.92546 Datum: WGS 84

 Soil Map Unit Name: Sycoline-Kelly complex, 0-2% slopes NWI classification: PFO1A

 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: The Antecedent Precipitation Tool shows normal conditions on the day of sampling. In NWI freshwater forested/shrub wetland.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Parameter is met. Heavy thunderstorms day prior.	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP-8

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>No rooted trees</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Sapling Stratum (Plot size: <u>30'</u>)			
1. <u>No rooted saplings</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Shrub Stratum (Plot size: <u>30'</u>)			
1. <u>No rooted shrubs</u>			
2. _____			
3. _____			
4. _____			
5. _____			
6. _____			
_____ = Total Cover			
50% of total cover: _____ 20% of total cover: _____			
Herb Stratum (Plot size: <u>30'</u>)			
1. <u>Juncus effusus</u>	38	Yes	FACW
2. <u>Bidens frondosa</u>	15	Yes	FACW
3. <u>Scirpus atrovirens</u>	15	Yes	OBL
4. <u>Rubus pensilvanicus</u>	15	Yes	FAC
5. <u>Arthraxon hispidus</u>	15	Yes	FAC
6. <u>Euthamia graminifolia</u>	15	Yes	FAC
7. <u>Ludwigia palustris</u>	3	No	OBL
8. <u>Juncus tenuis</u>	3	No	FAC
9. <u>Juncus dichotomus</u>	3	No	FACW
10. _____			
11. _____			
122 = Total Cover			
50% of total cover: <u>61</u> 20% of total cover: <u>25</u>			
Woody Vine Stratum (Plot size: <u>30'</u>)			
1. <u>Lonicera japonica</u>	3	No	FACU
2. _____			
3. _____			
4. _____			
5. _____			
3 = Total Cover			
50% of total cover: <u>2</u> 20% of total cover: <u>1</u>			

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species _____	x 1 = _____
FACW species _____	x 2 = _____
FAC species _____	x 3 = _____
FACU species _____	x 4 = _____
UPL species _____	x 5 = _____
Column Totals: _____ (A)	_____ (B)
Prevalence Index = B/A = _____	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤3.0¹

 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Five Vegetation Strata:

Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).

Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.

Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.

Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.

Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (Include photo numbers here or on a separate sheet.)
Parameter is met.

SOILSampling Point: DP-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	2.5Y 4/1	80	7.5YR 4/6	20	C	PL/M	Loamy/Clayey	Prominent redox concentrations
6-18	2.5Y 5/1	75	7.5YR 4/6	25	C	M	Loamy/Clayey	Prominent redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input checked="" type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

Parameter is met.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

 Project/Site: Cirrus – Keyser 230 kV Loop and Related Projects City/County: Culpeper/ Culpeper County Sampling Date: 7/19/2022

 Applicant/Owner: Dominion Energy Virginia State: VA Sampling Point: DP-9

 Investigator(s): Phil Bailey and Dakota Hunter, VHB, Inc. Section, Township, Range: N/A

 Landform (hillside, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 3-5

 Subregion (LRR or MLRA): LRR N, MLRA 130A Lat: 38.43721 Long: -77.92453 Datum: WGS 84

 Soil Map Unit Name: Sycoline-Kelly complex, 0-2% slopes NWI classification: PFO1A

 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: The Antecedent Precipitation Tool shows normal conditions on the day of sampling. In NWI freshwater forested/shrub wetland. Hillslope above wetland WU.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> ___ Surface Water (A1) ___ True Aquatic Plants (B14) ___ High Water Table (A2) ___ Hydrogen Sulfide Odor (C1) ___ Saturation (A3) ___ Oxidized Rhizospheres on Living Roots (C3) ___ Water Marks (B1) ___ Presence of Reduced Iron (C4) ___ Sediment Deposits (B2) ___ Recent Iron Reduction in Tilled Soils (C6) ___ Drift Deposits (B3) ___ Thin Muck Surface (C7) ___ Algal Mat or Crust (B4) ___ Other (Explain in Remarks) ___ Iron Deposits (B5) ___ Inundation Visible on Aerial Imagery (B7) ___ Water-Stained Leaves (B9) ___ Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> ___ Surface Soil Cracks (B6) ___ Sparsely Vegetated Concave Surface (B8) ___ Drainage Patterns (B10) ___ Moss Trim Lines (B16) ___ Dry-Season Water Table (C2) ___ Crayfish Burrows (C8) ___ Saturation Visible on Aerial Imagery (C9) ___ Stunted or Stressed Plants (D1) ___ Geomorphic Position (D2) ___ Shallow Aquitard (D3) ___ Microtopographic Relief (D4) ___ FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u> </u> No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Parameter is not met. Heavy thunderstorms day prior.	

VEGETATION (Five Strata) – Use scientific names of plants.Sampling Point: DP-9

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>No rooted trees</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33.3%</u> (A/B)																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
=Total Cover				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="width: 50%;">Total % Cover of:</th> <th style="width: 50%;">Multiply by:</th> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>0</u></td> <td>x 2 = <u>0</u></td> </tr> <tr> <td>FAC species <u>38</u></td> <td>x 3 = <u>114</u></td> </tr> <tr> <td>FACU species <u>97</u></td> <td>x 4 = <u>388</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>135</u> (A)</td> <td><u>502</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.72</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>0</u>	x 2 = <u>0</u>	FAC species <u>38</u>	x 3 = <u>114</u>	FACU species <u>97</u>	x 4 = <u>388</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>135</u> (A)	<u>502</u> (B)	Prevalence Index = B/A = <u>3.72</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>0</u>	x 2 = <u>0</u>																			
FAC species <u>38</u>	x 3 = <u>114</u>																			
FACU species <u>97</u>	x 4 = <u>388</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>135</u> (A)	<u>502</u> (B)																			
Prevalence Index = B/A = <u>3.72</u>																				
50% of total cover: _____ 20% of total cover: _____																				
Sapling Stratum (Plot size: <u>30'</u>)																				
1. <u>No rooted saplings</u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Shrub Stratum (Plot size: <u>30'</u>)																				
1. <u>No rooted shrubs</u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
=Total Cover																				
50% of total cover: _____ 20% of total cover: _____																				
Herb Stratum (Plot size: <u>30'</u>)																				
1. <u>Rubus pensilvanicus</u>	<u>38</u>	<u>Yes</u>	<u>FAC</u>																	
2. <u>Cirsium vulgare</u>	<u>38</u>	<u>Yes</u>	<u>FACU</u>																	
3. <u>Ambrosia artemisiifolia</u>	<u>15</u>	<u>No</u>	<u>FACU</u>																	
4. <u>Solidago altissima</u>	<u>3</u>	<u>No</u>	<u>FACU</u>																	
5. <u>Lespedeza cuneata</u>	<u>3</u>	<u>No</u>	<u>FACU</u>																	
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
=Total Cover																				
50% of total cover: <u>49</u> 20% of total cover: <u>20</u>																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. <u>Lonicera japonica</u>	<u>38</u>	<u>Yes</u>	<u>FACU</u>																	
2. _____																				
3. _____																				
4. _____																				
5. _____																				
=Total Cover																				
50% of total cover: <u>19</u> 20% of total cover: <u>8</u>																				
Remarks: (Include photo numbers here or on a separate sheet.) Parameter is not met.																				

Definitions of Five Vegetation Strata:
Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH).
Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH.
Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height.
Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, and woody plants, except woody vines, less than approximately 3 ft (1 m) in height.
Woody Vine – All woody vines, regardless of height.

Hydrophytic Vegetation Present? Yes No X

SOILSampling Point: DP-9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-10	10YR 4/4	100					Loamy/Clayey	
10-18	7.5YR 3/3	100					Loamy/Clayey	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.
²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> 2 cm Muck (A10) (LRR N) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Mucky Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5) <input type="checkbox"/> Stripped Matrix (S6) <input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148) <input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148) <input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8) <input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N, MLRA 136) <input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136) <input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148) <input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)

Restrictive Layer (if observed):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes ☐ No ☒

Remarks:
 Parameter is not met.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

 Project/Site: Cirrus – Keyser 230 kV Loop and Related Projects City/County: Culpeper/ Culpeper County Sampling Date: 7/19/2022

 Applicant/Owner: Dominion Energy Virginia State: VA Sampling Point: DP-10

 Investigator(s): Phil Bailey and Dakota Hunter, VHB, Inc. Section, Township, Range: N/A

 Landform (hillside, terrace, etc.): Drainage Local relief (concave, convex, none): Concave Slope (%): 2-4

 Subregion (LRR or MLRA): LRR N, MLRA 130A Lat: 38.437569 Long: -77.908868 Datum: WGS 84

 Soil Map Unit Name: Dulles-Nestoria complex, 0-2% slopes NWI classification: N/A

 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: The Antecedent Precipitation Tool shows normal conditions on the day of sampling.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input checked="" type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Parameter is met. Heavy thunderstorms day prior.	

VEGETATION (Five Strata) – Use scientific names of plants.Sampling Point: DP-10

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. <u>No rooted trees</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
=Total Cover																				
50% of total cover: _____		20% of total cover: _____																		
Sapling Stratum (Plot size: <u>30'</u>)																				
1. <u>No rooted saplings</u>				Prevalence Index worksheet: <table style="width: 100%;"> <tr> <td style="width: 50%;">Total % Cover of:</td> <td style="width: 50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>3</u></td> <td>x 2 = <u>6</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>68</u></td> <td>x 4 = <u>272</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>71</u> (A)</td> <td><u>278</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align: center;">Prevalence Index = B/A = <u>3.92</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>3</u>	x 2 = <u>6</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>68</u>	x 4 = <u>272</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>71</u> (A)	<u>278</u> (B)	Prevalence Index = B/A = <u>3.92</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>3</u>	x 2 = <u>6</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>68</u>	x 4 = <u>272</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>71</u> (A)	<u>278</u> (B)																			
Prevalence Index = B/A = <u>3.92</u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
=Total Cover																				
50% of total cover: _____		20% of total cover: _____																		
Shrub Stratum (Plot size: <u>30'</u>)																				
1. <u>No rooted shrubs</u>				Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
=Total Cover																				
50% of total cover: _____		20% of total cover: _____																		
Herb Stratum (Plot size: <u>30'</u>)																				
1. <u>Cynodon dactylon</u>	38	Yes	FACU	Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, <u>and</u> woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody Vine – All woody vines, regardless of height.																
2. <u>Sorghum halepense</u>	15	Yes	FACU																	
3. <u>Phytolacca americana</u>	15	Yes	FACU																	
4. <u>Diodia virginiana</u>	3	No	FACW																	
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
71 =Total Cover																				
50% of total cover: <u>36</u>		20% of total cover: <u>15</u>																		
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. <u>No rooted woody vines</u>				Hydrophytic Vegetation Present? Yes <u> </u> No <u> X </u>																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
=Total Cover																				
50% of total cover: _____		20% of total cover: _____																		
Remarks: (Include photo numbers here or on a separate sheet.)																				
Parameter is not met.																				

SOIL

Sampling Point: DP-10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	10YR 4/4	90	10YR 4/6	10	C	M	Loamy/Clayey	Distinct redox concentrations
6-14	10YR 3/6	85	10YR 5/6	15	C	M	Loamy/Clayey	Faint redox concentrations
14-18	10YR 4/4	40	10YR 4/2	30	D	M	Loamy/Clayey	
			7.5YR 5/6	30	C	M		Distinct redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)	<input type="checkbox"/> (MLRA 147, 148)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> (outside MLRA 127, 147, 148)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N,	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> MLRA 136)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):		Hydric Soil Present?	
Type: _____		Yes	No
Depth (inches): _____			X

Remarks:
Parameter is not met. Some organic matter has been lost through oxidation since the site has been in agriculture/pasture since 1950.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Eastern Mountains and Piedmont Region See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	OMB Control #: 0710-xxxx, Exp: Pending Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
---	---

 Project/Site: Cirrus – Keyser 230 kV Loop and Related Projects City/County: Culpeper/ Culpeper County Sampling Date: 7/20/2022

 Applicant/Owner: Dominion Energy Virginia State: VA Sampling Point: DP-11

 Investigator(s): Phil Bailey and Dakota Hunter, VHB, Inc. Section, Township, Range: N/A

 Landform (hillside, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-2

 Subregion (LRR or MLRA): LRR N, MLRA 130A Lat: 38.43738 Long: -77.90858 Datum: WGS 84

 Soil Map Unit Name: Dulles-Nestoria complex, 0-2% slopes NWI classification: N/A

 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

 Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

 Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u>X</u> No <u> </u> Wetland Hydrology Present? Yes <u>X</u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u>X</u> No <u> </u>
Remarks: The Antecedent Precipitation Tool shows normal conditions on the day of sampling.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> True Aquatic Plants (B14) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input checked="" type="checkbox"/> Saturation (A3) <input checked="" type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Drift Deposits (B3) <input type="checkbox"/> Thin Muck Surface (C7) <input checked="" type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Other (Explain in Remarks) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13)	<u>Secondary Indicators (minimum of two required)</u> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry-Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input checked="" type="checkbox"/> Geomorphic Position (D2) <input checked="" type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input checked="" type="checkbox"/> FAC-Neutral Test (D5)
Field Observations: Surface Water Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Water Table Present? Yes <u> </u> No <u>X</u> Depth (inches): <u> </u> Saturation Present? Yes <u>X</u> No <u> </u> Depth (inches): <u>0</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No <u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:	
Remarks: Parameter is met. Shallow aquitard (saturation from 0-6 inches).	

VEGETATION (Five Strata) – Use scientific names of plants.

Sampling Point: DP-11

Tree Stratum (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>No rooted trees</u>				Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66.7%</u> (A/B)
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
=Total Cover				
50% of total cover: _____		20% of total cover: _____		
Sapling Stratum (Plot size: <u>30'</u>)				
1. <u>No rooted saplings</u>				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
=Total Cover				
50% of total cover: _____		20% of total cover: _____		
Shrub Stratum (Plot size: <u>30'</u>)				
1. <u>Robinia pseudoacacia</u>	<u>3</u>	<u>Yes</u>	<u>FACU</u>	Hydrophytic Vegetation Indicators: <u>1</u> - Rapid Test for Hydrophytic Vegetation <u>X</u> <u>2</u> - Dominance Test is >50% <u>3</u> - Prevalence Index is ≤3.0 ¹ <u>4</u> - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Fraxinus pennsylvanica</u>	<u>3</u>	<u>Yes</u>	<u>FACW</u>	
3. _____				
4. _____				
5. _____				
6. _____				
=Total Cover				
50% of total cover: <u>3</u>		20% of total cover: <u>2</u>		
Herb Stratum (Plot size: <u>30'</u>)				
1. <u>Carex annectens</u>	<u>63</u>	<u>Yes</u>	<u>FACW</u>	Definitions of Five Vegetation Strata: Tree – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and 3 in. (7.6 cm) or larger in diameter at breast height (DBH). Sapling – Woody plants, excluding woody vines, approximately 20 ft (6 m) or more in height and less than 3 in. (7.6 cm) DBH. Shrub - Woody Plants, excluding woody vines, approximately 3 to 20 ft (1 to 6 m) in height. Herb – All herbaceous (non-woody) plants, including herbaceous vines, regardless of size, <u>and</u> woody plants, except woody vines, less than approximately 3 ft (1 m) in height. Woody Vine – All woody vines, regardless of height.
2. <u>Carex lurida</u>	<u>15</u>	<u>No</u>	<u>OBL</u>	
3. <u>Juncus effusus</u>	<u>15</u>	<u>No</u>	<u>FACW</u>	
4. <u>Lycopus virginicus</u>	<u>3</u>	<u>No</u>	<u>OBL</u>	
5. <u>Cynodon dactylon</u>	<u>3</u>	<u>No</u>	<u>FACU</u>	
6. <u>Rumex crispus</u>	<u>3</u>	<u>No</u>	<u>FAC</u>	
7. <u>Persicaria hydropiper</u>	<u>3</u>	<u>No</u>	<u>OBL</u>	
8. <u>Ludwigia palustris</u>	<u>3</u>	<u>No</u>	<u>OBL</u>	
9. <u>Scirpus atrovirens</u>	<u>3</u>	<u>No</u>	<u>OBL</u>	
10. _____				
11. _____				
=Total Cover				
50% of total cover: <u>56</u>		20% of total cover: <u>23</u>		
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. <u>No rooted woody vines</u>				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
=Total Cover				
50% of total cover: _____		20% of total cover: _____		
Remarks: (Include photo numbers here or on a separate sheet.) Parameter is met.				

SOIL

Sampling Point: DP-11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-8	2.5Y 5/2	80	7.5YR 4/6	20	C	PL/M	Loamy/Clayey	Prominent redox concentrations
8-12	7.5YR 4/6	100					Loamy/Clayey	
12-18	10YR 4/4	70	7.5YR 4/6	30	C	M	Loamy/Clayey	Distinct redox concentrations

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. ²Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:		Indicators for Problematic Hydric Soils ³ :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Polyvalue Below Surface (S8) (MLRA 147, 148)	<input type="checkbox"/> 2 cm Muck (A10) (MLRA 147)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Thin Dark Surface (S9) (MLRA 147, 148)	<input type="checkbox"/> Coast Prairie Redox (A16)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (MLRA 136)	<input type="checkbox"/> (MLRA 147, 148)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Piedmont Floodplain Soils (F19)	
<input type="checkbox"/> Stratified Layers (A5)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> (MLRA 136, 147)	
<input type="checkbox"/> 2 cm Muck (A10) (LRR N)	<input type="checkbox"/> Redox Dark Surface (F6)	<input type="checkbox"/> Red Parent Material (F21)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	<input type="checkbox"/> (outside MLRA 127, 147, 148)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	<input type="checkbox"/> Very Shallow Dark Surface (F22)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Iron-Manganese Masses (F12) (LRR N,	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> MLRA 136)		
<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Umbric Surface (F13) (MLRA 122, 136)		
<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Piedmont Floodplain Soils (F19) (MLRA 148)		
<input type="checkbox"/> Dark Surface (S7)	<input type="checkbox"/> Red Parent Material (F21) (MLRA 127, 147, 148)		

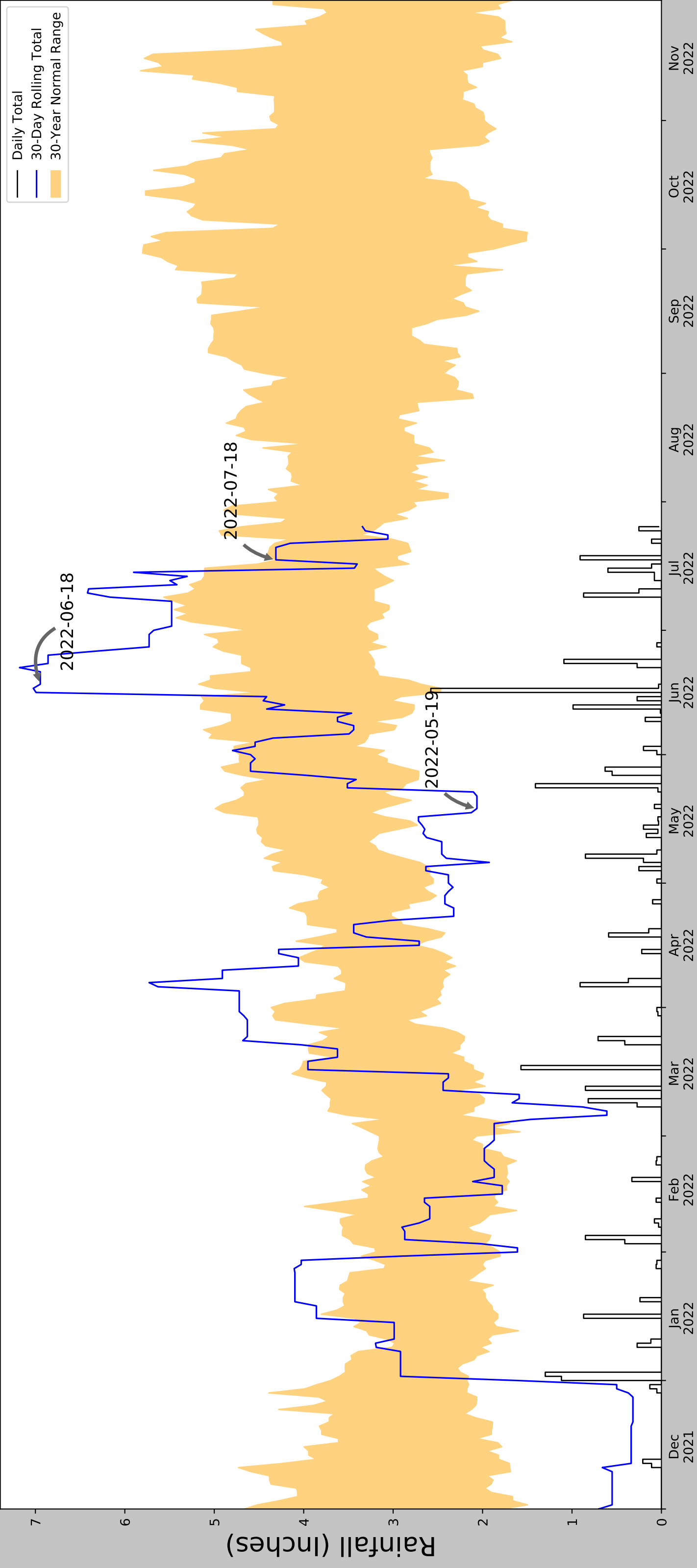
³Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):		Hydric Soil Present?	
Type: <u>Shallow Aquitard</u>		Yes	<u>X</u> No
Depth (inches): <u>6</u>			

Remarks:
Parameter is met. Some organic matter has been lost through oxidation since the site has been in agriculture/pasture since 1950.

Attachment 3 – Antecedent Precipitation Tool Data

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	38.45036, -77.96320
Observation Date	2022-07-18
Elevation (ft)	361.31
Drought Index (PDSI)	Incipient drought (2022-06)
WebWIMP H ₂ O Balance	Dry Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-07-18	2.951181	4.294488	4.311024	Wet	3	3	9
2022-06-18	2.688189	5.174803	6.944882	Wet	3	2	6
2022-05-19	3.138189	4.988189	2.062992	Dry	1	1	1
Result							Wetter than Normal - 16

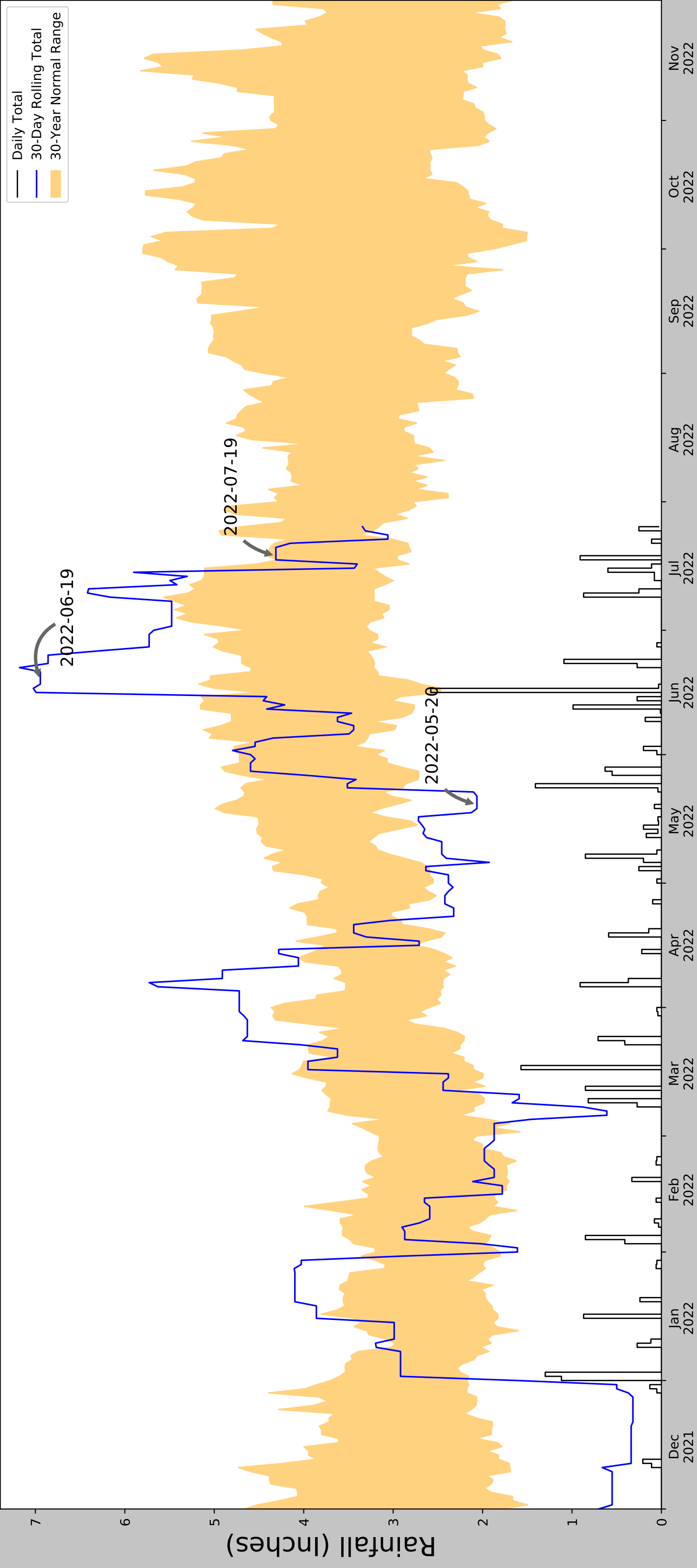


Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
LOUISA	38.0422, -78.0061	419.948	28.297	58.638	14.393	11329	90
GORDONSVILLE 3 S	38.0861, -78.1825	459.974	10.064	40.026	4.932	23	0
PIEDMONT RSCH STN	38.2322, -78.1203	520.013	14.521	100.065	7.987	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	38.45036, -77.96320
Observation Date	2022-07-19
Elevation (ft)	361.31
Drought Index (PDSI)	Incipient drought (2022-06)
WebWIMP H ₂ O Balance	Dry Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-07-19	2.954725	4.416929	4.311024	Normal	2	3	6
2022-06-19	2.831102	5.039764	6.944882	Wet	3	2	6
2022-05-20	2.962205	4.911024	2.062992	Dry	1	1	1
Result							Normal Conditions - 13

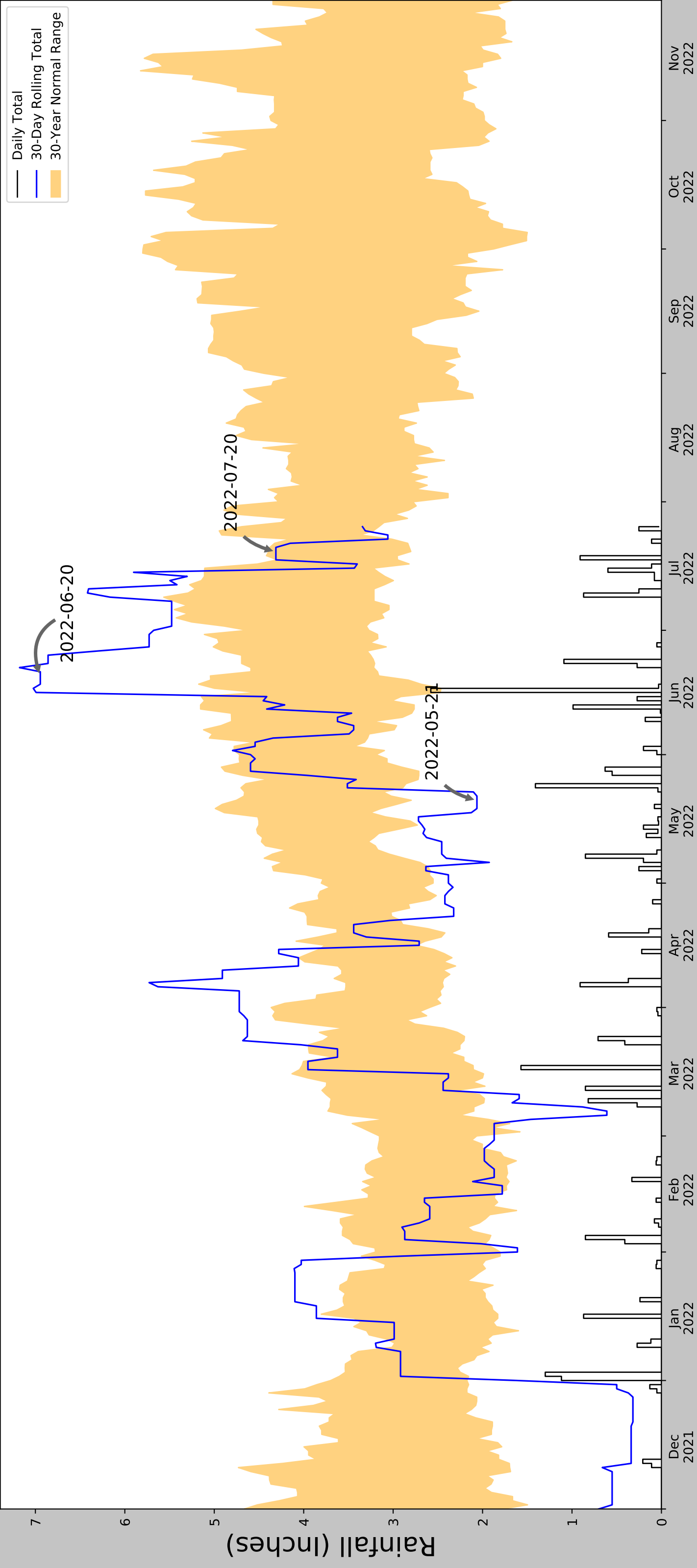


Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
LOUISA	38.0422, -78.0061	419.948	28.297	58.638	14.393	11329	90
GORDONSVILLE 3 S	38.0861, -78.1825	459.974	10.064	40.026	4.932	23	0
PIEDMONT RSCH STN	38.2322, -78.1203	520.013	14.521	100.065	7.987	1	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	38.45036, -77.96320
Observation Date	2022-07-20
Elevation (ft)	361.31
Drought Index (PDSI)	Incipient drought (2022-06)
WebWIMP H ₂ O Balance	Dry Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-07-20	2.801969	4.390945	4.311024	Normal	2	3	6
2022-06-20	3.160236	5.043307	6.944882	Wet	3	2	6
2022-05-21	2.79685	4.751575	2.062992	Dry	1	1	1
Result							Normal Conditions - 13



Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
LOUISA	38.0422, -78.0061	419.948	28.297	58.638	14.393	11329	90
GORDONSVILLE 3 S	38.0861, -78.1825	459.974	10.064	40.026	4.932	23	0
PIEDMONT RSCH STN	38.2322, -78.1203	520.013	14.521	100.065	7.987	1	0

Attachment 4 – USACE Jurisdictional Waters Determination Request Form



NORFOLK DISTRICT REGULATORY OFFICE PRE-APPLICATION AND/OR JURISDICTIONAL WATERS DETERMINATION REQUEST FORM

This form is used when you want to determine if areas on your property fall under regulatory requirements of the U.S. Army Corps of Engineers (USACE). Please supply the following information and supporting documents described below. This form can be filled out online and/or printed and then mailed, faxed, or e-mailed to the Norfolk District. Submitting this request authorizes the US Army Corps of Engineers to field inspect the property site, if necessary, to help in the determination process. **THIS FORM MUST BE SIGNED BY THE PROPERTY OWNER TO BE CONSIDERED A FORMAL REQUEST.**

The printed form and supporting documents should be mailed to:

U.S. Army Corps of Engineers, Norfolk District
Regulatory Branch
803 Front Street
Norfolk, Virginia 23510-1096

Or faxed to (757) 201-7678

Or sent via e-mail to: CENAO.REG_ROD@usace.army.mil

Additional information on the Regulatory Program is available on our website at:
<http://www.nao.usace.army.mil/>

Please contact us at 757-201-7652 if you need any assistance with filling out this form.

Location and Information about Property to be subject to a Jurisdictional Determination:

1. Date of Request:
2. Project Name: Related Projects
3. City or County where property located:
4. Address of property and directions (attach a map of the property location and a copy of the property plat):
5. Coordinates of property (if known):
6. Size of property in acres:
7. Tax Parcel Number / GPIN (if available):
8. Name of Nearest Waterway:

9. Brief Description of Proposed Activity, Reason for Preapplication Request, and/or Reason for Jurisdictional Waters Determination Request:

10. Has a wetland delineation/determination been completed by a consultant or the Corps on the property previously? ☐ YES ☐ NO UNKNOWN

If yes, please provide the name of the consultant and/or Corps staff and Corps permit number, if available:

Property Owner Contact Information:

Property Owner Name:

Mailing Address:

City: State: Zip:

Daytime Telephone:

E-mail Address:

If the person requesting the Jurisdictional Determination is **NOT** the Property Owner, please also supply the Requestor's contact information here:

Requestor Name:

Mailing Address:

City: State: Zip:

Daytime Telephone:

E-mail Address:

Additionally, if you have any of the following information, please include it with your request: wetland delineation map, other relevant maps, drain tile survey, topographic survey, and/or site photographs.

CERTIFICATION: I am hereby requesting a preapplication consultation or jurisdictional waters and/or wetlands determination from the U.S. Army Corps of Engineers, for the property(ies) I have described herein. I agree to allow the duly authorized representatives of the Norfolk District Corps of Engineers and other regulatory or advisory agencies to enter upon the premises of the project site at reasonable times to evaluate inspect and photograph site conditions. This consent to enter the property is superior to, takes precedence over, and waives any communication to the contrary. For example, if the property is posted as "no trespassing" this consent specifically supercedes and waives that prohibition and grants permission to enter the property despite such posting. I hereby certify that the information contained in the Request for a Jurisdictional Determination is accurate and complete:



Property Owner's Signature Agent

Date

Attachment 5 – Wetland Delineation Report Site Information Summary Form

Waters of the U.S. Delineation Report Site Information Summary

Cirrus – Keyser 230 kV Loop and Related Projects

Culpeper County, Virginia

Date

August 10, 2022

Latitude/ Longitude in Decimal Degrees using coordinate plane (NAD 1983)

38.46233210123412, -77.97362129425008

Has a previous delineation or JD been performed? If so please provide USACE Project Number: Unknown

8-Digit Hydrologic Unit Code (HUC)

02080103

USGS Topographic Sheet

USGS 7.5 min Quadrangle Culpeper East, Virginia

Nearest Waterbody

Mountain Run

Delineation Methods

VHB applied the technical criteria outlined in 1987 *Corps of Engineers Wetland Delineation Manual* and the 2012 *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0)* to complete the wetland delineation. Vegetation data was recorded on data forms based on the USACE 2020 *National Wetland Plant List*.

On-Site Investigation Date

Waters of the U.S. boundary delineation and site data collection conducted from July 18 - 20, 2022.

Waters of the U.S. Delineation

The proposed wetland boundaries and data sampling point locations are depicted on the map entitled “Waters of the U.S. Delineation Map” prepared by VHB on August 10, 2022.

Waters of the U.S. Investigation Results

A total of approximately 8.7 acres of PEM, 0.15 acres of PFO, 887 linear feet (LF) of R3 stream channel, 704 LF of R4 stream channel, 546 LF of EPH stream channel, and 350 LF of jurisdictional ditch were identified within the 75-acre project area during this investigation.

Water bodies onsite identified as Section 10: N/A

100-Year Floodplains

As depicted on the Federal Emergency Management Agency's (FEMA) on-line Flood Insurance Rate Map # 51047C0230D, effective date 02/26/2021, portions of the subject property lie within the 100-year floodplain (Zone A).

National Wetlands Inventory

The on-line National Wetland Inventory depicts Freshwater ponds (PuBHh), Riverine (R5UBH, R4SBA, R4SBC, R4SBCx, R2UBH), Freshwater Emergent Wetland (PFO1C, PFO1A, PFO4C, PFO1/4A, PEM1B, PEM1C) within the project area (Attachment 1, Figure 3).

USDA Soil Survey

Soil map units within the project area are listed below and also shown in Attachment 1, Figure 2.

- 9A - Clover-Penn complex, 0-2% slopes
- 9B - Clover-Penn complex, 2-7% slopes
- 11B - Codorus and Meadowville soils, 2-7% slopes, occasionally flooded
- 16A - Dulles-Nestoria complex, 0-2% slopes
- 20A - Elbert silt loam, 0-2% slopes, occasionally ponded
- 43B - Ott-Kelly complex, 2-7% slopes
- 45B - Penn-Nestoria complex, 2-7% slopes
- 45C - Penn-Nestoria complex, 7-15% slopes
- 46 - Pits, quarry
- 47B - Rapidan silty clay loam, 2-7% slopes
- 48C - Rapidan-Penn complex, 7-15% slopes, rocky
- 51A - Sycoline-Kelly complex, 0-2% slopes
- 52 - Udorthents, smoothed-Urban land, 0-7% slopes

Notes

N/A

Attachment 6 – USACE Norfolk District Checklist

US ARMY CORPS OF ENGINEERS, NORFOLK DISTRICT PRE- APPLICATION AND JURISDICTIONAL DETERMINATION CHECKLIST

This checklist is to assist you in submitting complete and proper information. Please keep in mind that this is not an exhaustive list. Each project has unique components and **more or less information may be required** by the project manager to complete the Jurisdictional Determination (JD) on any given project. However, this list contains information typically necessary for this office to issue a JD. We appreciate your cooperation in providing this information at the time of your request. Failure to provide this information may delay our response to you.

1. ☒ **Written request** using the two page form, "NORFOLK DISTRICT REGULATORY OFFICE PRE-APPLICATION AND/OR JURISDICTIONAL WATERS DETERMINATION REQUEST FORM" available at: http://www.nao.usace.army.mil/Portals/31/docs/regulatory/commonreq/Preapplication_Request_Form.pdf
The form must be filled out completely and include all contact information and written permission (signature) from the property owner or the owner's legal representative for USACE personnel to access the property.
 - a. ☒ **Date of Request.**
 - b. ☒ **Project Name.**
 - c. ☒ **Location** City or County.
 - d. ☒ **Address of property** or review area and directions (road names, cross streets, nearest town, etc).
☒ **Coordinates** of center of property or review area in **decimal degrees** (xx.xxxx°N, – xx.xxxx°W or nat). Linear projects should also include decimal degrees location of the start and end of the review/project area.
 - e. **Size** of property or review area in acres.
 - f. ☒ **Tax Parcel Number/GPIN** (if available).
 - g. ☒ **Name of nearest named waterbody** (stream/river/lake) to which the property or review area is hydrologically connected, closest TNW, name and number of drainage basin (if the property is connected to an unnamed tributary, then specify the nearest named waterbody, e.g. unnamed tributary to James River).
 - h. ☒ **Name, address, and phone number** of applicant, current property owner(s), and agent/consultant (if applicable).
 - i. ☒ **Reason for request.**
 - j. ☒ **Past Actions** including JDs, Permits, etc with the Corps Action ID number.
 - k. ☒ **Property Owner Contact Information.**
 - l. ☒ **Requestor Name** (if applicable).
 - m. **Signature of Property Owner (REQUIRED).**

IF A WETLAND DELINEATION HAS BEEN PERFORMED AND YOU REQUIRE

☒ **CONFIRMATION OF THE DELINEATION, PLEASE PROVIDE:**

2. ☒ **Completed Wetland Delineation Report Site Information Summary form** for all jurisdictional waters on-site. This form will assist us in expediting your JD request and determining if a site visit is necessary. [http://www.nao.usace.army.mil/Portals/31/docs/regulatory/commonreq/Wetland%20Delineation%20Report t%20Site%20Information%20Summary.docx?ver=2018-07-23-102034-137](http://www.nao.usace.army.mil/Portals/31/docs/regulatory/commonreq/Wetland%20Delineation%20Report%20Site%20Information%20Summary.docx?ver=2018-07-23-102034-137)
3. **Photographs** should be representative of the site and may include pictures of the wetlands, soils, tributaries, on the site. Photographs will help in determining the need for a site visit.
4. ☒ **Data forms** of both upland and wetland data points for **each** wetland type; forms available at: http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/atlantic_gcp_df25.pdf

http://www.usace.army.mil/Portals/2/docs/civilworks/regulatory/reg_supp/int_emp_df25b.pdf. All data points shall include distinct decimal degrees location of the point taken.

5. X **Size of waters of the US.** Total area (acreage or square feet) of each wetland and open water on site. Total linear feet of each on site tributary. A distinct name for each water (i.e. Wetland A, Wetland B, Tributary A, Open Water A).
6. **Sketch or Drawing** of the approximate location(s) of waters of the United States, including wetlands, on the parcel being evaluated.
7. X **Maps** which must include: scale, north arrow, title block with date, property name, drawing number/preparer, revision dates, roads and waterway names and project/property boundaries.
 - a. X **Vicinity/Location Map** including exact location of the property or review area. It should include the nearest intersection of two state highways or other identifiable reference points. A USGS quadrangle map and/or street atlas is preferred.
 - b. X **Soils Map** available at: <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>.
 - c. X **Aerial Map** with property or review area limits and wetland/waters sketch including date of photo, available at: <http://earth.google.com/>.
 - d. X **USGS Topographic Map** including quadrangle name and date, available at: [https://store.usgs.gov/filter-products?country=US®ion=VA&map_filters=\[22711\]&type=US+Topo&sort=relevance](https://store.usgs.gov/filter-products?country=US®ion=VA&map_filters=[22711]&type=US+Topo&sort=relevance)
 - e. **Flood Plain Map**, available at: <http://msc.fema.gov>.
 - f. X **National Wetlands Inventory (NWI) Map**, available at: <http://www.fws.gov/wetlands/Data/Mapper.html>.
 - g. **Infra-red maps** (optional).
 - h. **Engineering Surveys**, e.g. two foot or less topographic map of the site (optional).
 - i. **LiDAR** is highly recommended where available and eases the review of a project including: desktop verification requests, re-verification requests and determining whether a site visit is necessary. LiDAR data is available from NOAA <https://coast.noaa.gov/dataviewer/#/lidar/search/> and USGS The National Map <https://viewer.nationalmap.gov/basic/>
 - j. **Shapefiles** if provided will assist in the review of the project.

Questions can be directed to the following phone number: Regulator of the Day 757-201-7652

Attachment 7 – Photography Log



NO. 1

DESCRIPTION

Photo of DP-1 showing linear emergent wetland.



NO. 2

DESCRIPTION

Photo of DP-2, taken in upland swale located in NWI mapped feature



NO. 3

DESCRIPTION

Photo of DP-3, showing
emergent wetland along
Germanna Highway



NO. 4

DESCRIPTION

Photo of DP-4 showing upland
floodplain along stream channel



NO. 5

DESCRIPTION

Photo of DP-5 showing farm field wetland associated with farm pond



NO. 6

DESCRIPTION

Photo of DP-6, showing upland swale associated with wetland WS



NO. 7

DESCRIPTION

Photo of DP-7, showing upland community between wetlands WS and WT



NO. 8

DESCRIPTION

Photo of DP-8, showing emergent wetland WU



NO. 9

DESCRIPTION

View of DP-9, showing upland
hillslope associated with wetland
WU



NO. 10

DESCRIPTION

Photo of DP-10, showing culverts
associated with upland
drainageway



NO. 11

DESCRIPTION

Photo of DP-11, showing linear wetland below culverted crossing



NO. 12

DESCRIPTION

Representative photo showing isolated wetlands behind mining facilities berm



NO. 13

DESCRIPTION

Representative photo showing
linear wetland WK in farm field



NO. 14

DESCRIPTION

Representative photo showing
fence line between farm fields

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



October 12, 2022

BY E-MAIL

Ms. Michelle Henicheck
Office of Wetlands and Streams
Department of Environmental Quality
1111 East Main Street, Suite 1400
Richmond, Virginia 23219

RE: Dominion Energy Virginia's Proposed Cirrus – Keyser 230 kV Loop and Related Projects in Culpeper County, Virginia

Dear Ms. Henicheck,

Dominion Energy Virginia (the “Company”) is proposing to construct a new, approximately 5.2-mile overhead 230 kV double circuit transmission line-loop utilizing an existing 100-foot-wide right-of-way (ROW) resulting in three separate lines: (i) the 230 kV Gordonsville-Cirrus Line #2199, (ii) the 230 kV Cirrus-Keyser Line #2278, and (iii) the 230 kV Keyser-Germanna Line #2276 (collectively, the “Cirrus-Keyser 230 kV Loop”). Two new substations, the Cirrus Substation and the Keyser Substation, will be constructed on customer and Company-owned property. The Project is largely located within existing ROW or on Company-owned property. However, additional permanent ROW is needed on customer property to connect the Cirrus Substation to the existing 115 kV Line #70 and at the Mountain Run Junction. Temporary ROW is also needed for the 5.2-mile corridor to install a temporary line during construction.

The Project is needed to provide service to a Rappahannock Electric Cooperative data center customer, to maintain reliable service for the overall growth in the region, and to comply with mandatory North American Electric Reliability Corporation Reliability Standards.

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

A wetland delineation was conducted within the project study area in July 2022. The tables below provide a summary of the resources identified within the proposed Project area. A request for Preliminary Jurisdictional Determination will be submitted to the U.S. Army Corps of Engineers for confirmation.

Table 1: Summary of Field Delineated Wetland and Waterbody Occurrence within Cirrus-Keyser 203 kV Loop and Related Projects Study Area

Resource	Wetland Area	Stream Length
Palustrine Emergent Wetland (PEM)	8.70 AC	
Palustrine Scrub Shrub Wetland (PSS)	0.00 AC	
Palustrine Forested Wetland (PFO)	0.15 AC	
Palustrine Unconsolidated Bottom (PUB)	0.00 AC	
Jurisdictional Ditch		350 LF
Perennial Stream Channel (R3)		887 LF
Intermittent Stream Channel (R4)		704 LF
Ephemeral Stream Channel (EPH)		546 LF

At this time, in advance of filing an application with the Commission, the Company respectfully requests that you submit any comments or additional information you feel would have bearing on the Project within 30 days of the date of this letter.

Enclosed is a Project Overview Map depicting the proposed Cirrus-Keyser 230 kV Loop and Related Projects, as well as the general Project location. If you would like to receive a GIS shapefile of the route to assist in your project review or if you have any questions, please do not hesitate to contact Ginny Gills at (804) 201-3635 or virginia.b.gills@dominionenergy.com.

The Company appreciates your assistance with this project review and looks forward to any additional information you may have to offer.

Sincerely,

Dominion Energy Virginia



Darrell R. Shier
Authorized Representative
Manager, Environmental Services

Attachment: Project Map

ATTACHMENT V.A

PROJECT NOTICE MAP

Cirrus - Keyser 230 kV Loop and
Related Projects

Culpeper County, Virginia

Owner/ Applicant:

Dominion Energy, Virginia

C2 Env Project:

0245

Prepared By:

TMP

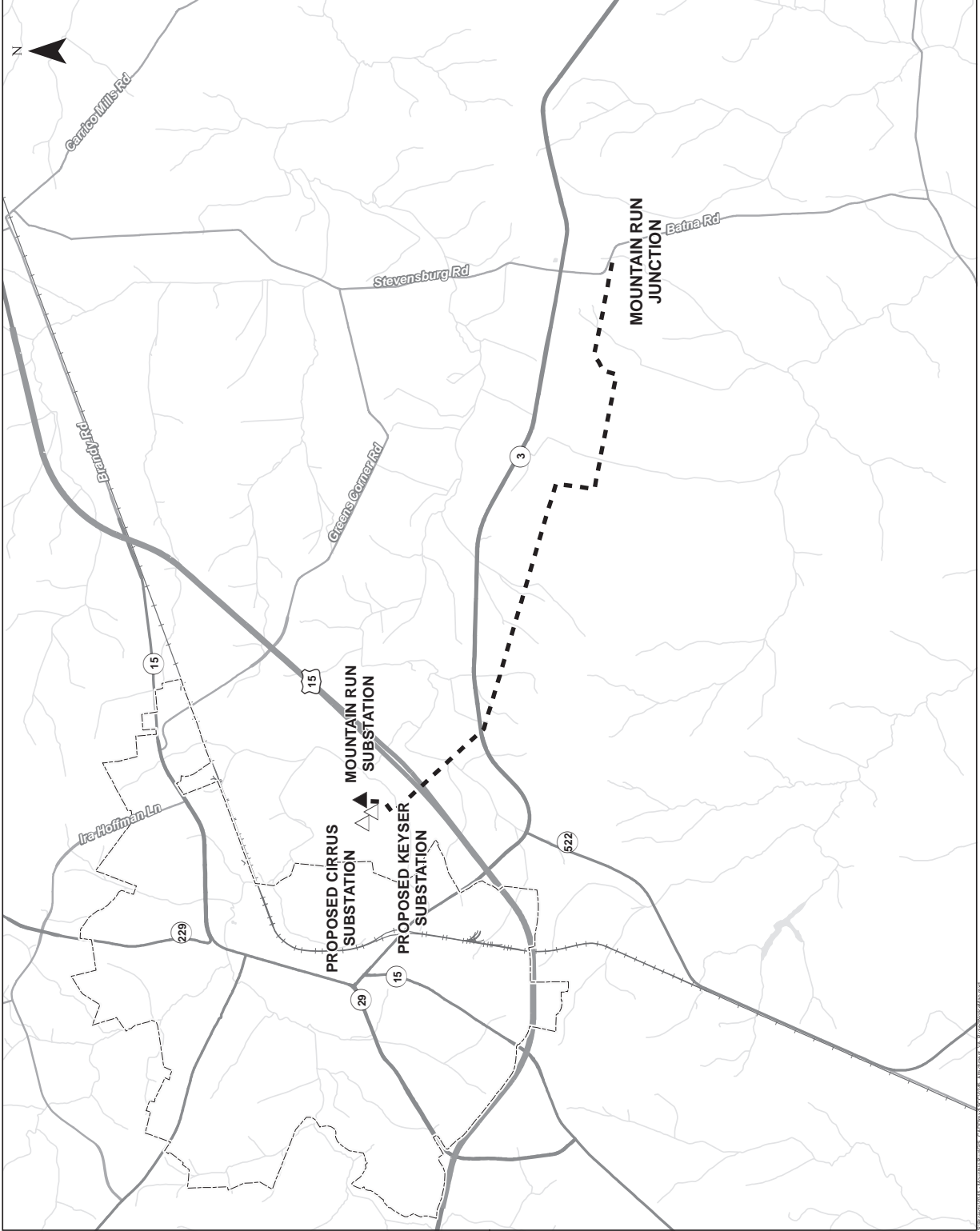
Date:

07/28/22

0 0.375 0.75 1.5 Miles
Scale is 1 IN = 0.75 Miles printed at original size of 11x17

LEGEND

- Project Centerline
- △ Proposed Dominion Substation
- ▲ Existing NOVEC Substation
- ▬ Limited Access Highway
- ▬ US or VA Primary Highway
- ▬ Local or Main Road
- ▬ Railroad
- ▬ NHD Stream/River
- ▬ NHD Waterbody
- ▭ Town of Culpeper



- Notes:
1. Basemap from ESRI Topographic Map
 2. Project Centerline from Dominion Energy
 3. Roads and railroads from VGIN
 4. Streams, rivers and waterbodies from USGS National Hydrography Data



SHEET 1 OF 1



MEMORANDUM

To: Ginny Gills, Dominion Energy Virginia
From: Christine Conrad, C2 Environmental, Inc.
Date: September 29, 2022
Project: Cirrus - Keyser 230 kV Loop and Related Projects
Reference: Solid and Hazardous Waste Review

On behalf of Dominion Energy Virginia (Dominion), C2 Environmental, Inc. (C2Env) has completed online database searches for solid and hazardous wastes and petroleum release sites within a 0.5-mile radius of the proposed Cirrus - Keyser 230 kV Loop and Related Projects located in Culpeper County, Virginia. The proposed project includes the rebuild of approximately 5.2 miles of existing 230 kV overhead electric transmission line and two new substations. The 230 kV line will be located within the existing, cleared transmission line right-of-way (ROW) that begins at Structure 70/1 and 2/1253 within the Mountain Run Substation and terminates at the Mountain Run Junction (Structure 70/53 and 2/1201). A temporary ROW will be required along the 5.2-mile corridor for the duration of line construction.

Publicly available data from the Environmental Protection Agency (EPA) Facility Registry System (FRS) were obtained, which provide information about facilities, sites, or places subject to environmental regulation or of environmental interest. Although this dataset includes all sites subject to environmental regulation by the EPA or other state authority, such as sites that fall under air emissions or wastewater programs, the results reported here only include those sites which fall under the EPA's hazardous waste, solid waste, remediation, and underground storage tank programs. These sites include the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)/Superfund; Resource Conservation and Recovery Act (RCRA); and brownfield sites. Per this database, there is one registered RCRA site, and no Superfund or brownfield sites present within 0.5-mile of the project

The Virginia Department of Environmental Quality (DEQ) records were also searched for the presence of solid waste permits, Voluntary Remediation Program (VRP) sites, petroleum releases and registered tank facilities within 0.5-mile of the proposed project. A total of three petroleum release sites, and two registered tank facilities are present within 0.5-mile of the project. No solid waste permits or VRP sites are present within 0.5-mile of the project.

Of the petroleum release sites, the closest site (PC Number: 20023229) is located approximately 994.1 linear feet from the project centerline. This site falls outside of the ROW and has been closed. Additionally, none of the other identified petroleum release sites identified within 0.5-mile of the proposed project intersect with the project ROW. All of the identified petroleum release sites are closed.

Neither of the two registered tank facilities within 0.5-mile of the project area have been identified within the ROW. The closest facility (Facility ID: 3023253) is located approximately 1,164.9 linear feet from the project centerline. Both facilities are active, federally registered, and contain active above ground storage tanks. No underground storage tanks are active at either facility. Dominion has a procedure in place to handle petroleum contaminated soil if encountered; however, as all the release sites are located outside of the project area, none of the petroleum release sites are expected to have an impact on the proposed project.

In conclusion, there are no Superfund or brownfield sites, 1 RCRA site, no solid waste permits or VRP sites, 3 petroleum release sites, and 2 registered tank facilities within a 0.5-mile radius of the project site. These sites are summarized in Tables 1-3 below.

Table 1. RCRA sites identified by the EPA within 0.5-mile of the project

Site Name	Registry ID	Location	Latitude	Longitude	Proximity to Centerline (feet)
Martin Marietta Culpeper Quarry	110001886772	Culpeper, VA	38.443832	-77.915542	2376

Table 2. Petroleum release sites identified by DEQ within 0.5-mile of the project

Site Name	PC Number	Federally Registered Tank	Status	Type of Release	Location	Latitude	Longitude	Proximity to Centerline (feet)
Culpeper Town STP - Advanced Waste Treatment Bldg	20023229	N	Closed	Confirmed	Culpeper	38.46563927	-77.9739132	994.1
Lee Hy Paving Corporation	19983675	Y	Closed	Confirmed	Culpeper	38.44228404	-77.9175678	2223.7
Oien Wendy Residence	20083081	N	Closed	Confirmed	Culpeper	38.44962444	-77.9354691	2089.5

Table 3. Registered tank facilities identified by DEQ within 0.5-mile of the project

Facility Name	Facility ID	Location	Facility Active	Federally Registered	Number of Active USTs	Number of Inactive USTs	Number of Active ASTs	Number of Inactive ASTs	Latitude	Longitude	Proximity to Centerline (feet)
Town of Culpeper Water Pollution Control	3023253	Culpeper	Y	Y	0	4	4	0	38.46611	-77.9738	1164.9
Luck Stone - Culpeper Plant	3032009	Culpeper	Y	Y	0	1	7	12	38.44132	-77.9176	1878.0



MEMORANDUM

To: Ginny Gills, Dominion Energy Virginia
From: Christine Conrad, C2 Environmental, Inc.
Date: September 29, 2022
Project: Cirrus - Keyser 230 kV Loop and Related Projects
Reference: Threatened and Endangered Species Review

On behalf of Dominion Energy Virginia (Dominion), C2 Environmental, Inc. (C2Env) has completed online database searches for federal and state threatened and endangered species for the Cirrus - Keyser 230 kV Loop and Related Projects located in Culpeper County, Virginia. The proposed project includes the rebuild of approximately 5.2 miles of existing 230 kV overhead electric transmission line and two new substations. The 230 kV line will be located within the existing, cleared transmission line right-of-way (ROW) that begins at Structure 70/1 and 2/1253 within the Mountain Run Substation and terminates at the Mountain Run Junction (Structure 70/53 and 2/1201). A temporary ROW will be required along the 5.2-mile corridor for the duration of line construction. The online database searches included the following:

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

Database searches were completed on June 21, 2022.

Results

Species identified by the database searches to have a confirmed or potential presence within the project vicinity are discussed below in Table 1.

Table 1. Database Search Results

Species	Status	Database	Results
Northern long-eared bat (<i>Myotis septentrionalis</i>)	FT, ST	USFWS	Noted as potentially occurring in the project area. No known hibernacula or maternity roosts are identified in the project area
Monarch Butterfly (<i>Danaus plexippus</i>)	FC	USFWS	Noted as potentially occurring in the project area.
Dwarf wedgemussel (<i>Alasmodonta heterodon</i>)	FE, SE	DCR	Noted as potentially occurring within the vicinity of the project
Yellow lance (<i>Elliptio lanceolatus</i>)	FT, ST	DCR	Noted as potentially occurring within the vicinity of the project
Bald eagle (<i>Haliaeetus leucocephalus</i>)	FP	CCB Eagle Nest Locator, USFWS Bald Eagle Concentration Map	No bald eagle nests are located within 660 feet of the project area. No bald eagle concentration areas are present within the project vicinity.

F = federal, S = state, E = endangered, T = threatened, C = candidate, P = protected

Conclusions

The following conclusions are based upon the proposed scope of work, as described by Dominion. The proposed scope of work assumes construction access will avoid stream crossings where practical or use crane mats to span stream crossings, and erosion and sediment controls will be used as appropriate throughout the project to protect wetlands and water resources. The scope of work assumes the work will occur within the existing, cleared and maintained ROW, although limited clearing of danger trees may be required within the existing ROW easement and construction access roads.

The project is located within the White Nose Syndrome Zone for the federal and state threatened northern long-eared bat (NLEB). The NLEB has been identified by USFWS as potentially occurring within the proposed project area. However, DWR records indicate that no known hibernacula or maternity roost trees occur within the vicinity. The proposed project will take place within an existing, maintained ROW and tree removal is expected to be limited to danger trees and select limbing. The project is expected to rely upon the Programmatic Biological Opinion for the Final 4(d) Rule on the NLEB with no required time of year restriction for tree removal.

USFWS identified the federal candidate species monarch butterfly as potentially occurring in the project area. The species is found in herbaceous and scrub-shrub areas particularly with

the presence of milkweed. Although vegetation may be temporarily disturbed due to construction access, no long-term effects to this species or its habitat are expected.

DCR identified the federal and state endangered dwarf wedgemussel and the federal and state threatened yellow lance as potentially occurring within the project vicinity. These species are found in freshwater streams with little siltation. No impacts to these species are expected as no in stream work is proposed.

The CCB Bald Eagle Nest Locator identified no bald eagle nests within 660-feet of the project. The closest identified nest is approximately 7.25 miles from the project area. The USFWS Bald Eagle Concentration Area Map confirms that the project is not located within a designated Eagle Concentration Area.

The complete results from the database searches are attached for your reference. If you have any questions, please contact me at your earliest convenience.

Attachments: USFWS-IPaC Database Search Results
USFWS VA Field Office Critical Habitat Map
USFWS Bald Eagle Concentration Area Map
CCB Bald Eagle Nest Locator Map
DWR - VAFWIS Database Search Results
DWR NLEB Winter Habitat and Roost Tree Map
DCR-NHDE Database Search Results

ATTACHMENT

USFWS-IPaC



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 Fax: (804) 693-9032



In Reply Refer To:

July 01, 2022

Project Code: 2022-0056008

Project Name: Mountain Run 230 kV Conversion (Lines #2 and #70)

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 ECOS-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 ECOS-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:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.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/birds/policies-and-regulations.php>.

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/birds/bird-enthusiasts/threats-to-birds.php>.

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/birds/policies-and-regulations/executive-orders/e0-13186.php>.

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
- 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: 2022-0056008

Event Code: None

Project Name: Mountain Run 230 kV Conversion (Lines #2 and #70)

Project Type: Transmission Line - Maintenance/Modification - Above Ground

Project Description: Proposed overhead electrical transmission line rebuild project in Culpeper County Virginia.

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@38.447873,-77.9531465255837,14z>



Counties: Culpeper County, Virginia

Endangered Species Act Species

There is a total of 2 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 Fisheries¹, 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: https://ecos.fws.gov/ecp/species/9045	Threatened

Insects

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

Critical habitats

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

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.

Migratory Birds

Certain birds are protected under the Migratory Bird Treaty Act¹ and the Bald and Golden Eagle Protection Act².

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described [below](#).

-
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)

The birds listed below are birds of particular concern either because they occur on the [USFWS Birds of Conservation Concern \(BCC\)](#) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ [below](#). This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the [E-bird data mapping tool](#) (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found [below](#).

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list 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. https://ecos.fws.gov/ecp/species/1626	Breeds Sep 1 to Jul 31
Eastern Whip-poor-will <i>Antrostomus vociferus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Aug 20

NAME	BREEDING SEASON
Prairie Warbler <i>Dendroica discolor</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 10 to Sep 10
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	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	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 and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is $0.25/0.25 = 1$; at week 20 it is $0.05/0.25 = 0.2$.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season (■)

Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)

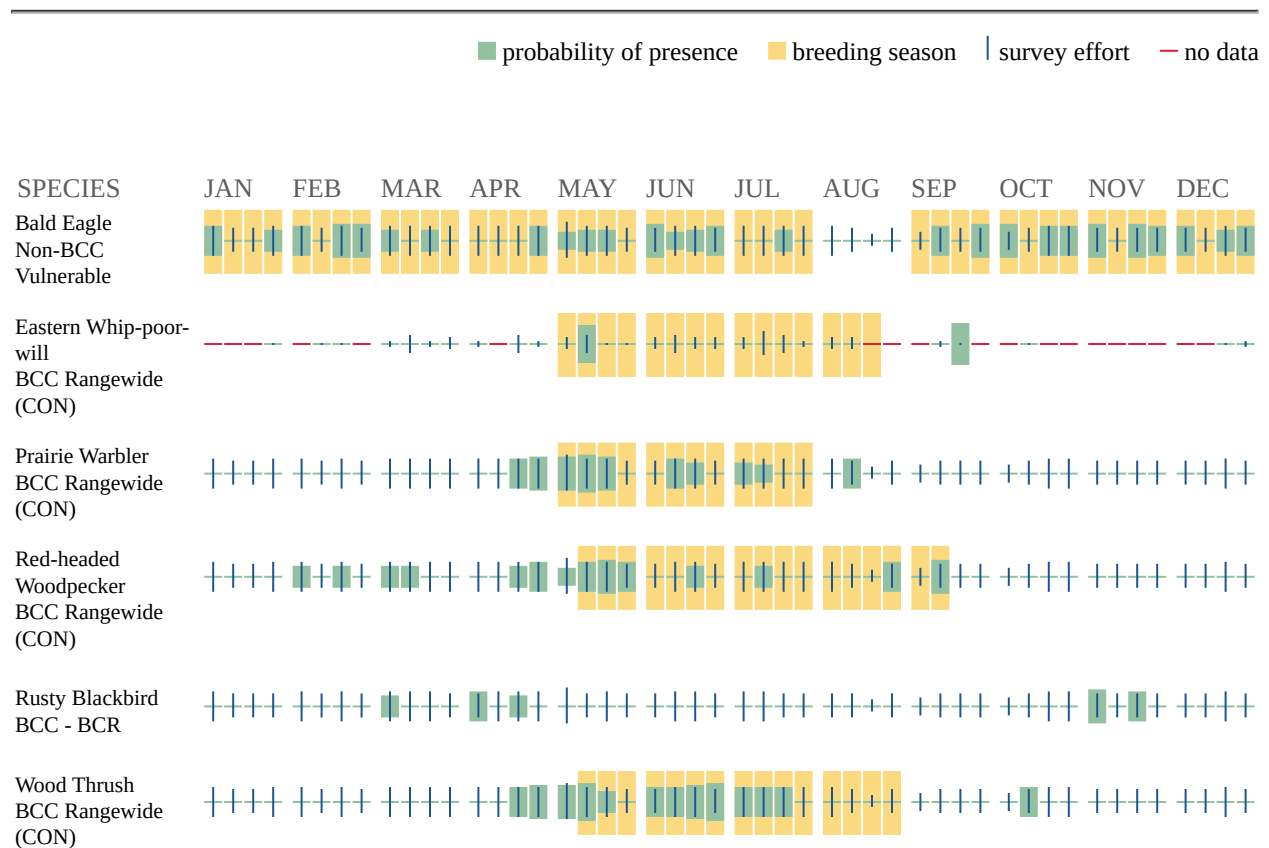
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

No Data (—)

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

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



Additional information can be found using the following links:

- Birds of Conservation Concern <https://www.fws.gov/program/migratory-birds/species>
- 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>

Migratory Birds FAQ

Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

[Nationwide Conservation Measures](#) describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. [Additional measures](#) or [permits](#) may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the migratory birds potentially occurring in my specified location?

The Migratory Bird Resource List is comprised of USFWS [Birds of Conservation Concern \(BCC\)](#) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the [Avian Knowledge Network \(AKN\)](#). The AKN data is based on a growing collection of [survey, banding, and citizen science datasets](#) and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle ([Eagle Act](#) requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the [AKN Phenology Tool](#).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the [Avian Knowledge Network \(AKN\)](#). This data is derived from a growing collection of [survey, banding, and citizen science datasets](#).

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and

how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, migrating or present year-round in my project area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may refer to the following resources: [The Cornell Lab of Ornithology All About Birds Bird Guide](#), or (if you are unsuccessful in locating the bird of interest there), the [Cornell Lab of Ornithology Neotropical Birds guide](#). If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are [Birds of Conservation Concern](#) (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the [Eagle Act](#) requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the [Northeast Ocean Data Portal](#). The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the [NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf](#) project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the [Diving Bird Study](#) and the [nanotag studies](#) or contact [Caleb Spiegel](#) or [Pam Loring](#).

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to [obtain a permit](#) to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

IPaC User Contact Information

Agency: C2 Environmental

Name: Thomas Peery

Address: 11846 Rock Landing Drive, Suite A

City: Newport News

State: VA

Zip: 23606

Email: tpeery@c2environmental.com

Phone: 7572230071

ATTACHMENT

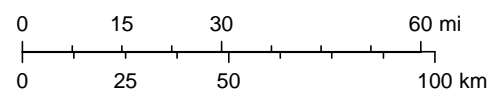
USFWS VA Field Office Critical Habitat Map

USFWS Critical Habitat Map



June 21, 2022

1:2,311,162

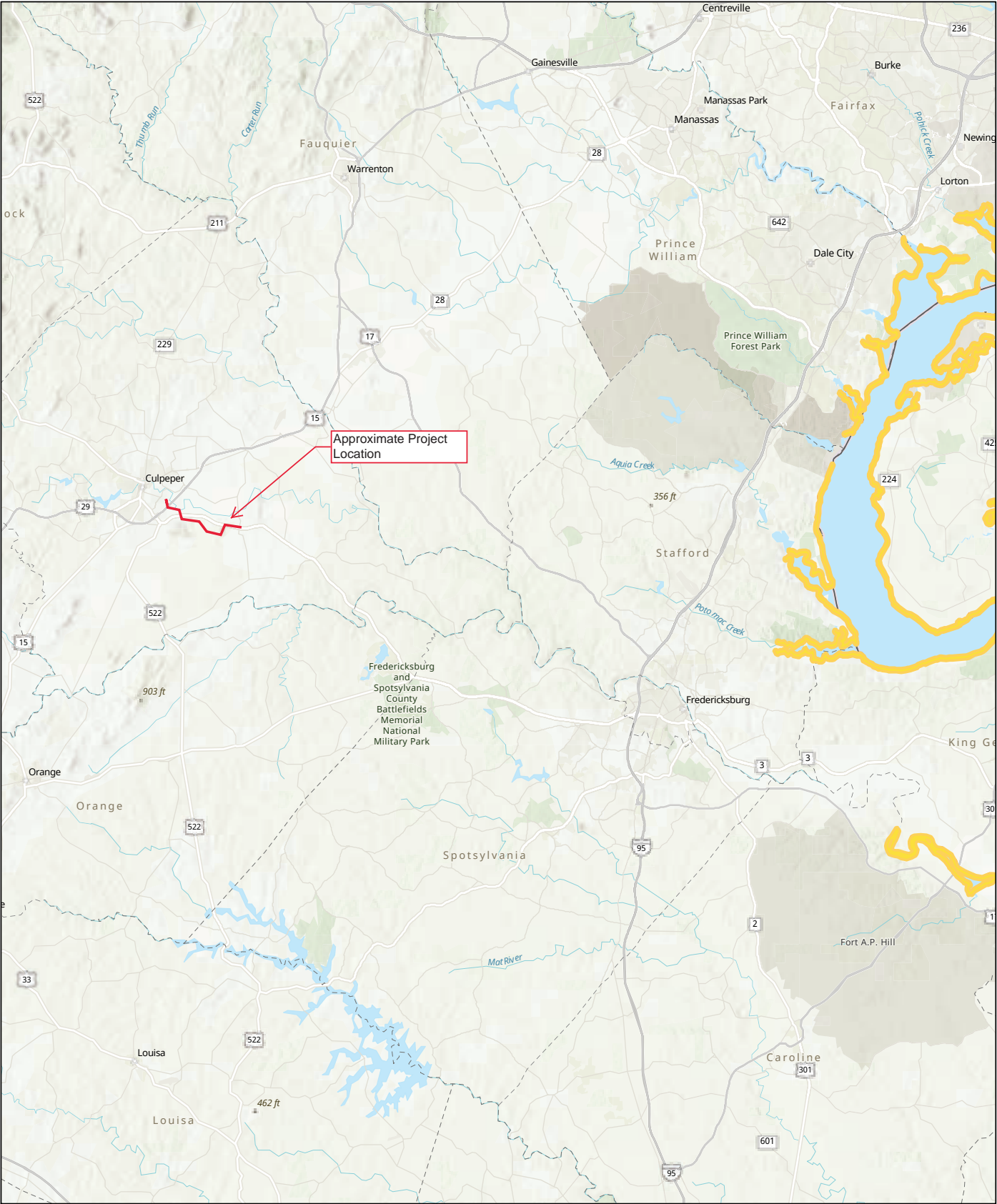


Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

ATTACHMENT

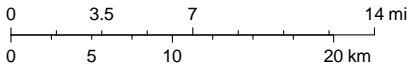
USFWS Bald Eagle Concentration Area Map

USFWS Bald Eagle Concentration Areas - Virginia



6/21/2022

1:397,160



Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community. Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

ATTACHMENT

CCB Bald Eagle Nest Locator Map



CCB Mapping Portal



Layers: VA Eagle Nest Locator, VA Eagle Nest Buffers

Map Center [longitude, latitude]: [-77.94044494628906, 38.44955569290416]

Map Link:

https://ccbbirds.org/maps/#layer=VA+Eagle+Nest+Locator&layer=VA+Eagle+Nest+Buffers&zoom=11&lat=38.44955569290416&lng=-77.94044494628906&legend=legend_tab_7c321b7e-e523-11e4-aaa0-0e0c41326911&base=World+Imagery+%28ESRI%29

Report Generated On: 07/01/2022

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 or 757-221-7503.

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

To learn more about CCB visit ccbbirds.org or contact us at info@ccbbirds.org

ATTACHMENT

DWR - VAFWIS Database Search Results

Site Location

38,26,53.0 -77,56,31.4
is the Search Point

Show Position Rings

☐ Yes ☒ No
1 mile and 1/4 mile at the
Search Point

Show Search Area

☒ Yes ☐ No
2 Search distance miles
buffer

Display Search Point is not
at center at map center

Base Map [Choices](#)

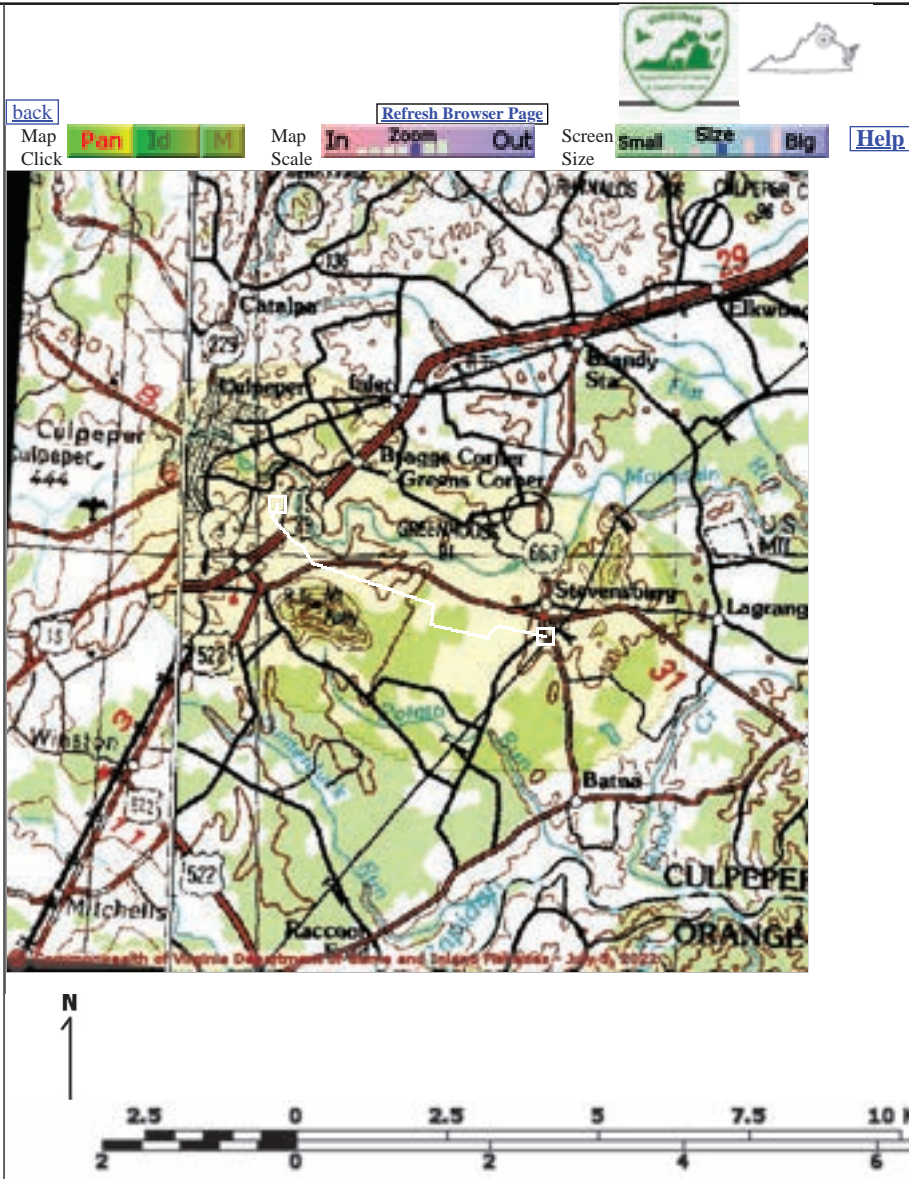
Topography ▼

Map Overlay [Choices](#)

Current List: Search

Map Overlay Legend

 2 mile radius
Search Area



Point of Search 38,26,53.0 -77,56,31.4

Map Location 38,26,56.4 -77,56,13.3

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: USGS 1:250,000 topographic maps (see [Microsoft terraservertopography](https://www.microsoft.com/terraservertopography) for details)

Map projection is UTM Zone 18 NAD 1983 with left 234092 and top 4269323. Pixel size is 22. . 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 19200 meters east to west by 19200 meters north to south for a total of 368.6 square kilometers. The map display represents 63002 feet east to west by 63002 feet north to south for a total of 142.3 square miles.

A UTM Zone change occurs within the image. The left-hand side of the image is a pseudo projection from UTM Zone 17 into UTM Zone 18 resulting in reduced spatial accuracy within the portion of the image occurring in UTM Zone 17.

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 acquired 2002 is from Virginia Base Mapping Program, Virginia Geographic Information Network.

Shaded topographic maps are from TOPO! ©2006 National Geographic
<http://www.national.geographic.com/topo>

All other map products are from the Commonwealth of Virginia Department of Game and Inland Fisheries.

map assembled 2022-07-05 09:34:17 (qa/qc March 21, 2016 12:20 - tn=1193360.0 dist=3218
I)
\$poi=38.4480556 -77.9420556

VaFWIS Search Report Compiled on 6/27/2022, 11:09:41 AM[Help](#)

Known or likely to occur within a **2 mile buffer around line beginning 38,26,53.0 -77,56,31.4**
in **047 Culpeper County, VA**

[View Map of
Site Location](#)

393 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 20) (16 species with Status* or Tier I** or Tier II**)

BOVA Code	Status*	Tier**	Common Name	Scientific Name	Confirmed	Database(s)
060003	FESE	Ia	Wedgemussel, dwarf	Alasmidonta heterodon		BOVA
050022	FTST	Ia	Bat, northern long- eared	Myotis septentrionalis		BOVA
060029	FTST	IIa	Lance, yellow	Elliptio lanceolata		BOVA,HU6
050020	SE	Ia	Bat, little brown	Myotis lucifugus		BOVA
050027	SE	Ia	Bat, tri-colored	Perimyotis subflavus		BOVA
040293	ST	Ia	Shrike, loggerhead	Lanius ludovicianus	Potential	BOVA,BBA,HU6
060081	ST	IIa	Floater, green	Lasmigona subviridis		BOVA
040292	ST		Shrike, migrant loggerhead	Lanius ludovicianus migrans		BOVA
030063	CC	IIIa	Turtle, spotted	Clemmys guttata		BOVA
030012	CC	IVa	Rattlesnake, timber	Crotalus horridus		BOVA
100248		Ia	Fritillary, regal	Speyeria idalia idalia		BOVA,HU6
040052		IIa	Duck, American black	Anas rubripes		BOVA,HU6
040320		IIa	Warbler, cerulean	Setophaga cerulea		BOVA,HU6
040140		IIa	Woodcock, American	Scolopax minor		BOVA,HU6
040203		IIb	Cuckoo, black- billed	Coccyzus erythrophthalmus		BOVA
040105		IIb	Rail, king	Rallus elegans		BOVA
010131		IIIa	Eel, American	Anguilla rostrata	Yes	BOVA,SppObs,HU6
030068		IIIa	Turtle, woodland box	Terrapene carolina carolina		BOVA,HU6
040100		IIIa	Bobwhite, northern	Colinus virginianus	Yes	BOVA,BBA,SppObs,HU6
040202		IIIa	Cuckoo, yellow- billed	Coccyzus americanus		BOVA,HU6

To view **All 393 species** [View 393](#)

*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
16	MILLER PLACE DAM	BROOK RUN	Yes

Colonial Water Bird Survey

N/A

Threatened and Endangered Waters

N/A

Managed Trout Streams

N/A

Bald Eagle Concentration Areas and Roosts

N/A

Bald Eagle Nests

N/A

Species Observations (30 records - displaying first 20)[View Map of All Query Results](#)
[Species Observations](#)

obsID	class	Date Observed	Observer	N Species			View Map
				Different Species	Highest TE*	Highest Tier**	
620670	SppObs	Sep 27 2013	Rick; Browder Gabriel; Darkwah Meghan; Bandura Dan ; F	5		III	Yes
620960	SppObs	Jun 18 2013	Rick; Browder Gabriel; Darkwah Meghan; Bandura Dan ; F	6		III	Yes
350555	SppObs	Jun 10 2007	Jay Keller	14		III	Yes
350558	SppObs	Jun 10 2007	Jay Keller	12		III	Yes
350567	SppObs	Jun 10 2007	Jay Keller	13		III	Yes
425778	SppObs	Oct 19 2006	VCU - INSTAR	13		III	Yes
316474	SppObs	Jun 16 2006	Rick Browder	7		III	Yes
58204	SppObs	Jun 25 1999	Ryan W. Boggs and Louis Seivard (principle permittee), Dept. of Environmental Quality	3		III	Yes
425794	SppObs	Aug 11 1998	VCU - INSTAR	18		III	Yes
425793	SppObs	May 21 1998	VCU - INSTAR	12		III	Yes
620146	SppObs	Aug 4 2013	Brett; Ostby Jennifer; Price	3		IV	Yes
350569	SppObs	Jun 10 2007	Jay Keller	10		IV	Yes
350568	SppObs	Jun 10 2007	Jay Keller	19		IV	Yes
350573	SppObs	Jun 10 2007	Jay Keller	14		IV	Yes
350566	SppObs	Jun 10 2007	Jay Keller	11		IV	Yes
350556	SppObs	Jun 11 2007	Jay Keller	1			Yes
316469	SppObs	May 18 2006	Rick Browder	5			Yes
85817	SppObs	Mar 27 2002	Ron Hughes	1			Yes
85809	SppObs	Mar 27 2002	Ron Hughes	1			Yes

85806	SppObs	Mar 27 2002	Ron Hughes	1			Yes
-----------------------	--------	----------------	------------	---	--	--	---------------------

Displayed 20 Species Observations

Selected 30 Observations [View all 30 Species Observations](#)

Habitat Predicted for Aquatic WAP Tier I & II Species

N/A

Habitat Predicted for Terrestrial WAP Tier I & II Species

N/A

Virginia Breeding Bird Atlas Blocks (7 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**	
47164	Culpeper East, CE	15		IV	Yes
47163	Culpeper East, CW	1			Yes
47162	Culpeper East, NE	7		III	Yes
47161	Culpeper East, NW	1			Yes
47166	Culpeper East, SE	64		III	Yes
46164	Culpeper West, CE	37		III	Yes
46162	Culpeper West, NE	58	ST	I	Yes

Public Holdings:

N/A

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
047	Culpeper	349	FTSE	I

USGS 7.5' Quadrangles:

Culpeper West
 Culpeper East
 Germanna Bridge

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
RA19	Mountain Run-Hiders Branch	50	ST	I
RA20	Jonas Run	47		II
RA21	Mountain Run-Flat Run	50	FTST	II
RA39	Rapidan River-Potato Run	55	FTST	I

Compiled on 6/27/2022, 11:09:41 AM 11191925.0 report=all searchType= L dist= 3218 poi= 38,26,53.0 -77,56,31.4 siteDD= 38.4628583 -77.9736498;38.4613000 -77.9737498;38.4603277 -77.9752498;38.4545500 -77.9685276;38.4536500 -77.9662998;38.4503500 -77.9636582;38.4422888 -77.9296498;38.4380583 -77.9303776;38.4356000 -77.9144887;38.4369888 -77.9139498;38.4380000 -77.9116998;38.4360083 -77.8989693;

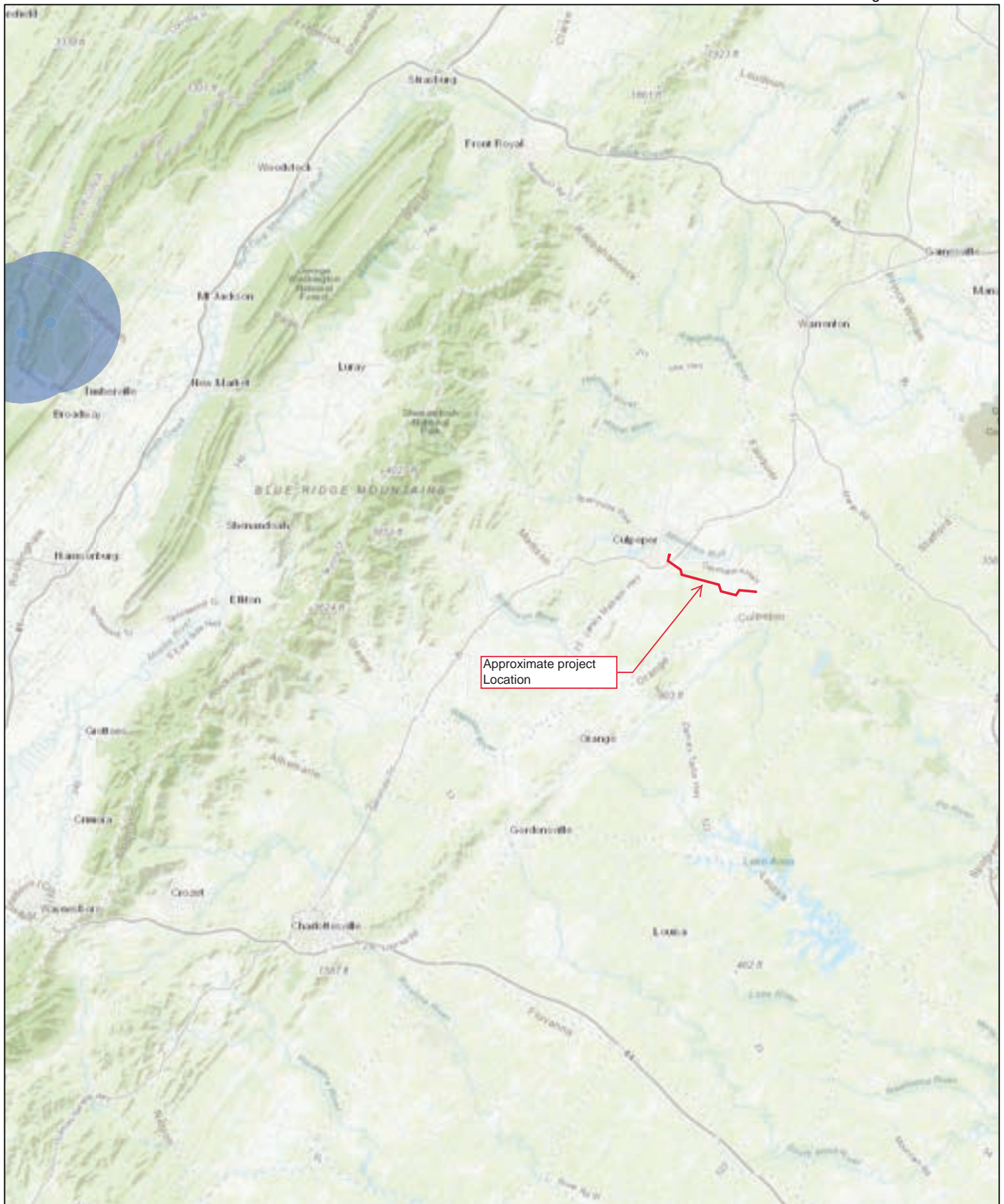
PixelSize=64; Anadromous=0.024; BBA=0.042665; BECAR=0.023802; Bats=0.022; Buffer=0.172414; County=0.06388; HU6=0.064759; Impediments=0.023205; Init=0.206834; PublicLands=0.029149; Quad=0.033374; SppObs=0.319971; TEWaters=0.0259; TierReaches=0.026463; TierTerrestrial=0.06968; Total=1.199387; Tracking_BOVA=0.157463; Trout=0.028969; huva=0.033273

ATTACHMENT

DWR NLEB Winter Habitat and Roost Map

NLEB Locations and Roost Trees

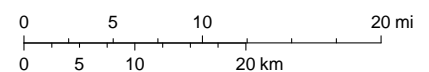
Attachment 2.G.1
Page 34 of 36



6/21/2022, 10:54:26 AM

- NLEB Hibernaculum 5.5 Mile Buffer
- NLEB Hibernaculum Half Mile Buffer

1:577,791



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

ATTACHMENT

DCR-NHDE Database Search Results

Natural Heritage Resources

Your Criteria

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

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

Watershed (8 digit HUC): 02080103 - Rapidan-Upper Rappahannock

Subwatershed (12 digit HUC): RA19 - Mountain Run-Hiders Branch, RA39 - Rapidan River-Potato Run

Search Run: 6/21/2022 11:45:59 AM

Result Summary

Total Species returned: 2

Total Communities returned: 0

Click scientific names below to go to NatureServe report.

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

Common Name/Natural Community	Scientific Name	Scientific Name Linked	Global Conservation Status Rank	State Conservation Status Rank	Federal Legal Status	State Legal Status	Statewide Occurrences	Virginia Coastal Zone
Rapidan-Upper Rappahannock								
Mountain Run-Hiders Branch								
BIVALVIA (MUSSELS)								
Dwarf Wedgemussel	Alasmidonta heterodon	Alasmidonta heterodon	G1G2	S1	LE	LE	15	N
Rapidan River-Potato Run								
BIVALVIA (MUSSELS)								
Yellow Lance	Elliptio lanceolata	Elliptio lanceolata	G2	S2	LT	LT	46	N

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

For Additional Information on locations of Natural Heritage Resources please submit an [information request](#).

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



COMMONWEALTH of VIRGINIA
DEPARTMENT OF CONSERVATION AND RECREATION

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

Laura Ellis
Interim Deputy Director for
Administration and Finance

September 7, 2022

Thomas Peery
C2 Environmental Inc.
11846 Rock Landing Drive, Suite A
Newport News, VA 23606

Re: Lines 2 and 70 230KV Conversion and Cirrus Switching Station

Dear Mr. Perry:

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.

This project has intersected the karst bedrock screening layer in the eastern portion of the project area. Encountering undocumented caves, sinkholes or other sensitive karst features in this area is possible. During every phase of the project, DCR recommends stabilization of the soil around the site. Minimizing surface disturbance, strict use of E&S control measures appropriate for the location and adherence to best management practices appropriate for karst will help to reduce any potential impact to the karst, groundwater and surface water resources as well as any associated fauna and flora.

If karst features such as sinkholes, caves, disappearing streams, and large springs are encountered during the project, please coordinate with Wil Orndorff (540-230-5960, Wil.Orndorff@dcr.virginia.gov) the Virginia DCR, Division of Natural Heritage Karst Protection Coordinator, to document and minimize adverse impacts. Activities such as discharge of runoff to sinkholes or sinking streams, filling of sinkholes, and alteration of cave entrances can lead to environmental impacts including surface collapse, flooding, erosion and sedimentation, contamination of groundwater and springs, and degradation of subterranean habitat for natural heritage resources (e.g. cave adapted invertebrates, bats). These potential impacts are not necessarily limited to the immediate project area, as karst systems can transport water and associated contaminants rapidly over relatively long distances, depending on the nature of the local karst system. If the project involves filling or "improvement" of sinkholes or cave openings, DCR would like detailed location information and copies of the design specifications. In cases where sinkhole improvement is for storm water discharge, copies of VDOT Form EQ-120 will suffice.

Please note, predictive models identifying potential habitat for natural heritage resources intersect the project boundary. However, based on DCR biologist's review of the proposed project a survey is not recommended for the resources.

DCR recommends the development and implementation of an invasive species plan to be included as part of the

maintenance practices for the right-of-way (ROW). The invasive species plan should include an invasive species inventory for the project area based on the current DCR Invasive Species List (<http://www.dcr.virginia.gov/natural-heritage/document/nh-invasive-plant-list-2014.pdf>) and methods for treating the invasives. DCR also recommends the ROW restoration and maintenance practices planned include appropriate revegetation using native species in a mix of grasses and forbs, robust monitoring and an adaptive management plan to provide guidance if initial revegetation efforts are unsuccessful or if invasive species outbreaks occur.

Furthermore, if tree removal is proposed for the project outside of the existing right-of-way, it will potentially impact an Ecological Core (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.

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

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

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

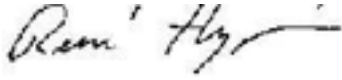
A fee of \$125.00 has been assessed for the service of providing this information. Please find attached an invoice for that amount. Please return one copy of the invoice along with your remittance made payable to the Treasurer of Virginia, DCR Finance, 600 East Main Street, 24th Floor, Richmond, VA 23219.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

The Virginia Department of Wildlife Resources (VDWR) maintains a database of wildlife locations, including threatened and endangered species, trout streams, and anadromous fish waters that may contain information not

documented in this letter. Their database may be accessed from <http://vafwis.org/fwis/> or contact Amy Martin at 804-367-2211 or amy.martin@dwr.virginia.gov.

Should you have any questions or concerns, feel free to contact me at 804-371-2708. Thank you for the opportunity to comment on this project.

Sincerely,

A handwritten signature in dark ink, appearing to read "René Hypes", with a stylized flourish at the end.

S. René Hypes
Natural Heritage Project Review Coordinator

Cc: Wil Orndorff, DCR-Karst



Commonwealth of Virginia

VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

1111 E. Main Street, Suite 1400, Richmond, Virginia 23219

P.O. Box 1105, Richmond, Virginia 23218

(800) 592-5482

www.deq.virginia.gov

Matthew J. Strickler
Secretary of Natural Resources

David K. Paylor
Director
(804) 698-4000

August 13, 2019

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

Transmitted electronically: [REDACTED]

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

Dear Mr. Williams:

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

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

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

1. Variance, exception, and deviation requests must be submitted separately from this Annual Standards and Specifications submission to DEQ. DEQ may require project-specific plans associated with variance requests to be submitted for review and approval.
2. The following information must be submitted to DEQ for each project at least two weeks in advance of the commencement of regulated land-disturbing activities. Notifications shall be sent by email to: StandardsandSpecs@deq.virginia.gov
 - i: Project name or project number;
 - ii: Project location (including nearest intersection, latitude and longitude, access point);
 - iii: On-site project manager name and contact info;
 - iv: Responsible Land Disturber (RLD) name and contact info;
 - v: Project description;

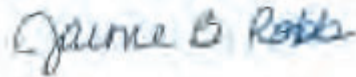
Dominion Energy (Electric Transmission) – AS&S for ESC and SWM
August 12, 2019
Page 2 of 2

- vi: Acreage of disturbance for project;
 - vii: Project start and finish date; and
 - viii: Any variances/exceptions/waivers associated with this project.
3. Project tracking of all regulated land disturbing activities (LDA) must be submitted to the DEQ on a bi-annual basis. Project tracking records shall contain the same information as required in the two week e-notifications for each regulated LDA.
 4. Erosion & Sediment Control and Stormwater Management plan review and approval must be conducted by DEQ-Certified plan reviewers and documented in writing.

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

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

Sincerely,



Jaime B. Robb, Manager
Office of Stormwater Management

Cc: Amelia Boschen, [REDACTED]
Elizabeth Hester, [REDACTED]
Stacey Ellis, [REDACTED]

Case Decision Information:

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

REPORT >

Pre-Application Analysis of Cultural Resources for the Cirrus-Keyser 230 kV Loop and Related Projects

LOCATION > Culpeper County, Virginia

DATE > OCTOBER 2022

PREPARED FOR >

Dominion Energy



PREPARED BY >

Dutton + Associates, LLC

PROJECT REVIEW # >

Dutton + Associates

CULTURAL RESOURCE SURVEY, PLANNING, AND MANAGEMENT

**SCC Pre-Application Analysis
of Cultural Resources for the
Cirrus-Keyser 230 kV Loop and
Related Projects**

Culpeper County, Virginia

PREPARED FOR:

DOMINION ENERGY
10900 NUCKOLS ROAD, 4TH FLOOR
GLEN ALLEN, VA 23060

PREPARED BY:

DUTTON + ASSOCIATES, LLC
1115 Crowder Drive
Midlothian, Virginia 23236
804.644.8290

PRINCIPAL INVESTIGATOR:

Robert J. Taylor, Jr. M.A.

October 2022

ABSTRACT

In October 2022, Dutton + Associates, LLC (D+A) completed a Pre-Application Analysis (analysis) of cultural resources for the Cirrus – Keyser 230 kV Loop and Related Projects in Culpeper County, Virginia. The analysis was performed for Dominion Energy Virginia (Dominion) in support of a State Corporation Commission (SCC) Certificate of Public Convenience and Necessity (CPCN) application. The analysis was conducted in accordance with Virginia Department of Historic Resources’ (VDHR) guidance titled Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia (January 2008) and Commonwealth of Virginia State Corporation Commission Division of Public Utility Regulation Guidelines for Transmission Line Applications Filed Under Title 56 of the Code of Virginia (August 2017).

As part of the Cirrus – Keyser 230 kV Loop and Related Projects, Dominion Energy Virginia (the “Company”) is proposing to construct a new, approximately 5.2-mile overhead 230 kV double circuit transmission line-loop utilizing an existing 100-foot-wide right-of-way resulting in three separate lines. Two new substations, the Cirrus Substation and the Keyser Substation, will also be constructed on customer and Company-owned property. As part of the project, Dominion proposes to replace the existing structures within the project ROW and rebuild the lines to current 230kV standards. The existing structures are corten monopoles that average 80 feet in height and will be replaced with corten monopole structures with a similar configuration that will generally range from 95- to 110-feet in height. The structures will generally be replaced on a one-to-one basis near the same locations, with the exception of two structures that will be shifted slightly to allow for a decrease in structure height. Most permanent improvements associated with the rebuild will take place within existing right-of-way (ROW), however, additional permanent right-of-way is needed on customer property to connect the Cirrus Substation to the existing 115 kV Line #70 and at the Mountain Run Junction. Temporary line construction may also require additional vegetative clearing.

The background research conducted as part of this analysis was consistent with VDHR guidance and designed to identify all previously recorded National Historic Landmarks (NHL) located within 1.5-miles of the proposed project or closer, all National Register of Historic Places (NRHP)-listed properties, battlefields, and historic landscapes located within 1-mile of the proposed project or closer, all historic properties considered eligible for listing in the NRHP located within 0.5-miles of the proposed project or closer, and all archaeological sites located directly within the proposed project area. Historic properties include architectural and archaeological (terrestrial and underwater) resources, historic and cultural landscapes, battlefields, and historic districts. For each historic property within the defined tiers, a review of existing documentation and a field reconnaissance was undertaken to assess each property’s significant character-defining features, as well as the character of its current setting. Following identification of historic properties, D+A assessed the potential for impacts to any identified properties as a result of the proposed project. Specific attention was given to determining whether or not construction related to the project could introduce new visual elements into the property’s viewshed or directly impact the property through construction, which would either directly or indirectly alter those qualities or characteristics that qualify the historic property for listing in the NRHP.

Review of the VDHR VCRIS inventory records revealed a total of one-hundred-sixty-two (162) previously recorded architectural resources are located within 1.5 mile of the project area. Of these, there are no (0) NHLs located within 1.5 mile of the proposed project or closer, six (6) properties listed in the NRHP located within 1.0 mile or closer of the project, two (2) battlefields located within 1.0 mile or closer of the project, three (3) historic landscapes within 1.0 mile or closer of the project, and two (2) properties that have been determined eligible or potentially eligible for listing in the NRHP within 0.5 mile or closer of the project. Of these resources, three (3) of the NRHP-listed properties, two (2) battlefields, one (1) historic landscape, and one (1) NRHP-eligible property are directly crossed by the project area. VCRIS also revealed that portions of the project area have been subject to previous Phase I survey and one (1) previously recorded archaeological site is located directly within or crossed by the project ROW. This site has not been formally evaluated for listing in the NRHP by the VDHR.

*Inspection of and from the architectural resources found that they are all located within a mostly rural setting bordering Route 3 between Culpeper and the village of Stevensburg. Other than some modern development and infill in the vicinity of Stevensburg, as well as a number of existing transmission lines, and a large quarry operation, the historic setting of the area remains largely intact. In general, the development patterns are light, and the landscape is gently rolling and mostly open, with just occasional treelines and field breaks. As such, views throughout the study area are generally wide and open. This permits extensive visibility of the existing project transmission line and associated structures from many vantage points and properties. In some areas, the project structures are visible at a close distance and/or across open field, while from other areas visibility is more limited to the upper portions of structures above treelines. The existing structures average 80-feet in height and the proposed replacement structures will average roughly 100-feet in height. Structures will generally be replaced on a one-to-one basis near the existing locations, with structures of similar design, finish, and appearance. As such, visibility of the transmission line is anticipated to remain largely unchanged as a result of the project, despite the increase in height. While the increase in height may be more perceptible for those structures seen above a treeline as more of the structure will become visible; the increase in height for those structures seen across open field will not be as noticeable without the context of the treeline. Overall, existing and proposed views from the study area and the considered historic properties include multiple structures and lengths of transmission line, often seen in conjunction with structures on the existing Gordonsville-Remington line that the project interconnects with. **It is therefore D+A's opinion that based upon the definition of impacts above, the proposed Cirrus – Keyser 230 kV Loop and Related Projects will have no more than a minimal impact on any architectural resources that are designated an NHL, listed in the NRHP, or determined eligible or potentially eligible for listing.***

Potential impacts summary for architectural resources.

VDHR #	Resource Name, Address	NRHP-Status	Distance from Project	Recommended Impact
023-0018	Rose Hill	NRHP-Listed	Directly Crossed	Minimal Impact
023-0020	Salubria	NRHP-Listed	~0.64 Mile	No Impact
023-0068	Hansbrough Ridge Winter Encampment	NRHP-Listed	~0.98 Mile	Minimal Impact
023-0084	Mount Pony Rural Historic District	NRHP-Eligible	Directly Crossed	Minimal Impact

VDHR #	Resource Name, Address	NRHP-Status	Distance from Project	Recommended Impact
023-5023	Signal Hill	NRHP-Listed	Directly Crossed	Minimal Impact
023-5040	Croftburn Farm	NRHP-Listed	Directly Crossed	Minimal Impact
023-5055	Brandy Station Battlefields	NRHP-Potentially Eligible	Directly Crossed	Minimal Impact
023-5162	Zimmerman's Tavern	NRHP-Eligible	~0.38 Mile	Minimal Impact
023-5441	Mountain Run Historic District	NRHP-Eligible	~0.89 Mile	Minimal Impact
023-5494	House, 19564 Alvere Road	NRHP-Eligible	Immediately Adjacent	Minimal Impact
068-5007	Battle of Morton's Ford	NRHP-Potentially Eligible	Directly Crossed	Minimal Impact
204-0064	South East Street Historic District	NRHP-Listed	~0.92 Mile	No Impact
204-0069	Culpeper National Cemetery	NRHP-Listed	~0.92 Mile	No Impact

With regards to archaeology, roughly half of the project ROW has been subject to survey and one previously recorded site is crossed by it. This includes a length of a nineteenth century road trace that has not been subject to formal evaluation. No archaeological field work was conducted as part of this effort and the previously recorded site within or adjacent to the project ROW was not visited or assessed at this time. **It is therefore D+A's opinion that surveyed portions of the project ROW be surveyed and identified sites be assessed for impacts.**

Summary of potential impacts summary for archaeological resources.

VDHR#	NRHP Status	Proximity to Project Area	Impacts
44CU0137, Road Trace	Not Evaluated	Directly Crossed	TBD

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

1. INTRODUCTION	1-1
2. PROJECT DESCRIPTION	2-1
3. RESEARCH DESIGN	3-1
Archival Research	3-1
Field Reconnaissance	3-1
Assessment of Potential Impacts	3-1
Report Preparation	3-2
4. ARCHIVES SEARCH.....	4-1
Previously Surveyed Areas	4-1
Archaeological Sites	4-3
Architectural Resources	4-7
NPS American Battlefield Protection Program (ABPP).....	4-11
5. RESULTS OF FIELD RECONNAISSANCE	5-1
National Register of Historic Places – Listed Properties, Battlefields, and Landscapes	5-2
Battlefields	5-91
Historic Landscapes	5-151
National Register of Historic Places – Eligible Properties	5-205
6. SUMMARY OF POTENTIAL IMPACTS.....	6-1
7. REFERENCES	7-1

LIST OF FIGURES

Figure 1-1: Project Area general location	1-2
Figure 2-1: Detail of proposed structure types by section. Source: Dominion Energy Virginia.	2-4
Figure 2-2: Detail of Cirrus – Keyser 230 kV Loop and Related Projects (West)	2-5
Figure 2-3: Detail of Cirrus – Keyser 230 kV Loop and Related Projects (East)	2-6
Figure 2-4: Detail of Cirrus and Keyser Substations Layout. Source: Dominion Energy.....	2-7
Figure 4-1: Previously conducted surveys within 1-mile of the project area. Source: VCRIS ...	4-2
Figure 4-2: Previously recorded archaeological resources located within 1- mile of project area. Source: VCRIS.....	4-5
Figure 4-3: Detail of previously recorded archaeological resource crossed by the project ROW. Source: VCRIS.....	4-6
Figure 4-4: All previously identified architectural resources within 1.5 miles of the project area. Source: VCRIS.....	4-9
Figure 4-5: Considered architectural resources within their respective tiers around the project area. Source: VCRIS	4-10
Figure 4-6: ABPP-delineated battlefield areas within one mile of the project. Source: VCRIS.	4-12
Figure 5-1: Location of Rose Hill in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-5
Figure 5-2: Photo location 1- View from east side of Rose Hill along Batna Road (existing project structure visible), facing south.....	5-6

Figure 5-3: Photo location 2- View from south side of Rose Hill along Blackjack Road (multiple project structures and structures on other lines visible), facing east.....	5-6
Figure 5-4: Photo location 3- View from road in front of Rose Hill (existing project structure visible), facing northwest.....	5-7
Figure 5-5: Photo location 4- View from road in front of Rose Hill across street (existing project structure and multiple other structures visible), facing east.	5-7
Figure 5-6: Photo location 5- View from road in front of Rose Hill across street (existing project structure and multiple other structures visible), facing south.	5-8
Figure 5-7: Photo location 6- View from driveway to Rose Hill (multiple existing project structures visible), facing south.	5-8
Figure 5-8: Photo location 7- View from driveway to Rose Hill (existing project structure visible), facing west.	5-9
Figure 5-9: Photo location 8- View from driveway to Rose Hill across road (multiple existing project structures and other structures visible), facing south.....	5-9
Figure 5-10: Photo location 9- View from rear of Rose Hill house (multiple existing project structures visible), facing west.....	5-10
Figure 5-11: Photo location 10- View from rear of Rose Hill house (multiple existing project structures visible), facing southeast.	5-10
Figure 5-12: Photo location 11- View from rear of Rose Hill house (multiple existing project structures visible), facing west.....	5-11
Figure 5-13: Photo location 12- View from Rose Hill driveway (multiple existing project structures and other structures visible), facing east.	5-11
Figure 5-14: Rose Hill Simulation 1 – Simulation location, direction of view, and structures modeled from Batna Road. Source: GTTE, LLC	5-13
Figure 5-15: Rose Hill Simulation 1 – Existing view from Batna Road. Source: GTTE, LLC	5-14
Figure 5-16: Rose Hill Simulation 1 – Proposed view from Batna Road – (Visible structures shown as they would appear. Structures not visible shown in yellow). Source: GTTE, LLC ..	5-15
Figure 5-17: Rose Hill Simulation 2 – Simulation location, direction of view, and structures modeled from driveway looking southeast. Source: GTTE, LLC	5-16
Figure 5-18: Rose Hill Simulation 2 – Existing view from driveway looking southeast. Source: GTTE, LLC.....	5-17
Figure 5-19: Rose Hill Simulation 2 – Proposed view from driveway looking southeast – (Visible structure shown as it would appear). Source: GTTE, LLC.....	5-18
Figure 5-20: Rose Hill Simulation 3 – Simulation location, direction of view, and structures modeled from driveway looking southeast. Source: GTTE, LLC	5-19
Figure 5-21: Rose Hill Simulation 3 – Existing view from driveway looking southwest. Source: GTTE, LLC.....	5-20
Figure 5-22: Rose Hill Simulation 3 – Proposed view from driveway looking southwest – (Visible structure shown as it would appear). Source: GTTE, LLC.....	5-21
Figure 5-23: Location of Salubria in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-25
Figure 5-24: Photo location 1- View of Salubria setting from Route 3, facing south.	5-26
Figure 5-25: Photo location 2- View from entry lane to Salubria (No project structures visible. Multiple structures not included in this project visible), facing west.	5-26
Figure 5-26: Photo location 3- View from entry lane to Salubria (No project structures visible), facing southwest.....	5-27

Figure 5-27: Photo location 4- View from entry lane to Salubria (no project structures visible), facing south.	5-27
Figure 5-28: Photo location 5- View from entry lane to Salubria (no project structures visible), facing west.	5-28
Figure 5-29: Photo location 6- View from entry lane to Salubria (no project structures visible. Several structures not included in this project visible), facing northwest.	5-28
Figure 5-30: Salubria Simulation 1 – Simulation location, direction of view, and structures modeled from gate to property. Source: GTTE, LLC.....	5-29
Figure 5-31: Salubria Simulation 1 – Existing view from gate to property. Source: GTTE, LLC 5-30	
Figure 5-32: Salubria Simulation 1 – Proposed view from gate to property – (Structures not visible shown in yellow). Source: GTTE, LLC	5-31
Figure 5-33: Location of Signal Hill in relation to the project alignment (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-35
Figure 5-34: Photo location 1- View from front of Signal Hill property along Route 3 showing property setting (No project structures visible), facing south.....	5-36
Figure 5-35: Photo location 2- View from front of Signal Hill along Route 3 (One project structure visible), facing south.....	5-36
Figure 5-36: Photo location 3- View from front of Signal Hill along Route 3 (Multiple project structures visible), facing southeast.	5-37
Figure 5-37: Photo location 4- View from driveway to Signal Hill off Route 3 (One project structure visible), facing southwest.....	5-37
Figure 5-38: Photo location 5- View from driveway to Signal Hill (No project structures visible, but portion of conductor visible), facing south.	5-38
Figure 5-39: Photo location 6- View from driveway to Signal Hill (Multiple project structures visible), facing southwest.....	5-38
Figure 5-40: Photo location 7- View from front of Signal Hill along Route 3 (Multiple project structures visible), facing southeast.	5-39
Figure 5-41: Photo location 8- View from driveway to Signal Hill (Multiple project structures visible), facing south.	5-39
Figure 5-42: Signal Hill Simulation 1 – Simulation location, direction of view, and structures modeled from front of driveway. Source: GTTE, LLC	5-41
Figure 5-43: Signal Hill Simulation 1 – Existing view from front of driveway. Source: GTTE, LLC	5-42
Figure 5-44: Signal Hill Simulation 1 – Proposed view from front of driveway – (Visible structures shown as they would appear). Source: GTTE, LLC	5-43
Figure 5-45: Location of Croftburn Farm in relation to the project alignment (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-48
Figure 5-46: Photo location 1- View from front of Croftburn Farm property along Route 3 (No existing project structures visible), facing north.....	5-49
Figure 5-47: Photo location 2- View from front of Croftburn Farm along Route 3 (One project structure visible), facing east.	5-49
Figure 5-48: Photo location 3- View from driveway to Croftburn Farm (No project structures visible), facing north.	5-50

Figure 5-49: Photo location 4- View from driveway to Croftburn Farm (One project structure visible), facing northeast.	5-50
Figure 5-50: Photo location 5- View from driveway to Croftburn Farm (One project structure visible), facing northeast.	5-51
Figure 5-51: Photo location 6- View from driveway to Croftburn Farm (One project structure visible), facing east.	5-51
Figure 5-52: Photo location 7- View from front of Croftburn Farm along Route 3 (multiple project structures visible), facing east.	5-52
Figure 5-53: Photo location 8- View from eastern edge of Croftburn Farm property (multiple project structures visible), facing north.	5-52
Figure 5-54: Photo location 9- View from eastern edge of Croftburn Farm property (multiple project structures visible), facing east.	5-53
Figure 5-55: Croftburn Simulation 1 – Simulation location, direction of view, and structures modeled from front of driveway. Source: GTTE, LLC.	5-55
Figure 5-56: Croftburn Simulation 1 – Existing view from front of driveway. Source: GTTE, LLC.	5-56
Figure 5-57: Croftburn Simulation 1 – Proposed view from front of driveway – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC.	5-57
Figure 5-58: Croftburn Simulation 2 – Simulation location, direction of view, and structures modeled from southeastern corner of property. Source: GTTE, LLC.	5-58
Figure 5-59: Croftburn Simulation 2 – Existing view from southeastern corner of property. Source: GTTE, LLC.	5-59
Figure 5-60: Croftburn Simulation 2 – Proposed view from southeastern corner of property – (Visible structure shown as it would appear). Source: GTTE, LLC.	5-60
Figure 5-61: Croftburn Simulation 3 – Simulation location, direction of view, and structures modeled across road from southeastern corner of property. Source: GTTE, LLC.	5-61
Figure 5-62: Croftburn Simulation 3 – Existing view across road from southeastern corner of property. Source: GTTE, LLC.	5-62
Figure 5-63: Croftburn Simulation 3 – Proposed view across road from southeastern corner of property – (Visible structures shown as they would appear). Source: GTTE, LLC.	5-63
Figure 5-64: Location of South East Street Historic District in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-67
Figure 5-65: Photo location 1- General view of South East Street, facing south.	5-68
Figure 5-66: Photo location 2- View from Rosson Lane near South East Street (No project structures visible), facing southeast.	5-68
Figure 5-67: Photo location 3- View from intersection of South East Street and Walters Street (No project structures visible), facing southeast.	5-69
Figure 5-68: Photo location 4- View from intersection of South East Street and Asher Street (no project structures visible), facing southeast.	5-69
Figure 5-69: Photo location 5- View from Chandler Street at railroad crossing (No project structures visible. Substation and other structures not included in project are visible), facing southeast.	5-70
Figure 5-70: Photo location 6- View from Stevens Street towards entrance to Culpeper National Cemetery (No project structures visible), facing southeast.	5-70

Figure 5-71: South East Street Historic District Simulation 1 – Simulation location, direction of view, and structures modeled from Chandler Street. Source: GTTE, LLC	5-71
Figure 5-72: South East Street Historic District Simulation 1 – Existing view from Chandler Street. Source: GTTE, LLC	5-72
Figure 5-73: South East Street Historic District Simulation 1 – Proposed view from Chandler Street – (Structures not visible shown in yellow). Source: GTTE, LLC	5-73
Figure 5-74: South East Street Historic District Simulation 2 – Simulation location, direction of view, and structures modeled from Rosson Lane. Source: GTTE, LLC	5-74
Figure 5-75: South East Street Historic District Simulation 2 – Existing view from Rosson Lane. Source: GTTE, LLC.....	5-75
Figure 5-76: South East Street Historic District Simulation 2 – Proposed view from Rosson Lane – (Structures not visible shown in yellow). Source: GTTE, LLC	5-76
Figure 5-77: Location of Culpeper National Cemetery in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-79
Figure 5-78: Photo location 1- View of entrance to Culpeper National Cemetery setting from Stevens Street, facing southeast.	5-80
Figure 5-79: Photo location 2- View of Culpeper National Cemetery from entry drive (No project structures visible), facing east.....	5-80
Figure 5-80: Photo location 3- View of Culpeper National Cemetery from entry drive (No project structures visible. Existing structure on another line not included in this project is visible), facing southeast.....	5-81
Figure 5-81: Photo location 4- View of historic section and caretakers lodge (no project structures visible), facing southeast.	5-81
Figure 5-82: Photo location 5- View from parking area to modern administrative building (no project structures visible. Multiple structures and substation not included in this project area visible), facing south.....	5-82
Figure 5-83: Photo location 6- View from central walkway in historic section (no project structures visible. Existing structure not included in this project is visible), facing southeast..	5-82
Figure 5-84: Photo location 7- View from loop in north annex (no project structures visible. Existing structure not included in this project is visible), facing southeast.....	5-83
Figure 5-85: Photo location 8- View from north annex (no project structures visible. Existing substation not included in this project is visible), facing east.....	5-83
Figure 5-86: Culpeper National Cemetery Simulation 1 – Simulation location, direction of view, and structures modeled from west annex. Source: GTTE, LLC.....	5-85
Figure 5-87: Culpeper National Cemetery Simulation 1 – Existing view from west annex. Source: GTTE, LLC.....	5-86
Figure 5-88: Culpeper National Cemetery Simulation 1 – Proposed view from west annex – (Structures not visible shown in yellow). Source: GTTE, LLC	5-87
Figure 5-89: Culpeper National Cemetery Simulation 2 – Simulation location, direction of view, and structures modeled from Officers’ circle. Source: GTTE, LLC	5-88
Figure 5-90: Culpeper National Cemetery Simulation 2 – Existing view from Officers’ circle. Source: GTTE, LLC.....	5-89
Figure 5-91: Culpeper National Cemetery Simulation 2 – Proposed view from Officers’ circle – (Structures not visible shown in yellow). Source: GTTE, LLC	5-90

Figure 5-92: Location of Brandy Station Battlefield in relation to the project alignment (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-95
Figure 5-93: Photo location 1- View from Clover Hill Road at Route 3 (No project structures visible), facing southwest.....	5-96
Figure 5-94: Photo location 2- View from Clover Hill at Route 3 (One project structure visible), facing south.....	5-96
Figure 5-95: Photo location 3- View from Clover Hill Road at Route 3 (No project structures visible. Multiple structures on other lines visible), facing east.....	5-97
Figure 5-96: Photo location 4- View from York Road at Route 3 (One project structure visible), facing southwest.....	5-97
Figure 5-97: Photo location 5- View from York Road at Route 3 (multiple project structures visible), facing south.....	5-98
Figure 5-98: Photo location 6- View from York Road at Route 3 (No project structures visible. Multiple structures on other lines visible), facing southeast.....	5-98
Figure 5-99: Photo location 7- View from Stevensburg (One project structure and one structure on other lines visible), facing south.	5-99
Figure 5-100: Photo location 8- View from Stevensburg Road (No structures visible), facing southwest.....	5-99
Figure 5-101: Photo location 9- View from Stevensburg Road (No project structures visible. Multiple structures on other lines visible), facing east.	5-100
Figure 5-102: Photo location 10- View from Mountain Run Winery (No structures visible), facing southwest.....	5-100
Figure 5-103: Photo location 11- View from Lenn Park (No structures visible), facing southwest.....	5-101
Figure 5-104: Photo location 12- View from Stevensburg Baptist Church (No project structures visible. Two structures on other lines visible), facing south.....	5-101
Figure 5-105: Photo location 13- View from battlefield wayside off York Road (No structures visible), facing southwest.....	5-102
Figure 5-106: Photo location 14- View from battlefield wayside off York Road (No project structures visible. Multiple structures on other lines visible), facing west.	5-102
Figure 5-107: Photo location 15- View from battlefield wayside off York Road (No project structures visible. Multiple structures on other lines visible), facing north.....	5-103
Figure 5-108: Photo location 16- View from Salubria Lane at Route 3 (No project structures visible. Multiple structures on other lines visible), facing west.	5-103
Figure 5-109: Photo location 17- View from entry to Hansbrough Ridge off Route 3 (No project structures visible. Multiple structures on other lines visible), facing west.....	5-104
Figure 5-110: Brandy Station Battlefield Simulation 1 – Simulation location, direction of view, and structures modeled from Route 3 at Clover Hill Road. Source: GTTE, LLC.....	5-105
Figure 5-111: Brandy Station Battlefield Simulation 1 – Existing view from Route 3 at Clover Hill Road. Source: GTTE, LLC.....	5-106
Figure 5-112: Brandy Station Battlefield Simulation 1 – Proposed view from Route 3 at Clover Hill Road – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC.....	5-107
Figure 5-113: Brandy Station Battlefield Simulation 2 – Simulation location, direction of view, and structures modeled from Mountain Run Winery. Source: GTTE, LLC	5-108

Figure 5-114: Brandy Station Battlefield Simulation 2 – Existing view from Mountain Run Winery. Source: GTTE, LLC.....	5-109
Figure 5-115: Brandy Station Battlefield Simulation 2 – Proposed view from Mountain Run Winery – (Structures not visible shown in yellow). Source: GTTE, LLC	5-110
Figure 5-116: Brandy Station Battlefield Simulation 3 – Simulation location, direction of view, and structures modeled from Route 3 at York Road. Source: GTTE, LLC.....	5-111
Figure 5-117: Brandy Station Battlefield Simulation 3 – Existing view from Route 3 at York Road. Source: GTTE, LLC	5-112
Figure 5-118: Brandy Station Battlefield Simulation 3 – Proposed view from Route 3 at York Road – (Visible structure shown as it would appear). Source: GTTE, LLC	5-113
Figure 5-119: Brandy Station Battlefield Simulation 4 – Simulation location, direction of view, and structures modeled from Zimmerman’s Tavern. Source: GTTE, LLC.....	5-114
Figure 5-120: Brandy Station Battlefield Simulation 4 – Existing view from Zimmerman’s Tavern. Source: GTTE, LLC	5-115
Figure 5-121: Brandy Station Battlefield Simulation 4 – Proposed view from Zimmerman’s Tavern – (Structures not visible shown in yellow). Source: GTTE, LLC	5-116
Figure 5-122: Brandy Station Battlefield Simulation 5 – Simulation location, direction of view, and structures modeled from Route 3 at Batna Road. Source: GTTE, LLC	5-117
Figure 5-123: Brandy Station Battlefield Simulation 5 – Existing view from Route 3 at Batna Road. Source: GTTE, LLC	5-118
Figure 5-124: Brandy Station Battlefield Simulation 5 – Proposed view from Route 3 at Batna Road – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC.....	5-119
Figure 5-125: Brandy Station Battlefield Simulation 6 – Simulation location, direction of view, and structures modeled from Stevensburg Road. Source: GTTE, LLC	5-120
Figure 5-126: Brandy Station Battlefield Simulation 6 – Existing view from Stevensburg Road. Source: GTTE, LLC.....	5-121
Figure 5-127: Brandy Station Battlefield Simulation 6 – Proposed view from Stevensburg Road – (Structures not visible shown in yellow). Source: GTTE, LLC	5-122
Figure 5-128: Brandy Station Battlefield Simulation 7 – Simulation location, direction of view, and structures modeled from Wayside at York Road. Source: GTTE, LLC	5-123
Figure 5-129: Brandy Station Battlefield Simulation 7 – Existing view from Wayside at York Road. Source: GTTE, LLC	5-124
Figure 5-130: Brandy Station Battlefield Simulation 7 – Proposed view from Wayside at York Road – (Structures not visible shown in yellow). Source: GTTE, LLC	5-125
Figure 5-131: Brandy Station Battlefield Simulation 8 – Simulation location, direction of view, and structures modeled from Salubria Lane. Source: GTTE, LLC	5-126
Figure 5-132: Brandy Station Battlefield Simulation 8 – Existing view from Salubria Lane. Source: GTTE, LLC.....	5-127
Figure 5-133: Brandy Station Battlefield Simulation 8 – Proposed view from Salubria Lane – (Structures not visible shown in yellow). Source: GTTE, LLC	5-128
Figure 5-134: Brandy Station Battlefield Simulation 9 – Simulation location, direction of view, and structures modeled from Route 3 at Hansbrough Ridge. Source: GTTE, LLC	5-129
Figure 5-135: Brandy Station Battlefield Simulation 9 – Existing view from Route 3 at Hansbrough Ridge. Source: GTTE, LLC	5-130

Figure 5-136: Brandy Station Battlefield Simulation 9 – Proposed view from Route 3 at Hansbrough Ridge – (Structures not visible shown in yellow). Source: GTTE, LLC	5-131
Figure 5-137: Location of Morton’s Ford Battlefield in relation to the project alignment (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-135
Figure 5-138: Photo location 1- View from Stevensburg (One existing project structure and one structure on another line visible), facing south.	5-136
Figure 5-139: Photo location 2- View from Stevensburg (One existing project structure and one structure on another line visible), facing south.	5-136
Figure 5-140: Photo location 3- View from Stevensburg United Methodist Church (Two existing project structures and one structure on another line visible), facing south.	5-137
Figure 5-141: Photo location 4- View from Rose Hill Farm (One existing project structure visible), facing west.	5-137
Figure 5-142: Photo location 5- View from Rose Hill Farm driveway (One existing project structure and multiple structures on another line visible), facing southeast.	5-138
Figure 5-143: Photo location 6- View from Rose Hill Farm (Multiple existing project structures and structures on another line visible), facing southeast.	5-138
Figure 5-144: Photo location 7- View from Batna Road at Blackjack Road (One existing project structure visible), facing west.	5-139
Figure 5-145: Photo location 8- View from Blackjack Road (Multiple existing project structures and structures on another line visible), facing northeast.	5-139
Figure 5-146: Photo location 9- View from Blackjack Road (Multiple existing project structures visible), facing northwest.	5-140
Figure 5-147: Photo location 10- View from Blackjack Road (Multiple existing project structures and structures on another line visible), facing northeast.	5-140
Figure 5-148: Mortons Ford Battlefield Simulation 1 – Simulation location, direction of view, and structures modeled from Batna Road at Route 3. Source: GTTE, LLC	5-141
Figure 5-149: Mortons Ford Battlefield Simulation 1 – Existing view from Batna Road at Route 3. Source: GTTE, LLC.	5-142
Figure 5-150: Mortons Ford Battlefield Simulation 1 – Proposed view from Batna Road at Route 3 – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC.	5-143
Figure 5-151: Mortons Ford Battlefield Simulation 2 – Simulation location, direction of view, and structures modeled from Batna Road at Blackjack Road. Source: GTTE, LLC.	5-144
Figure 5-152: Mortons Ford Battlefield Simulation 2 – Existing view from Batna Road at Blackjack Road. Source: GTTE, LLC	5-145
Figure 5-153: Mortons Ford Battlefield Simulation 2 – Proposed view from Batna Road at Blackjack Road – (Visible structures shown as they would appear. Structures not visible shown in yellow). Source: GTTE, LLC	5-146
Figure 5-154: Mortons Ford Battlefield Simulation 3 – Simulation location, direction of view, and structures modeled from Blackjack Road. Source: GTTE, LLC	5-147
Figure 5-155: Mortons Ford Battlefield Simulation 3 – Existing view from Blackjack Road. Source: GTTE, LLC.	5-148
Figure 5-156: Mortons Ford Battlefield Simulation 3 – Proposed view from Blackjack Road – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC.	5-149

Figure 5-157: Location of Hansbrough Ridge in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-154
Figure 5-158: Photo location 1- View of Hansbrough Ridge from Route 3 (No structures visible), facing northwest.	5-155
Figure 5-159: Photo location 2- View of entry drive to Hansbrough Ridge (No structures visible), facing north.	5-155
Figure 5-160: Photo location 3- View from entry drive to Hansbrough Ridge (No project structures visible. Several structures on another line visible), facing west.	5-156
Figure 5-161: Photo location 4- View from entry drive to Hansbrough Ridge (No project structures visible. Several structures on another line visible), facing west.	5-156
Figure 5-162: Hansbrough Ridge Simulation 1 – Simulation location, direction of view, and structures modeled from Route 3 at entry to site. Source: GTTE, LLC	5-157
Figure 5-163: Hansbrough Ridge Simulation 1 – Existing view from Route 3 at entry to site. Source: GTTE, LLC.....	5-158
Figure 5-164: Hansbrough Ridge Simulation 1 – Proposed view from Route 3 at entry to site – (Structures not visible shown in yellow). Source: GTTE, LLC	5-159
Figure 5-165: Location of Mount Pony Historic District in relation to the project alignment (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-163
Figure 5-166: Photo location 1- View from US-29 at western edge of district (One existing project structure visible), facing south.	5-164
Figure 5-167: Photo location 2- View from Route 3 near western edge of district (One existing project structure visible), facing east.	5-164
Figure 5-168: Photo location 3- View from Route 3 at Croftburn Farm (One existing project structure visible), facing east.	5-165
Figure 5-169: Photo location 4- View from Route 3 at Croftburn Farm (Multiple existing project structures visible), facing southeast.	5-165
Figure 5-170: Photo location 5- View from Route 3 at edge of Croftburn Farm (Multiple existing project structures visible), facing north.	5-166
Figure 5-171: Photo location 6- View from Route 3 towards contributing properties (No structures visible), facing northeast.	5-166
Figure 5-172: Photo location 7- View from Route 3 at Signal Hill Farm (Multiple existing project structures visible), facing southwest.	5-167
Figure 5-173: Photo location 8- View from Route 3 at Signal Hill Farm (Multiple existing project structures visible), facing southeast.	5-167
Figure 5-174: Photo location 9- View from Route 3 near Signal Hill Farm (Multiple existing project structures visible), facing southeast.	5-168
Figure 5-175: Photo location 10- View from Route 3 near Signal Hill Farm (Multiple existing project structures visible), facing southwest.	5-168
Figure 5-176: Photo location 11- View from Route 3 in central portion of district (Multiple existing project structures visible), facing southeast.	5-169
Figure 5-177: Photo location 12- View from Route 3 in central portion of district (No structures visible), facing east.	5-169
Figure 5-178: Photo location 13- View from Route 3 near eastern edge of district (Multiple existing project structures visible), facing south.....	5-170

Figure 5-179: Photo location 14- View from Route 3 near eastern edge of district (Multiple existing project structures visible), facing southeast.	5-170
Figure 5-180: Photo location 15- View from Route 3 near eastern edge of district (Multiple existing project structures visible), facing south.....	5-171
Figure 5-181: Photo location 16- View from Route 3 at eastern edge of district (Multiple existing project structures visible), facing south.....	5-171
Figure 5-182: Mount Pony Rural Historic District Simulation 1 – Simulation location, direction of view, and structures modeled from driveway to Croftburn Farm. Source: GTTE, LLC	5-173
Figure 5-183: Mount Pony Rural Historic District Simulation 1 – Existing view from driveway to Croftburn Farm. Source: GTTE, LLC	5-174
Figure 5-184: Mount Pony Rural Historic District Simulation 1 – Proposed view from driveway to Croftburn Farm – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC	5-175
Figure 5-185: Mount Pony Rural Historic District Simulation 2 – Simulation location, direction of view, and structures modeled from edge of Croftburn Farm property along Route 3. Source: GTTE, LLC.....	5-176
Figure 5-186: Mount Pony Rural Historic District Simulation 2 – Existing view from edge of Croftburn Farm property along Route 3. Source: GTTE, LLC	5-177
Figure 5-187: Mount Pony Rural Historic District Simulation 2 – Proposed view from edge of Croftburn Farm property along Route 3 – (Visible structure shown as it would appear). Source: GTTE, LLC.....	5-178
Figure 5-188: Mount Pony Rural Historic District Simulation 3 – Simulation location, direction of view, and structures modeled across road from Croftburn Farm. Source: GTTE, LLC	5-179
Figure 5-189: Mount Pony Rural Historic District Simulation 3 – Existing view across road from Croftburn Farm. Source: GTTE, LLC	5-180
Figure 5-190: Mount Pony Rural Historic District Simulation 3 – Proposed view across road from Croftburn Farm – (Visible structures shown as they would appear). Source: GTTE, LLC .	5-181
Figure 5-191: Mount Pony Rural Historic District Simulation 4 – Simulation location, direction of view, and structures modeled from driveway to Signal Hill Farm. Source: GTTE, LLC...	5-182
Figure 5-192: Mount Pony Rural Historic District Simulation 4 – Existing view from driveway to Signal Hill Farm. Source: GTTE, LLC.....	5-183
Figure 5-193: Mount Pony Rural Historic District Simulation 4 – Proposed view from driveway to Signal Hill Farm – (Visible structures shown as they would appear). Source: GTTE, LLC	5-184
Figure 5-194: Mount Pony Rural Historic District Simulation 5 – Simulation location, direction of view, and structures modeled from Ashland Farm Road. Source: GTTE, LLC	5-185
Figure 5-195: Mount Pony Rural Historic District Simulation 5 – Existing view from Ashland Farm Road. Source: GTTE, LLC.....	5-186
Figure 5-196: Mount Pony Rural Historic District Simulation 5 – Proposed view from Ashland Farm Road – (Visible structures shown as they would appear). Source: GTTE, LLC.....	5-187
Figure 5-197: Mount Pony Rural Historic District Simulation 6 – Simulation location, direction of view, and structures modeled from Route 3 at Moerings Nursery. Source: GTTE, LLC...	5-188
Figure 5-198: Mount Pony Rural Historic District Simulation 6 – Existing view from Route 3 at Moerings Nursery. Source: GTTE, LLC	5-189

Figure 5-199: Mount Pony Rural Historic District Simulation 6 – Proposed view from Route 3 at Moerings Nursery – (Visible structures shown as they would appear. Structures not visible shown in yellow). Source: GTTE, LLC.....	5-190
Figure 5-200: Mount Pony Rural Historic District Simulation 7 – Simulation location, direction of view, and structures modeled from Route 3 at Clover Hill Road. Source: GTTE, LLC.....	5-191
Figure 5-201: Mount Pony Rural Historic District Simulation 7 – Existing view from Route 3 at Clover Hill Road. Source: GTTE, LLC.....	5-192
Figure 5-202: Mount Pony Rural Historic District Simulation 7 – Proposed view from Route 3 at Clover Hill Road – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC	5-193
Figure 5-203: Location of Mountain Run Historic District in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-197
Figure 5-204: Photo location 1- View from Stevensburg Road at contributing property (No project structures visible. Multiple structures on another line visible), facing east.....	5-198
Figure 5-205: Photo location 2- View from Stevensburg Road at contributing property (No structures visible), facing southeast.	5-198
Figure 5-206: Photo location 3- View from Stevensburg Road at lower edge of district (No structures visible), facing southeast.	5-199
Figure 5-207: Photo location 4- View from Lenn Park (No structures visible), facing southeast.	5-199
Figure 5-208: Photo location 5- View from Lenn Park (No project structures visible. Multiple structures on another line visible), facing east.....	5-200
Figure 5-209: Mountain Run Historic District Simulation 1 – Simulation location, direction of view, and structures modeled from Stevensburg Road at southern edge of district. Source: GTTE, LLC	5-201
Figure 5-210: Mountain Run Historic District Simulation 1 – Existing view from Stevensburg Road at southern edge of district. Source: GTTE, LLC	5-202
Figure 5-211: Mountain Run Historic District Simulation 1 – Proposed view from Stevensburg Road at southern edge of district – (Structures not visible shown in yellow). Source: GTTE, LLC	5-203
Figure 5-212: Location of Zimmerman’s Tavern in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-209
Figure 5-213: Photo location 1- View of Zimmerman’s Tavern from York Road (No structures visible), facing southeast.....	5-210
Figure 5-214: Photo location 2- View from front of Zimmerman’s Tavern (No structures visible), facing southwest.....	5-210
Figure 5-215: Photo location 3- View from front of Zimmerman’s Tavern (No structures visible), facing southwest.....	5-211
Figure 5-216: Photo location 4- View from intersection of York Road and Stevensburg Road (No structures visible), facing south.	5-211
Figure 5-217: Photo location 5- View from west edge of Zimmerman’s Tavern property (No structures visible), facing southwest.	5-212
Figure 5-218: Photo location 6- View from west edge of Zimmerman’s Tavern property (No structures visible), facing southwest.	5-212

Figure 5-219: Zimmerman’s Tavern Simulation 1 – Simulation location, direction of view, and structures modeled from front of the building. Source: GTTE, LLC	5-213
Figure 5-220: Zimmerman’s Tavern Simulation 1 – Existing view from front of the building. Source: GTTE, LLC.....	5-214
Figure 5-221: Zimmerman’s Tavern Simulation 1 – Proposed view from front of the building – (Structures not visible shown in yellow). Source: GTTE, LLC	5-215
Figure 5-222: Zimmerman’s Tavern Simulation 2 – Simulation location, direction of view, and structures modeled from west edge of property along Route 3. Source: GTTE, LLC	5-216
Figure 5-223: Zimmerman’s Tavern Simulation 2 – Existing view from west edge of property along Route 3. Source: GTTE, LLC	5-217
Figure 5-224: Zimmerman’s Tavern Simulation 2 – Proposed view from west edge of property along Route 3 – (Visible structures shown as they would appear. Structures not visible shown in yellow). Source: GTTE, LLC	5-218
Figure 5-225: Location of house at 19564 Alvere Road in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).	5-221
Figure 5-226: Photo location 1- View of property from Blackjack Road (existing project structure visible), facing south.	5-222
Figure 5-227: Photo location 2- View from edge of property along Blackjack Road (multiple project structures visible), facing northwest.	5-222
Figure 5-228: Photo location 3- View from edge of property along Blackjack Road (multiple project structures visible), facing northwest.	5-223
Figure 5-229: Photo location 4- View from edge of property along Blackjack Road (multiple project structures visible), facing northwest.	5-223
Figure 5-230: Photo location 5- View from intersection of Blackjack Road and Alvere Road (No structures visible), facing northwest.	5-224
Figure 5-231: Photo location 6- View from edge of property along Alvere Road (multiple project structures visible), facing north.	5-224
Figure 5-232: 19564 Alvere Road Simulation 1 – Simulation location, direction of view, and structures modeled from Blackjack Road. Source: GTTE, LLC	5-225
Figure 5-233: 19564 Alvere Road Simulation 1 – Existing view from Blackjack Road. Source: GTTE, LLC.....	5-226
Figure 5-234: 19564 Alvere Road Simulation 1 – Proposed view from Blackjack Road – (Visible structures shown as they would appear. Structures not visible shown in yellow). Source: GTTE, LLC.....	5-227

LIST OF TABLES

Table 2-1: Existing and proposed structure information.	2-1
Table 4-1: Previously conducted cultural resource surveys within one mile of the project area. The surveys that include portions of the project area are highlighted in orange. Source: VDHR.	4-1
Table 4-2: Previously recorded archaeological resources within one mile of the project area. Orange highlight denotes site is located within or crossed by the project ROW.	4-3
Table 4-3: Previously recorded cultural resources within their respective tiered buffer zones for the Cirrus-Keyser 230 kV Loop (Mountain Run) Lines #2 and #70 Rebuild Project as specified in the VDHR Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia.....	4-7
Table 5-1: Considered Architectural Resources within their Respective Tiered Buffer Zones for the Cirrus – Keyser 230 kV Loop and Related Projects	5-1
Table 6-1: Potential impacts summary for architectural resources.....	6-2
Table 6-2: Summary of potential impacts summary for archaeological resources.....	6-3

THIS PAGE INTENTIONALLY LEFT BLANK

1. INTRODUCTION

In October 2022, Dutton + Associates, LLC (D+A) completed a Pre-Application Analysis (analysis) of cultural resources for the Cirrus – Keyser 230 kV Loop and Related Projects in Culpeper County, Virginia (Figure 1-1). The analysis was performed for Dominion Energy Virginia (Dominion) in support of a State Corporation Commission (SCC) application. The analysis was conducted in accordance with Virginia Department of Historic Resources' (VDHR) guidance titled *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (January 2008) and Commonwealth of Virginia State Corporation Commission Division of Public Utility Regulation *Guidelines for Transmission Line Applications Filed Under Title 56 of the Code of Virginia* (August 2017).

This analysis was performed at a level that meets the purpose and intent of VDHR and the SCC's guidance. It provides information on the presence of previously recorded National Historic Landmark (NHL) properties located within a 1.5-mile buffer area established around the project area, properties listed on the National Register of Historic Places (NRHP), battlefields, and historic landscapes located within a 1-mile buffer around the project area, and properties previously determined eligible for listing in the NRHP located within a 0.5-mile buffer area around the project area, and previously identified archaeological resources directly within the project area. This analysis will not satisfy Section 106 identification and evaluation requirements in the event federal permits or licenses are needed; however, it can be used as a planning document to assist in making decisions under Section 106 as to whether further cultural resource identification efforts may be warranted.

This report contains a research design which describes the scope and methodology of the analysis, discussion of previously identified historic properties, and an assessment of potential impacts. D+A Senior Architectural Historian Robert J. Taylor, Jr. M.A. served as Principal Investigator and oversaw the general course of the project and supervised all aspects of the work. Copies of all notes, maps, correspondence, and historical research materials are on file at the D+A main office in Midlothian, Virginia.

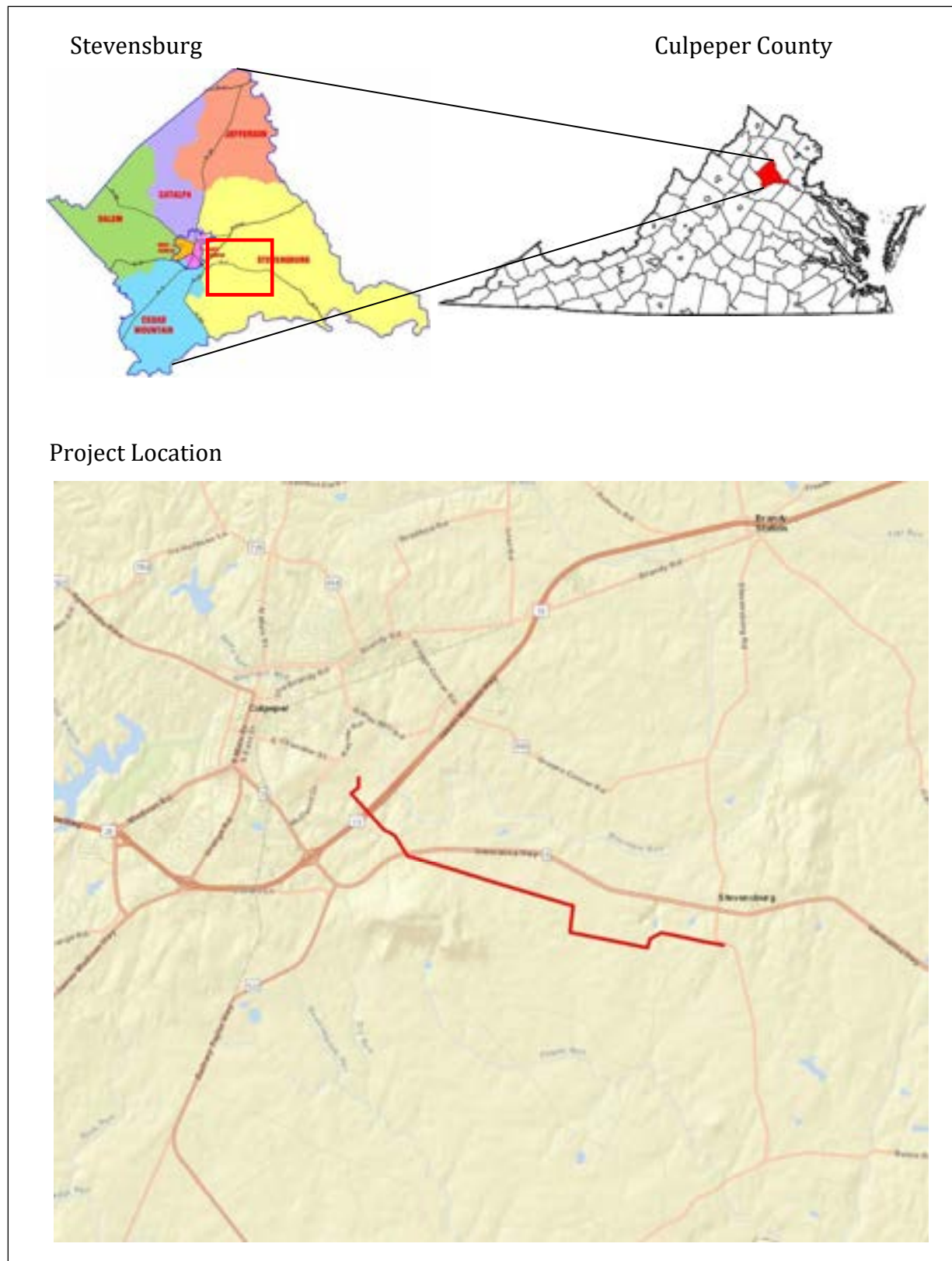


Figure 1-1: Project Area general location

2. PROJECT DESCRIPTION

As part of the Cirrus – Keyser 230 kV Loop and Related Projects, Dominion Energy Virginia (the “Company”) is proposing to construct a new, approximately 5.2-mile overhead 230 kV double circuit transmission line-loop utilizing an existing 100-foot-wide right-of-way resulting in three separate lines: (i) the 230 kV Gordonsville-Cirrus Line #2199, (ii) the 230 kV Cirrus-Keyser Line #2278, and (iii) the 230 kV Keyser-Germanna Line #2276 (collectively, the “Cirrus-Keyser 230 kV Loop”). Two new substations, the Cirrus Substation and the Keyser Substation, will be constructed on customer and Company-owned property. The Project is largely located within existing right-of-way or on Company-owned property. However, additional permanent right-of-way is needed on customer property to connect the Cirrus Substation to the existing 115 kV Line #70 and at the Mountain Run Junction. Temporary right-of-way is also needed for the 5.2-mile corridor to install a temporary line during construction.

The Project is needed to provide service to a Rappahannock Electric Cooperative data center customer, to maintain reliable service for the overall growth in the region, and to comply with mandatory North American Electric Reliability Corporation Reliability Standards.

As part of the project, Dominion proposes to replace the existing structures within the project ROW and rebuild the lines to current 230kV standards. The existing structures are corten monopoles that average 80 feet in height and will be replaced with corten monopole structures with a similar configuration that will generally range from 75- to 115-feet in height (Table 2-1 and Figure 2-1). The structures will generally be replaced on a one-to-one basis near the same locations, with the exception of two structures that will be shifted slightly to allow for a decrease in structure height (Figures 2-2 and 2-3). All permanent improvements associated with the rebuild will take place within existing right-of-way (ROW) although temporary line construction may require additional vegetative clearing. The Cirrus and Keyser substations will occupy roughly 13 acres of customer and company-owned property (Figure 2-4).

Table 2-1: Existing and proposed structure information.

(Existing) Line/Str #	(Existing) Struct. Height (ft)	(Proposed) Line/Str #	(Proposed) Struct. Height (ft)	Existing ROW	Additional Perm. ROW
-	-	2276/100	110	100'	25'
2199/100	100	2199/100	110	100'	25'
2/1201 (70/53)	80	2/486A	75	100'	25'
-	-	2/486B	75	100'	25'
2/1202 (70/52)	80	2276/101 (2199/99)	100	100'	N/A
2/1203 (70/51)	80	2276/102 (2199/98)	100	100'	N/A
2/1204 (70/50)	80	2276/103 (2199/97)	100	100'	N/A
2/1205 (70/49)	80	2276/104 (2199/96)	105	100'	N/A
2/1206 (70/48)	80	2276/105 (2199/95)	105	100'	N/A
2/1207 (70/47)	80	2276/106 (2199/94)	95	100'	N/A
2/1208 (70/46)	80	2276/107 (2199/93)	90	100'	N/A
2/1209 (70/45)	80	2276/108 (2199/92)	95	100'	N/A

(Existing) Line/Str #	(Existing) Struct. Height (ft)	(Proposed) Line/Str #	(Proposed) Struct. Height (ft)	Existing ROW	Additional Perm. ROW
2/1210 (70/44)	80	2276/109 (2199/91)	105	100'	N/A
2/1211 (70/43)	80	2276/110 (2199/90)	95	100'	N/A
2/1212 (70/42)	80	2276/111 (2199/89)	100	100'	N/A
2/1213 (70/41)	80	2276/112 (2199/88)	95	100'	N/A
2/1214 (70/40)	80	2276/113 (2199/87)	100	100'	N/A
2/1215 (70/39)	80	2276/114 (2199/86)	100	100'	N/A
2/1216 (70/38)	80	2276/115 (2199/85)	100	100'	N/A
2/1217 (70/37)	80	2276/116 (2199/84)	100	100'	N/A
2/1218 (70/36)	80	2276/117 (2199/83)	105	100'	N/A
2/1219 (70/35)	80	2276/118 (2199/82)	100	100'	N/A
2/1220 (70/34)	80	2276/119 (2199/81)	100	100'	N/A
2/1221 (70/33)	80	2276/120 (2199/80)	100	100'	N/A
2/1222 (70/32)	80	2276/121 (2199/79)	100	100'	N/A
2/1223 (70/31)	80	2276/122 (2199/78)	100	100'	N/A
2/1224 (70/30)	80	2276/123 (2199/77)	100	100'	N/A
2/1225 (70/29)	80	2276/124 (2199/76)	100	100'	N/A
2/1226 (70/28)	80	2276/125 (2199/75)	100	100'	N/A
2/1227 (70/27)	80	2276/126 (2199/74)	110	100'	N/A
2/1228 (70/26)	80	2276/127 (2199/73)	105	100'	N/A
2/1229 (70/25)	80	2276/128 (2199/72)	105	100'	N/A
2/1230 (70/24)	80	2276/129 (2199/71)	100	100'	N/A
2/1231 (70/23)	80	2276/130 (2199/70)	105	100'	N/A
2/1232 (70/22)	80	2276/131 (2199/69)	100	100'	N/A
2/1233 (70/21)	80	2276/132 (2199/68)	105	100'	N/A
2/1234 (70/20)	80	2276/133 (2199/67)	100	100'	N/A
2/1235 (70/19)	80	2276/134 (2199/66)	100	100'	N/A
2/1236 (70/18)	80	2276/135 (2199/65)	105	100'	N/A
2/1237 (70/17)	80	2276/136 (2199/64)	100	100'	N/A
2/1238 (70/16)	80	2276/137 (2199/63)	105	100'	N/A
2/1239 (70/15)	80	2276/138 (2199/62)	100	100'	N/A
2/1240 (70/14)	80	2276/139 (2199/61)	105	100'	N/A
2/1241 (70/13)	80	2276/140 (2199/60)	105	100'	N/A
2/1242 (70/12)	80	2276/141 (2199/59)	90	100'	N/A
2/1243 (70/11)	90	2276/142 (2199/58)	90	100'	N/A
2/1244 (70/10)	90	2276/143 (2199/57)	90	100'	N/A
2/1245 (70/9)	90	2276/144 (2199/56)	90	100'	N/A
2/1246 (70/8)	90	2276/145 (2199/55)	115	100'	N/A
2/1247 (70/7)	90	2276/146 (2199/54)	95	100'	N/A
2/1248 (70/6)	80	2276/147 (2199/53)	110	100'	N/A
2/1249 (70/5)	90	2276/148 (2199/52)	105	100'	N/A

PROJECT DESCRIPTION

(Existing) Line/Str #	(Existing) Struct. Height (ft)	(Proposed) Line/Str #	(Proposed) Struct. Height (ft)	Existing ROW	Additional Perm. ROW
2/1250 (70/4)	80	2276/149 (2199/51)	105	100'	N/A
2/1251 (70/3)	100	2276/150 (2199/50)	90	100'	N/A
2/1252 (70/2)	90	2276/151	80	100'	N/A
-	-	2276/152	80	100'	N/A
-	-	2276/153	70	N/A	New Substation
-	-	2199/49	90	N/A	New Substation
-	-	2199/48 (2278/4)	70	N/A	New Substation
-	-	2278/1	70	N/A	New Substation
-	-	2278/2	85	N/A	New Substation
-	-	2278/3	85	N/A	New Substation
-	-	2283/1	70	N/A	New Substation
-	-	2283/2	85	N/A	New Substation
(70/1A)	85	2283/3	85	100'	N/A
-	-	2284/1	70	N/A	New Substation
2/1253A ()	70	2284/2	75	100'	N/A
-	-	70/1254	70	N/A	New Substation
- (70/1255)	70	70/1255	80	100'	N/A
Minimum**	80		75		
Maximum**	100		115		
Average**	81		99		

** Minimum, Maximum, and Average structure heights do not include substation structures.

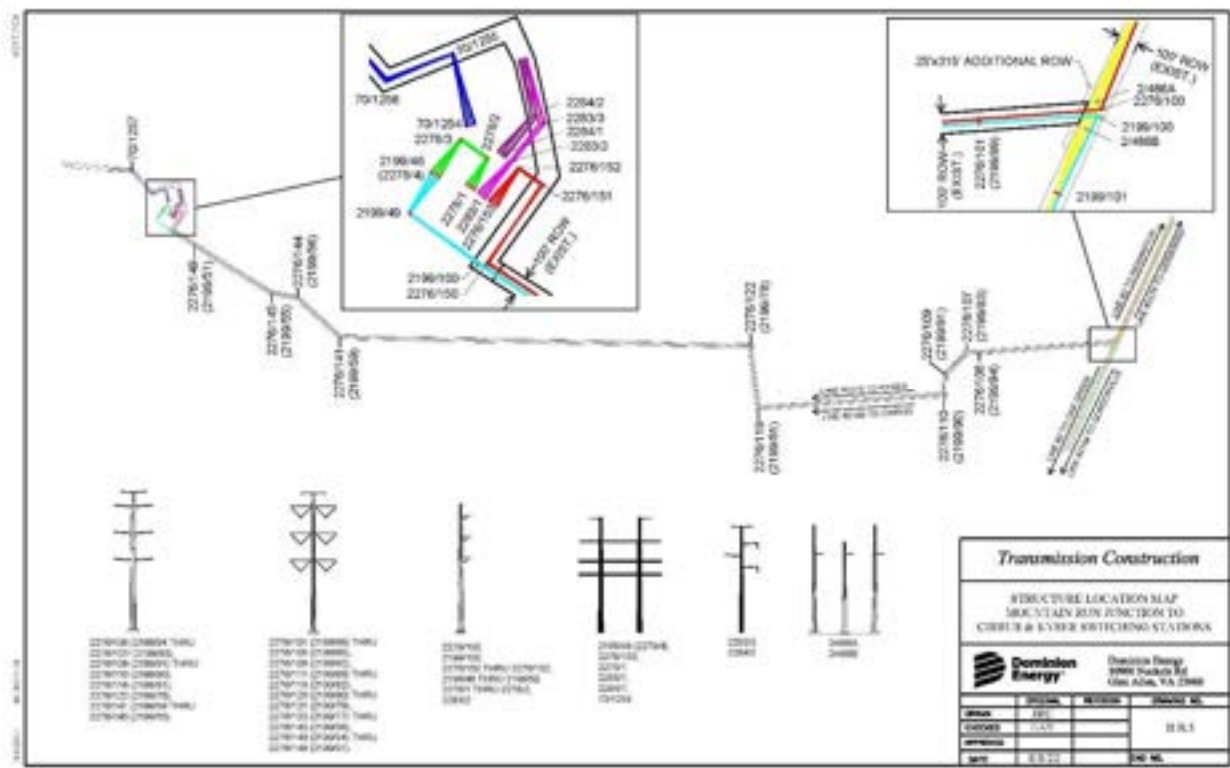


Figure 2-1: Detail of proposed structure types by section. Source: Dominion Energy Virginia



Figure 2-2: Detail of Cirrus – Keyser 230 kV Loop and Related Projects (West)



Figure 2-3: Detail of Cirrus – Keyser 230 kV Loop and Related Projects (East)



THIS PAGE INTENTIONALLY LEFT BLANK

3. RESEARCH DESIGN

The intent of this effort was to identify all known historic properties within the vicinity of the proposed project area in order to assess them for potential impacts brought about by the project. Historic properties include architectural and archaeological (terrestrial and underwater) resources, historic and cultural landscapes, battlefields, and historic districts. For each previously recorded historic property, an examination of property documentation, current aerial photography, and a field reconnaissance was undertaken to assess each property's integrity of feeling, setting, and association, and to provide photo documentation of the property including views toward the proposed project. The D+A personnel who directed and conducted this survey meet the professional qualification standards of the Department of the Interior (48 FR 44738-9).

ARCHIVAL RESEARCH

In September 2022, D+A conducted archival research with the goal of identifying all previously recorded historic properties and any additional historic property locations referred to in historic documents and other archives, as well as consultation with local informants and other professionals with intimate knowledge of the project area as appropriate. Background research was conducted at the VDHR and on the internet and included the following sources:

- VDHR Virginia Cultural Resource Information System (VCRIS) site files; and
- National Park Service (NPS), American Battlefield Protection Program (ABPP), maps and related documentation.

Data collection was performed according to VDHR guidance in *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (January 2008) and was organized in a multi-tier approach. As such, the effort was designed to identify all previously recorded NHL's located within 1.5-miles of the proposed project area, all historic properties listed in the NRHP, battlefields, and historic landscapes located within 1-mile of the project area, all historic properties previously determined eligible for listing in the NRHP located within 0.5-mile of the project area, and all properties located directly within the project area.

FIELD RECONNAISSANCE

Field reconnaissance included visual inspection of those previously recorded historic properties identified within the defined study tiers. Visual inspection included digital photo documentation of each property's existing conditions including its setting and views toward the proposed project. Photographs were taken of primary resource elevations, general setting, and existing viewsheds. All photographs were taken from public right-of-way or where property access was granted. No subsurface archaeological testing was conducted as part of this effort.

ASSESSMENT OF POTENTIAL IMPACTS

Following identification and field inspection of historic properties, D+A assessed each resource for potential impacts brought about by the proposed project. Assessment of impacts was conducted

through a combination of field inspection, digital photography, review of topography and aerial photography. As the overall increase in structure height between the existing and proposed does not meet the threshold of a “substantial increase” as outlined by the VDHR in *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (January 2008), no photo simulation was conducted as part of this effort.

When assessing impacts, D+A considered those qualities and characteristics that qualify the property for listing and whether the project has the potential to alter or diminish the integrity of the property and its associated significance. Specific attention was given to determining whether or not the proposed project would introduce new visual elements into a property’s viewshed, which would either directly or indirectly alter those qualities or characteristics that qualify the historic property for listing in the NRHP. Identified impacts were characterized as severe, moderate, minimal, or none in accordance with the following guidance:

- **None** – Project is not visible from the property
- **Minimal** – Occur within viewsheds that have existing transmission lines, locations where there will only be a minor change in tower height, and/or views that have been partially obstructed by intervening topography and vegetation.
- **Moderate** – Include viewsheds with expansive views of the transmission line, more dramatic changes in the line and tower height, and/or an overall increase in the visibility of the route from the historic properties.
- **Severe** – Occur within viewsheds that do not have existing transmission lines and where the views are primarily unobstructed, locations where there will be a dramatic increase in tower visibility due to the close proximity of the route to historic properties, and viewsheds where the visual introduction of the transmission line is a significant change in the setting of the historic properties.

REPORT PREPARATION

The results of the archival resource, field inspection, and analysis were synthesized and summarized in a summary report accompanied by maps, illustrations, and photographs as appropriate. All research material and documentation generated by this project is on file at D+A’s office in Midlothian, Virginia.

4. ARCHIVES SEARCH

This section includes a summary of efforts to identify previously known and recorded cultural resources within the tiered project buffers. It includes lists, maps, and descriptive data on all previously conducted cultural resource surveys, and previously recorded architectural resources and archaeological sites according to the VDHR archives and VCRIS database.

PREVIOUSLY SURVEYED AREAS

VDHR and VCRIS records indicate that there have been nine (9) prior Phase I cultural resource surveys within 1-mile of the project area, including three (3) of which that overlap with or include portions of the project area. These surveys are at a minimum archaeological in nature, although some include architectural resources as well. The three surveys that include portions of the project area were conducted as part of a linear transportation project, a targeted site study, and a larger solar project. As a result of these surveys, portions of the project ROW have been subject to Phase I archaeological identification, however, other portions remain unsurveyed. The eight previously conducted cultural resource surveys within 1-mile of the project area are listed in Table 4-1 and are illustrated in Figure 4-1.

Table 4-1: Previously conducted cultural resource surveys within one mile of the project area. The surveys that include portions of the project area are highlighted in orange. Source: VDHR.

VDHR Survey #	Title	Author	Date
CU-024	A Supplemental Phase I Archaeological Survey of Three Areas Associated with Proposed Route 3 Improvements and Stevensburg Bypass Project, Culpeper County, Virginia	Gray and Pape, Inc.	1999
CU-026	An Archaeological Survey for the Proposed Route 3 Improvements and Stevensburg Bypass Project, Culpeper County, Virginia	Louis Berger Group (Louis Berger and Associates)	1998
CU-042	Cost-Share Cultural Resource Survey of 23 Areas of Historic Interest Within Culpeper County, Virginia	Dovetail Cultural Resource Group, LLC	2009
CU-045	Non-Intrusive Cemetery Delineation and Marker Identification of the Salubria Community Cemetery, Culpeper County, Virginia	Dovetail Cultural Resource Group, LLC	2007
CU-046	Cultural Resource Survey in Association with the Proposed Widening of Route 3, Stevensburg, Culpeper County, Virginia	Louis Berger Group (Louis Berger and Associates)	2009
CU-056	Letter Report: Phase I Archaeological Survey of the Salubria Electric Line Project, Culpeper County, Virginia	Dovetail Cultural Resource Group, LLC	2014
CU-069	Phase I Archaeological Survey of Greenwood Solar I, Culpeper County, Virginia	Circa-Cultural Resource Management, LLC	2018
CU-071	A Phase I Archaeological Survey of Approximately 2.2 Acres at 19095 Salubria Lane for the Dominion Energy Strategic Underground Project in Culpeper County, Virginia	Stantec Consulting Services	2019
CU-074	Phase I Archaeological Survey of the Culpeper National Cemetery Expansion Area, Culpeper County, Virginia	Dovetail Cultural Resource Group, LLC	2021

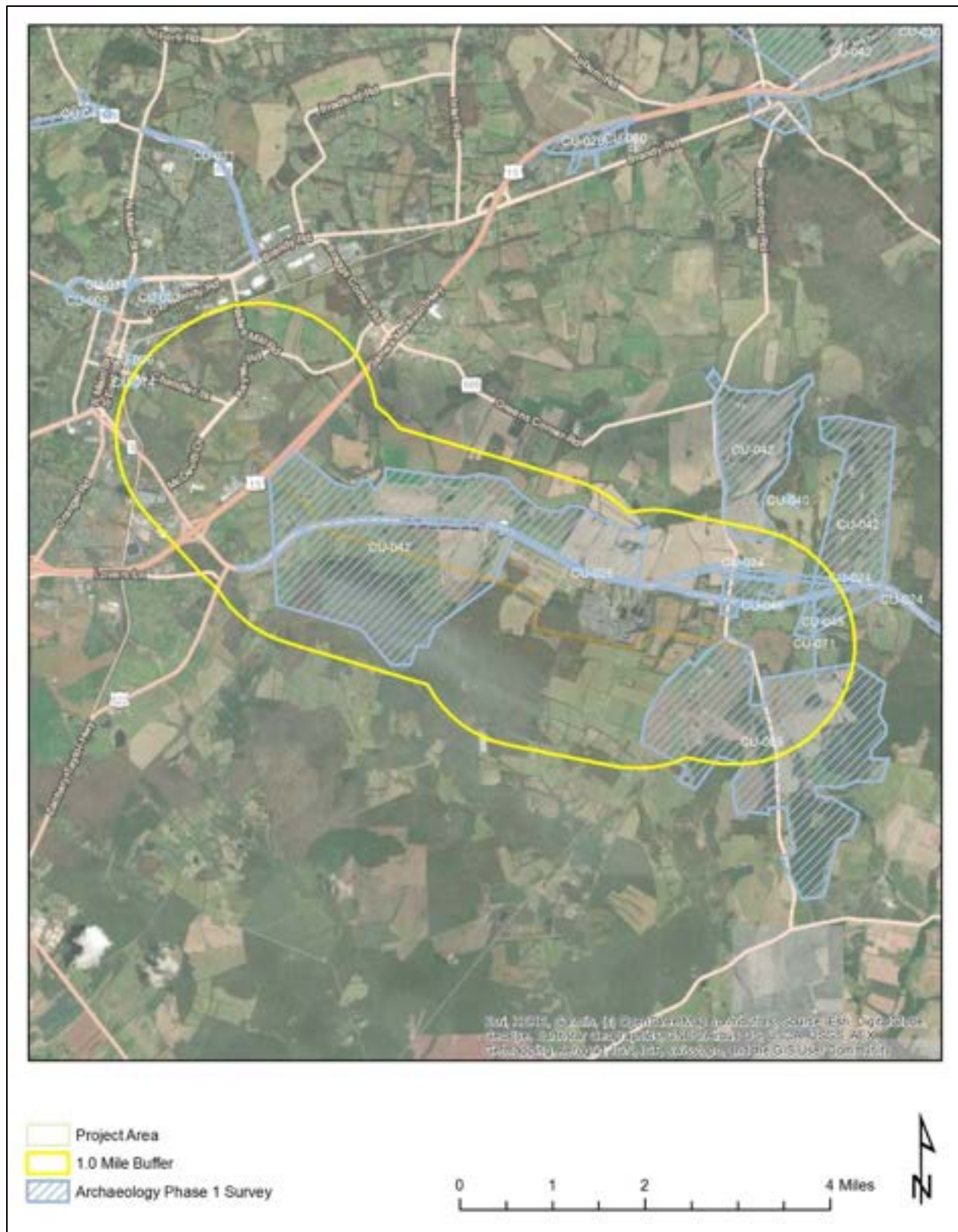


Figure 4-1: Previously conducted surveys within 1-mile of the project area. Source: VCRIS

ARCHAEOLOGICAL SITES

Review of the VDHR VCRIS records reveals there are twenty-one (21) previously recorded archaeological sites within one mile of the project area. These include prehistoric lithic scatters and camps; as well as historic domestic sites, farmsteads, a road trace, and cemetery. Of these, none have been determined eligible for listing in the NRHP, eleven (11) have been determined not eligible for listing, and the remaining sites have not been formally evaluated. One (1) of these sites is located directly within or crossed by the project ROW. This is a portion of an eighteenth century road trace that has not been subject to formal evaluation.

Table 4-2 lists the previously recorded archaeological resources within one-mile of the project area. Figure 4-2 illustrates the locations of the previously recorded sites within one mile of the project study area and Figure 4-3 details the location of the site within the project ROW.

Table 4-2: Previously recorded archaeological resources within one mile of the project area. Orange highlight denotes site is located within or crossed by the project ROW.

VDHR #	Type	Temporal Association	NRHP Status
44CU0120	Dwelling, single, Trash scatter	18th Century: 4th quarter (1775 - 1799), 19th Century (1800 - 1899)	Not Evaluated
44CU0121	Agricultural field, Trash scatter	20th Century (1900 - 1999)	Not Evaluated
44CU0124	Dwelling, single	19th Century (1800 - 1899)	Not Evaluated
44CU0135	Dwelling, single	18th Century: 4th quarter (1775 - 1799), 19th Century: 1st half (1800 - 1849)	Not Evaluated
44CU0136	Dwelling, single	18th Century (1700 - 1799)	Not Evaluated
44CU0137	Road	18th Century (1700 - 1799)	Not Evaluated
44CU0168	Cemetery, Dwelling, single, Lawn, Other, Silo, upright	Contact Period (1607 - 1750), Colony to Nation (1751 - 1789), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945), The New Dominion (1946 - 1988), Post Cold War (1989 - Present)	Not Evaluated
44CU0187	Artifact scatter	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	DHR Staff: Not Eligible
44CU0188	Camp, temporary	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E)	DHR Staff: Not Eligible
44CU0189	Camp, temporary	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E)	DHR Staff: Not Eligible
44CU0190	Farmstead	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	DHR Staff: Not Eligible
44CU0191	Farmstead	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	DHR Staff: Not Eligible
44CU0192	Camp, temporary	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E)	DHR Staff: Not Eligible

VDHR #	Type	Temporal Association	NRHP Status
44CU0193	Camp, temporary	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E)	DHR Staff: Not Eligible
44CU0194	Camp, temporary	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E)	DHR Staff: Not Eligible
44CU0201	Camp, temporary	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E)	DHR Staff: Not Eligible
44CU0202	Camp, temporary	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E)	DHR Staff: Not Eligible
44CU0203	Farmstead	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	DHR Staff: Not Eligible
44CU0210	Camp, Farmstead	Early Archaic Period (8500 - 6501 B.C.E), Middle Archaic Period (6500 - 3001 B.C.E), Late Archaic Period (3000 - 1201 B.C.E), Early National Period (1790 - 1829), Antebellum Period (1830 - 1860), Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916), World War I to World War II (1917 - 1945)	Not Evaluated
44CU0211	Cemetery	World War I to World War II (1917 - 1945), The New Dominion (1946 - 1991), Post Cold War (1992 - Present)	Not Evaluated
44CU0212	Artifact Scatter	Civil War (1861 - 1865), Reconstruction and Growth (1866 - 1916)	DHR Staff: Not Eligible



Figure 4-2: Previously recorded archaeological resources located within 1- mile of project area. Source: VCRIS



Figure 4-3: Detail of previously recorded archaeological resource crossed by the project ROW. Source: VCRIS

ARCHITECTURAL RESOURCES

Review of the VDHR VCRIS inventory records revealed a total of one-hundred-eighty-three (183) previously recorded architectural resources are located within 1.5 mile of the project area. Of these, there are no (0) NHLs located within 1.5 mile of the proposed project or closer, six (6) properties listed in the NRHP located within 1.0 mile or closer of the project, two (2) battlefields located within 1.0 mile or closer of the project, three (3) historic landscapes within 1.0 mile or closer of the project, and two (2) properties that have been determined eligible or potentially eligible for listing in the NRHP within 0.5 mile or closer of the project. Of these resources, three (3) of the NRHP-listed properties, two (2) battlefields, one (1) historic landscape, and one (1) NRHP-eligible property are directly crossed by the project area.

Table 4-3 lists all NHLs, NRHP-listed, and NRHP-eligible resources within their respective buffered tiers. A map of all previously recorded architectural resources within 1.5 mile of the project area is depicted in Figure 4-4 and a map of considered resources within their respective study tiers is included in Figure 4-5.

Table 4-3: Previously recorded cultural resources within their respective tiered buffer zones for the Cirrus-Keyser 230 kV Loop (Mountain Run) Lines #2 and #70 Rebuild Project as specified in the VDHR Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia

Buffer(miles)	Considered Resources	VDHR #	Description
1.5	National Historic Landmarks	None	None
1.0	National Historic Landmarks	None	None
	National Register- Listed	023-0020	La Grange (Historic), Salubria (NRHP Listing)
		204-0064	South East Street Historic District
		204-0069	Culpeper National Cemetery
	Battlefields	None	None
	Historic Landscapes	023-0068	Hansbrough Ridge Winter Encampment District (NRHP Listing), Hansbrough's Ridge Winter Encampment (Historic), Jenkins Tract on Hansbrough's Ridge (Current Name), Jenkins Tract, Brandy Station Battlefields (Function/Location)
		023-5441	Mountain Run Historic District (Historic/Current)
0.5	National Historic Landmarks	None	None

	National Register- Listed	None	None
	Battlefields	None	None
	Historic Landscapes	None	None
	National Register- Eligible	023-5162	Zimmerman's Tavern (Historic/Current)
0.0 (ROW)	National Historic Landmarks	None	None
	National Register- Listed	023-0018	Rose Hill (NRHP Listing), Rose Hill Farm (Historic), Rose Hill Game Preserve (Current)
		023-5023	Mount Castle (Historic), Signal Hill (Historic/Current)
		023-5040	Croftburn Farm (NRHP Listing), Grassland (Historic/Current), Mount Pony Farm (Historic)
	Battlefields	023-5055	Brandy Station Battlefields (Historic)
		068-5007	Battle of Morton's Ford (Historic), Rapidan River Battlefield (Historic)
	Historic Landscapes	023-0084	Mount Pony Rural Historic District (Historic/Current)
	National Register- Eligible	023-5494	House, 19564 Alvere Road (Function/Location)

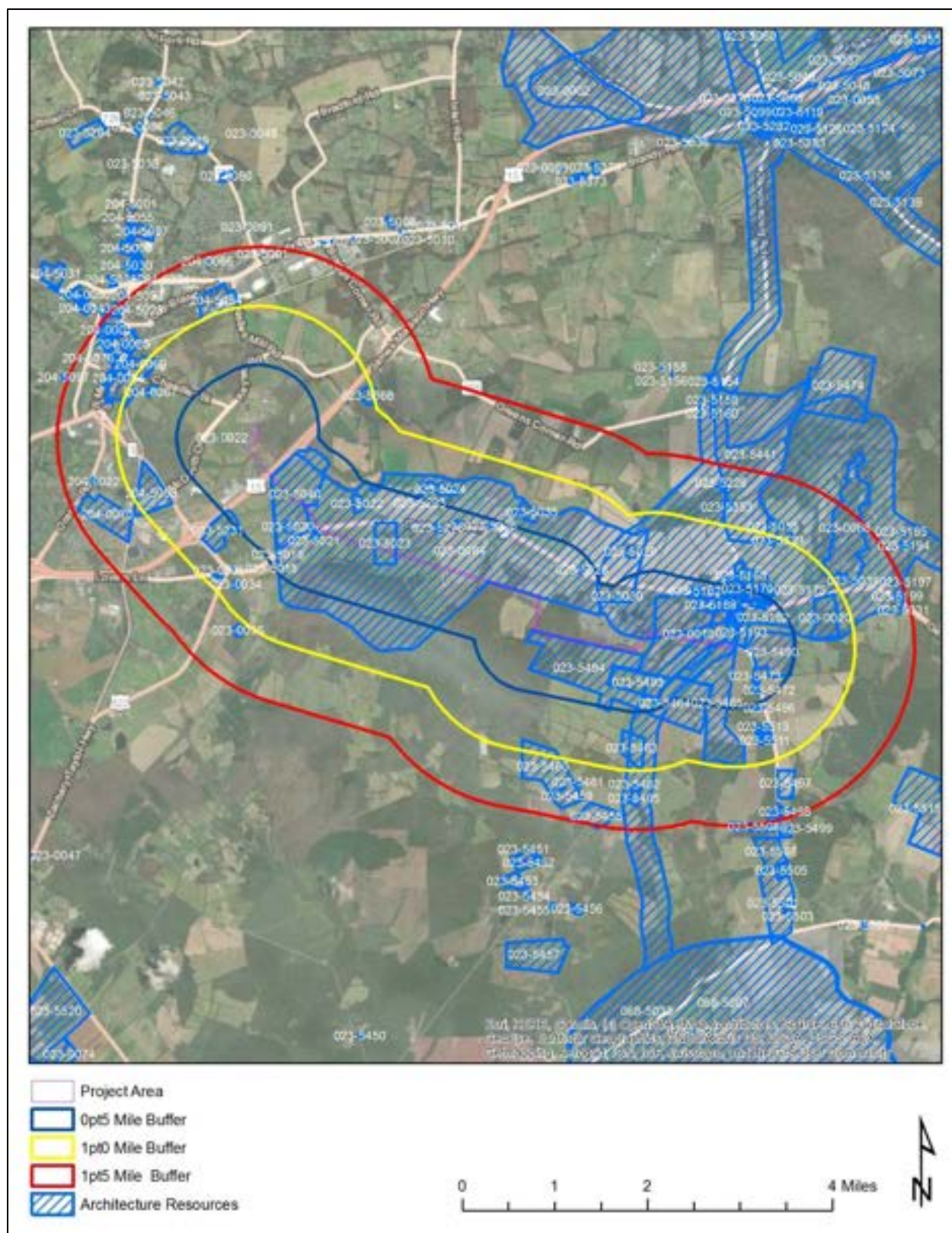


Figure 4-4: All previously identified architectural resources within 1.5 miles of the project area. Source: VCRIS

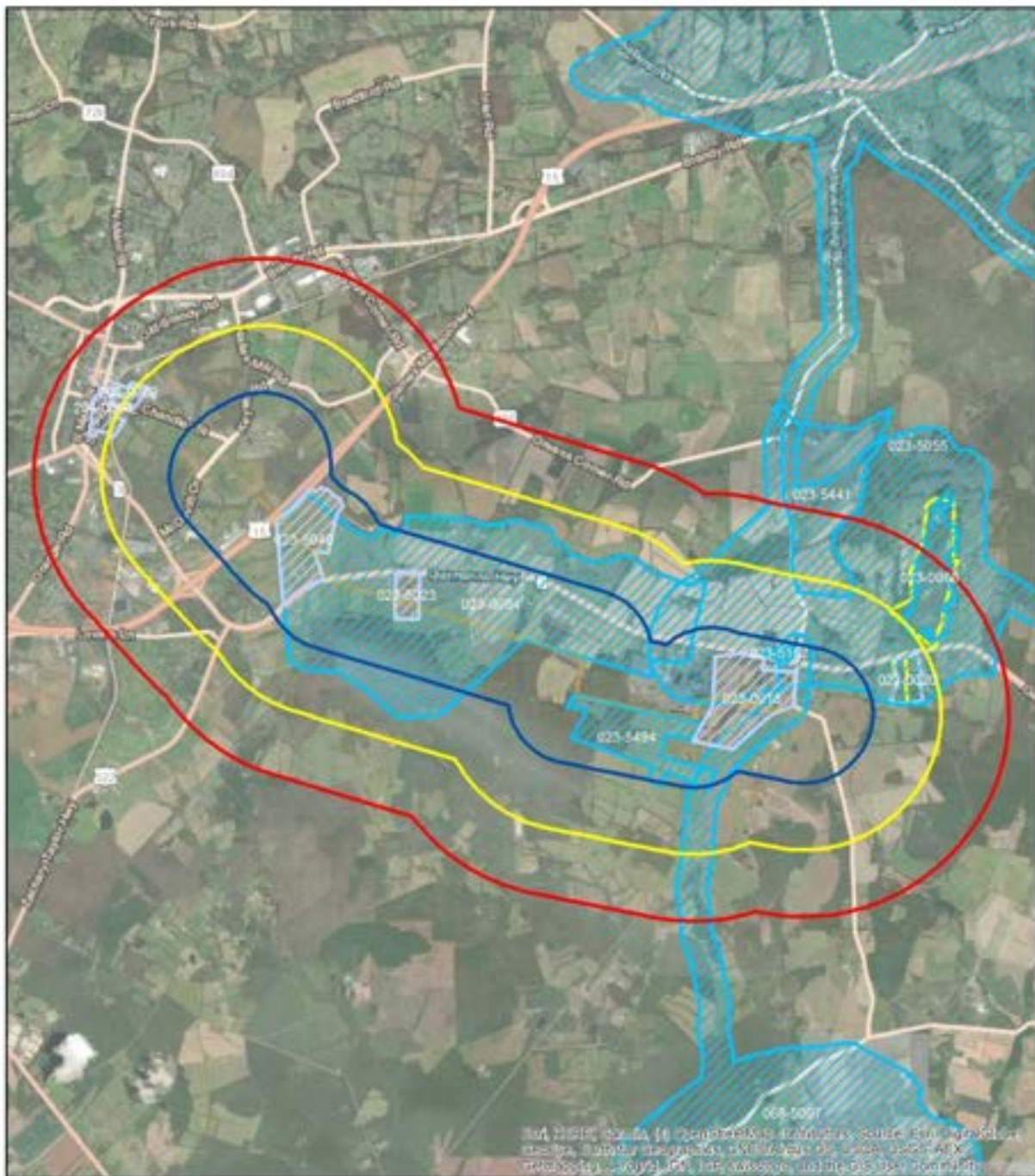


Figure 4-5: Considered architectural resources within their respective tiers around the project area. Source: VCRIS

NPS AMERICAN BATTLEFIELD PROTECTION PROGRAM (ABPP)

A review of the National Park Service (NPS) ABPP records reveals that the project area is located within one mile of portions of two defined battlefields, including the Brandy Station Battlefield and Morton's Ford Battlefield. With regards to the Brandy Station Battlefield, portions of the battlefield Study Area, Core Area, and Potential National Register Area are located within one mile, although only a small portion of battlefield identified as Study Area is directly crossed by the project alignment. With regards to the Morton's Ford Battlefield, portions of the battlefield Study Area and Potential National Register Area are located within one mile and directly crossed by the project alignment. No portions of the battlefield Core Area are located within one mile of the project (Figure 4-6).

5. RESULTS OF FIELD RECONNAISSANCE

In accordance with the VDHR guidelines for assessing impacts of proposed electric transmission lines on historic resources, previously recorded historic architectural properties that meet criteria for consideration located within 1.5 mile, 1.0 mile, or 0.5 mile of the project area (Table 5-1) were field verified for existing conditions and photo documented. Inspection and analysis of the setting around the resource and views towards the project alignment were also investigated to assess potential impacts. The results of the field reconnaissance for each resource are organized by NRHP-status, and summarized in the following pages.

Previously recorded archaeological sites located directly within the project ROW were not field inspected or subject to assessment at this time.

Table 5-1: Considered Architectural Resources within their Respective Tiered Buffer Zones for the Cirrus – Keyser 230 kV Loop and Related Projects

VDHR #	Resource Name	NRHP-Status	Distance from Project
023-0018	Rose Hill	NRHP-Listed	Directly Crossed
023-0020	Salubria	NRHP-Listed	~0.64 Mile
023-0068	Hansbrough Ridge Winter Encampment	NRHP-Listed	~0.98 Mile
023-0084	Mount Pony Rural Historic District	NRHP-Eligible	Directly Crossed
023-5023	Signal Hill	NRHP-Listed	Directly Crossed
023-5040	Croftburn Farm	NRHP-Listed	Directly Crossed
023-5055	Brandy Station Battlefields	NRHP-Potentially Eligible	Directly Crossed
023-5162	Zimmerman's Tavern	NRHP-Eligible	~0.38 Mile
023-5441	Mountain Run Historic District	NRHP-Eligible	~0.89 Mile
023-5494	House, 19564 Alvere Road	NRHP-Eligible	Immediately Adjacent
068-5007	Battle of Morton's Ford	NRHP-Potentially Eligible	Directly Crossed
204-0064	South East Street Historic District	NRHP-Listed	~0.92 Mile
204-0069	Culpeper National Cemetery	NRHP-Listed	~0.92 Mile

**NATIONAL REGISTER OF HISTORIC PLACES – LISTED
PROPERTIES, BATTLEFIELDS, AND LANDSCAPES**
Located within 1.0 Mile of the Project or Closer

Rose Hill (VDHR# 023-0018)

The Rose Hill Farm, now operated as Rose Hill Game Preserve, was constructed circa 1835 and represents a Federal to Greek Revival transition style. The two-and-a-half-story, five-bay I-house rests on a rubble stone foundation and is topped by a cross-gable roof sheathed in standing seam metal. Two brick interior end chimney and two gabled dormers pierce the roof. The house is built in a single-pile, central passage plan with a large basement that was used to shelter the family from raids during the Civil War. A one-story wing and small porch sit in the rear of the structure within the ell formed by the main block and the rear wing. Beaded weatherboard siding covers the frame structure. Fenestration includes nine-over-nine, six-over-nine, and six-over-six double-hung wood sash windows with operable shutters. The centered front entrance is sheltered by a one-bay pedimented portico supported by Doric columns. Ornamentation includes a fanlight within the pediment of the portico and compound cornices with a frieze. Few alterations have been made to the structure since its construction, and it retains much of its interior flooring, woodwork, and hardware.

Located amidst rolling hills and open farmland, the main house at Rose Hill was built by Martin Nalle and is an excellent example of an early-nineteenth century Federal to Greek Revival transitions period plantation home. The house sits on top of a grassy knoll with its associated outbuildings, including a detached kitchen, a former school building, and a family cemetery, clustered to its west. It was used as a dairy farm for much of the twentieth century before transitioning to mixed agriculture, and finally to a game preserve, which remains its current use. During the Civil War, H. Judson Kilpatrick, a Union Brigadier General, made the plantation his headquarters during the winter of 1863-1864. As such, it was where the Kilpatrick-Dahlgren Raid was planned, making the site significant for its association with an important event of the Civil War. Additionally, it is architecturally significant as a well-preserved example of a mid-nineteenth century I-house exhibiting a Federal to Greek Revival transitional style. The house exhibits a high level of integrity having experienced few alterations and retains the feeling of an antebellum plantation of a successful businessman. It was therefore listed in the NRHP in 2020 under Criteria A and C.

The Rose Hill property is directly crossed by the project alignment and therefore was subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the Rose Hill property and photographs were taken to document viewshed with emphasis on views from the resource towards the project alignment. Rose Hill is set just south of the small community of Stevensburg within a rural area near the eastern terminus of the project. The home is oriented generally to the east, with the project alignment extending through the property just to the south of the house, and extending through the landscape to the west, as well as a short distance to the east before it taps another existing transmission line. A total of five (5) existing transmission structures associated with this project area located within the Rose Hill property.

A site visit to the property found that it retains a large swath of undeveloped rural landscape around the house, however, the surrounding setting has been compromised by nonhistoric development including modern homes set on small roadside lots immediately across the road to the east and a large open-pit quarry operation immediately adjacent to the west. In addition to the multiple

transmission structures located directly on the property, numerous additional structures on the same line as well as other lines are visible around the property. Due to the topography and vegetation patterns in the area, views of the Rose Hill home from public right-of-way are limited to a short distance of road immediately in front of the property, however, views outward from the house are more extensive and include a wide landscape to the front and rear.

As part of the project, all five structures located on the property will be replaced. Structure replacement will be on a one-to-one basis near the location of the existing structures, and will not require any additional ROW or clearing within the property. As a result, the project will have a direct impact on the property, however, because it will not introduce any substantially new or different components into the landscape of the property, nor will it require clearing or demolition of any cultural features, the direct impact will be minimal.

Because the structures on the property as well as additional structures in the vicinity will be increased in height, the project also has the potential to introduce indirect or visual impacts. Inspection from the property and publicly-accessible vantage points in the vicinity towards the project area revealed that the numerous transmission line structures, including those on the property and beyond are visible. From most vantage points, visibility includes multiple structures and views of the structures are generally across open field and unobstructed.

The existing structures on the property are each 80-feet in height and the proposed replacement structures will generally average 100-feet in height. Structures will be replaced on a one-to-one basis near the existing locations with new structures of a similar design, material, and overall appearance. As such, it is anticipated that visibility of the replacement structures will remain similar to the views of existing structures from vantage points within and in the vicinity of the Rose Hill property. Those structures that are currently visible will remain as such while others currently screened will likely remain so. Visibility of structures that are currently partially screened by vegetation may increase, while the change in height of structures visible across open field will be less noticeable without the backdrop of vegetation. This was confirmed by photo simulation from the property and the nearby public ROW that illustrates an increase in height of visible structures, but no new visibility of structures currently screened. Therefore, the increase in height may be perceptible, but will not introduce any substantially new or cumulative impacts to the viewshed or setting of the resources that already includes multiple transmission structures and wide views of the transmission line. Nor will the project detract from or compromise those qualities and characteristics that make the property eligible for listing in the NRHP. It is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose no more than a ***minimal impact*** on Rose Hill.

Figure 5-1 depicts the location of Rose Hill in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-2 through 5-13 are representative photographs of the property, as well as those taken from locations within and near the property towards the project area. Figures 5-14 through 5-22 provide photo simulation from the property.

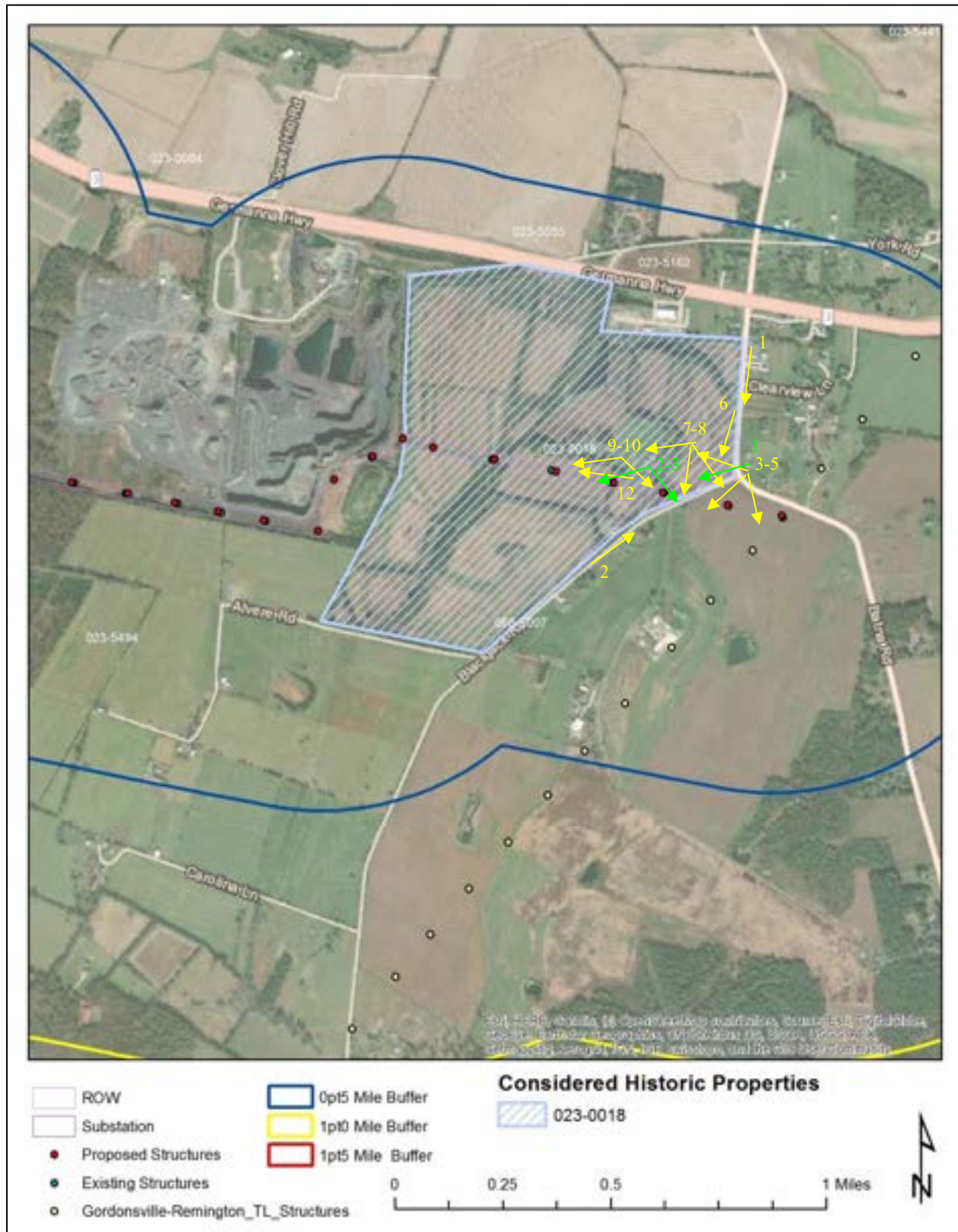


Figure 5-1: Location of Rose Hill in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).

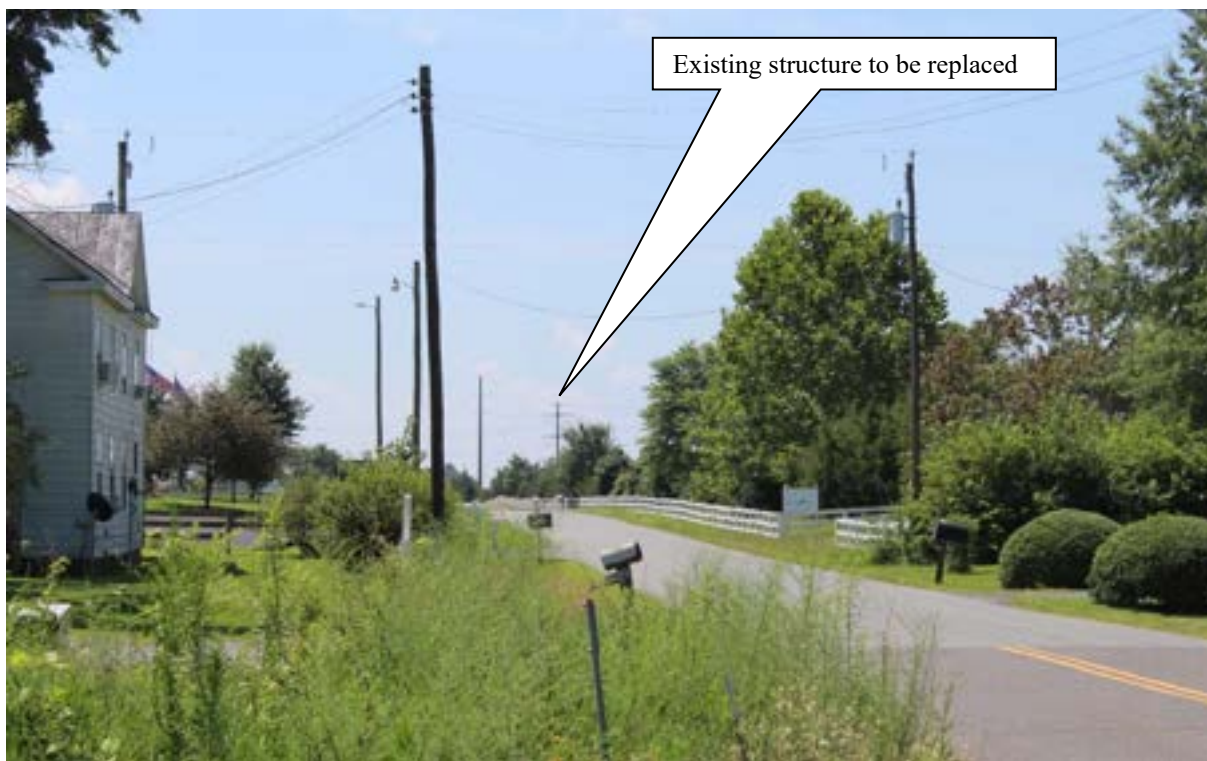


Figure 5-2: Photo location 1- View from east side of Rose Hill along Batna Road (existing project structure visible), facing south.

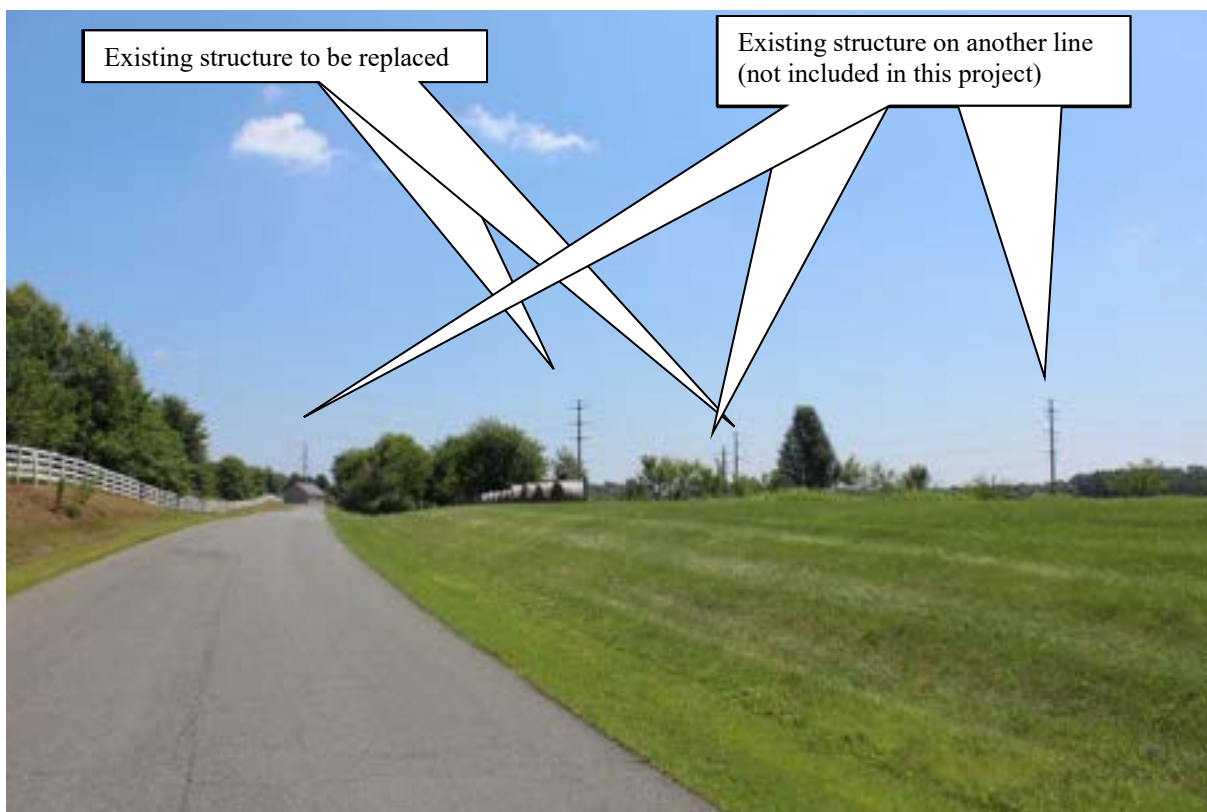


Figure 5-3: Photo location 2- View from south side of Rose Hill along Blackjack Road (multiple project structures and structures on other lines visible), facing east.



Figure 5-4: Photo location 3- View from road in front of Rose Hill (existing project structure visible), facing northwest.

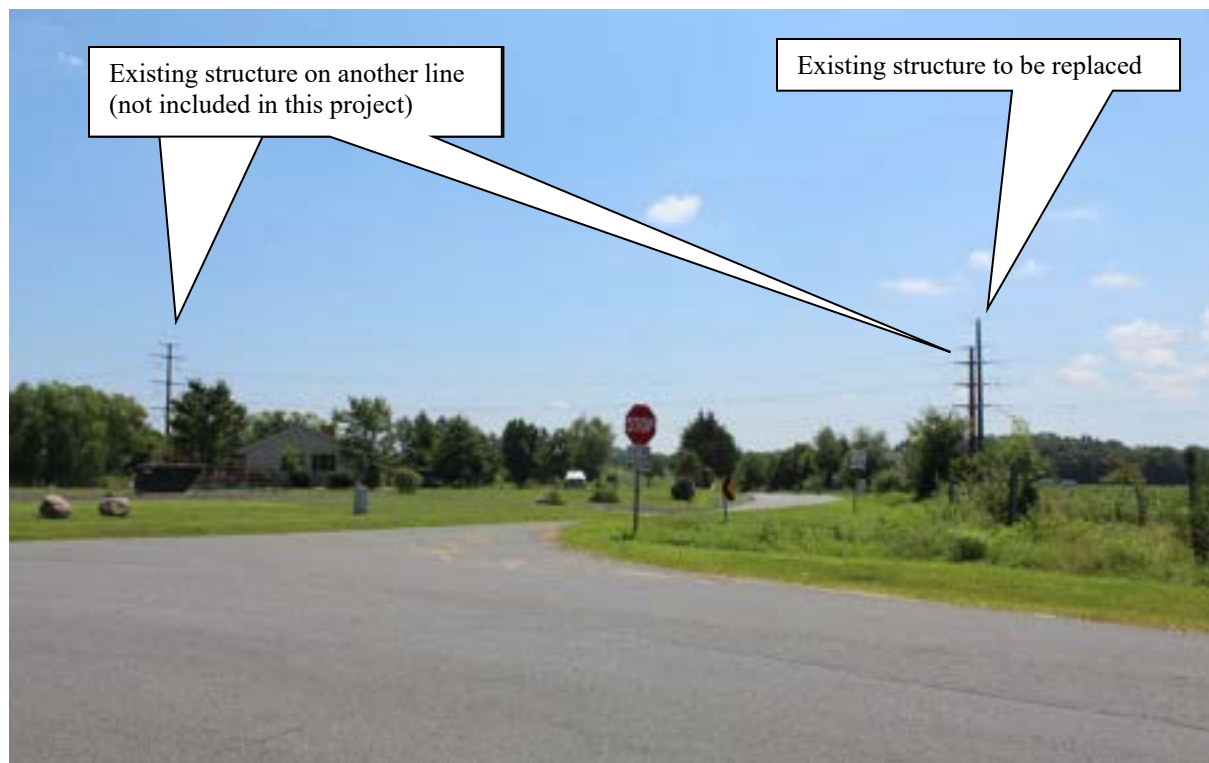


Figure 5-5: Photo location 4- View from road in front of Rose Hill across street (existing project structure and multiple other structures visible), facing east.



Figure 5-6: Photo location 5- View from road in front of Rose Hill across street (existing project structure and multiple other structures visible), facing south.

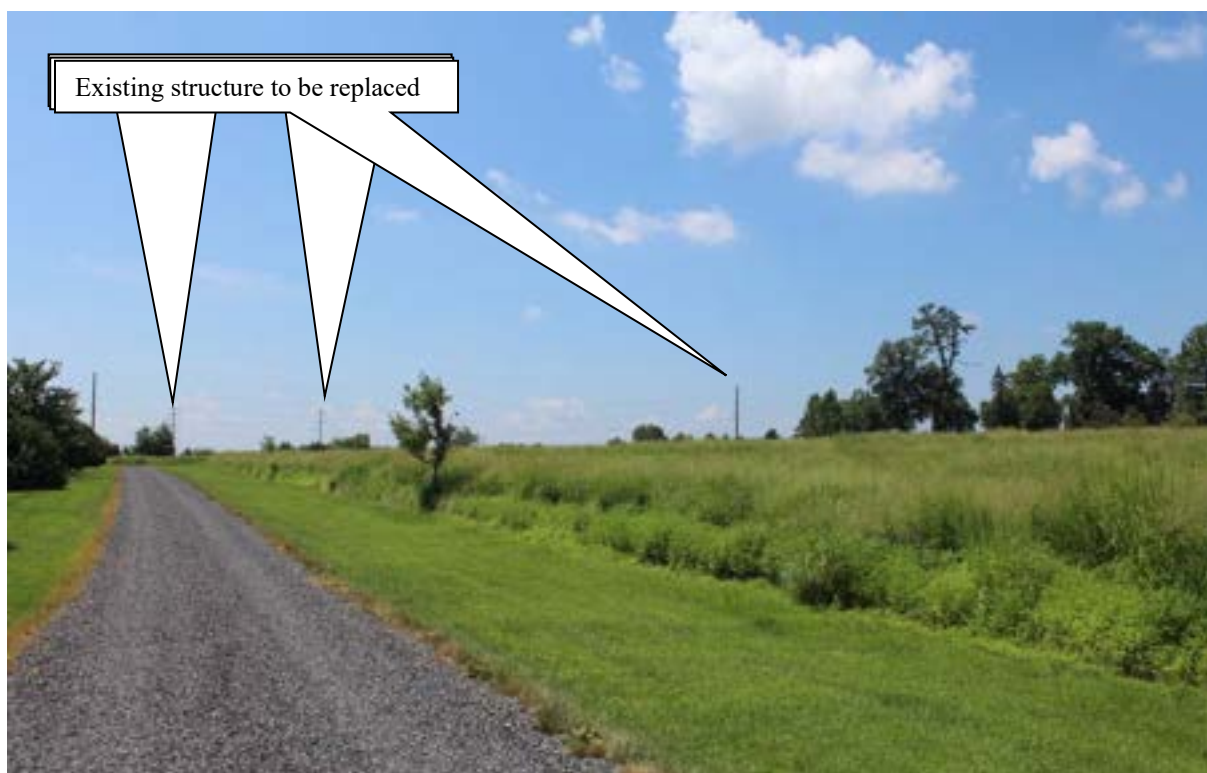


Figure 5-7: Photo location 6- View from driveway to Rose Hill (multiple existing project structures visible), facing south.



Figure 5-8: Photo location 7- View from driveway to Rose Hill (existing project structure visible), facing west.

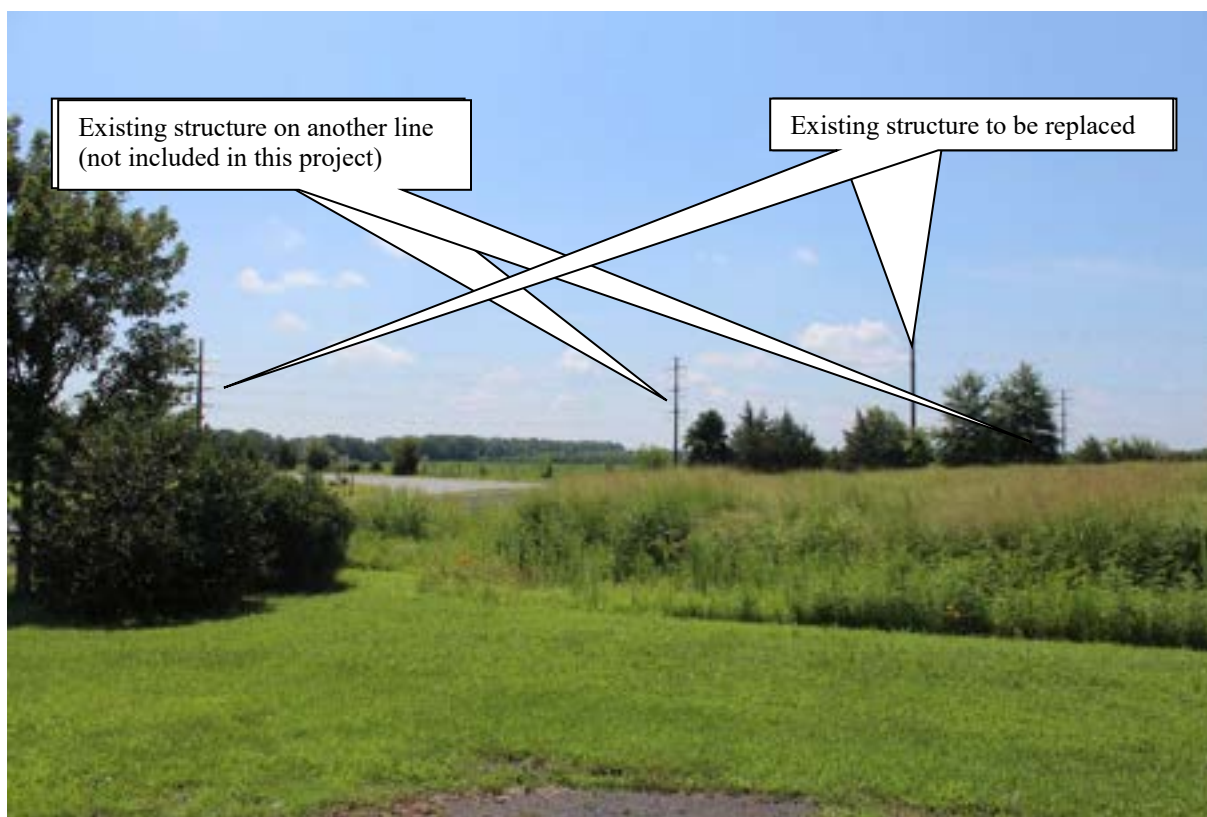


Figure 5-9: Photo location 8- View from driveway to Rose Hill across road (multiple existing project structures and other structures visible), facing south.



Figure 5-10: Photo location 9- View from rear of Rose Hill house (multiple existing project structures visible), facing west.



Figure 5-11: Photo location 10- View from rear of Rose Hill house (multiple existing project structures visible), facing southeast.

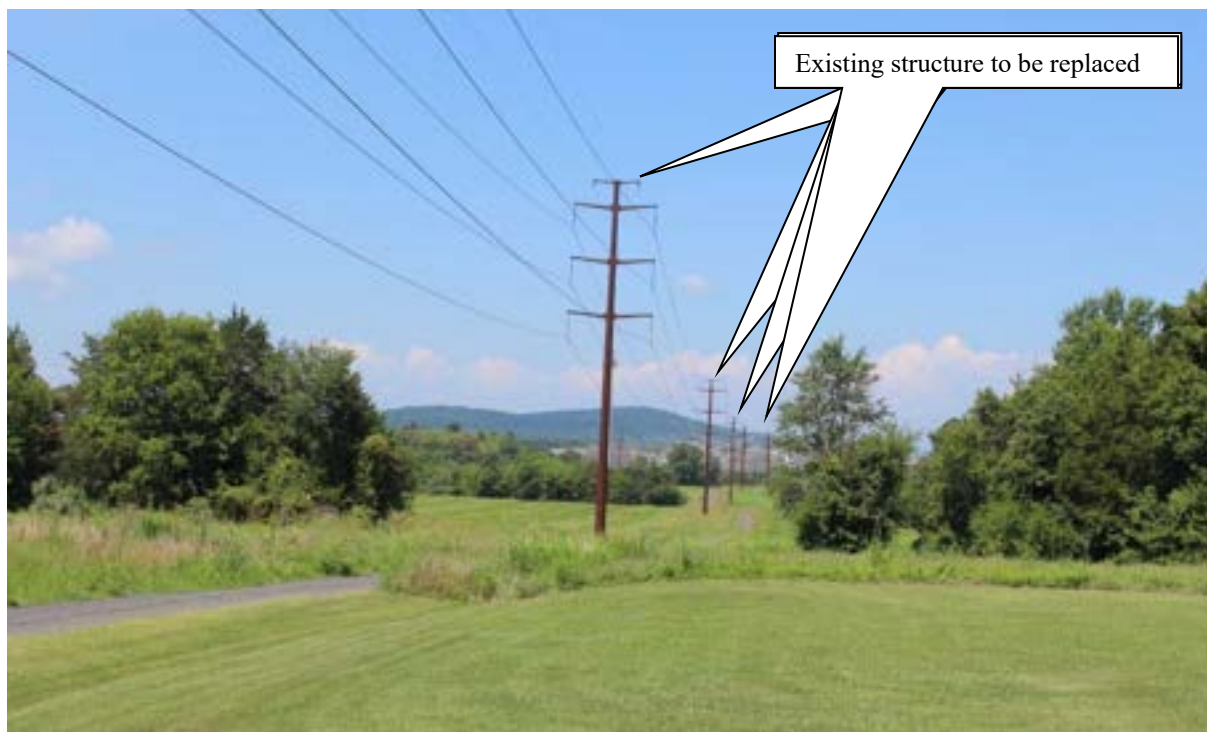


Figure 5-12: Photo location 11- View from rear of Rose Hill house (multiple existing project structures visible), facing west.

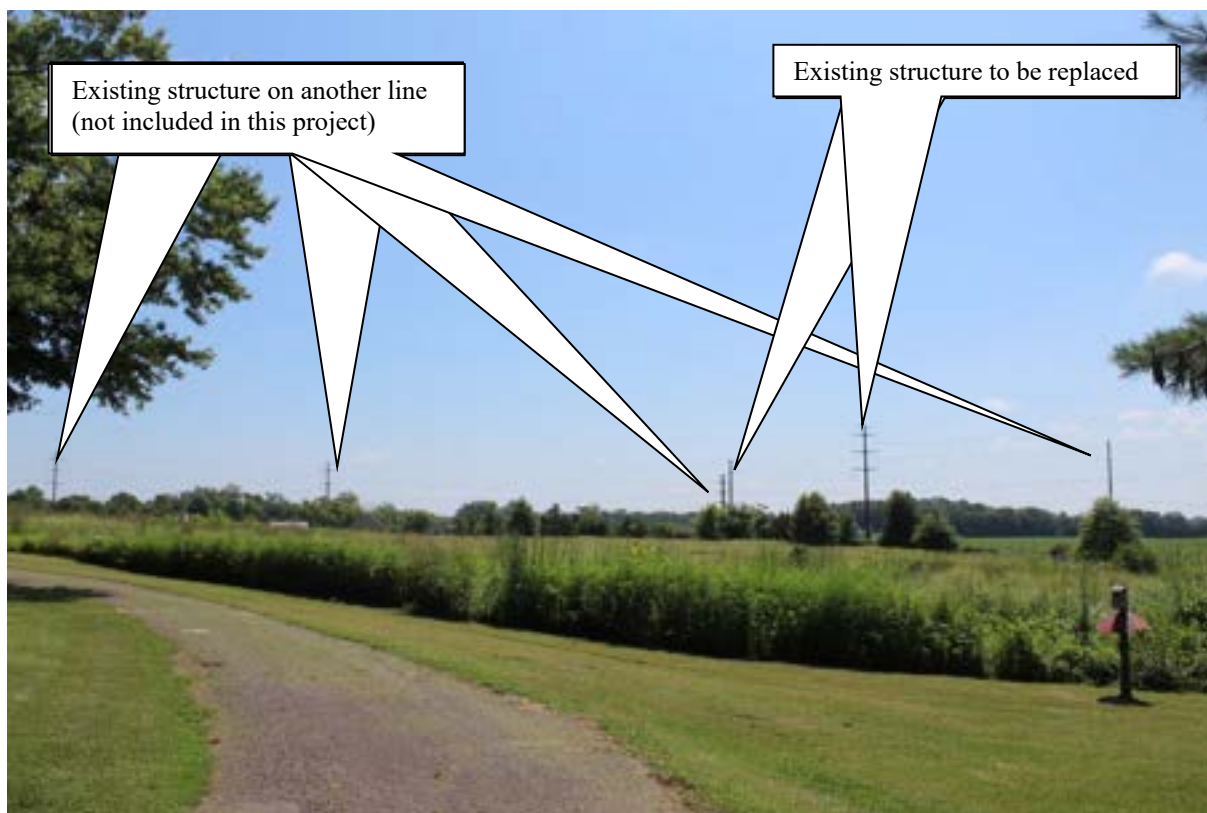


Figure 5-13: Photo location 12- View from Rose Hill driveway (multiple existing project structures and other structures visible), facing east.

THIS PAGE INTENTIONALLY LEFT BLANK

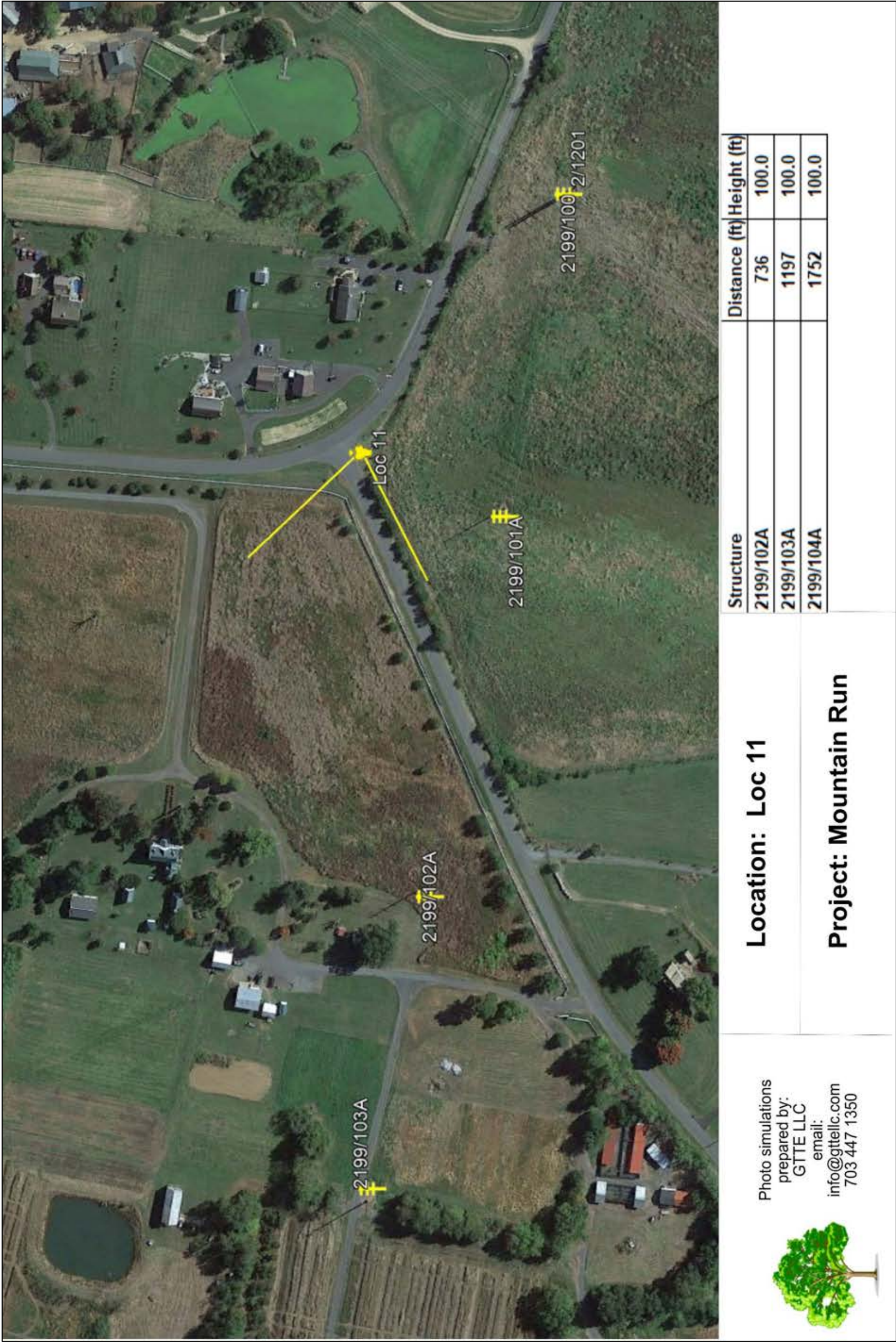


Figure 5-14: Rose Hill Simulation 1 – Simulation location, direction of view, and structures modeled from Batna Road. Source: GTTE, LLC

		Project: Mountain Run		Location 11		Existing View	
 Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350		Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.			

Figure 5-15: Rose Hill Simulation 1 – Existing view from Batna Road. Source: GTTE, LLC



Figure 5-16: Rose Hill Simulation 1 – Proposed view from Batna Road – (Visible structures shown as they would appear. Structures not visible shown in yellow). Source: GTTE, LLC



Figure 5-17: Rose Hill Simulation 2 – Simulation location, direction of view, and structures modeled from driveway looking southeast. Source: GTTE, LLC

		Project: Mountain Run		Location 12	Existing View	
 <p>Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350</p>		<p>Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.</p>		<p>This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.</p>		

Figure 5-18: Rose Hill Simulation 2 – Existing view from driveway looking southeast. Source: GTTE, LLC



Figure 5-19: Rose Hill Simulation 2 – Proposed view from driveway looking southeast – (Visible structure shown as it would appear). Source: GTTE, LLC

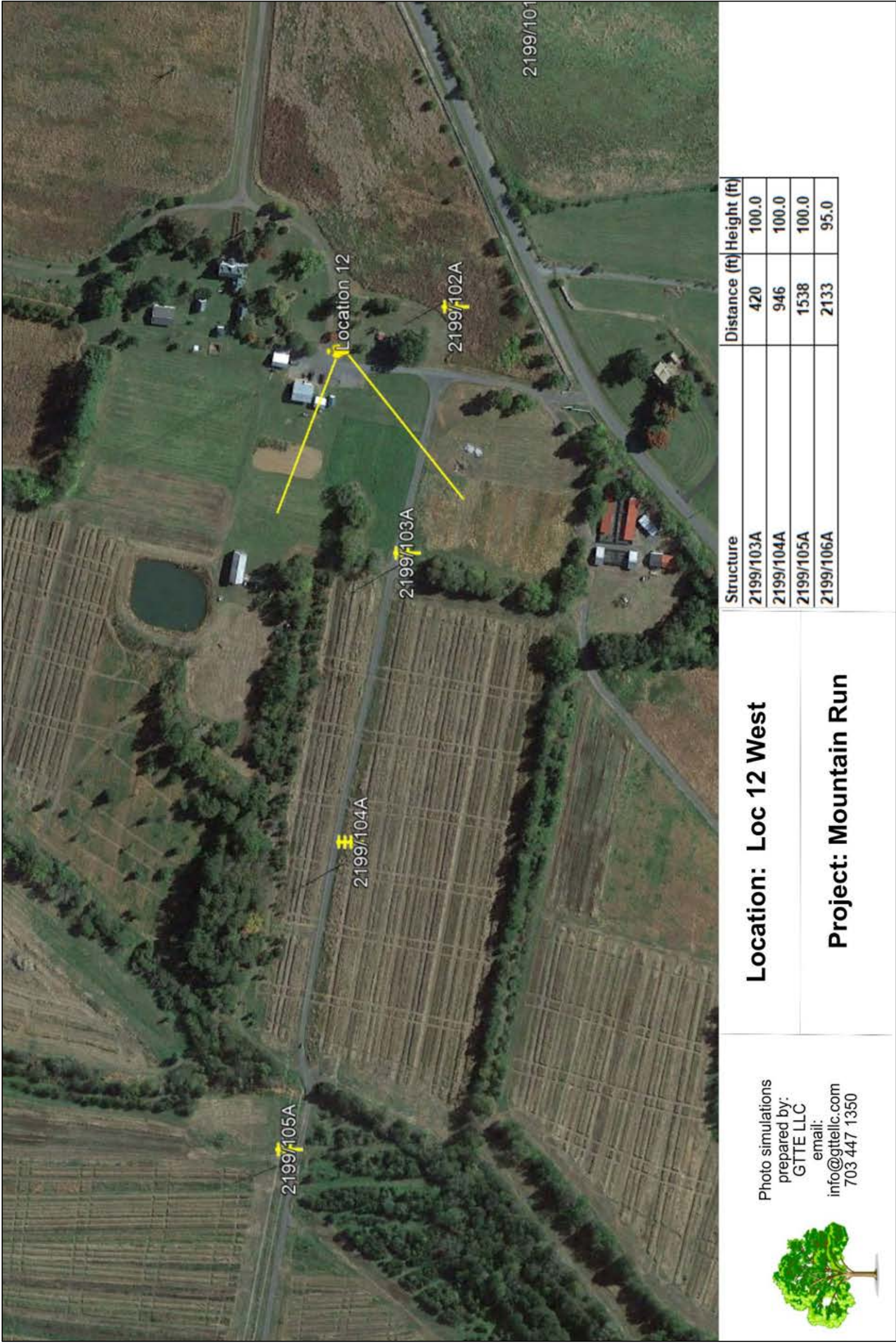


Figure 5-20: Rose Hill Simulation 3 – Simulation location, direction of view, and structures modeled from driveway looking southeast. Source: GTTE, LLC

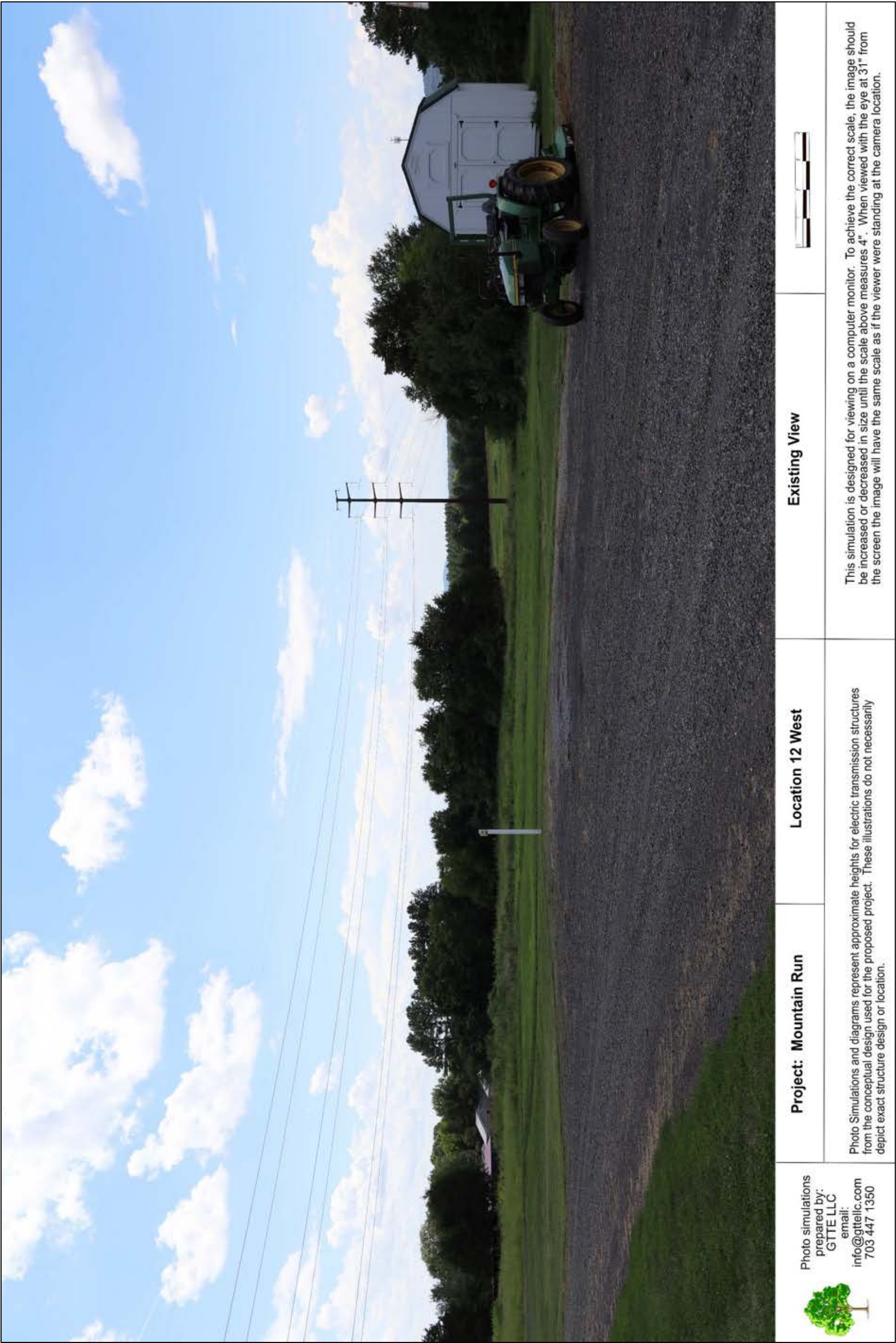


Figure 5-21: Rose Hill Simulation 3 – Existing view from driveway looking southwest. Source: GTTE, LLC

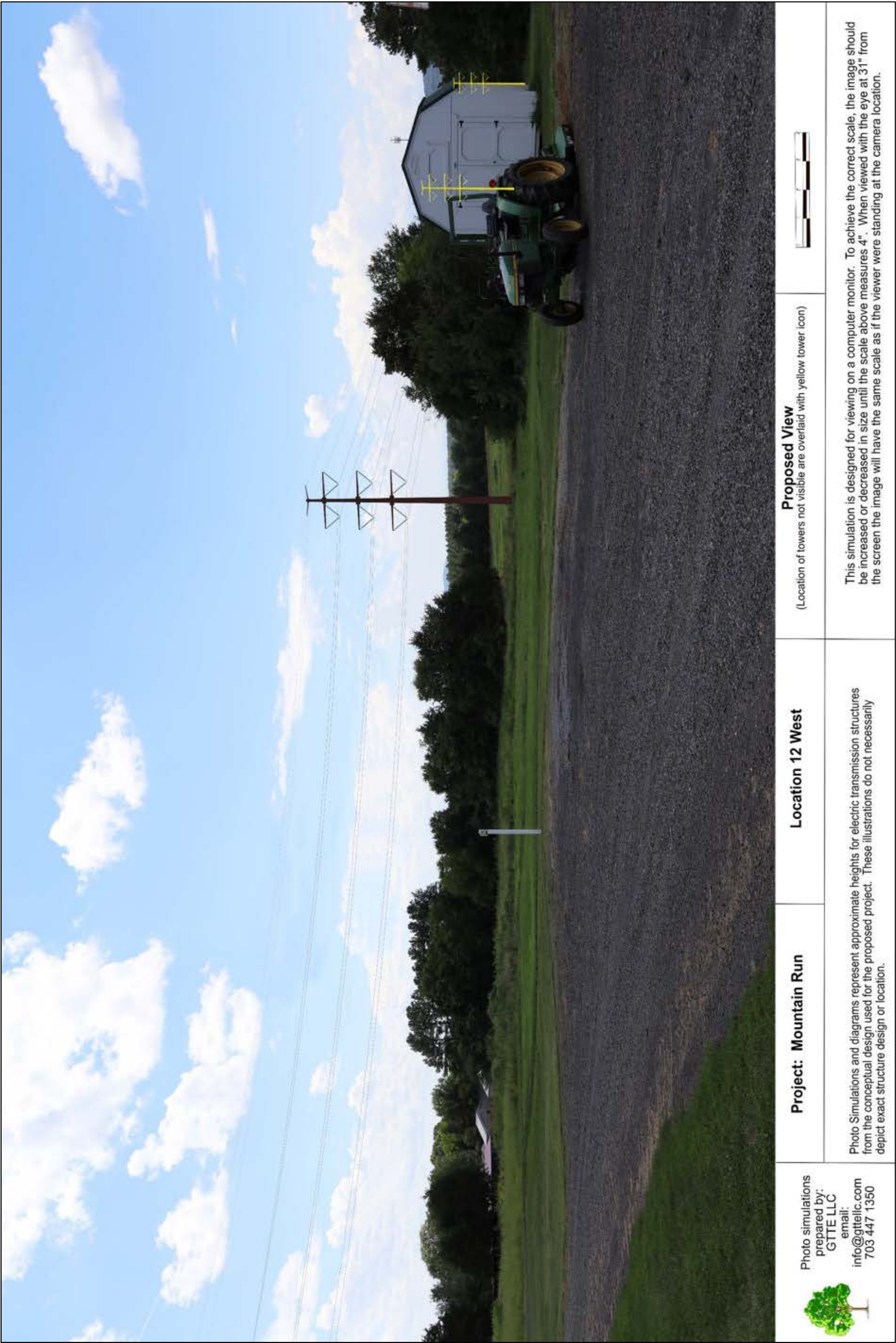


Figure 5-22: Rose Hill Simulation 3 – Proposed view from driveway looking southwest – (Visible structure shown as it would appear). Source: GTTE, LLC

THIS PAGE INTENTIONALLY LEFT BLANK

Salubria (VDHR# 023-0020)

Salubria, also known historically as La Grange, was constructed post-1742 and exhibits a Georgian style with minimal ornamentation, yet grand proportions. The two-story structure rests on a continuous brick foundation and is topped by a hipped roof sheathed in cedar shingles. Two large, corbel-capped brick interior end chimneys flank the roof. It is constructed of brick laid in a combination of Flemish, English, and Common bond. It is laid out in a double-pile, central passage plane and retains much of its original interior fabric. Windows are arranged symmetrically on the façade, nine-over-nine double-hung windows on the first floor and six-over-nine on the second. The windows are not original as all were replaced in the 1950s. The front entrance is centered on the façade, topped by a four-light transom and sheltered by a modern front porch. The minimal ornamentation includes segmental brick arches over windows and basement openings, and a beveled water table.

The house was built by John Thompson when he married Butler Brayne Spotswood Thompson, widow of Governor Alexander Spotswood, as per tradition of the time. The house eventually passed to Thompson's son by his second wife, and passed through various private owners throughout the nineteenth and twentieth centuries. While on his grand tour of America, Lafayette was entertained with a dinner at Salubria in 1825. During the Civil War, it served as a bridge headquarters for the cavalry of H. Judson Kilpatrick, a Union Brigadier General, when he was camped in the area during the winter of 1863-1864. When Brigadier General James Wilson replaced Kilpatrick in April of 1864, he established his headquarters at the house. This simple yet elegant house is an excellent example of a minimally-altered mid-eighteenth century Georgian plantation home. Additionally, it is associated with significant events of the Civil War. As such, it was listed in the NRHP in 1970 under Criteria A and C.

The Salubria property is located roughly 0.64 mile from the project at its nearest point and was therefore was subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the Salubria property and photographs were taken to document viewshed with emphasis on views from the resource towards the project alignment. As Salubria is private and gated, field inspection was limited to public ROW in the vicinity of the property. Salubria is set just east of the small community of Stevensburg within a rural area near the eastern terminus of the project. The home is oriented generally to the north, facing Route 3, with the project alignment extending through the landscape to the west, terminating at a junction with the existing Gordonsville-Remington transmission line, roughly 0.64 mile west of the property. The home is set centrally on its property, roughly 0.70 mile away from the nearest project structure.

A site visit to the property found that it retains a large property set back from the road at the end of a private lane. A twentieth century home is set between Salubria and Route 3 along this lane, and the property is otherwise bordered by undeveloped rural landscape. Due to the topography and vegetation patterns in the area, the Salubria house is not visible from public ROW along Route 3 or the gate to the property at the end of the private lane leading to it.

As part of the project, the nearest structure to be replaced will be the tap structure where the project alignment interconnects with the existing Gordonsville-Remington transmission line that runs

generally north-south through the landscape west of Salubria. This structure, and others on the project alignment extending away from Salubria will be replaced on a one-to-one basis near the location of the existing structures, and will not require any additional ROW or clearing within the property. As such, there will be no direct impact to the property, however, because the structures on the project alignment will be increased in height, the project has the potential to introduce indirect or visual impacts.

Inspection from public ROW in the vicinity of the property found that none of the existing structures on the project alignment are visible. However, a number of structures on the Gordonsville-Remington line near their crossing of Route 3 are visible from the vicinity of Salubria. The existing structures to be replaced as part of this project are each 80-feet in height and the proposed replacement structures will generally average 100-feet in height. As such, it is anticipated that the intervening topography and vegetation will continue to screen the replacement structures from public ROW near Salubria just as there is currently no visibility of the existing structures. Structures on the Gordonsville-Remington line are closer to the property, and as they range from roughly 95- to 115-feet in height, and are therefore taller on average than the project replacement structures will be, the replacement structures behind them will likewise not be visible. This was confirmed by photo simulation from Salubria Lane that depicts all structures remaining screened beneath the intervening terrain and vegetation. Therefore, the project will not introduce any noticeable change in setting or viewshed of or from the property which does not include any of the existing project structures, nor will it include views of any replacement structures, and it is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose *no impact* on Salubria.

Figure 5-23 depicts the location of Salubria in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-24 through 5-29 are representative photographs of the property, as well as those taken from locations within and near the property towards the project area. Figures 5-30 through 5-32 provide photo simulation from the property.

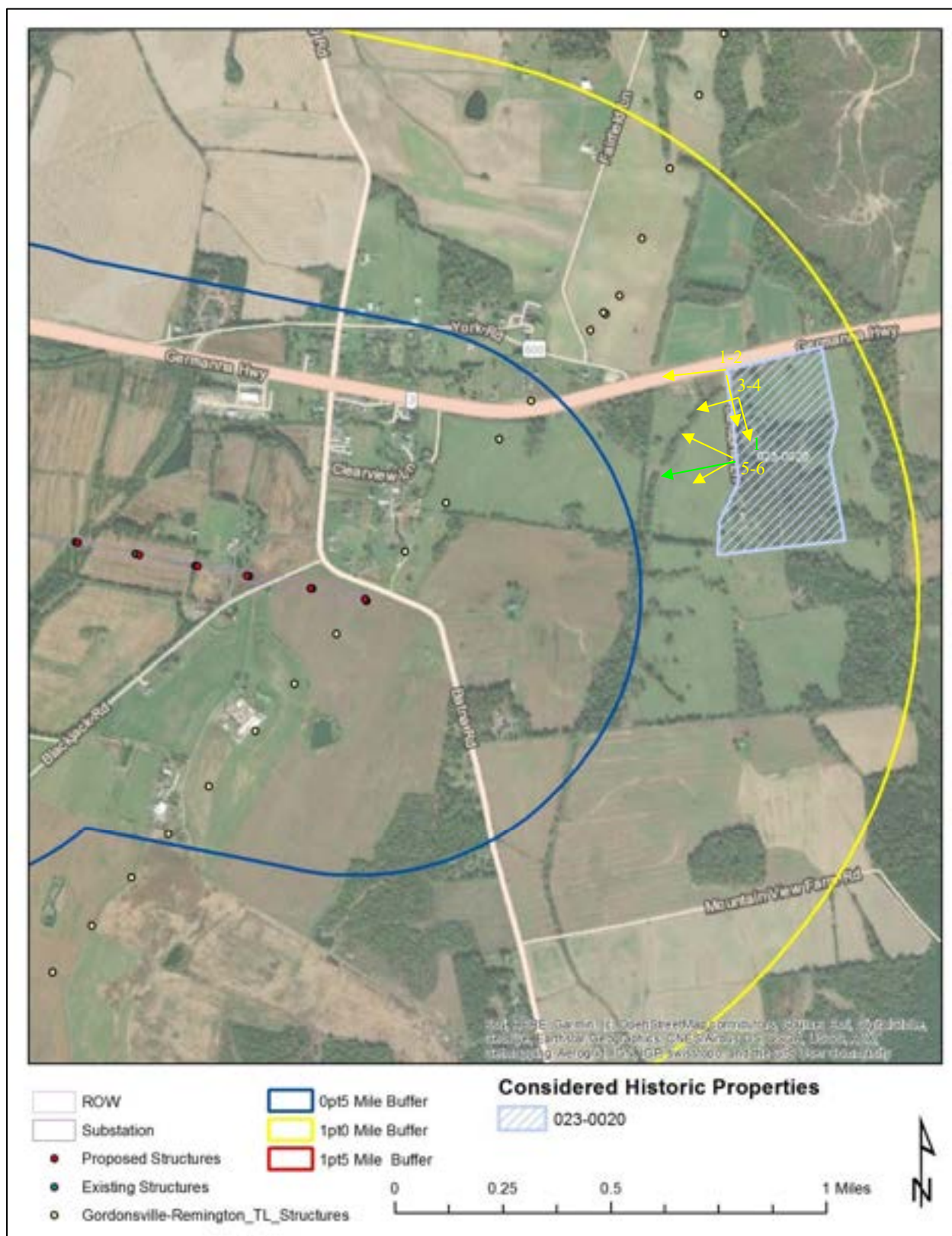


Figure 5-23: Location of Salubria in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).



Figure 5-24: Photo location 1- View of Salubria setting from Route 3, facing south.



Figure 5-25: Photo location 2- View from entry lane to Salubria (No project structures visible. Multiple structures not included in this project visible), facing west.



Figure 5-26: Photo location 3- View from entry lane to Salubria (No project structures visible), facing southwest.



Figure 5-27: Photo location 4- View from entry lane to Salubria (no project structures visible), facing south.



Figure 5-28: Photo location 5- View from entry lane to Salubria (no project structures visible), facing west.



Figure 5-29: Photo location 6- View from entry lane to Salubria (no project structures visible. Several structures not included in this project visible), facing northwest.

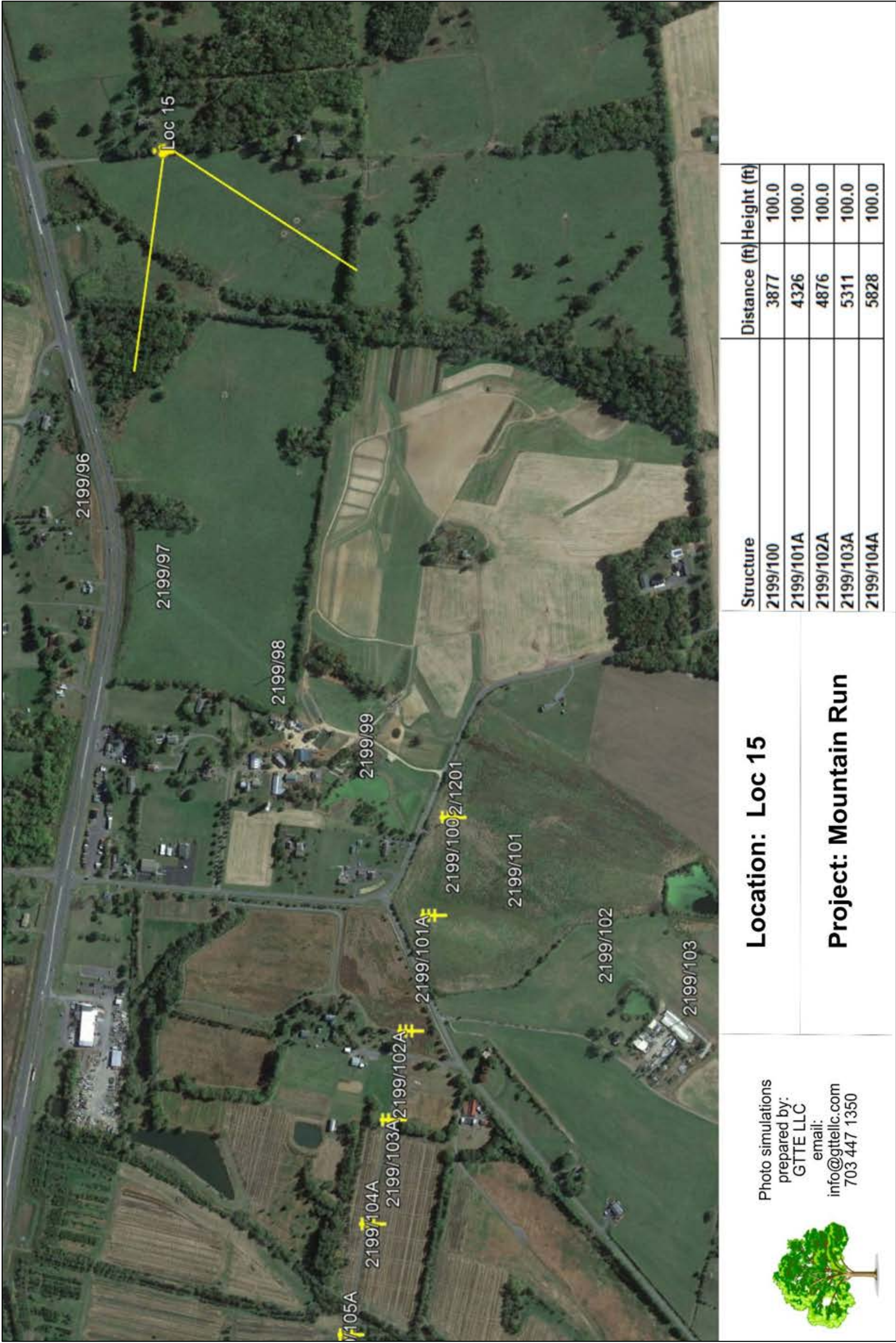


Figure 5-30: Salubria Simulation 1 – Simulation location, direction of view, and structures modeled from gate to property. Source: GTTE, LLC

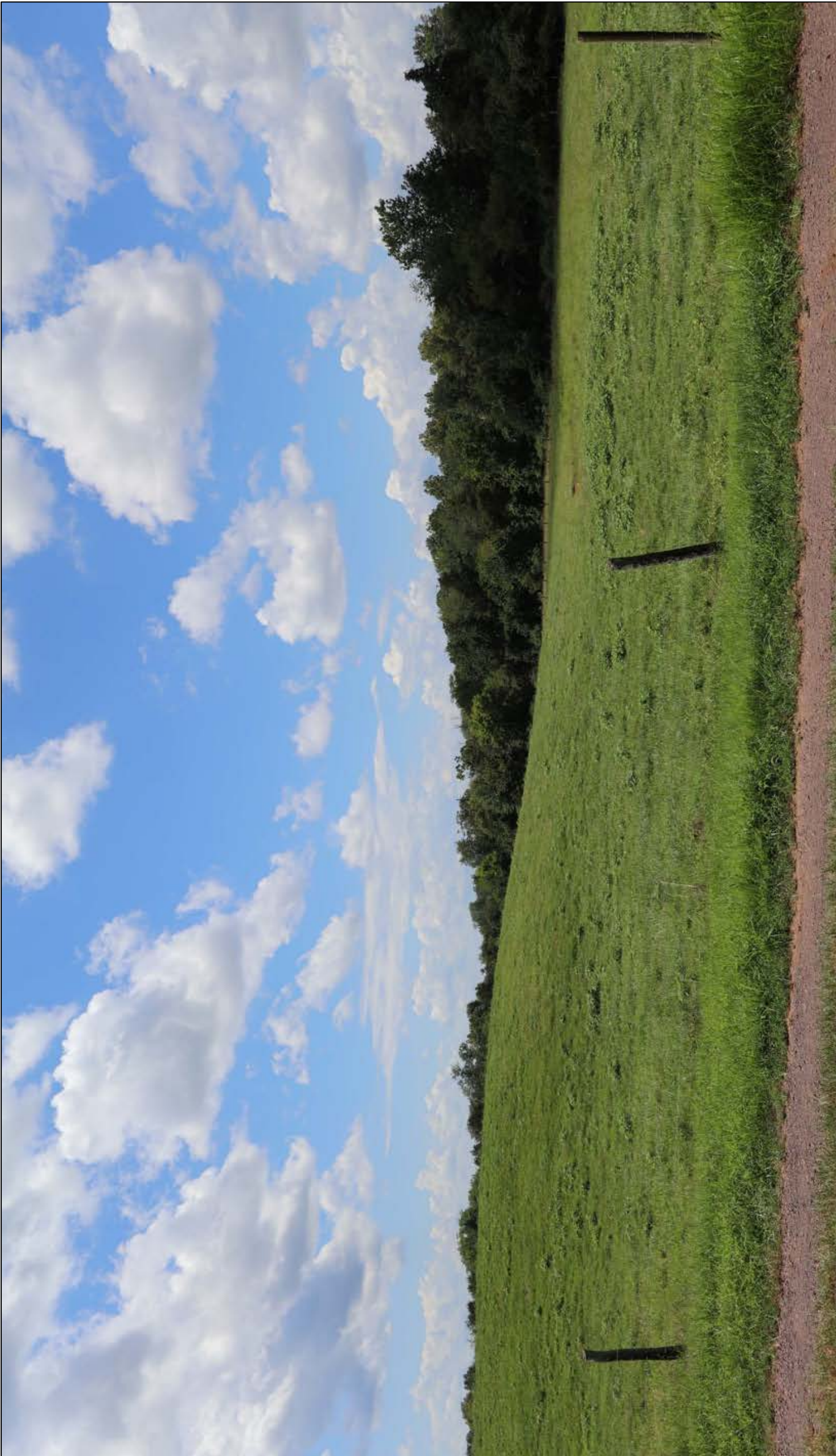

		Existing View	
<div><div>Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350</div></div>		Location 15	
<p>Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.</p>		<p>This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.</p>	

Figure 5-31: Salubria Simulation 1 – Existing view from gate to property. Source: GTTE, LLC

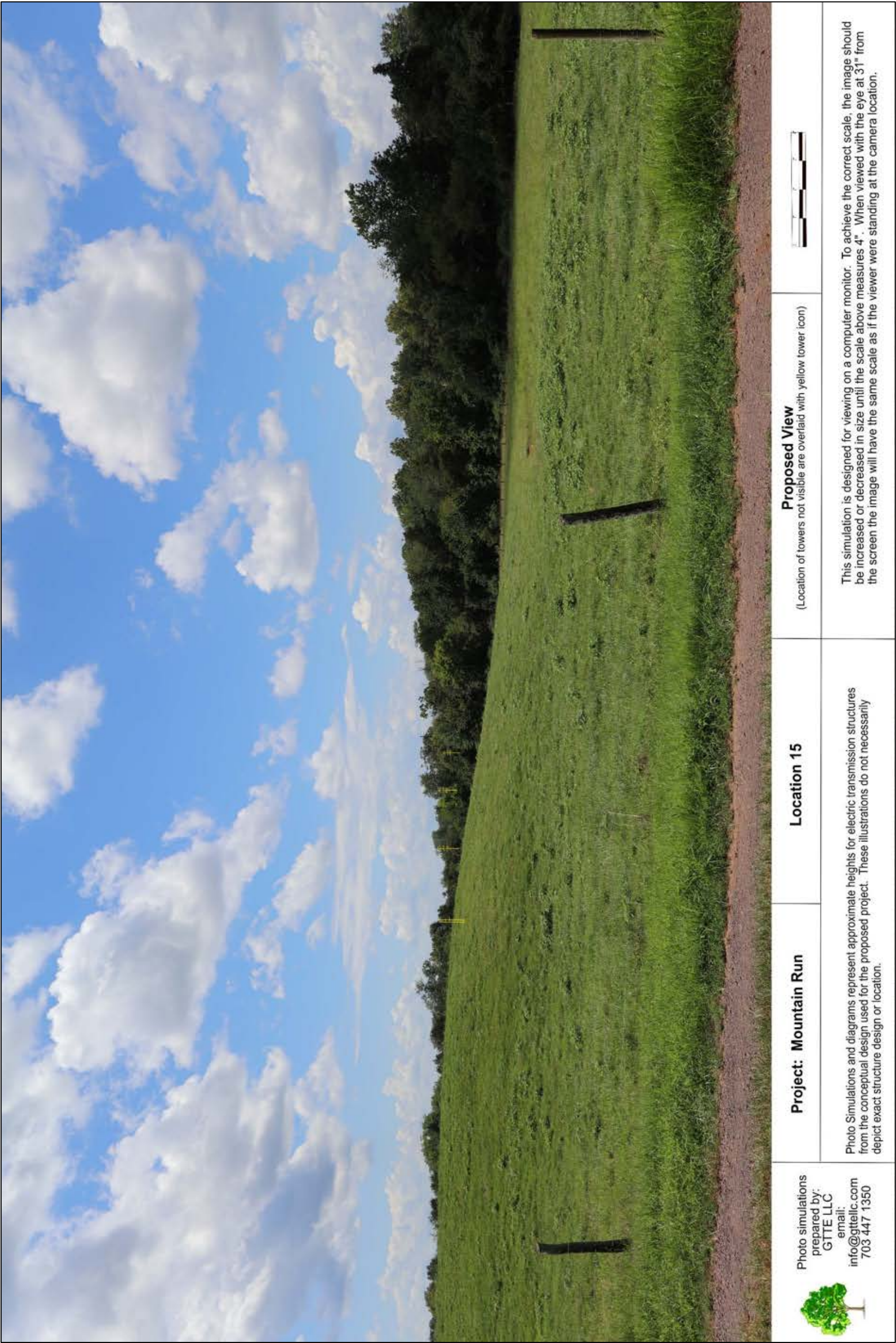


Figure 5-32: Salubria Simulation 1 – Proposed view from gate to property – (Structures not visible shown in yellow). Source: GTTE, LLC

THIS PAGE INTENTIONALLY LEFT BLANK

Signal Hill (VDHR# 023-5023)

The main house at Signal Hill, also known as Mount Castle, was constructed circa 1882 and exhibits a late Victorian style. The large, two-story building is constructed of brick laid in a stretcher bond and rests on a continuous foundation of the same brick bond. It is topped by multiple gable and shed roofs, all sheathed in standing seam metal. The roof is pierced by corbelled-cap brick interior chimneys. A pinwheel-shaped footprint is created by two two-story wings projecting from the main block. Fenestration includes four-over-four and two-over-two double-hung sash windows and one-over-one triple-hung sash windows topped by segmental brick arches. A large, wraparound porch covers the north, east, and west sides of the main block. It is topped by a hipped roof supported by simple square, capped posts with a low pediment over the main entrance. The main entrance is offset to the east end of the asymmetrical north elevation and is comprised of a paneled door flanked by sidelights and topped by a transom. A modern sun porch addition overlooks a modern swimming pool in the rear of the house and is connected by a gable brick hyphen. The house retains much of its original interior fabric with little alteration.

Located 2.5 miles west of the town Culpeper, Signal Hill was once the centerpiece of a 340-acre dairy and sheep farm. The now-40-acre property remains an active farm, set amidst rolling open pastures in the shadow of Mount Pony. A collection of agricultural outbuildings, which appear to date from the late nineteenth and early twentieth centuries, is situated to the south and west of the primary dwelling. Signal Hill is significant under Criterion C for being a well-preserved example of a late nineteenth century farm house of a prominent Culpeper County dairy farmer and horse breeder. It represents an era of agricultural architecture when small family farms began to be modernized due to increased access to popular building materials and techniques in rural areas. The site was therefore listed in the NRHP in 1999.

The Signal Hill property is directly crossed by the project alignment and therefore was subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the Signal Hill property and photographs were taken to document viewshed with emphasis on views from the resource towards the project alignment. As Signal Hill is private and gated, field inspection was conducted from public ROW along the road to the front. Signal Hill is set east of Culpeper within a rural area along the central length of the project alignment. The home is oriented generally to the north, facing Route 3, with the project alignment extending through the property to the rear of the house, and through the landscape of neighboring properties to the east and west. A total of two (2) existing transmission structures associated with this project area located within the Signal Hill property and an additional ten (10) structures are set to each side of the property within one-half mile.

A site visit to the property found that the house remains on a large rural homesite with additional associated agricultural field not included in the resource boundaries to both sides. In addition to the multiple transmission structures located directly on the property, numerous additional structures on the same line as well as other lines are visible around the property. The overall setting around the property remains relatively intact, but does include modern infrastructure including the project transmission line, additional smaller distribution electric lines, and modern homes set across Route 3 to the north. Although the terrain in the area is gently rolling and mostly open, the Signal Hill house itself is mostly screened from public ROW by abundant vegetation in the

homesite. However, views of the adjacent fields and property are open and mostly unobstructed. While inspection was not conducted from the house, it is anticipated that views outward towards the surrounding property are likewise open and distant.

As part of the project, both structures located on the property will be replaced, as will adjacent structures to each side. Structure replacement will be on a one-to-one basis near the location of the existing structures, and will not require any additional ROW or clearing within the property. As a result, the project will have a direct impact on the property, however, because it will not introduce any substantially new or different components into the landscape of the property, nor will it require clearing or demolition of any cultural features, the direct impact will be minimal.

Because the structures on the property and additional structures in the vicinity will be increased in height, the project also has the potential to introduce indirect or visual impacts. Inspection from the property and publicly-accessible vantage points in the vicinity towards the project area revealed that the numerous existing transmission line structures, including those on the property and beyond are visible from public ROW. From vantage points near the driveway to the house, visibility of structures on the property is partially obstructed by vegetation bordering the home, however, views outward and from vantages up and down the road in both directions includes multiple structures and views of the structures are generally across open field and unobstructed. It is anticipated that views from the homesite would include additional structures within and bordering the property, as views from that vantage would be in closer to proximity and more direct.

The existing structures on the property are each 80-feet in height and the proposed replacement structures will generally average 100-feet in height. Structures will be replaced on a one-to-one basis near the existing locations with new structures of a similar design, material, and overall appearance. As such, it is anticipated that visibility of the replacement structures will remain similar to the views of existing structures from vantage points within and in the vicinity of the property. Although the structures will be increased in height, they will be replaced by structures of similar finish and configuration. Visibility of structures partially screened by vegetation may increase, although the change in height will be less noticeable for those visible across open field without the backdrop of vegetation. This was confirmed by photo simulation from the public ROW along the front of the property that revealed an increase in height of visible structures within the field to the side of the house but no additional visibility of currently screened structures. Therefore, the increase in height may be perceptible, but will not introduce any substantially new or cumulative impacts to the viewshed or setting of the resources that already includes multiple transmission structures and wide views of the transmission line. Nor will the project detract from or compromise those qualities and characteristics that make the property eligible for listing in the NRHP. It is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose no more than a *minimal impact* on Signal Hill.

Figure 5-33 depicts the location of Signal Hill in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-34 through 5-41 are representative photographs of the property, as well as those taken from locations within and near the property towards the project area. Figures 5-42 through 5-44 provide photo simulation from the property.

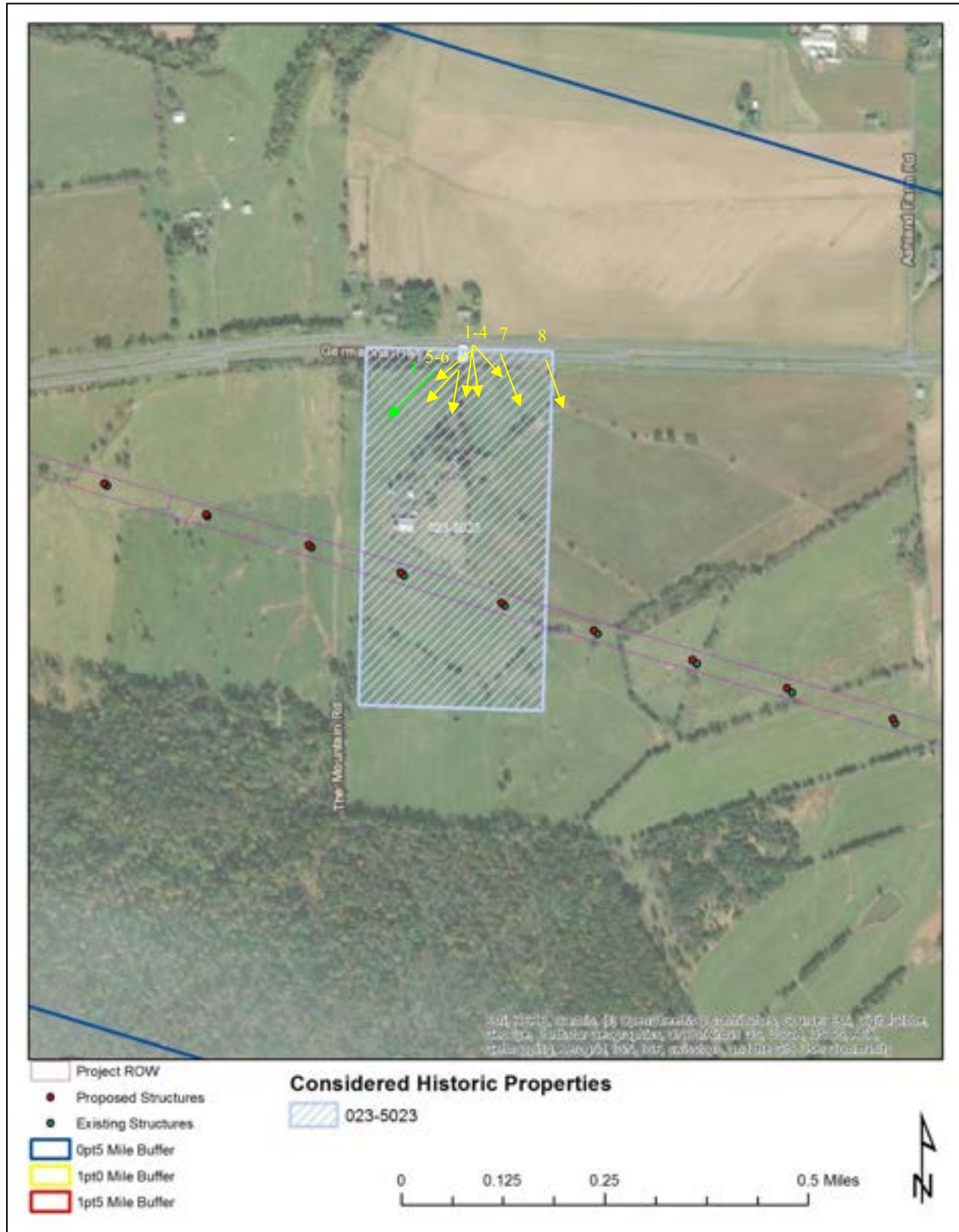


Figure 5-33: Location of Signal Hill in relation to the project alignment (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).



Figure 5-34: Photo location 1- View from front of Signal Hill property along Route 3 showing property setting (No project structures visible), facing south.



Figure 5-35: Photo location 2- View from front of Signal Hill along Route 3 (One project structure visible), facing south.



Figure 5-36: Photo location 3- View from front of Signal Hill along Route 3 (Multiple project structures visible), facing southeast.



Figure 5-37: Photo location 4- View from driveway to Signal Hill off Route 3 (One project structure visible), facing southwest.



Figure 5-38: Photo location 5- View from driveway to Signal Hill (No project structures visible, but portion of conductor visible), facing south.



Figure 5-39: Photo location 6- View from driveway to Signal Hill (Multiple project structures visible), facing southwest.



Figure 5-40: Photo location 7- View from front of Signal Hill along Route 3 (Multiple project structures visible), facing southeast.

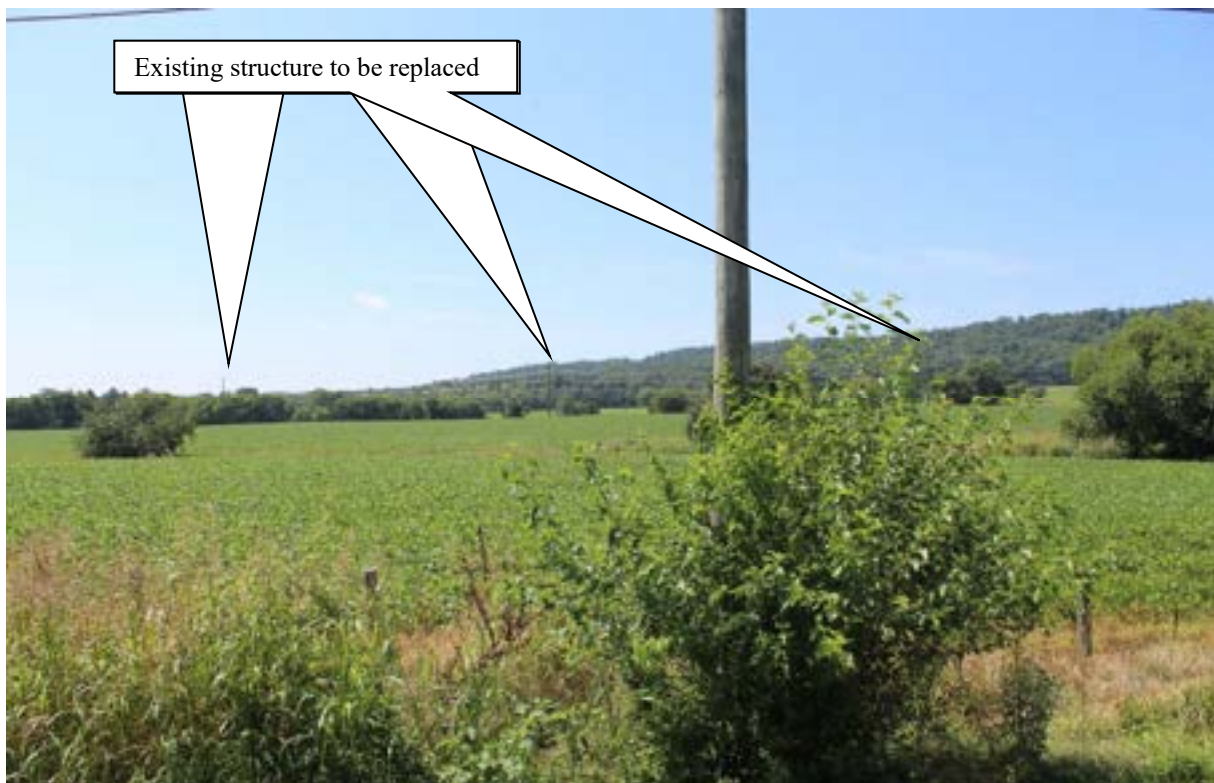


Figure 5-41: Photo location 8- View from driveway to Signal Hill (Multiple project structures visible), facing south.

THIS PAGE INTENTIONALLY LEFT BLANK

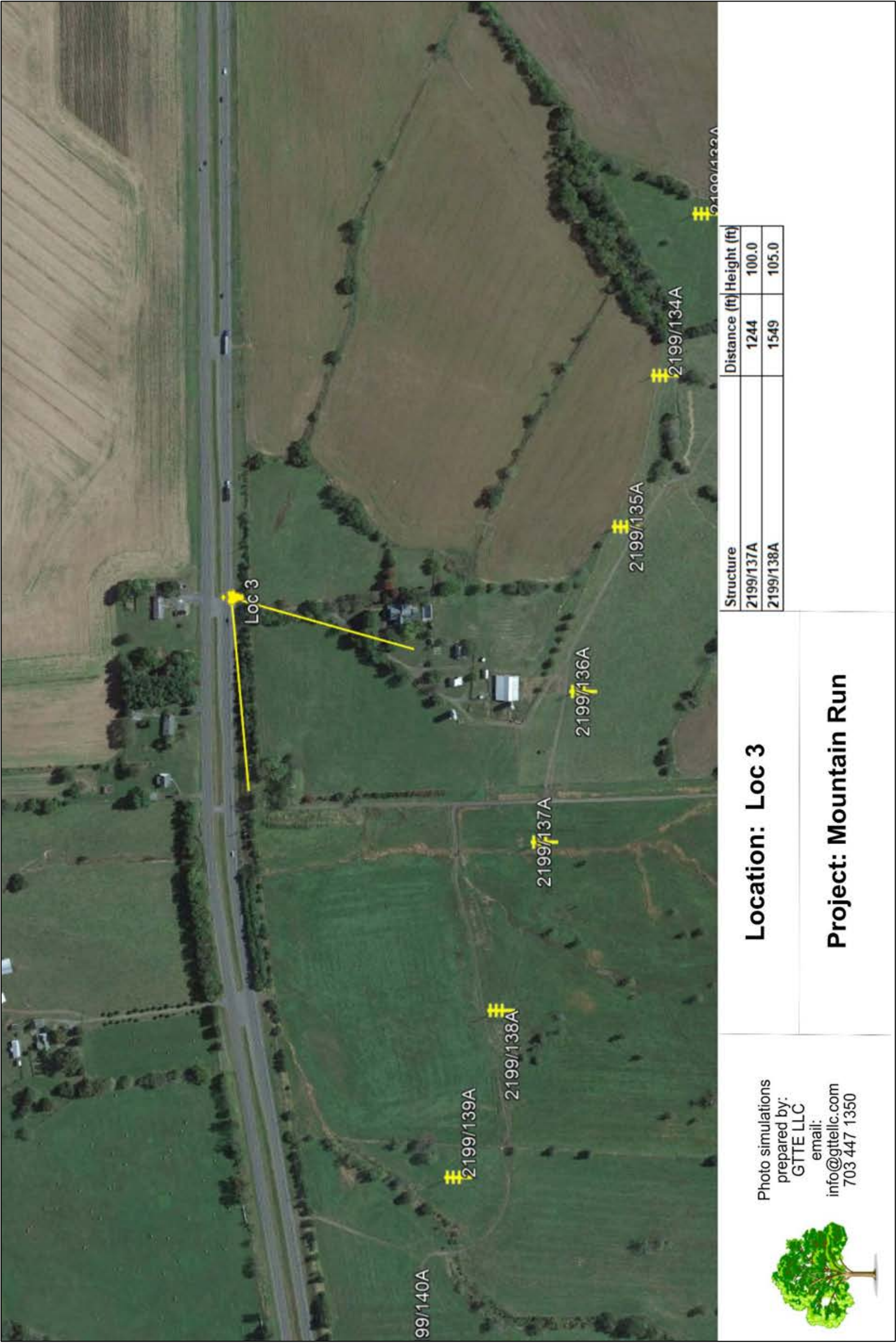


Figure 5-42: Signal Hill Simulation 1 – Simulation location, direction of view, and structures modeled from front of driveway. Source: GTTE, LLC



		Project: Mountain Run		Location 3		Existing View	
 <p>Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350</p>		<p>Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.</p>		<p>This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.</p>			

Figure 5-43: Signal Hill Simulation 1 – Existing view from front of driveway. Source: GTTE, LLC



		Proposed View (Location of towers not visible are overlaid with yellow tower icon)	
 Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350		Location 3	Project: Mountain Run
Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.	

Figure 5-44: Signal Hill Simulation 1 – Proposed view from front of driveway – (Visible structures shown as they would appear). Source: GTTE, LLC

THIS PAGE INTENTIONALLY LEFT BLANK

Croftburn Farm (VDHR# 023-5040)

The main house at Croftburn Farm, known historically as the Sprinkel-Bushong House, was constructed circa 1890 and represents vernacular style typical of rural homes in the area. The two-story, three-bay frame structure is laid out in an L-shaped, central passage plan and is topped by a gable roof. The roof is sheathed in standing seam metal and pierced by three brick interior chimneys. The continuous foundation is parged so that the original material is not visible. Two-over-two double-hung wood sash windows interrupt the weatherboard siding. A one-story, one-bay portico shelters the main entrance, topped by a flat roof sheathed in standing-seam metal that functions as a deck, accessed by a window on the second floor. The main entrance is centered on the front elevation and is flanked by sidelights. The house is laid out in an L-shaped, central passage plan.

Croftburn Farm is located approximately 2.5 miles southeast of the town of Culpeper on a 162-acre tract of land on the north side of VA Route 3. The house and its various associated outbuildings are set amidst rolling open pastures surrounded by gentle hills just north of Mount Pony. It stands as a well-preserved, unusually intact example of a small, vernacular nineteenth century farm complex in Culpeper County representative of early agricultural practices in the county. As such, it was listed in the NRHP in 200 under Criteria A and C.

The Croftburn Farm property is directly crossed by the project alignment and therefore was subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the Croftburn Farm property and photographs were taken to document viewshed with emphasis on views from the resource towards the project alignment. As Croftburn Farm is private and gated, field inspection was conducted from public ROW along the road to the front. Croftburn Farm is set east of Culpeper within a rural area near the western terminus of the project alignment. The home is oriented generally to the south, facing Route 3, with the project alignment extending through the property to the rear of the house, although continues along the east side of the property before crossing Route 3 and extending further to the east. A total of four (4) existing transmission structures associated with this project area located within the Croftburn Farm property and an additional two (2) structures are set immediately adjacent to the side of the property and four (4) more are located within one-half mile to the east.

A site visit to the property found that the house remains on a large rural homesite with additional associated agricultural field not included in the resource boundaries to the side. While the overall setting around the property remains relatively intact, it is crossed by the existing transmission line and the four-lane divided US-29 highway borders the property to the rear. While the terrain in the area is gently rolling and mostly open, the Croftburn Farm house itself is mostly screened from public ROW by a treeline along the front of the property and abundant vegetation along the driveway and around the home. However, views of the adjacent fields and property as well as additional landscape up and down Route 3 are open and mostly unobstructed. While inspection was not conducted from the house, it is anticipated that views outward from the house are possible.

As part of the project, all four structures located on the property will be replaced, as will adjacent structures to the side. While structure replacement will generally occur on a one-to-one basis near

the location of the existing structures, several of the structures on and adjacent to the property will be shifted to allow for a reduction in proposed replacement height. All structures will be replaced along the same centerline and will not require any additional ROW or clearing within the property. As a result, the project will have a direct impact on the property, however, because it will not introduce any substantially new or different components into the landscape of the property, nor will it require clearing or demolition of any cultural features, the direct impact will be minimal.

Because the structures on the property as well as additional structures in the vicinity may be increased in height, the project also has the potential to introduce indirect or visual impacts. However, several replacement structures on and bordering the property will remain the same height as the existing structures. Inspection from ROW along the front of the property towards the project alignment revealed that existing structures on the property are mostly screened by vegetation and the rolling terrain behind the house. Meanwhile, the existing structures on the south side of the road to the east of the property are visible across open field and views include multiple structures. At the east edge of the property along the road, the treeline ends allowing unobstructed views of several structures bordering the property and extending through it to the rear. From this vantage, the structures across the road are closer, and views include a wide swath of transmission line and multiple structures across open field.

The existing structures on the property are each 80-feet in height and the proposed replacement structures will generally average 100-feet in height, although the three structures nearest to the house will remain 80-feet. While structures further away will be replaced on a one-to-one basis near the existing locations, the three nearest the house will be shifted along the centerline slightly and be replaced with structures of identical height and design to the existing. As such, it is anticipated that visibility of the replacement structures will remain similar to the views of existing structures from vantage points within and in the vicinity of the property. The three structures currently not visible from the house itself will be shifted but no taller, while other structures to the rear and extending away from the property to the east will be taller. Although the structures will be increased in height, they will be replaced by structures of similar finish and configuration and as they are currently visible across open landscape across the road from the house, visibility as a result of the change in height is not anticipated to be substantial. This was confirmed by photo simulation from the front of the property and the nearby public ROW. Views from the front of the driveway currently include just one structure, and while that structure will increase in height, it will continue to be seen amongst other structures in the foreground. Simulation also showed the views towards the structures set adjacent to the side of the property will shift on the landscape as a result of the shift, but there will be no noticeable increase in height. Views of the structures across the road from this location will still include multiple structures seen down the ROW and the increase in height is minimally noticeable due to retention of the same structure configuration. Therefore, the increase in height may be perceptible from discrete publicly-accessible locations, however, no change in height will be observed from the house itself. As such, the project is not anticipated to introduce any substantially new or cumulative impacts to the viewshed or setting of the resources that already includes multiple transmission structures and wide views of the transmission line, nor will it detract from or compromise those qualities and characteristics that make the property eligible for the NRHP. It is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose no more than a *minimal impact* on Croftburn Farm.

Figure 5-45 depicts the location of Croftburn Farm in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-46 through 5-54 are representative photographs of the property, as well as those taken from locations within and near the property towards the project area. Figures 5-55 through 5-63 provide photo simulation from the property.

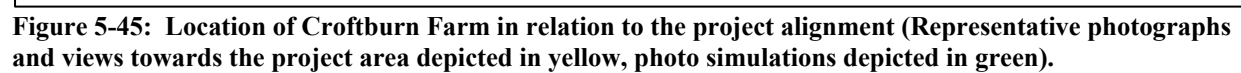




Figure 5-46: Photo location 1- View from front of Croftburn Farm property along Route 3 (No existing project structures visible), facing north.



Figure 5-47: Photo location 2- View from front of Croftburn Farm along Route 3 (One project structure visible), facing east.



Figure 5-48: Photo location 3- View from driveway to Croftburn Farm (No project structures visible), facing north.



Figure 5-49: Photo location 4- View from driveway to Croftburn Farm (One project structure visible), facing northeast.



Figure 5-50: Photo location 5- View from driveway to Croftburn Farm (One project structure visible), facing northeast.

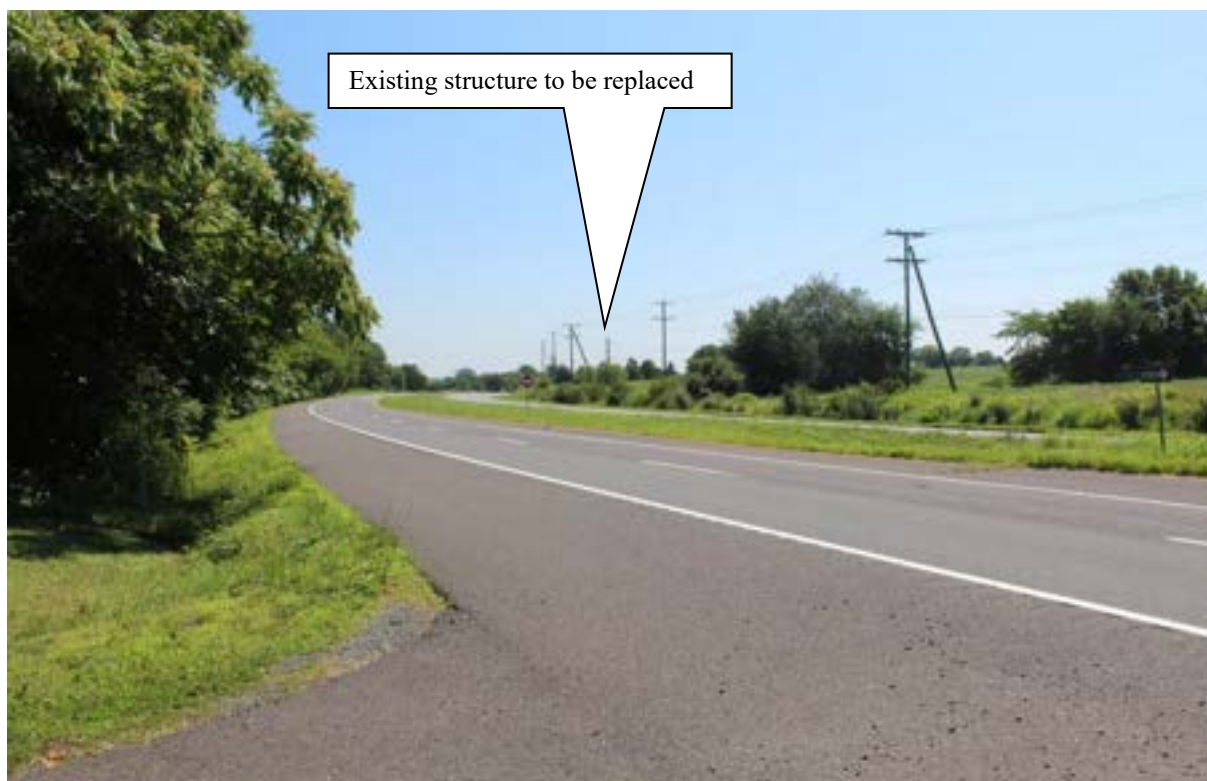


Figure 5-51: Photo location 6- View from driveway to Croftburn Farm (One project structure visible), facing east.

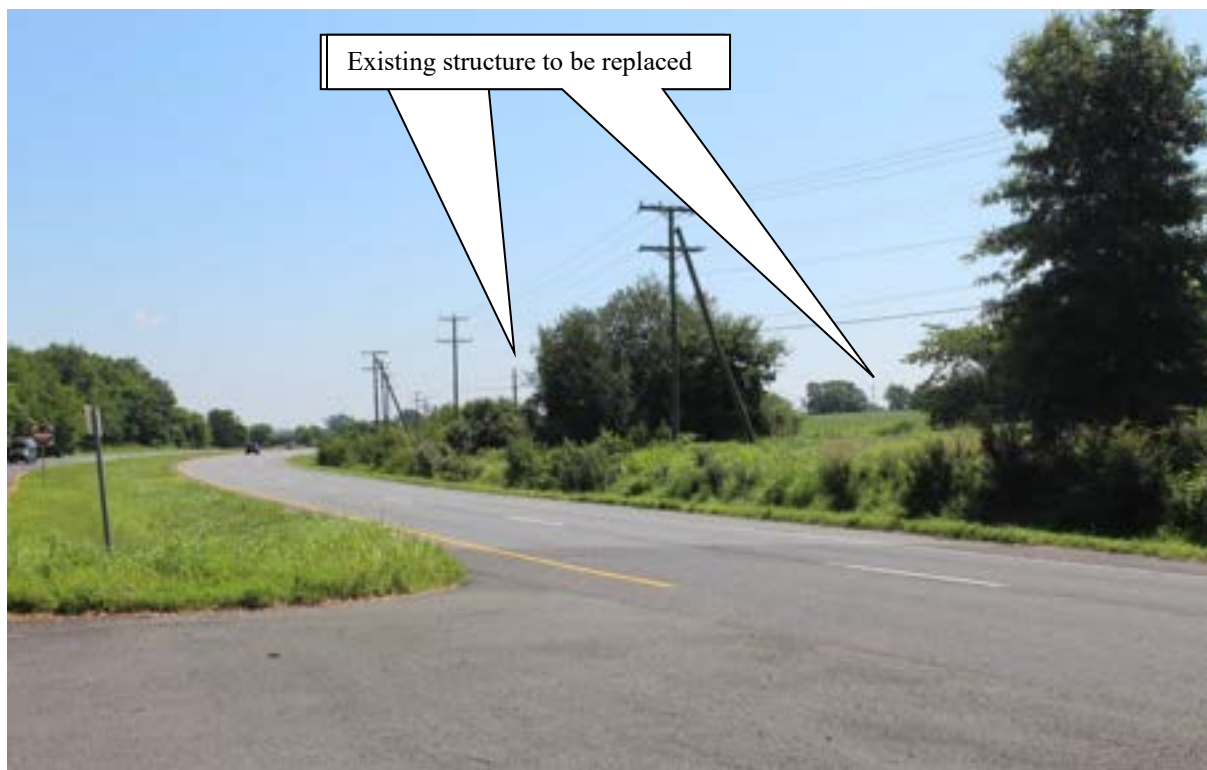


Figure 5-52: Photo location 7- View from front of Croftburn Farm along Route 3 (multiple project structures visible), facing east.

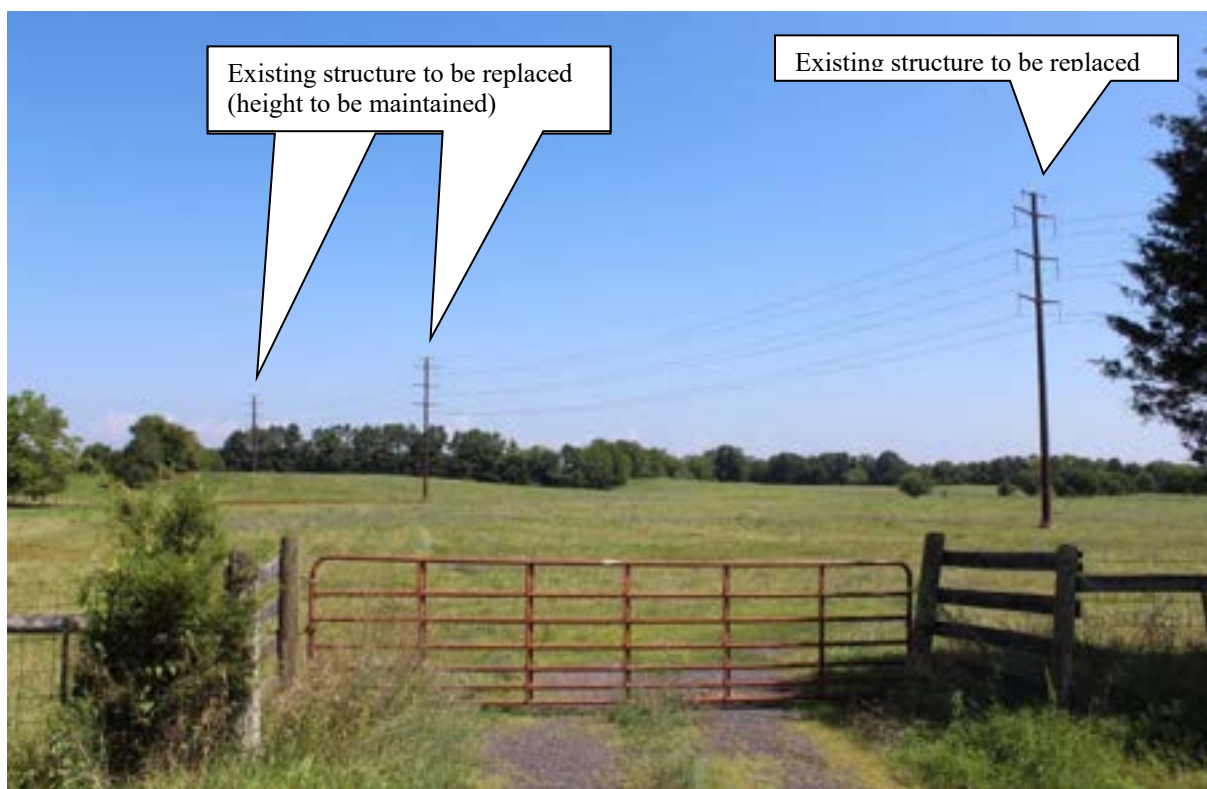


Figure 5-53: Photo location 8- View from eastern edge of Croftburn Farm property (multiple project structures visible), facing north.



Figure 5-54: Photo location 9- View from eastern edge of Croftburn Farm property (multiple project structures visible), facing east.

THIS PAGE INTENTIONALLY LEFT BLANK

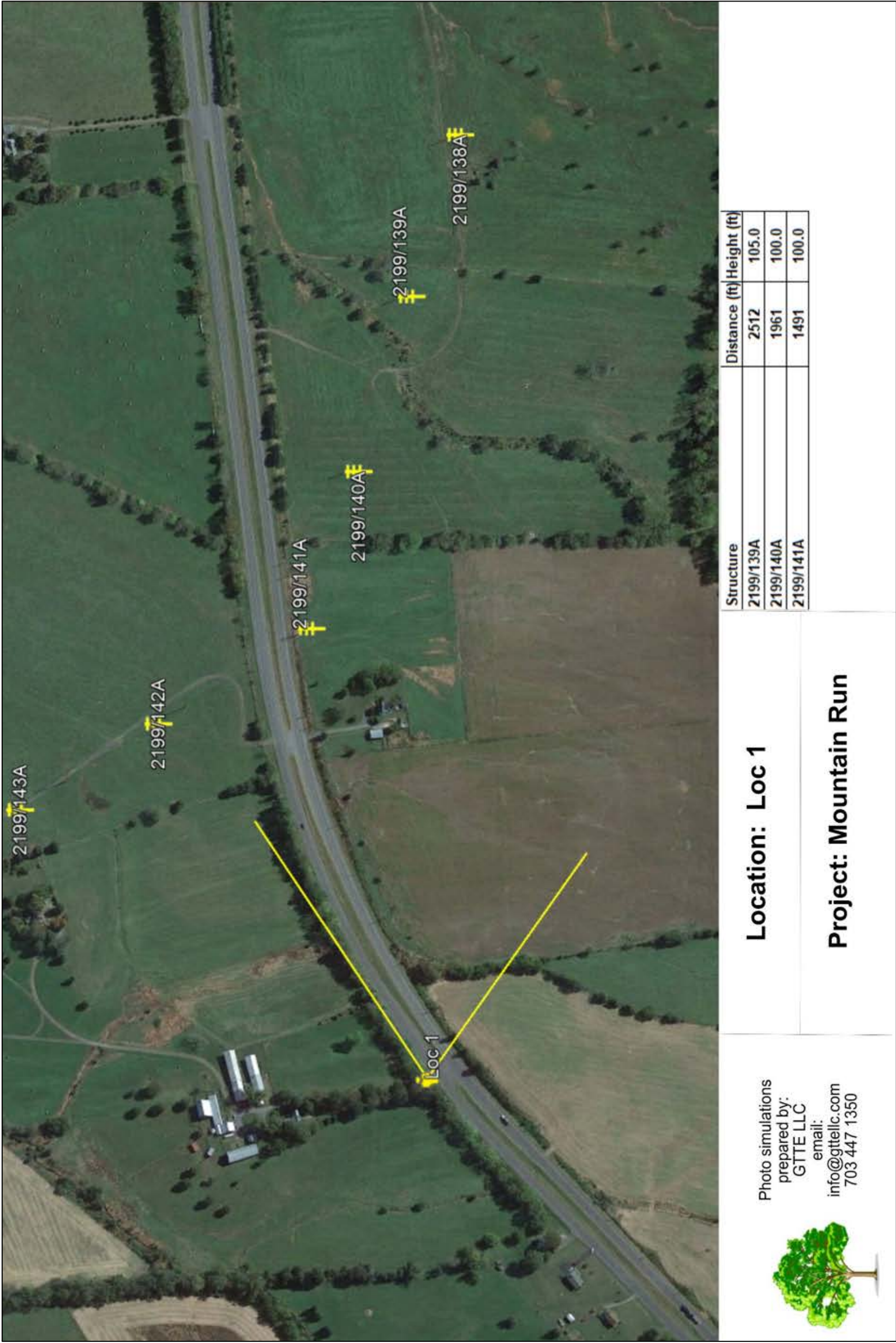


Figure 5-55: Croftburn Simulation 1 – Simulation location, direction of view, and structures modeled from front of driveway. Source: GTTE, LLC



Figure 5-56: Croftburn Simulation 1 – Existing view from front of driveway. Source: GTTE, LLC



Figure 5-57: Croftburn Simulation 1 – Proposed view from front of driveway – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC

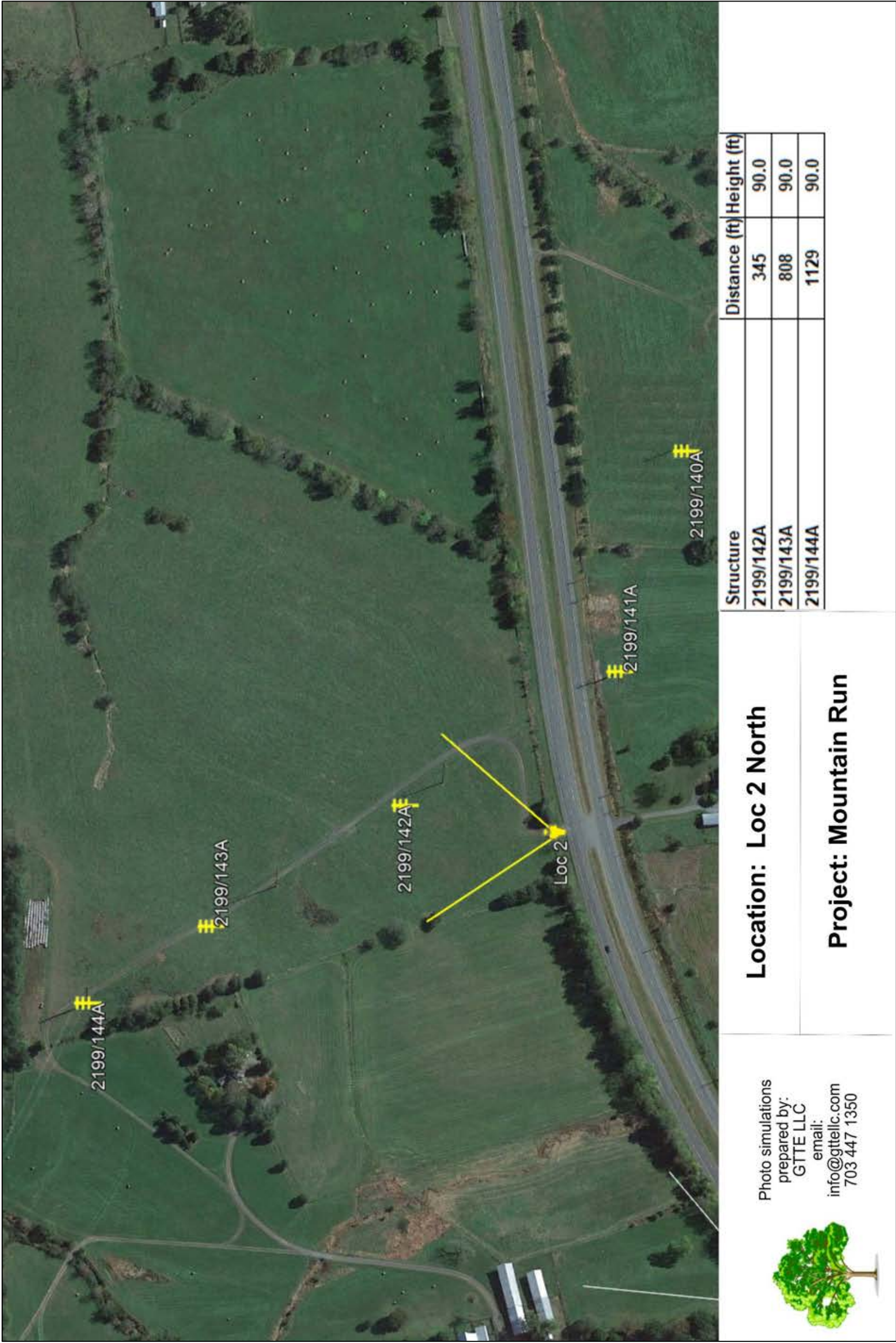


Figure 5-58: Croftburn Simulation 2 – Simulation location, direction of view, and structures modeled from southeastern corner of property. Source: GTTE, LLC



Figure 5-59: Croftburn Simulation 2 – Existing view from southeastern corner of property. Source: GTTE, LLC



Figure 5-60: Croftburn Simulation 2 – Proposed view from southeastern corner of property – (Visible structure shown as it would appear). Source: GTTE, LLC

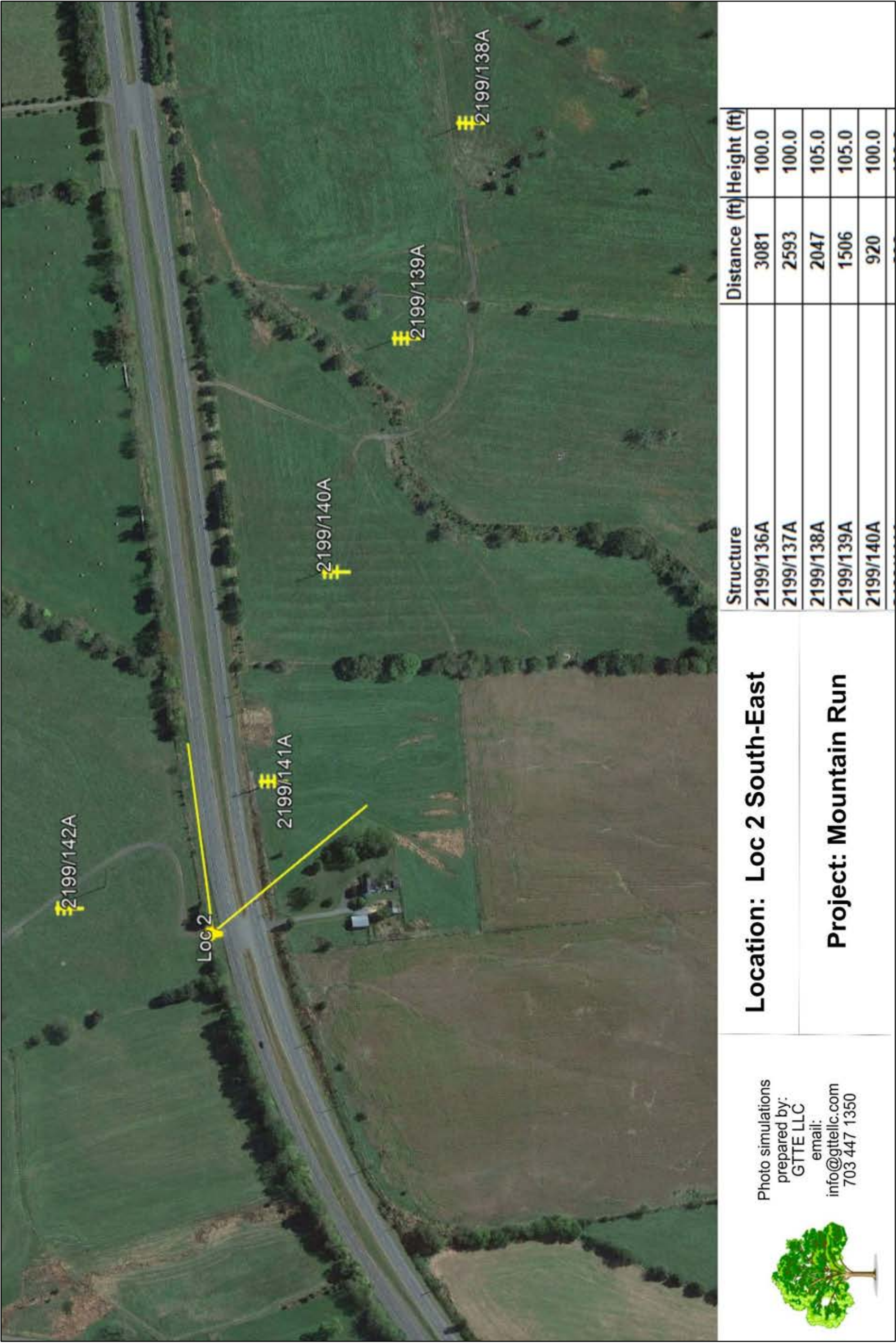


Figure 5-61: Croftburn Simulation 3 – Simulation location, direction of view, and structures modeled across road from southeastern corner of property. Source: GTTE, LLC

		Project: Mountain Run		Location 2		Existing View	
<div><p>Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350</p></div>		Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.				This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.	

Figure 5-62: Croftburn Simulation 3 – Existing view across road from southeastern corner of property. Source: GTTE, LLC



Figure 5-63: Croftburn Simulation 3 – Proposed view across road from southeastern corner of property – (Visible structures shown as they would appear). Source: GTTE, LLC

THIS PAGE INTENTIONALLY LEFT BLANK

South East Street Historic District (VDHR# 204-0064)

The South East Street Historic District is a residential district that lies on the periphery of downtown Culpeper, Virginia. The area included in the South East Street Historic District is one of the oldest residential streets in the town of Culpeper and has significance both in its ability to represent the social and cultural domestic life of antebellum Culpeper and in its association with the Civil War in the Culpeper vicinity. The first mention of East Street as a named street is believed to have been as part of Thompson's map of 1835. In 1834, 44 citizens of the town had signed a petition asking for incorporation of the town, and on March 1, Culpeper (then known as Fairfax) became the third Piedmont town north of the Annas to achieve such status. Subsequently, Francis J. Thompson drafted a map (one of the earliest of a Virginia Piedmont community) showing 36 houses, 2 of which were located on East Street within the district's boundaries. As Culpeper developed into a commercial center with good overland transportation connections, East Street similarly evolved as a convenient and accessible downtown residential street with commodious houses that were built in the fashionable styles of the day.

The district was listed in the NRHP in 2009 for local significance under Criterion A for its associations with Civil War encampment and burial grounds, officer headquarters, and emergency hospitals when both Union and Confederate forces occupied the district at various times during the war; as well as under Criterion C because it possesses an almost completely intact collection of domestic architecture that represents both exemplary and representative examples of the residences of Culpeper's mercantile and professional families from 1835 when the town was incorporated until 1955, the construction date of the last historic dwelling built within the district.

The South East Street Historic District is located roughly 0.92 mile from the project at its nearest point and was therefore was subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the district and photographs were taken to document viewshed with emphasis on views from the district boundaries towards the project alignment. As a residential district, inspection was conducted from representative locations and streets throughout the boundaries of the district. The South East Street Historic District is located within the urban core of Culpeper. The district is oriented generally in a north-south orientation, with the majority of properties fronting East Street. The project is situated within the landscape to the east of the district.

A site visit to the district found that it remains a densely developed residential district at the edge of the urban core of Culpeper. The homes are generally set on typical-sized suburban lots with associated domestic improvements. The landscape of the district is gently rolling and mature vegetation is spread throughout. Due to the development and vegetation, views within and from the district are generally limited to the immediate streetscape while more distant views are screened.

As part of the project, the nearest improvements are associated with the development of the new Cirrus and Keyser Substations, roughly 0.92 mile away. These substations will be set adjacent to the existing Mountain Run Substation within similarly sized and scaled components. The transmission line to be rebuilt extends from the Mountain Run Substation and immediately borders the east (far) side of the proposed substations. These structures, and others on the project alignment

extending away from the substations will be replaced on a one-to-one basis near the location of the existing structures, and will not require any additional ROW or clearing within the property. As such, there will be no direct impact to the South East Historic District, however, because the structures on the project alignment will be increased in height and a new substation will be built, the project has the potential to introduce indirect or visual impacts.

Inspection from publicly-accessible vantage points throughout the district found that none of the existing structures on the project alignment are visible. However, a number of structures and a substation on other transmission lines not included in the project, but in closer proximity to the district are visible from a number of locations. The existing structures to be replaced as part of this project are each 80-feet in height and the proposed replacement structures will generally average 100-feet in height. The tallest structures within the proposed substation in closer proximity to the district will be no more than 90 feet tall with an average structure height of 77 feet tall. As such, it is anticipated that the intervening topography, vegetation, and urban development patterns that currently screen views of the project alignment will continue to screen the replacement structures and substation from publicly-accessible locations throughout the district. This was confirmed by photo simulation from representative vantage points that depict all structures remaining screened beneath the intervening terrain and vegetation. Therefore, the project will not introduce any noticeable change in setting or viewshed of or from the district which does not include any of the existing project structures, nor will it include views of any replacement structures, and it is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose ***no impact*** on the South East Street Historic District.

Figure 5-64 depicts the location of the South East Street Historic District in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-65 through 5-70 are representative photographs of the district, as well as those taken from locations within and near the district towards the project area. Figures 5-71 through 5-76 provide photo simulation from the property.

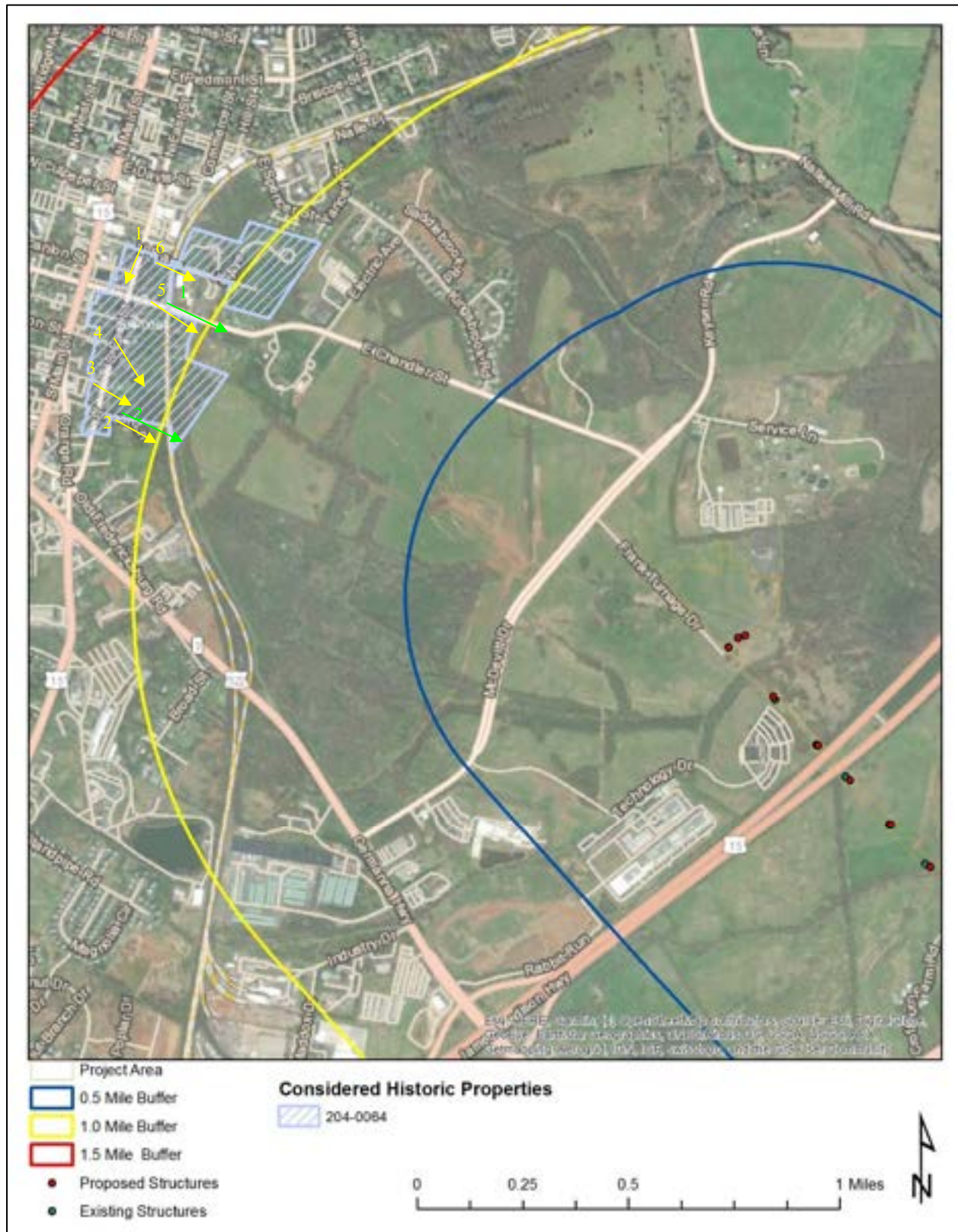


Figure 5-64: Location of South East Street Historic District in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).



Figure 5-65: Photo location 1- General view of South East Street, facing south.



Figure 5-66: Photo location 2- View from Rosson Lane near South East Street (No project structures visible), facing southeast.



Figure 5-67: Photo location 3- View from intersection of South East Street and Walters Street (No project structures visible), facing southeast.



Figure 5-68: Photo location 4- View from intersection of South East Street and Asher Street (no project structures visible), facing southeast.



Figure 5-69: Photo location 5- View from Chandler Street at railroad crossing (No project structures visible. Substation and other structures not included in project are visible), facing southeast.



Figure 5-70: Photo location 6- View from Stevens Street towards entrance to Culpeper National Cemetery (No project structures visible), facing southeast.

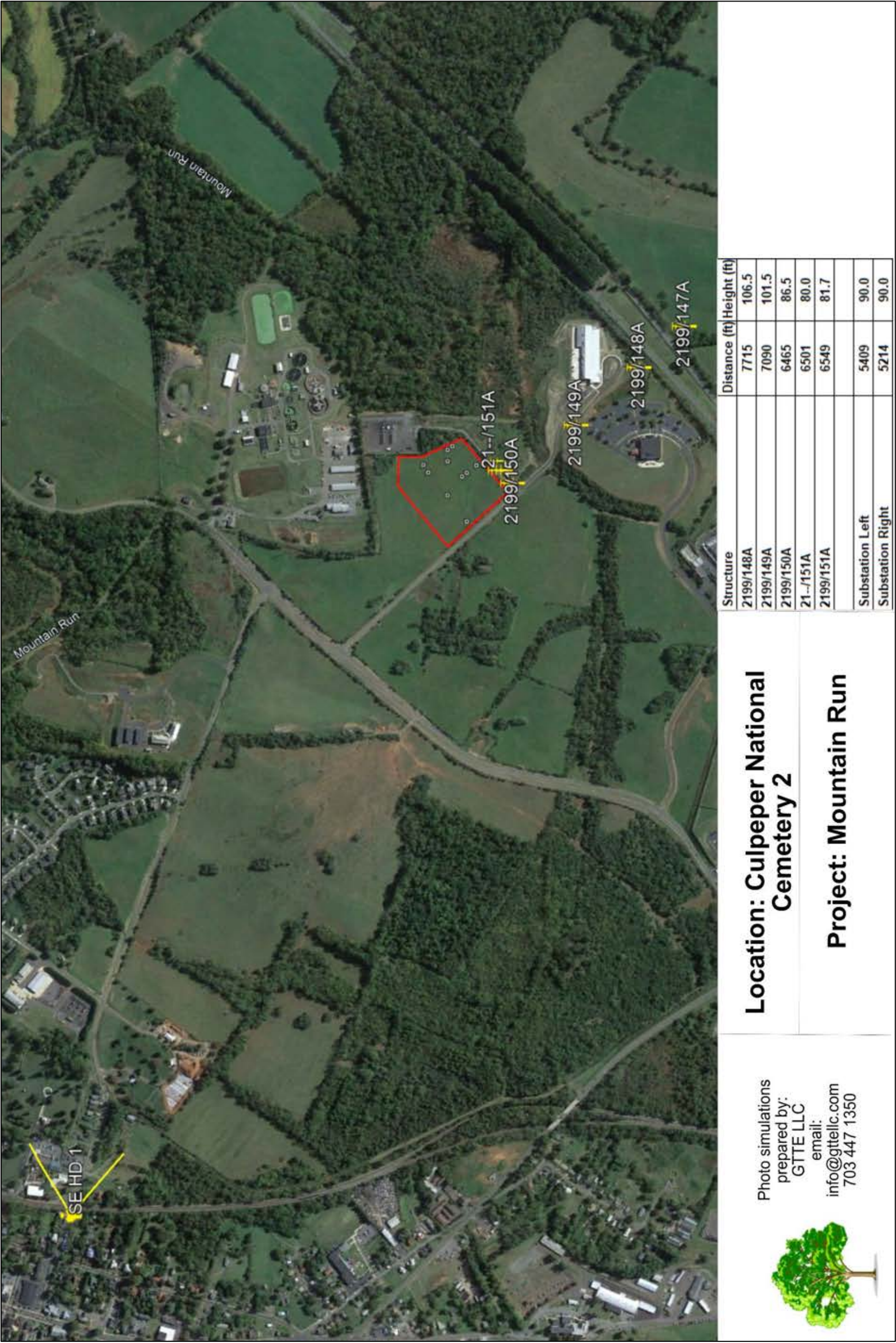


Figure 5-71: South East Street Historic District Simulation 1 – Simulation location, direction of view, and structures modeled from Chandler Street. Source: GTTE, LLC



Figure 5-72: South East Street Historic District Simulation 1 – Existing view from Chandler Street. Source: GTTE, LLC



Figure 5-73: South East Street Historic District Simulation 1 – Proposed view from Chandler Street – (Structures not visible shown in yellow). Source: GTTE, LLC

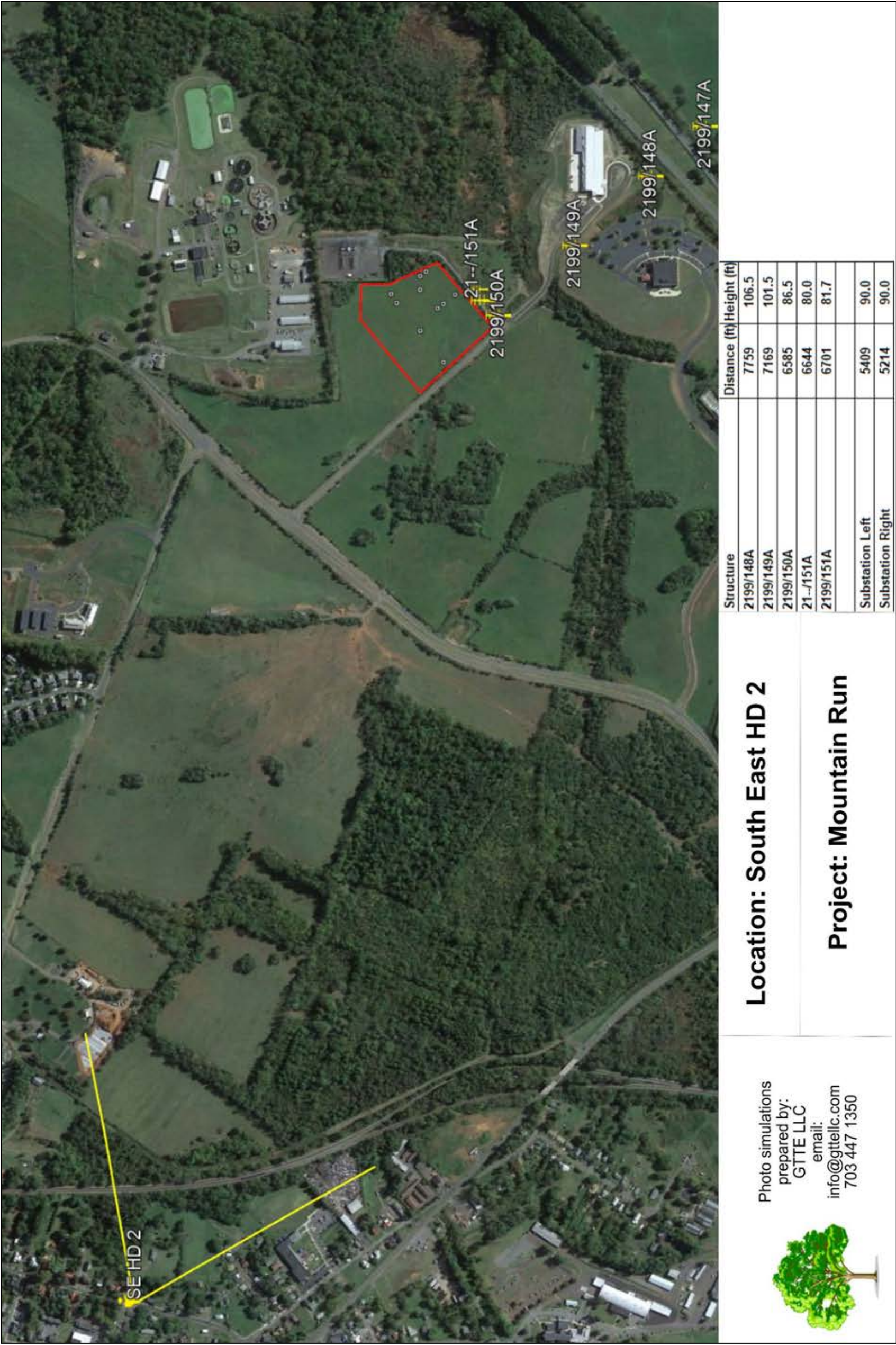


Figure 5-74: South East Street Historic District Simulation 2 – Simulation location, direction of view, and structures modeled from Rosson Lane. Source: GTTE, LLC

		Project: Mountain Run		South East HD 2	Existing View	
 <p>Photo simulations prepared by: GTTE LLC email: info@gttelic.com 703 447 1350</p>		<p>Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.</p>		<p>This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.</p>		

Figure 5-75: South East Street Historic District Simulation 2 – Existing view from Rosson Lane. Source: GTTE, LLC



Figure 5-76: South East Street Historic District Simulation 2 – Proposed view from Rosson Lane – (Structures not visible shown in yellow). Source: GTTE, LLC

Culpeper National Cemetery (VDHR# 204-0069)

The Culpeper National Cemetery was established in 1867 and originally contained six burial sections (Sections A-F), one of which was set aside for the graves of 912 unknown soldiers of the Civil War (Section C). Graves were originally marked with headboards, which were later replaced with upright marble markers. In 1978, Post 2524 of the Veterans of Foreign Wars in Culpeper donated 10.51 acres of adjacent property to expand the cemetery. This area contains nine burial sections (Sections G-O). An Officers Circle containing 17 interments is located around the flagpole. The Culpeper National Cemetery is significant under Criterion A and C, and is an important component of the multiple property submission of Civil War Era National Cemeteries. It is significant under Criterion A because of its association with the Civil War and under Criterion C, because the lodge represents a distinctive prototypical design by Quartermaster General Montgomery C. Meigs, who was acclaimed as a master architect of civil works projects for the Quartermaster Corps.

The Culpeper National Cemetery is located roughly 0.92 mile from the project at its nearest point and was therefore subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the property and photographs were taken to document viewshed with emphasis on views from the property towards the project alignment. As a public historical site, inspection was conducted from through the boundaries of the cemetery. The Culpeper National Cemetery is located at the edge of the urban core of Culpeper. The front or formal entry and gate to the cemetery is from the west while the project is situated within the landscape to the east or rear of the site.

A site visit to the cemetery found that it retains its historic setting within the site boundaries, although has been encroached upon by later development to all sides. It is bordered by suburban residential development to the north and south, commercial development to the west, and industrial development to the east. It is also bordered by two existing electrical substations and a transmission line not included in this project.

As part of the project, the nearest improvements are associated with the development of the new Cirrus and Keyser Substations, roughly 0.92 mile away. These substations will be set adjacent to the existing Mountain Run Substation within similarly sized and scaled components. The transmission line to be rebuilt extends from the Mountain Run Substation and immediately borders the east (far) side of the proposed substations. These structures, and others on the project alignment extending away from the substations will be replaced on a one-to-one basis near the location of the existing structures, and will not require any additional ROW or clearing within the property within the boundaries of the cemetery. As such, there will be no direct impact to the Culpeper National Cemetery, however, because the structures on the project alignment will be increased in height and a new substation will be built, the project has the potential to introduce indirect or visual impacts.

Inspection from representative vantage points throughout the cemetery found that none of the existing structures on the project alignment are visible. However, a number of structures and two substations on other transmission lines not included in the project, but immediately adjacent to the cemetery are visible from a number of locations. The existing structures to be replaced as part of

this project are each 80-feet in height and the proposed replacement structures will generally average 100-feet in height. The tallest structures within the proposed substation in closer proximity to the cemetery will be no more than 90 feet tall with an average structure height of 77 feet tall. As such, it is anticipated that the intervening topography, vegetation, and urban development patterns that currently screen views of the project alignment will continue to screen the replacement structures and substation from the cemetery. This was confirmed by photo simulation from representative vantage points that depict all structures remaining screened beneath the intervening terrain and vegetation. Therefore, the project will not introduce any noticeable change in setting or viewshed of or from the cemetery which does not include any of the existing project structures, nor will it include views of any replacement structures, and it is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose ***no impact*** on the Culpeper National Cemetery.

Figure 5-77 depicts the location of the Culpeper National Cemetery in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-78 through 5-85 are representative photographs of the property, as well as those taken from locations within and near the property towards the project area. Figures 5-86 through 5-91 provide photo simulation from the property.

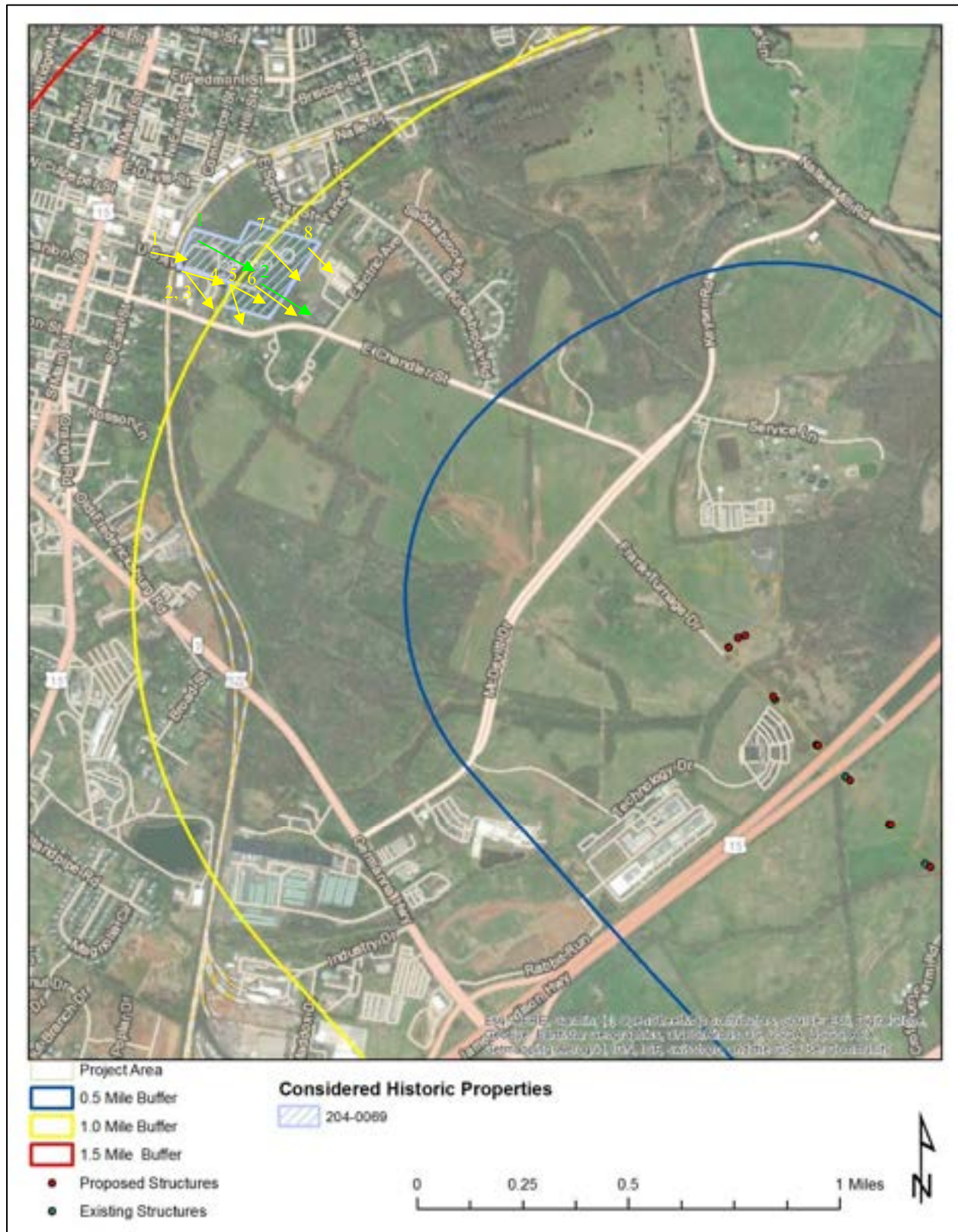


Figure 5-77: Location of Culpeper National Cemetery in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).



Figure 5-78: Photo location 1- View of entrance to Culpeper National Cemetery setting from Stevens Street, facing southeast.



Figure 5-79: Photo location 2- View of Culpeper National Cemetery from entry drive (No project structures visible), facing east.



Figure 5-80: Photo location 3- View of Culpeper National Cemetery from entry drive (No project structures visible. Existing structure on another line not included in this project is visible), facing southeast.



Figure 5-81: Photo location 4- View of historic section and caretakers lodge (no project structures visible), facing southeast.



Figure 5-82: Photo location 5- View from parking area to modern administrative building (no project structures visible. Multiple structures and substation not included in this project area visible), facing south.



Figure 5-83: Photo location 6- View from central walkway in historic section (no project structures visible. Existing structure not included in this project is visible), facing southeast.



Figure 5-84: Photo location 7- View from loop in north annex (no project structures visible. Existing structure not included in this project is visible), facing southeast.



Figure 5-85: Photo location 8- View from north annex (no project structures visible. Existing substation not included in this project is visible), facing east.

THIS PAGE INTENTIONALLY LEFT BLANK

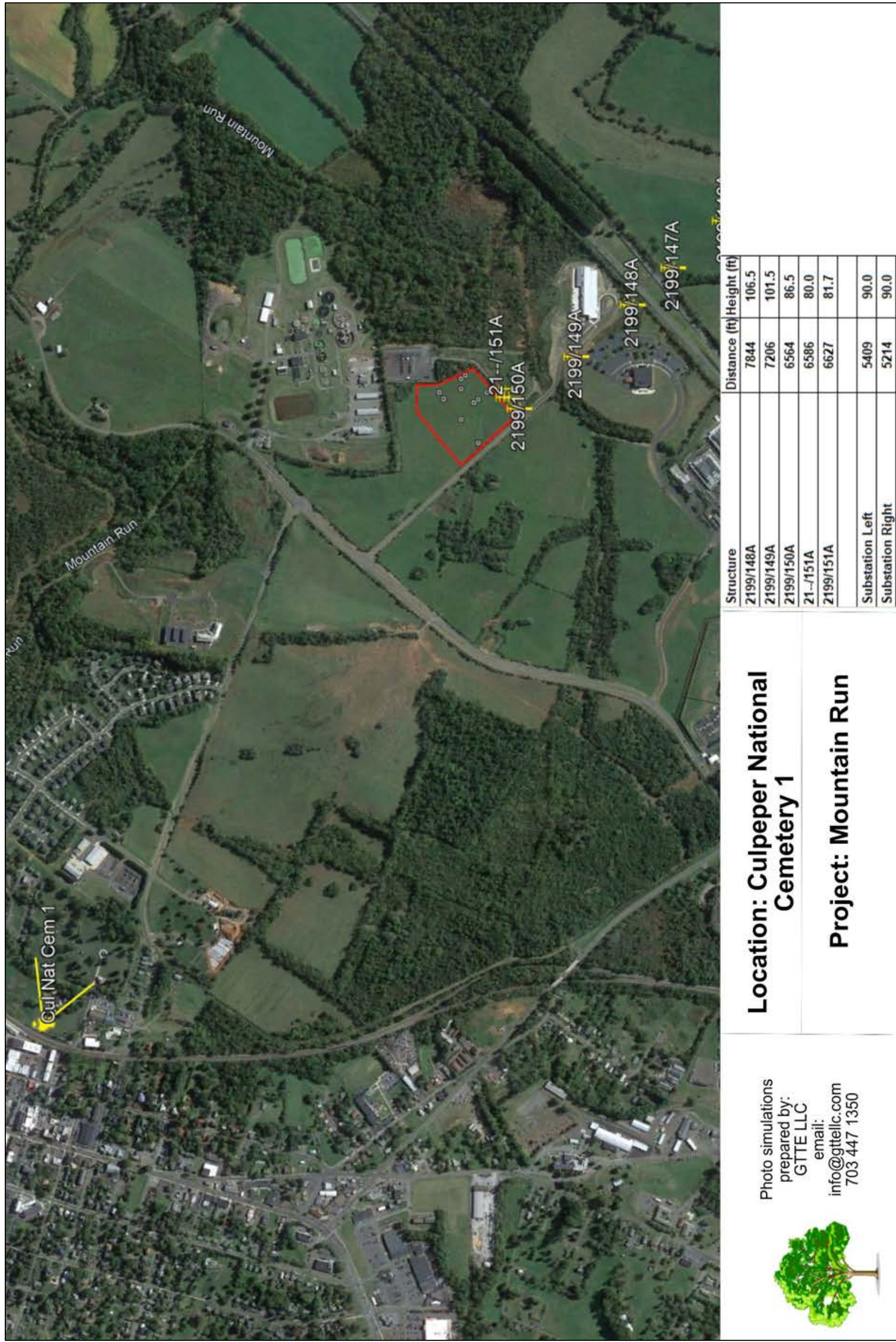


Figure 5-86: Culpeper National Cemetery Simulation 1 – Simulation location, direction of view, and structures modeled from west annex. Source: GTTE, LLC



Figure 5-87: Culpeper National Cemetery Simulation 1 – Existing view from west annex. Source: GTTE, LLC



Figure 5-88: Culpeper National Cemetery Simulation 1 – Proposed view from west annex – (Structures not visible shown in yellow). Source: GTTE, LLC

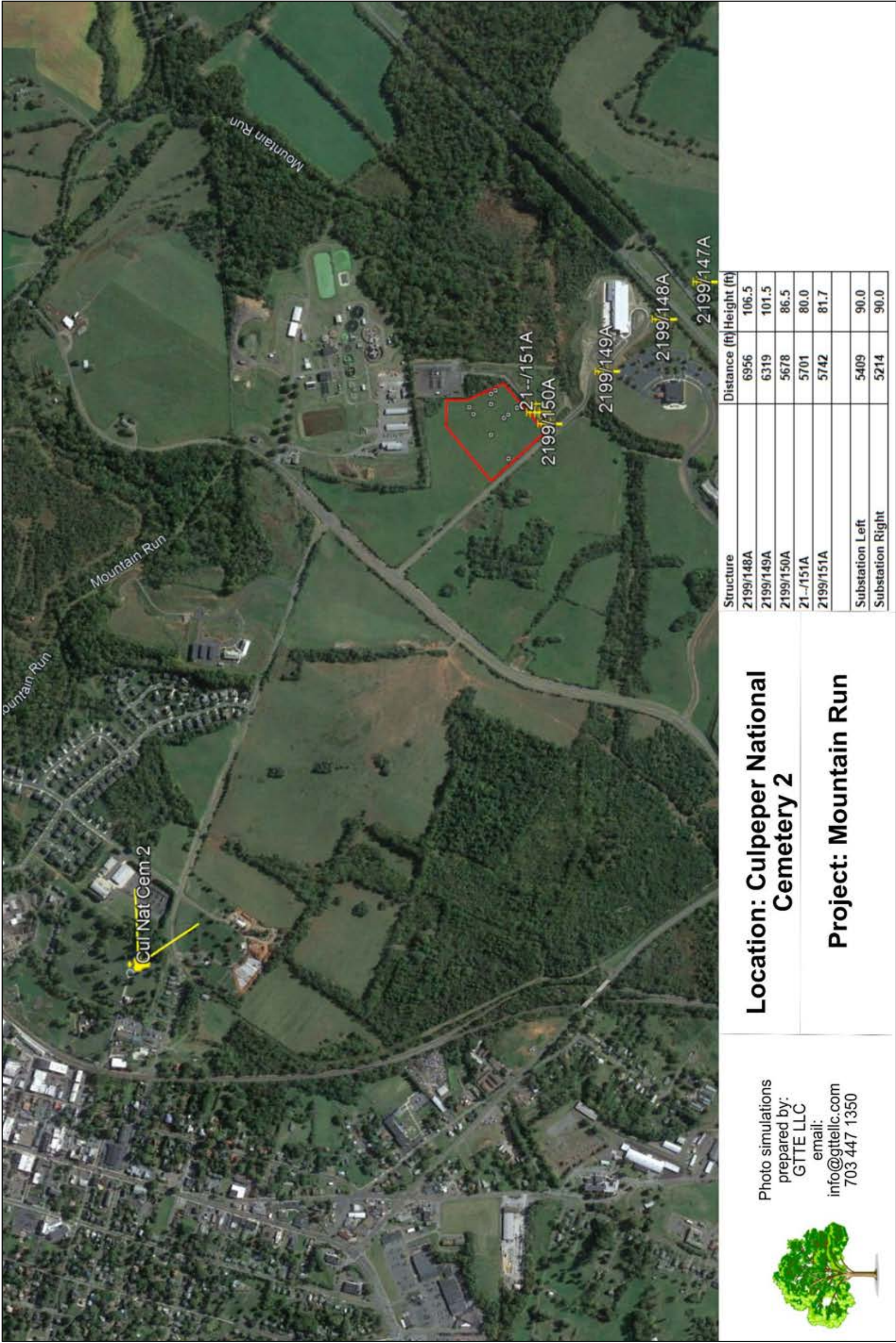


Figure 5-89: Culpeper National Cemetery Simulation 2 – Simulation location, direction of view, and structures modeled from Officers’ circle. Source: GTTE, LLC



Figure 5-90: Culpeper National Cemetery Simulation 2 – Existing view from Officers’ circle. Source: GTTE, LLC



Figure 5-91: Culpeper National Cemetery Simulation 2 – Proposed view from Officers’ circle – (Structures not visible shown in yellow). Source: GTTE, LLC

BATTLEFIELDS

Located within 1.0 Mile of the Project or Closer

Brandy Station Battlefields (VDHR# 023-5055)

On June 9, 1863, Union cavalry forces under Major General Alfred Pleasonton launched a surprise attack on Stuart's cavalry at Brandy Station. After a day of fighting, the Federal forces retired having failed to discover Lee's infantry camped near Culpeper. The Battle at Brandy Station was the largest cavalry battle of the Civil War and marked the opening of the Gettysburg Campaign. The Brandy Station battlefields, situated in the rolling Piedmont countryside of eastern Culpeper and western Fauquier counties consist of three discontinuous geographical areas containing sites and structures significant to the battle. The sites include Brandy Station, Kelly's Ford, and Stevensburg, all named for villages or natural landmarks, and are 8,525 acres, 1,715 acres, and 787 acres in size, respectively. The landscape of the battlefields is comprised of forested areas, cultivated farm and grazing lands, and some rural residential areas. Although the area has experienced some late nineteenth and early twentieth century residential and commercial development, it has retained much of its integrity of character. The battlefields are still characterized by their rural, agrarian rolling hills, beautiful views, working farms, and small villages. Additionally, the sites are significant for their association with the Battle of Brandy Station, an important battle of the Civil War. The battlefields are therefore recommended potentially eligible for listing in the NRHP.

The Brandy Station Battlefield is directly crossed by the project alignment and therefore was subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the battlefield and photographs were taken to document viewshed with emphasis on views from the battlefield towards the project alignment. As much of the battlefield landscape is comprised of private property, field inspection was conducted from public ROW or property where access was granted. The Brandy Station Battlefield occupies a large landscape east of Culpeper, with the majority well to the north and east of the project, but a small area focused on the village of Stevensburg near the eastern terminus of the project. A total of three (3) existing transmission structures associated with this project area located directly within the delineated boundaries of the battlefield and an additional twenty-five (25) are located within one mile.

A site visit to the battlefield found that much of the landscape within the vicinity of the project alignment has been subject to modern intrusion that have compromised the historic setting. Although Route 3 is a historic road corridor, it has been realigned and widened substantially through the area. It also now lined by a variety of post-Civil War construction including residential, commercial, and industrial development. The largest intrusion on the landscape of the battlefield in the vicinity of the project is a large open-pit strip mine quarry on the south side of Route 3. In addition to the project transmission line, the Gordonsville-Remington high-voltage transmission line also crosses through the battlefield in this area, as do a number of smaller distribution lines and a tall cellular antenna tower. The terrain and landscape within and bordering the battlefield is gently rolling and a mix of open agricultural field, treelines and wooded areas, and development; and therefore views range from short and interrupted to wide and open.

As part of the project, all three structures located directly in the battlefield will be replaced, as will adjacent structures within one-mile. Structure replacement will occur on a one-to-one basis near the location of the existing structures and will not require any additional ROW or clearing within

the property. As a result, the project will have a direct impact on the battlefield, however, because it will not introduce any substantially new or different components into the landscape, nor will it result in clearing or demolition of any associated features, the direct impact will be minimal. Because the structures within and bordering the battlefield will be increased in height, the project also has the potential to introduce indirect or visual impacts.

Inspection from representative vantage points throughout the battlefield towards the project alignment revealed that visibility varies, although existing transmission structures can be seen from some locations. Views from Route 3 in close proximity often include multiple existing structures, including both structures on the project alignment as well as other transmission lines in the area. In general, views of structures are at a distance and above treelines. Inspection from the vicinity of Stevensburg, including a public wayside with interpretative signage for the battlefield similarly revealed multiple views of existing structures, although these are nearly all structures on a different line not included in this project. As Stevensburg is near the eastern terminus of the project alignment where it ties into the Gordonsville-Remington line, many of the visible structures are associated with that line, however, some project structures to be replaced are also visible. In general, the structures on the line not included in this project are generally taller than the existing and proposed replacement structures associated with this project. Inspection was also conducted from the vicinity of the Hansborough Ridge Winter Encampment site roughly one mile from the eastern terminus of the project. While inspection could not be performed from within that site, inspection from the entry point along Route 3 revealed views of multiple structures on the nearer Gordonsville-Remington line, although the project structures are further away and screened by topography and vegetation.

The existing structures within and bordering the battlefield are each 80-feet in height and the proposed replacement structures will generally average 95- to 100-feet in height. Structures will be replaced on a one-to-one basis near the existing locations with new structures of a similar design, material, and overall appearance. As such, it is anticipated that visibility of the replacement structures will be similar to views of existing structures. The few structures that are visible tend to be seen above the treeline in the distance, and are often seen in conjunction with other structures not included in this project. From some vantages, views include multiple structures, including from key interpretive locations in the area such as a public wayside along York Road just off of Route 3 and the entry point to the Hansborough Ridge Winter Encampment site, although the majority of structures visible from these vantage points are associated with the Gordonsville-Remington line and therefore not included in this project. While the structures included in this project will be increased in height, they will be replaced by structures of similar finish and configuration, and will continue to only be seen in a distance and above treelines. This was confirmed by photo simulation from multiple locations throughout the battlefield that revealed the most prevalent visibility is from Route 3 at the western edge of the battlefield where a variety of modern development, including a rock quarry and industrial complex are located. Project structures will continue to be screened behind intervening vegetation from other portions of the battlefield further to the north and east. As such, the project is not anticipated to introduce any substantially new or cumulative impacts to the viewshed or setting of the battlefield that already includes multiple transmission structures and wide views of the transmission line. It is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose no more than a *minimal impact* on the Brandy Station Battlefield.

Figure 5-92 depicts the boundaries of the Brandy Station Battlefield in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-93 through 5-109 are representative photographs of the battlefield, as well as those taken from locations within and near the battlefield towards the project area. Figures 5-110 through 5-136 provide photo simulation from the battlefield.

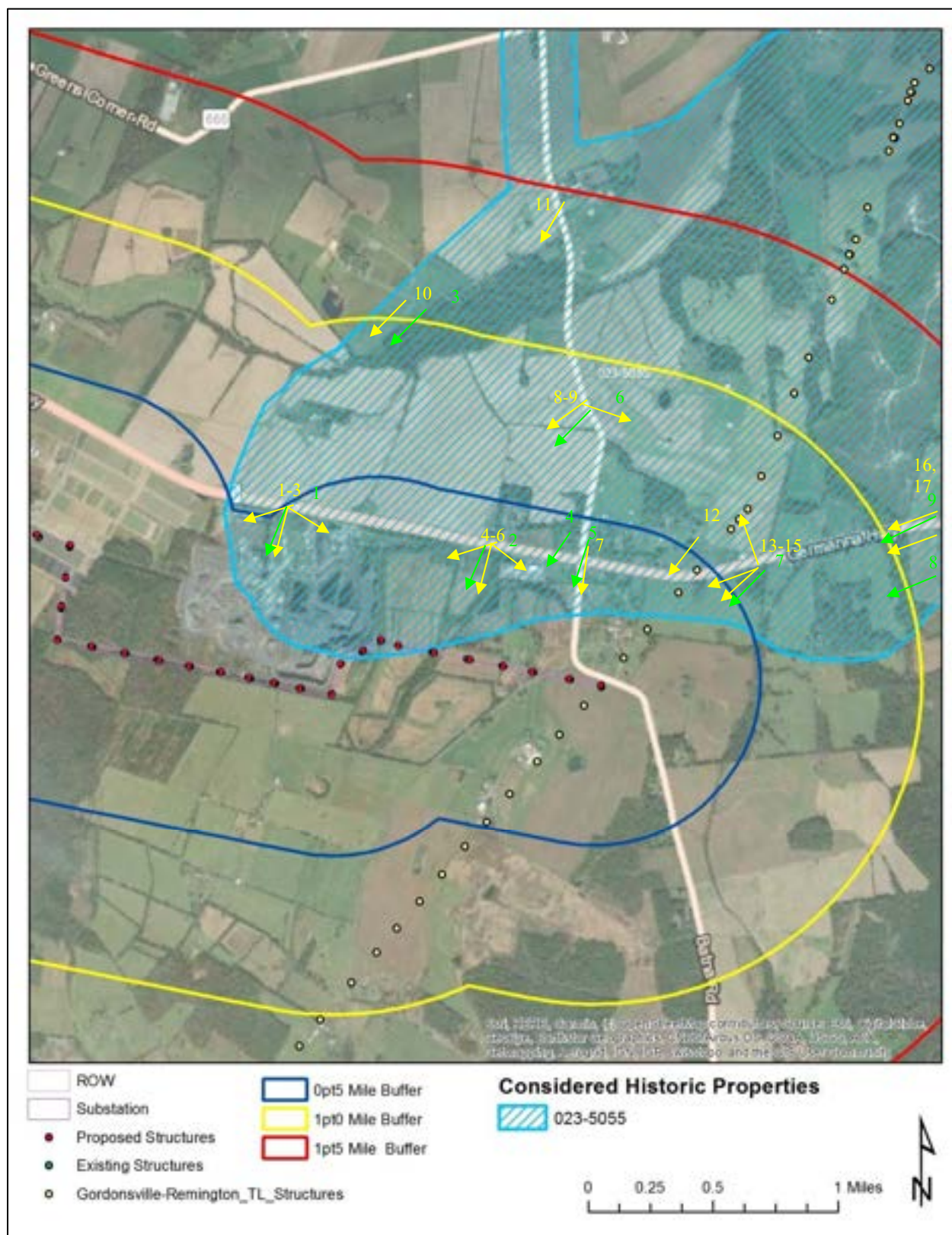


Figure 5-92: Location of Brandy Station Battlefield in relation to the project alignment (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).



Figure 5-93: Photo location 1- View from Clover Hill Road at Route 3 (No project structures visible), facing southwest.



Figure 5-94: Photo location 2- View from Clover Hill at Route 3 (One project structure visible), facing south.



Figure 5-95: Photo location 3- View from Clover Hill Road at Route 3 (No project structures visible. Multiple structures on other lines visible), facing east.



Figure 5-96: Photo location 4- View from York Road at Route 3 (One project structure visible), facing southwest.



Figure 5-97: Photo location 5- View from York Road at Route 3 (multiple project structures visible), facing south.



Figure 5-98: Photo location 6- View from York Road at Route 3 (No project structures visible. Multiple structures on other lines visible), facing southeast.

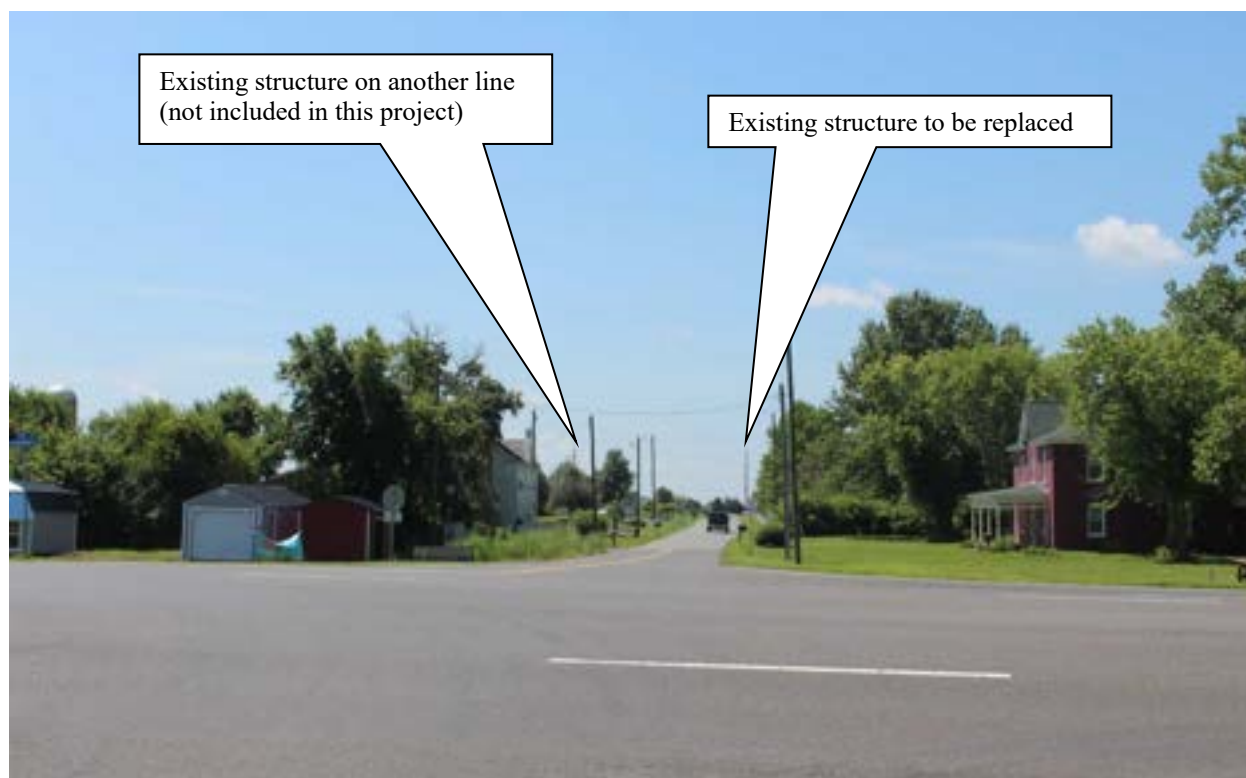


Figure 5-99: Photo location 7- View from Stevensburg (One project structure and one structure on other lines visible), facing south.



Figure 5-100: Photo location 8- View from Stevensburg Road (No structures visible), facing southwest.

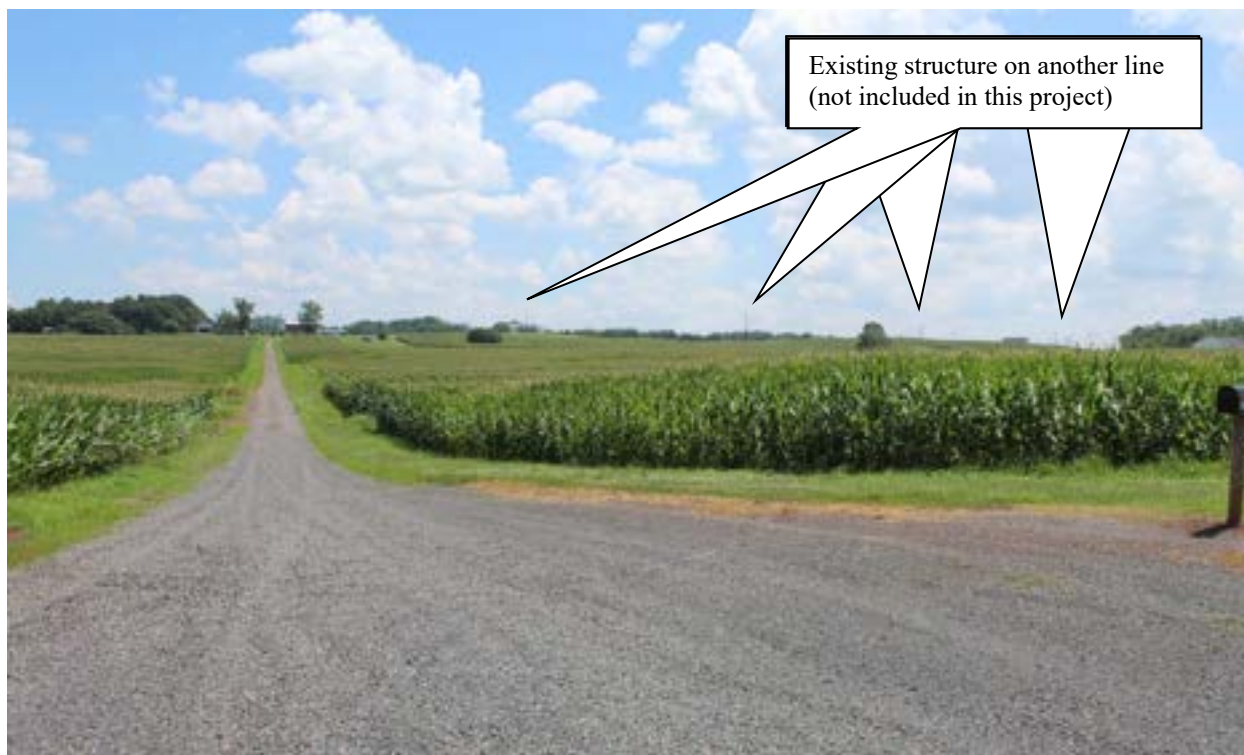


Figure 5-101: Photo location 9- View from Stevensburg Road (No project structures visible. Multiple structures on other lines visible), facing east.



Figure 5-102: Photo location 10- View from Mountain Run Winery (No structures visible), facing southwest.



Figure 5-103: Photo location 11- View from Lenn Park (No structures visible), facing southwest.

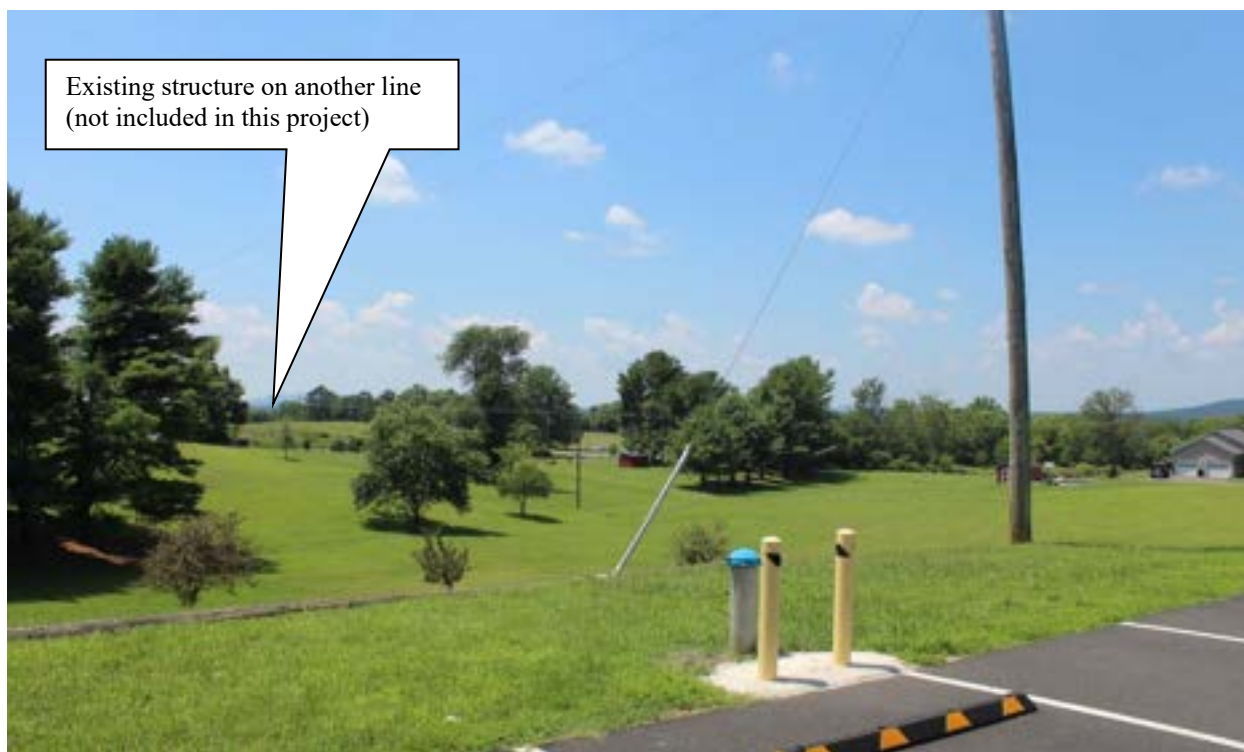


Figure 5-104: Photo location 12- View from Stevensburg Baptist Church (No project structures visible. Two structures on other lines visible), facing south.



Figure 5-105: Photo location 13- View from battlefield wayside off York Road (No structures visible), facing southwest.



Figure 5-106: Photo location 14- View from battlefield wayside off York Road (No project structures visible. Multiple structures on other lines visible), facing west.



Figure 5-107: Photo location 15- View from battlefield wayside off York Road (No project structures visible. Multiple structures on other lines visible), facing north.



Figure 5-108: Photo location 16- View from Salubria Lane at Route 3 (No project structures visible. Multiple structures on other lines visible), facing west.



Figure 5-109: Photo location 17- View from entry to Hansbrough Ridge off Route 3 (No project structures visible. Multiple structures on other lines visible), facing west.

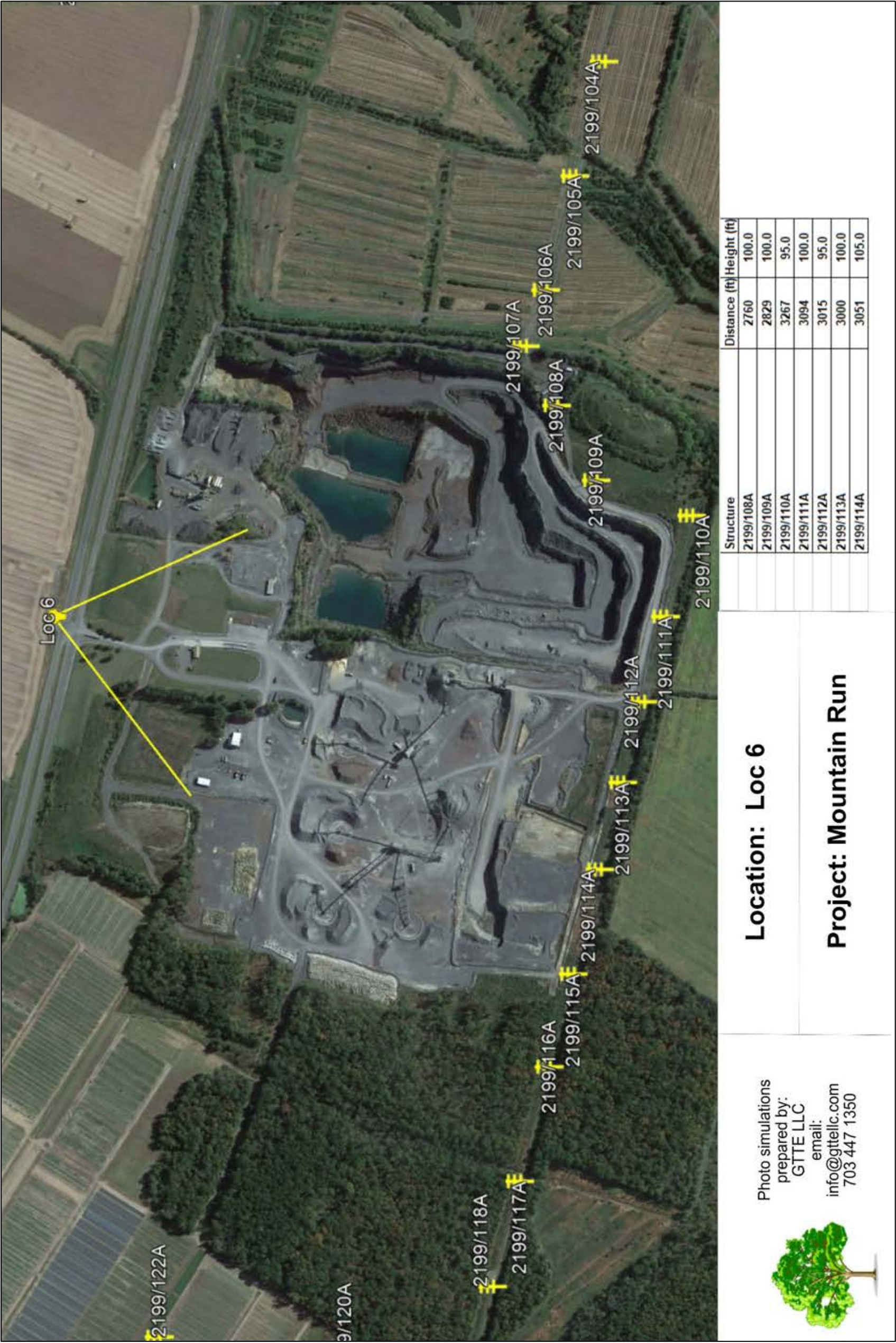


Figure 5-110: Brandy Station Battlefield Simulation 1 – Simulation location, direction of view, and structures modeled from Route 3 at Clover Hill Road. Source: GTTE, LLC



Figure 5-111: Brandy Station Battlefield Simulation 1 – Existing view from Route 3 at Clover Hill Road. Source: GTTE, LLC



Figure 5-112: Brandy Station Battlefield Simulation 1 – Proposed view from Route 3 at Clover Hill Road – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC

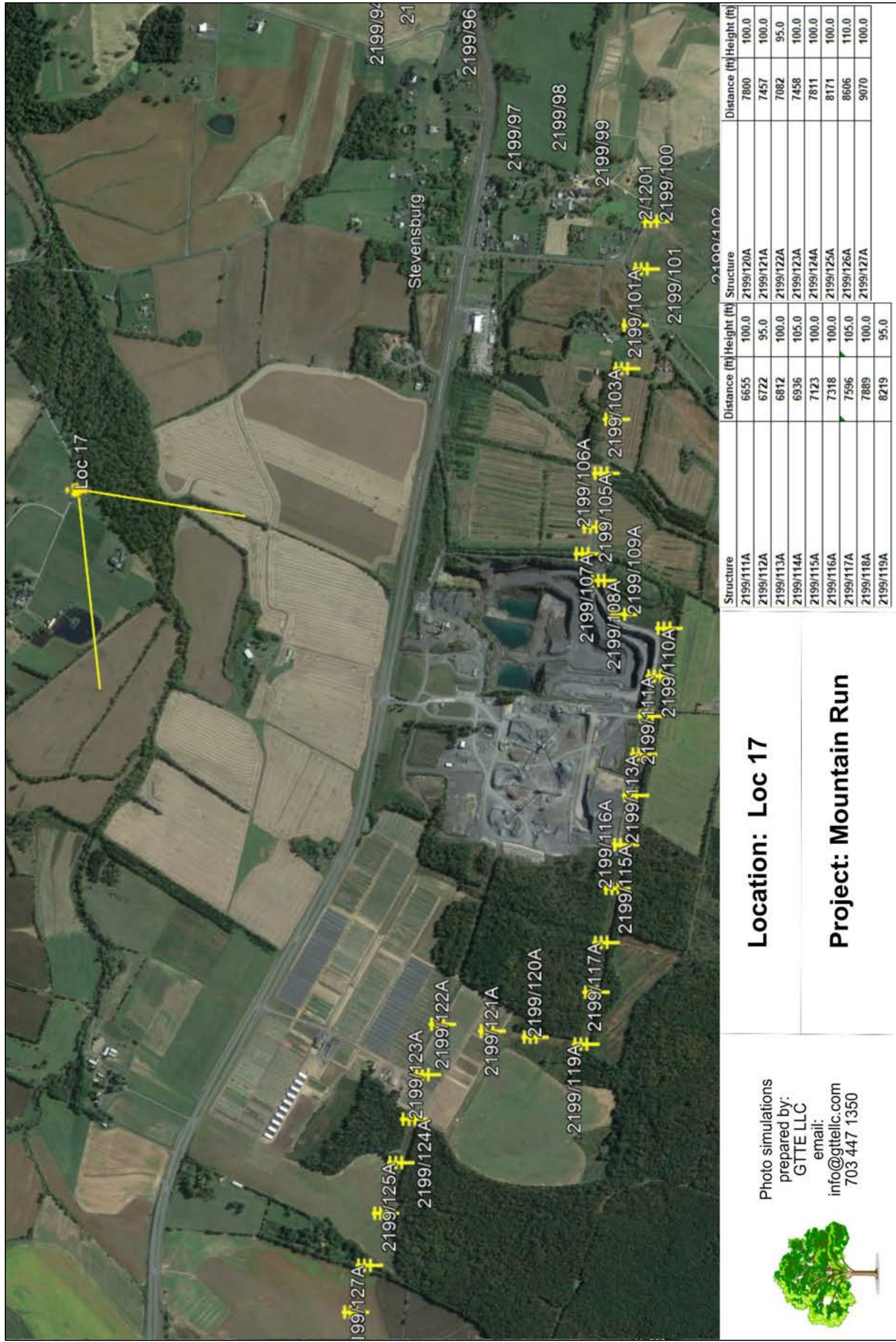


Figure 5-113: Brandy Station Battlefield Simulation 2 - Simulation location, direction of view, and structures modeled from Mountain Run Winery. Source: GTTE, LLC

		Project: Mountain Run		Location 17	Existing View
 <div>Photo simulations prepared by: GTTE LLC email: info@gttelic.com 703 447 1350</div>		Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.	

Figure 5-114: Brandy Station Battlefield Simulation 2 – Existing view from Mountain Run Winery. Source: GTTE, LLC



Figure 5-115: Brandy Station Battlefield Simulation 2 – Proposed view from Mountain Run Winery – (Structures not visible shown in yellow). Source: GTTE, LLC

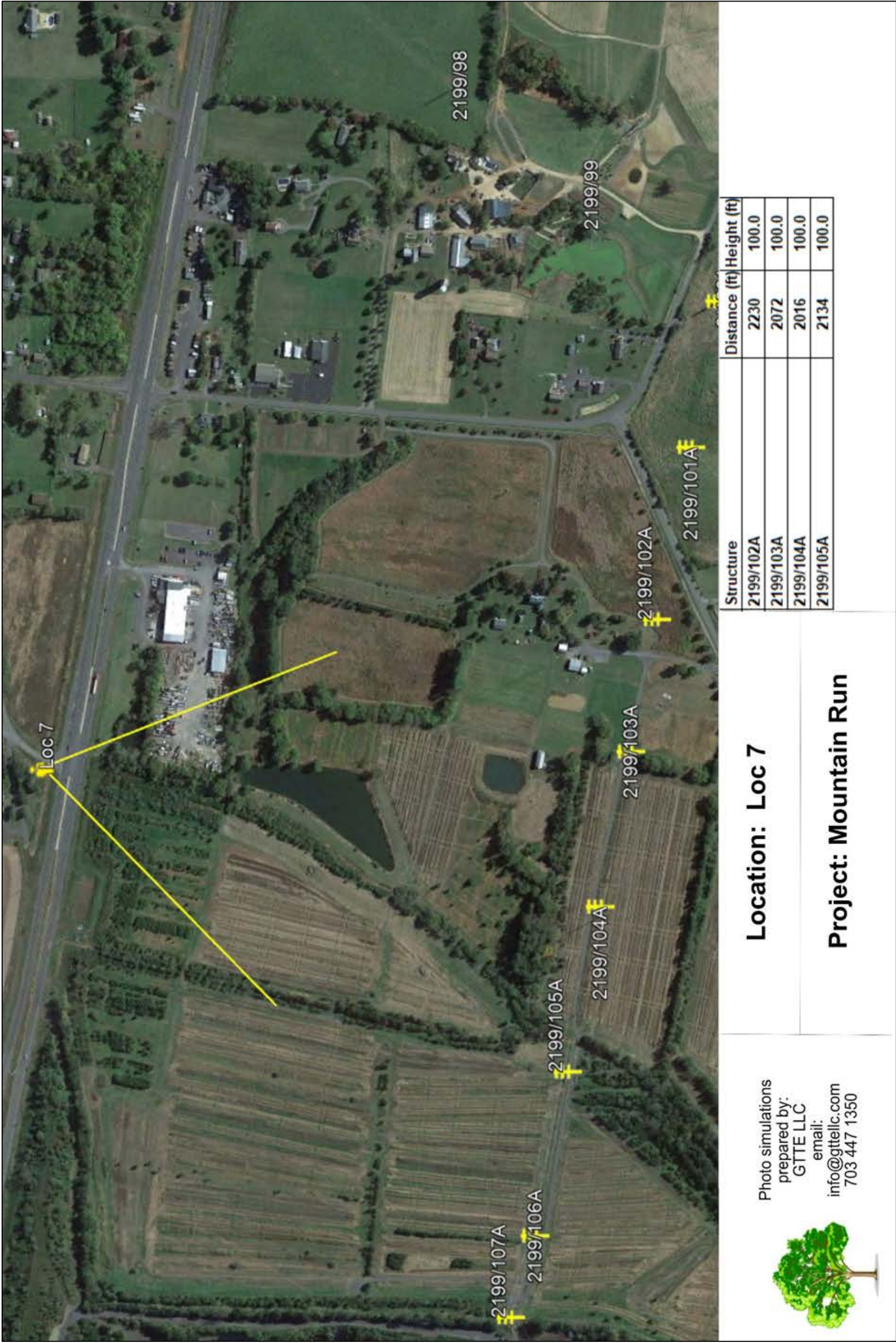


Figure 5-116: Brandy Station Battlefield Simulation 3 – Simulation location, direction of view, and structures modeled from Route 3 at York Road. Source: GTTE, LLC



Figure 5-117: Brandy Station Battlefield Simulation 3 – Existing view from Route 3 at York Road. Source: GTTE, LLC



Figure 5-118: Brandy Station Battlefield Simulation 3 – Proposed view from Route 3 at York Road – (Visible structure shown as it would appear). Source: GTTE, LLC

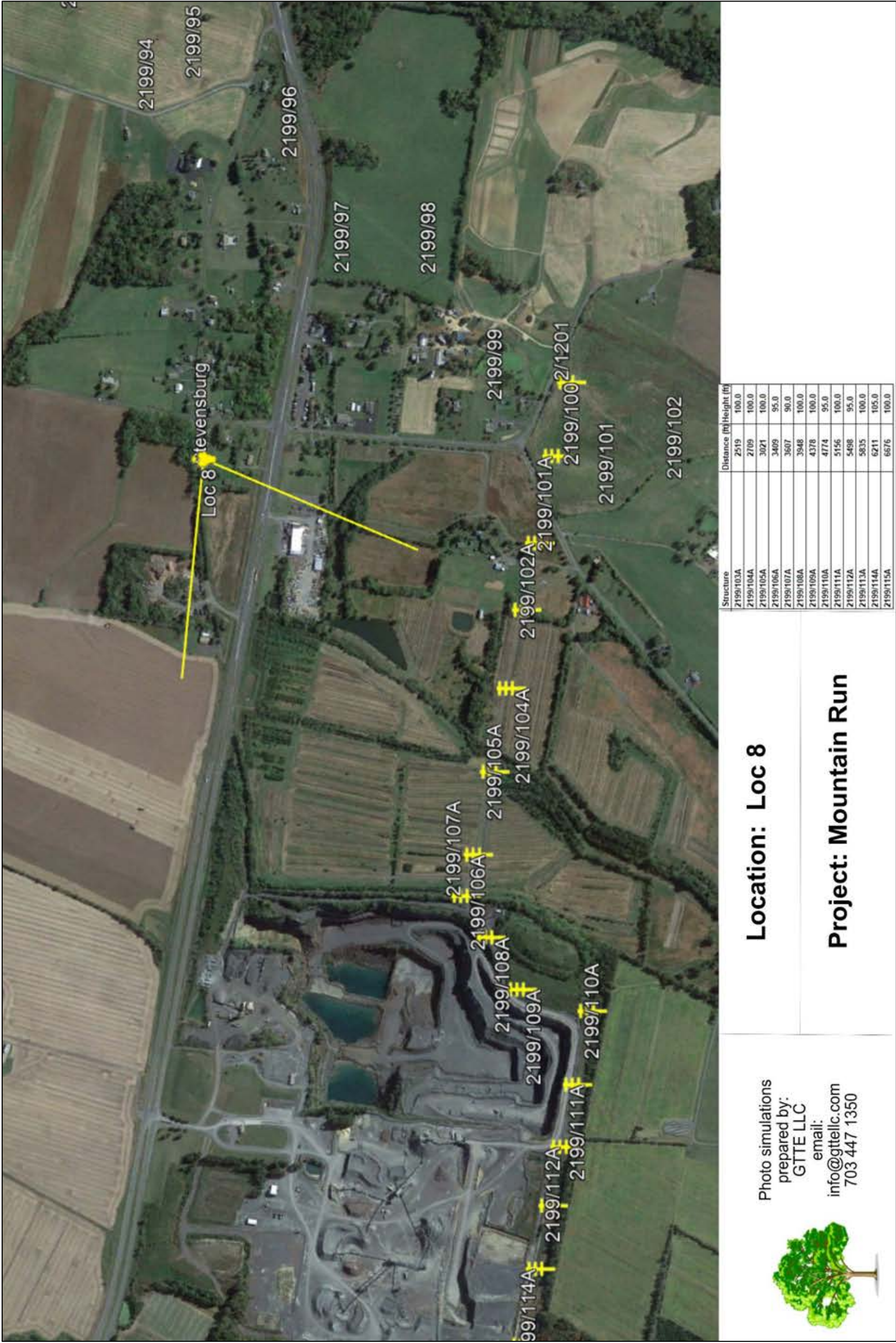


Figure 5-119: Brandy Station Battlefield Simulation 4 – Simulation location, direction of view, and structures modeled from Zimmerman’s Tavern. Source: GTTE, LLC

		Project: Mountain Run		Location 8	Existing View	
 <div>Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350</div>		Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.		

Figure 5-120: Brandy Station Battlefield Simulation 4 – Existing view from Zimmerman’s Tavern. Source: GTTE, LLC



Figure 5-121: Brandy Station Battlefield Simulation 4 – Proposed view from Zimmermann’s Tavern – (Structures not visible shown in yellow). Source: GTTE, LLC

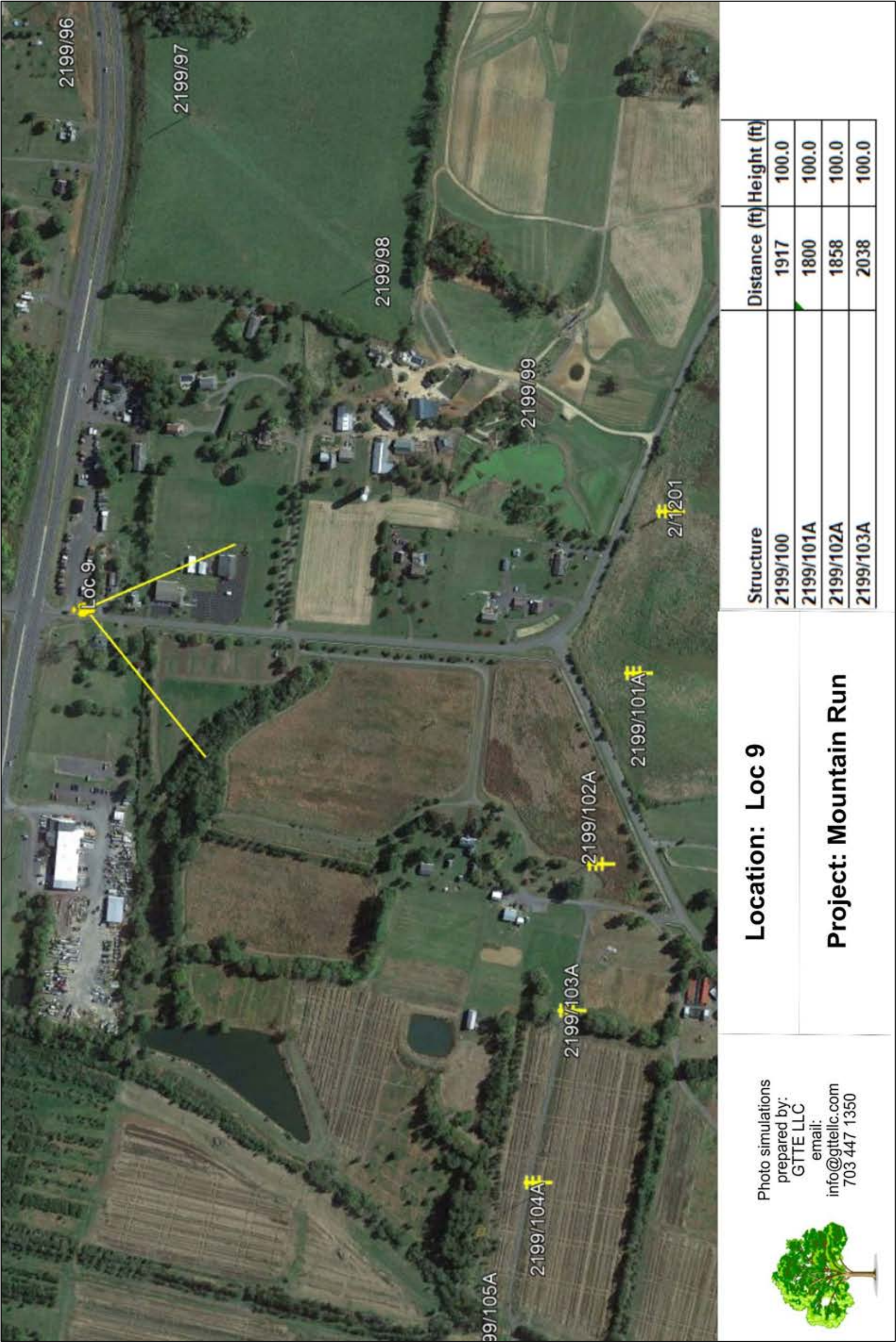


Figure 5-122: Brandy Station Battlefield Simulation 5 – Simulation location, direction of view, and structures modeled from Route 3 at Batna Road. Source: GTTE, LLC



Figure 5-123: Brandy Station Battlefield Simulation 5 – Existing view from Route 3 at Batna Road. Source: GTTE, LLC

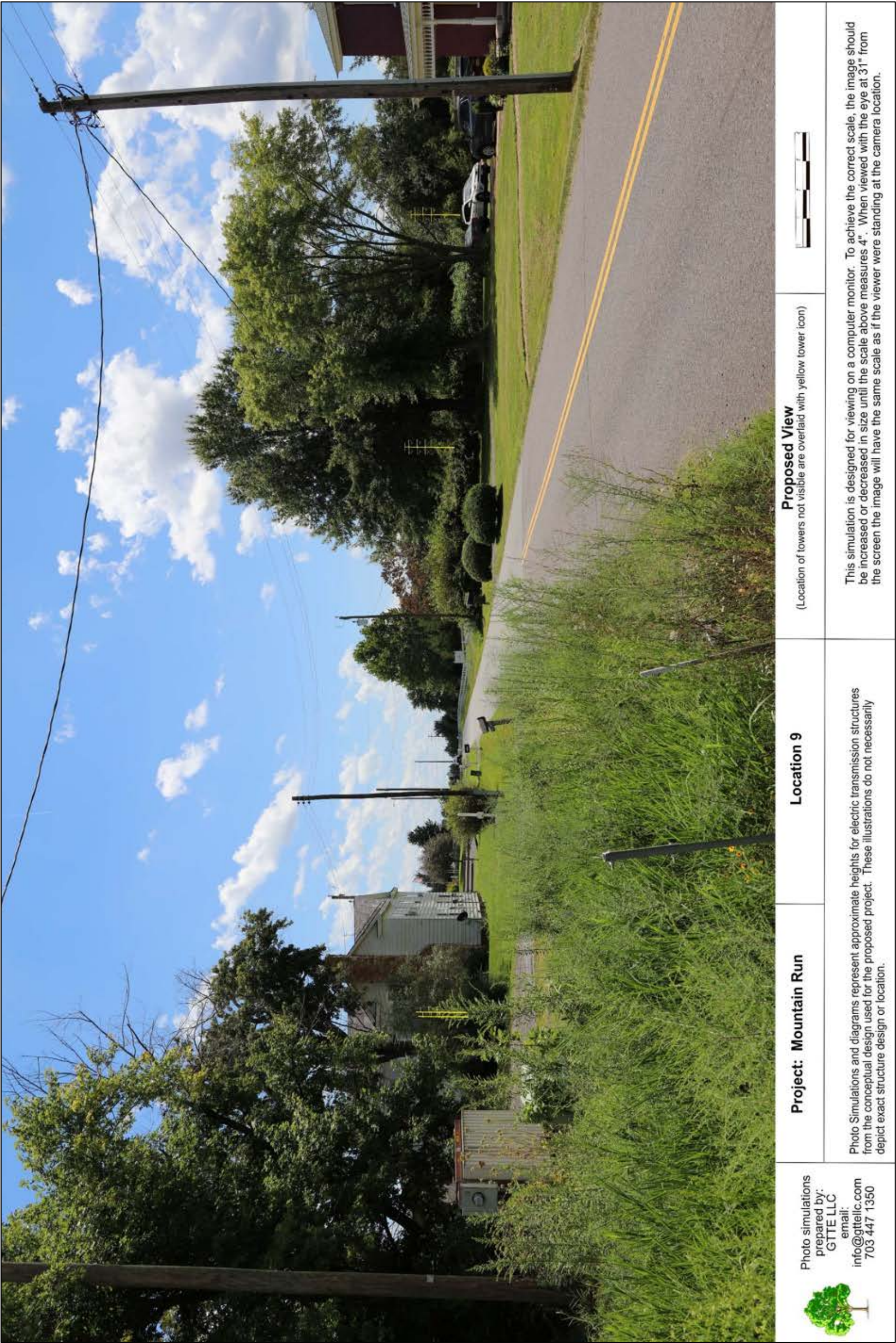


Figure 5-124: Brandy Station Battlefield Simulation 5 – Proposed view from Route 3 at Batna Road – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC

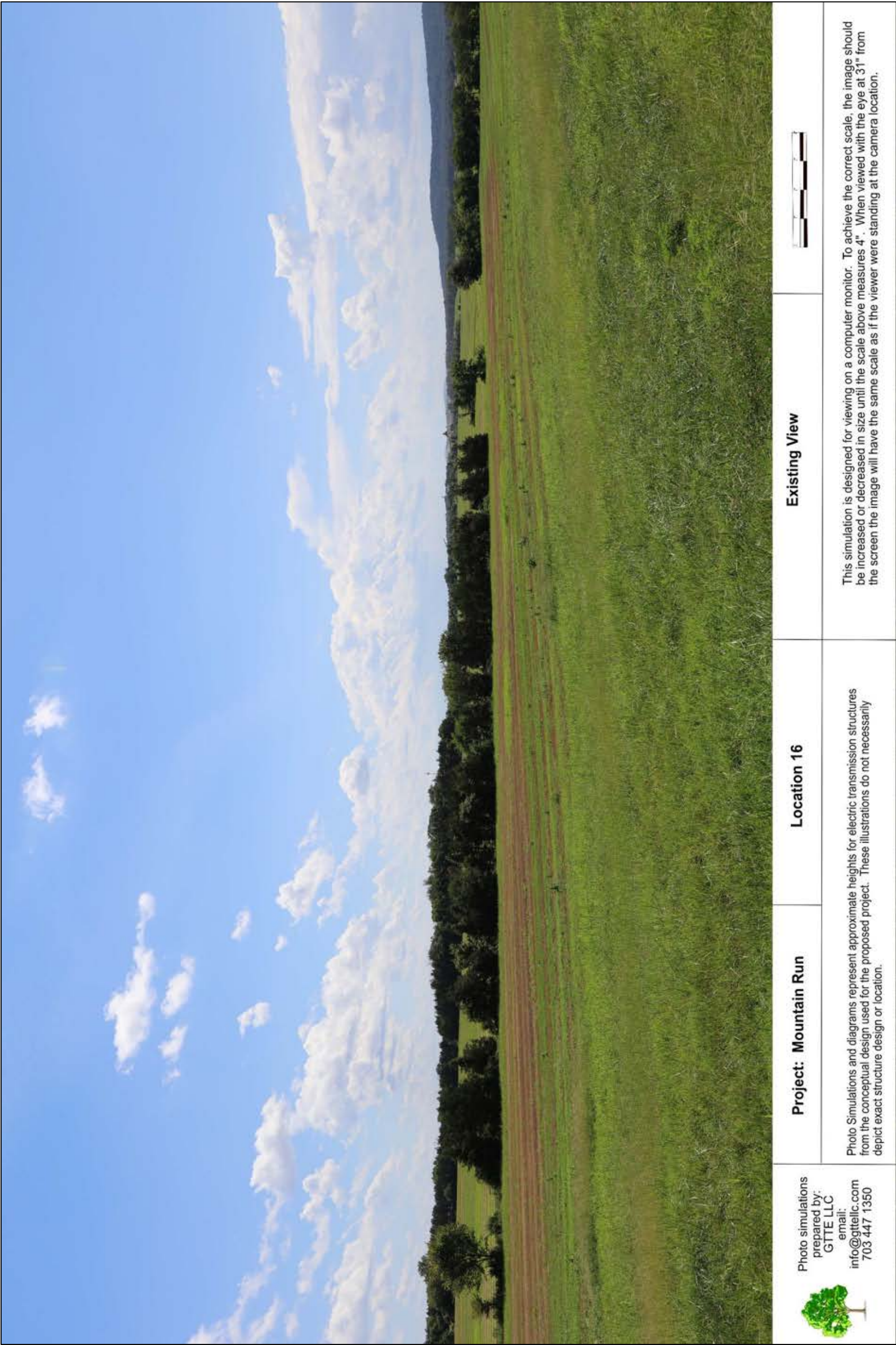


Figure 5-126: Brandy Station Battlefield Simulation 6 – Existing view from Stevensburg Road. Source: GTTE, LLC

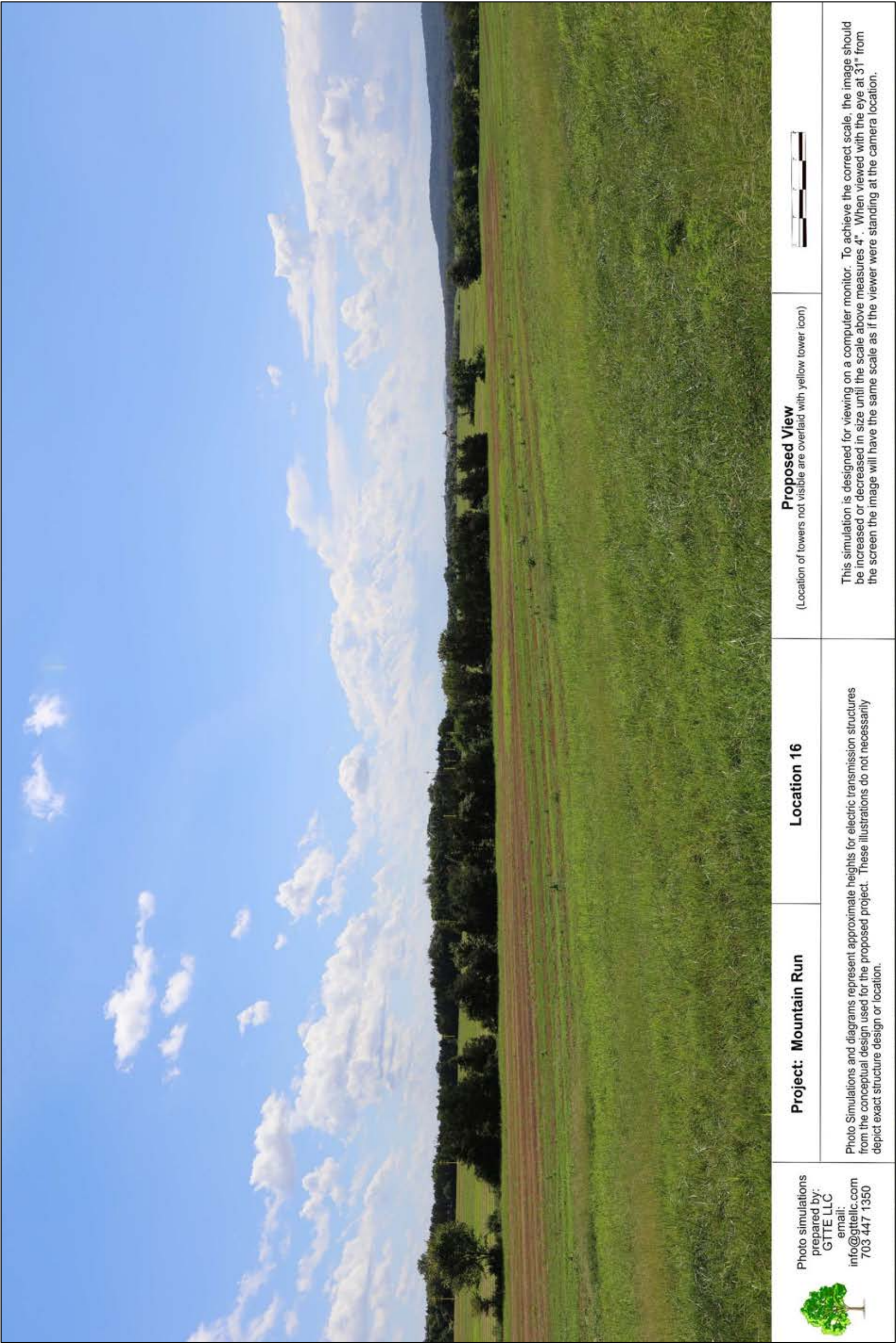


Figure 5-127: Brandy Station Battlefield Simulation 6 – Proposed view from Stevensburg Road – (Structures not visible shown in yellow). Source: GTTE, LLC

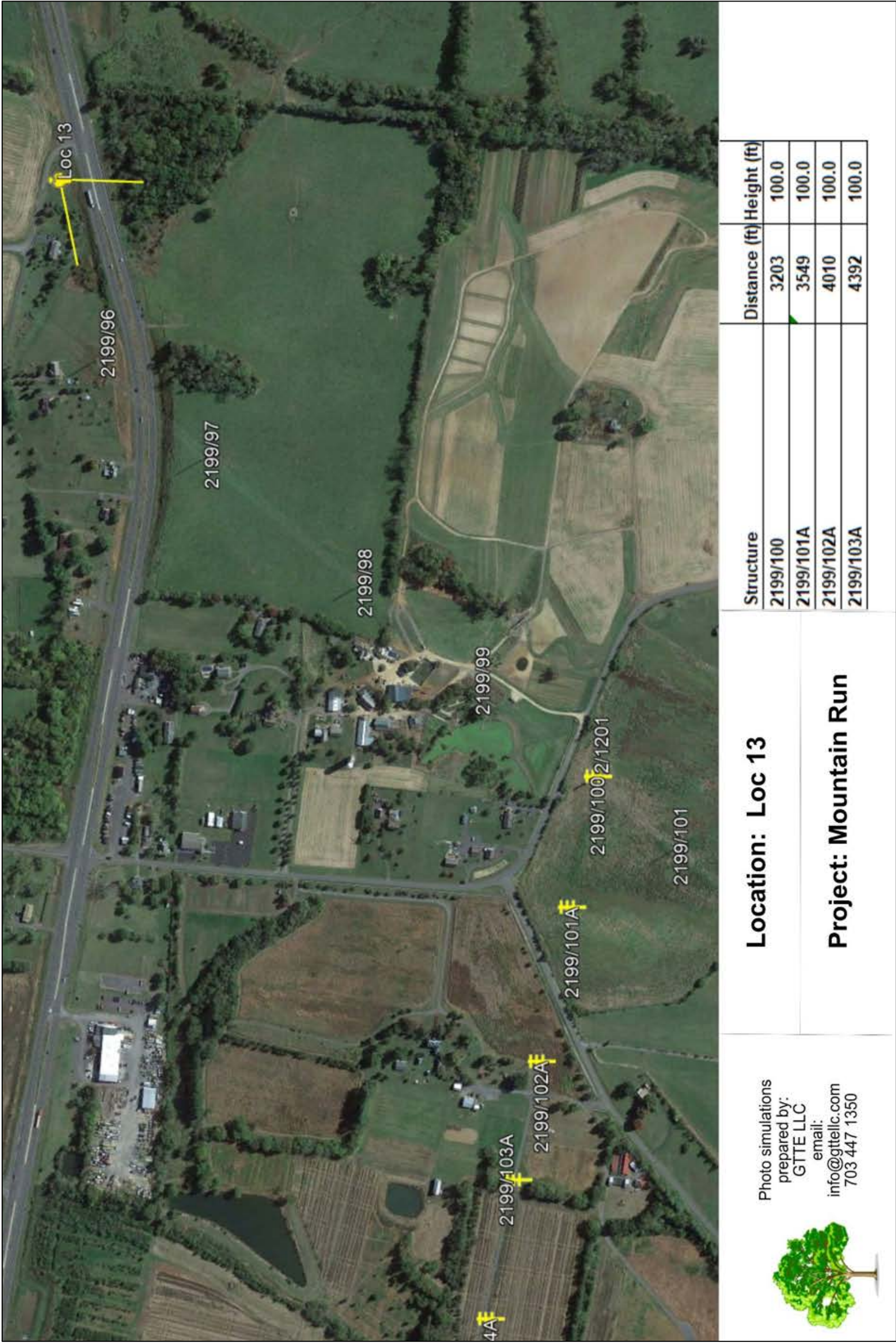


Figure 5-128: Brandy Station Battlefield Simulation 7 – Simulation location, direction of view, and structures modeled from Wayside at York Road. Source: GTTE, LLC



Figure 5-129: Brandy Station Battlefield Simulation 7 – Existing view from Wayside at York Road. Source: GTTE, LLC



Figure 5-130: Brandy Station Battlefield Simulation 7 – Proposed view from Wayside at York Road – (Structures not visible shown in yellow). Source: GTTE, LLC

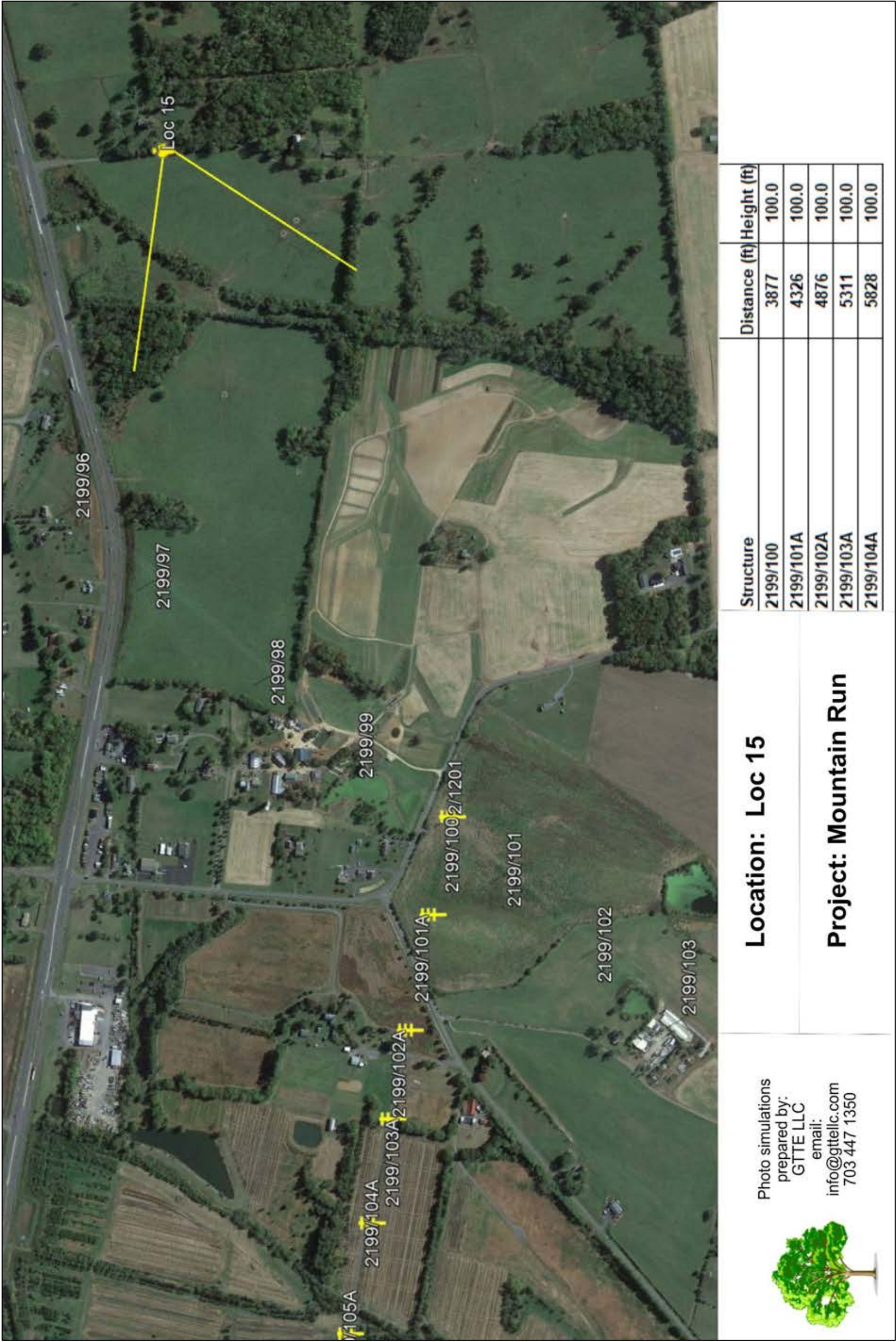


Figure 5-131: Brandy Station Battlefield Simulation 8 – Simulation location, direction of view, and structures modeled from Salubria Lane. Source: GTTE, LLC

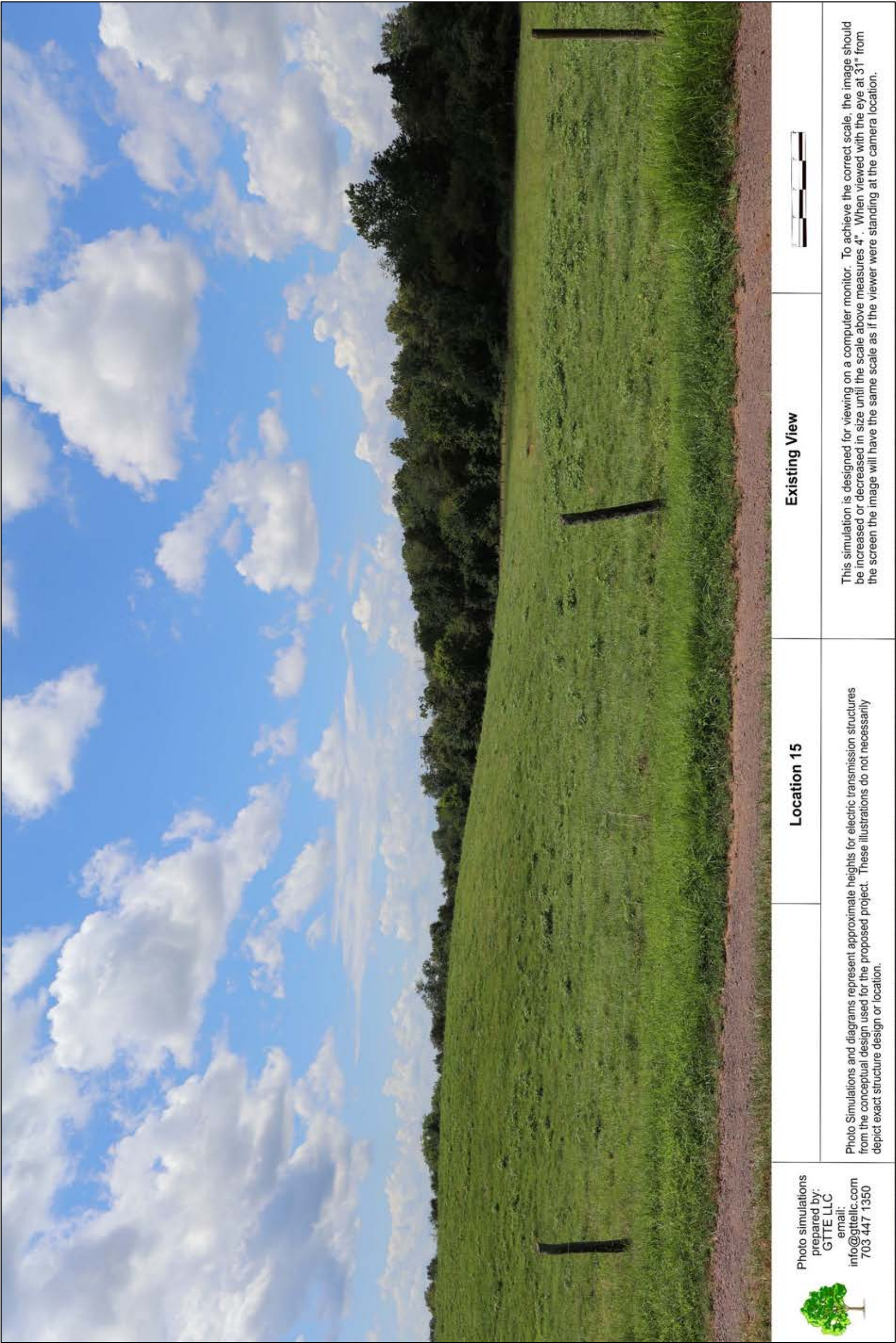


Figure 5-132: Brandy Station Battlefield Simulation 8 – Existing view from Salubria Lane. Source: GTTE, LLC

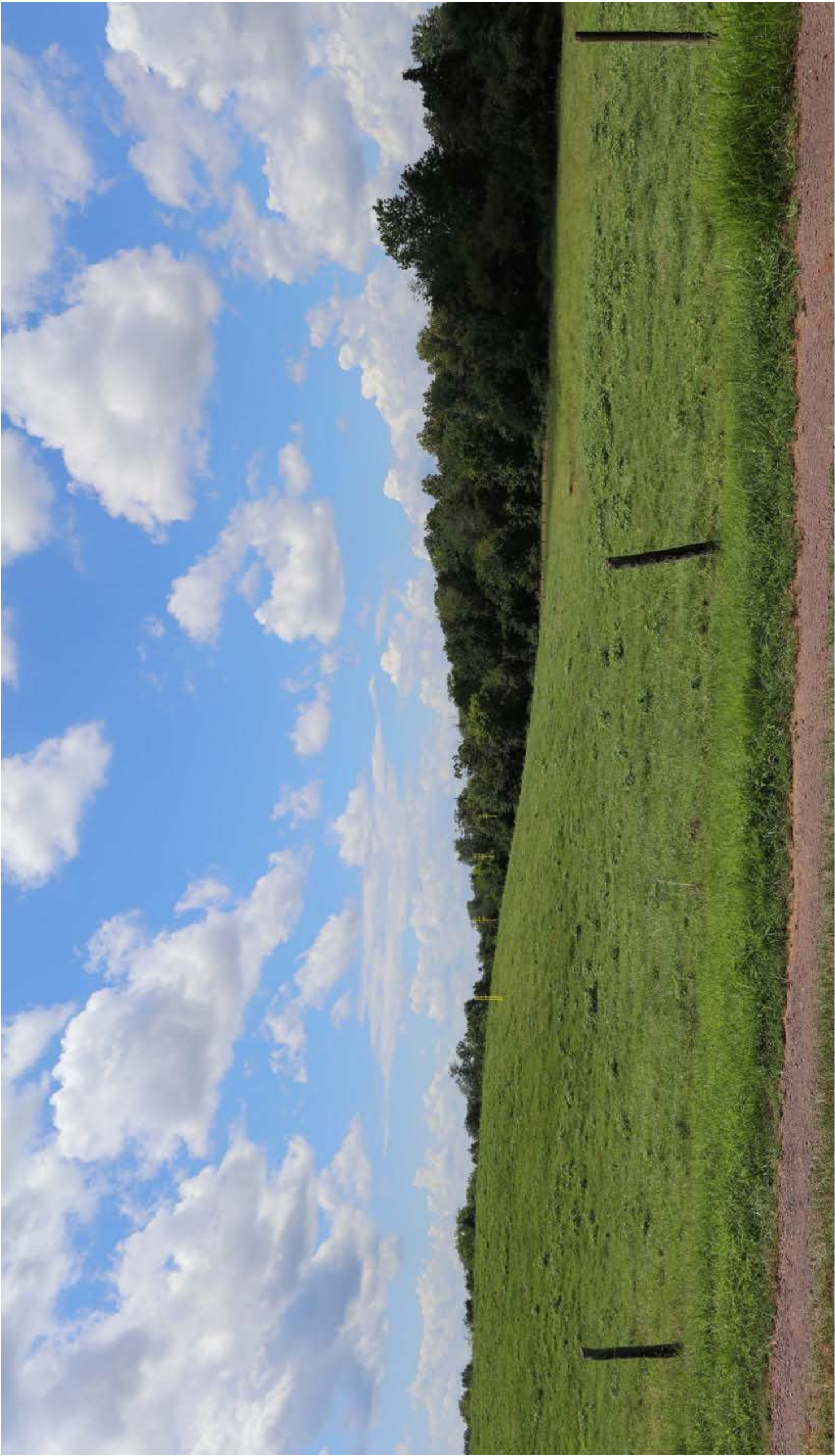


 Photo simulations prepared by: GTTE LLC email: info@gttelic.com 703 447 1350	Project: Mountain Run	Location 15	Proposed View (Location of towers not visible are overlaid with yellow tower icon)	 This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.
	Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.			

Figure 5-133: Brandy Station Battlefield Simulation 8 – Proposed view from Salubria Lane – (Structures not visible shown in yellow). Source: GTTE, LLC

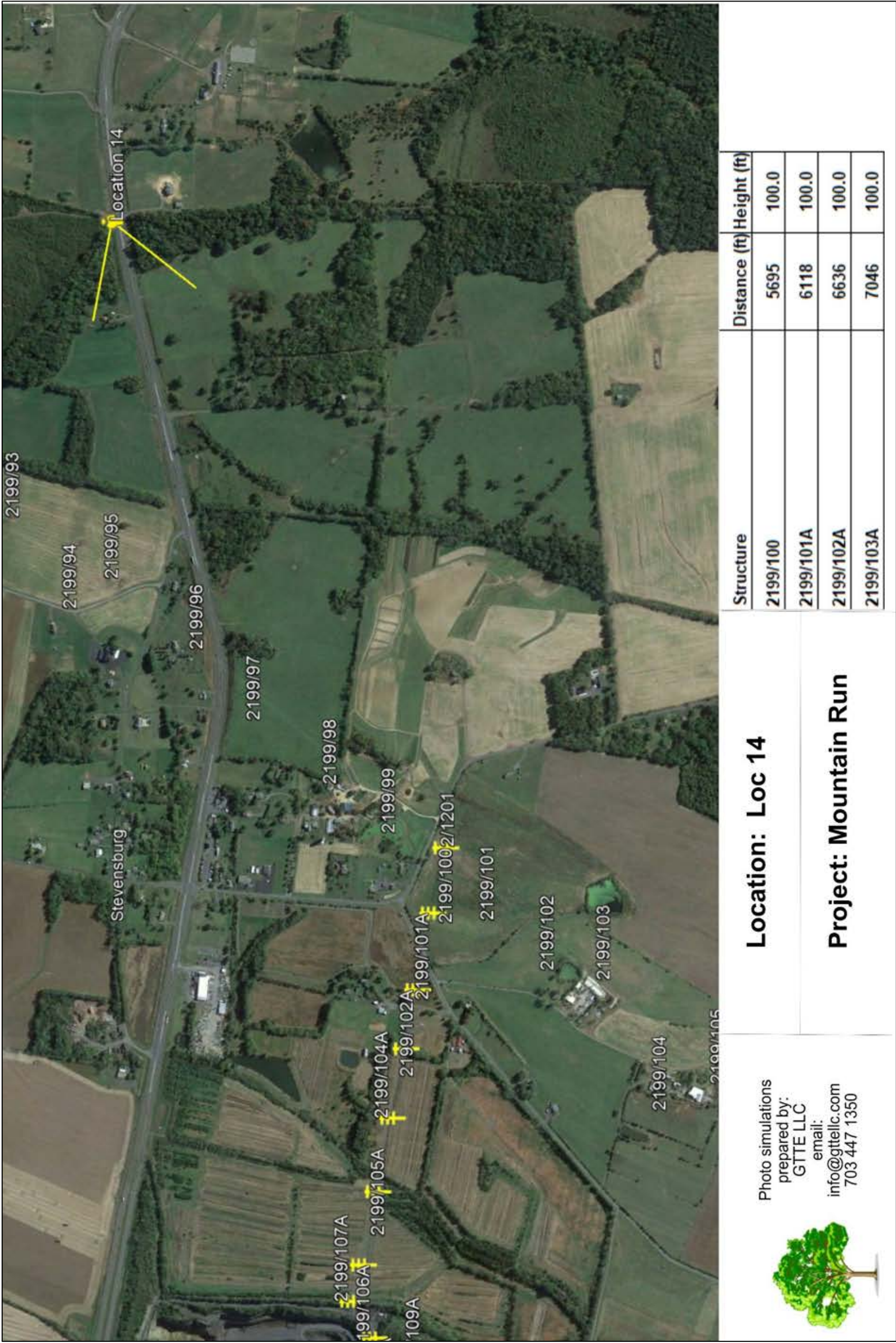


Figure 5-134: Brandy Station Battlefield Simulation 9 – Simulation location, direction of view, and structures modeled from Route 3 at Hansbrough Ridge. Source: GTTE, LLC

		Project: Mountain Run		Location 14	Existing View
 <p>Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350</p>		<p>Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.</p>		<p>This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.</p>	

Figure 5-135: Brandy Station Battlefield Simulation 9 – Existing view from Route 3 at Hansbrough Ridge. Source: GTTE, LLC



Figure 5-136: Brandy Station Battlefield Simulation 9 – Proposed view from Route 3 at Hansbrough Ridge – (Structures not visible shown in yellow). Source: GTTE, LLC

THIS PAGE INTENTIONALLY LEFT BLANK

Battle of Morton's Ford / Rapidan River Battlefield (VDHR# 068-5007)

The 1864 Battle of Morton's Ford was part of an effort by the Federal army to divert attention away from a raid of Richmond. The army forced several crossings of the Rapidan River, including one at Morton's Ford, where the fighting was most severe. The battlefield is composed of roadbeds, structures, archaeological sites, a cemetery, earthworks, burials, and trenches. Notable are the Confederate earthworks located north of Route 620 and the archaeological site associated with the Morton House. The site retains some of its original physical characteristics, namely its wooded lots and cultivated fields, but it has been altered by modern development. The area is now agricultural and residential in nature, including small farmsteads and homes set on rural lots. The construction of several major roadways, along with late nineteenth and twentieth century residential development has compromised the appearance of the battlefield. The site remains significant for its association with the Civil War Battle of Morton's Ford, however, and as such is recommended potentially eligible for listing in the NRHP.

The Morton's Ford Battlefield is directly crossed by the project alignment and therefore was subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the battlefield and photographs were taken to document viewshed with emphasis on views from the battlefield towards the project alignment. As the portion of the battlefield landscape within the vicinity of the project is focused on Batna Rad which was an avenue of approach during the battle, field inspection was focused on public ROW bordering the road. The majority of the Morton's Ford Battlefield is situated well to the south of the project, but a short length of the avenue of approach begins at the village of Stevensburg, near the eastern terminus of the project where it ties into the Gordonsville-Remington transmission line. A total of three (3) existing transmission structures associated with this project area located directly within the delineated boundaries of the battlefield and an additional fifteen (15) are located within one mile.

A site visit to the battlefield found that much of the landscape within the vicinity of the project alignment retains mostly rural, although the extreme northern end of the battlefield near Stevensburg has been subject to modern development associated with Route 3. In addition to being crossed by the project transmission line, the Gordonsville-Remington high-voltage transmission line also runs parallel and in close proximity to the battlefield in this area. The terrain and landscape within and bordering the battlefield is gently rolling and a mix of open agricultural field, treelines and wooded areas, and development; and therefore views range from short and interrupted to wide and open.

As part of the project, all three structures located directly in the battlefield will be replaced, as will adjacent structures within one-mile. Structure replacement will occur on a one-to-one basis near the location of the existing structures and will not require any additional ROW or clearing within the property. As a result, the project will have a direct impact on the battlefield, however, because it will not introduce any substantially new or different components into the landscape, nor will it result in clearing or demolition of any associated features, the direct impact will be minimal. Because the structures within and bordering the battlefield will be increased in height, the project also has the potential to introduce indirect or visual impacts.

Inspection from representative vantage points along Batna Road in the battlefield towards the project alignment revealed that existing structures on the project alignment can be seen from most vantage points within one-mile. Views range from one or two project structures, to wider swaths of multiple structures. From most vantage points, views also include multiple structures associated with the Gordonsville-Remington line that are not included in this project. As that line parallels Batna Road through this portion of the battlefield, and the structures are nearer and taller, they are more imposing on the landscape. The project structures are tend to be partially to mostly screened by treelines and vegetation and extend away from the battlefield.

The existing structures within and bordering the battlefield are each 80-feet in height and the proposed replacement structures will generally average 95- to 100-feet in height. Structures will be replaced on a one-to-one basis near the existing locations with new structures of a similar design, material, and overall appearance. As such, it is anticipated that visibility of the replacement structures will be similar to views of existing structures. Those in closer proximity to or within the battlefield that are already highly visible will remain as such, and while the structures will be increased in height, they will remain shorter than those on the Gordonsville-Remington line, and because they are generally visible across open field or along the cleared ROW, the change in height will be less perceptible. Meanwhile, those structures set at a further distance and visible over the treeline may become increasingly visible, however, will still be seen in conjunction with other intrusions, including a lock rock quarry, a cellular antenna tower, and the other transmission structures. This was confirmed by photo simulation from multiple locations throughout the battlefield along Batna Road. As such, the project is not anticipated to introduce any substantially new or cumulative impacts to the viewshed or setting of the battlefield that already includes multiple transmission structures and wide views of the transmission line. It is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose no more than a *minimal impact* on the Morton's Ford Battlefield.

Figure 5-137 depicts the boundaries of the Morton's Ford Battlefield in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-138 through 5-147 are representative photographs of the battlefield, as well as those taken from locations within and near the battlefield towards the project area. Figures 5-148 through 5-156 provide photo simulation from the battlefield.

RESULTS OF FIELD RECONNAISSANCE

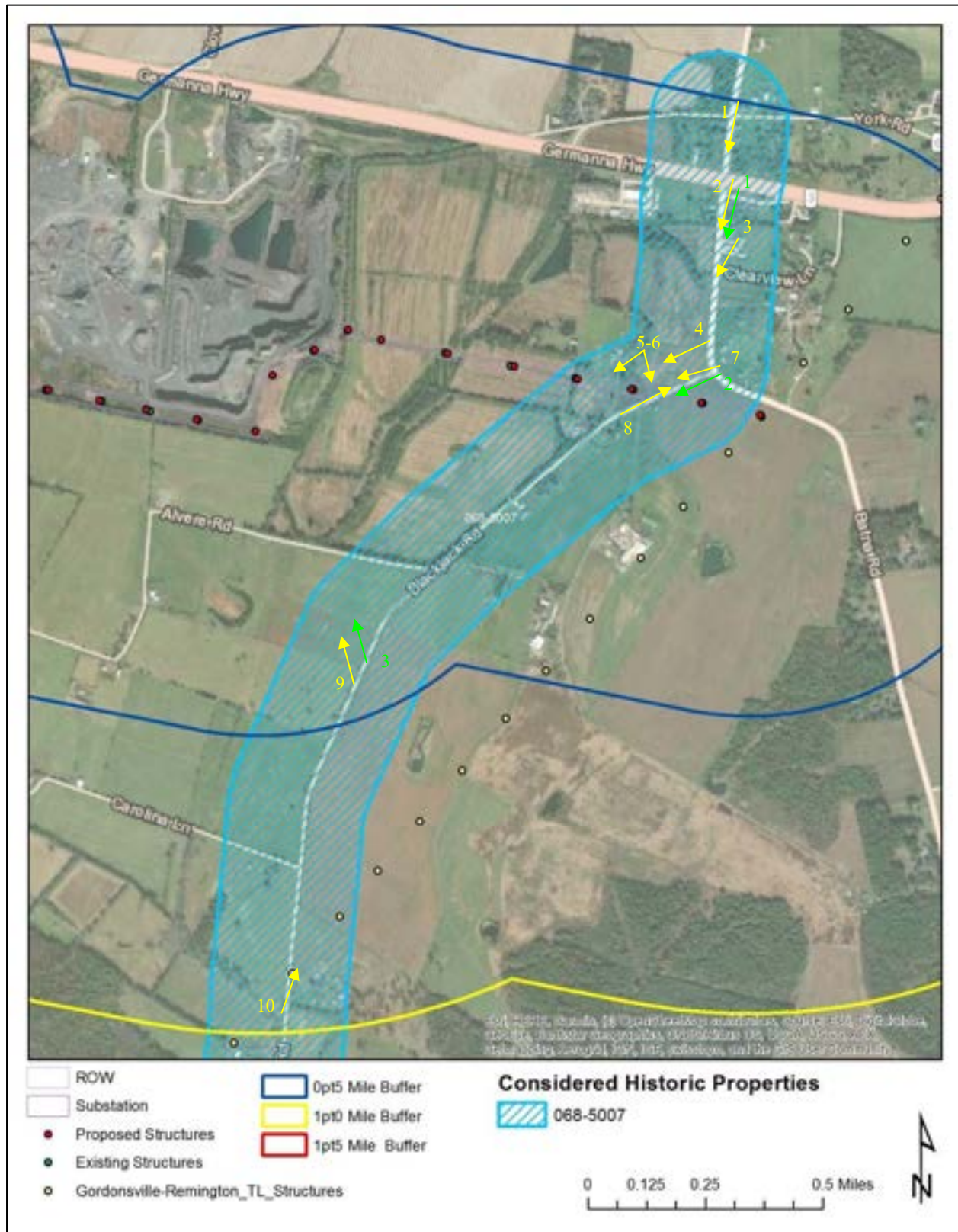


Figure 5-137: Location of Morton's Ford Battlefield in relation to the project alignment (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).



Figure 5-138: Photo location 1- View from Stevensburg (One existing project structure and one structure on another line visible), facing south.



Figure 5-139: Photo location 2- View from Stevensburg (One existing project structure and one structure on another line visible), facing south.

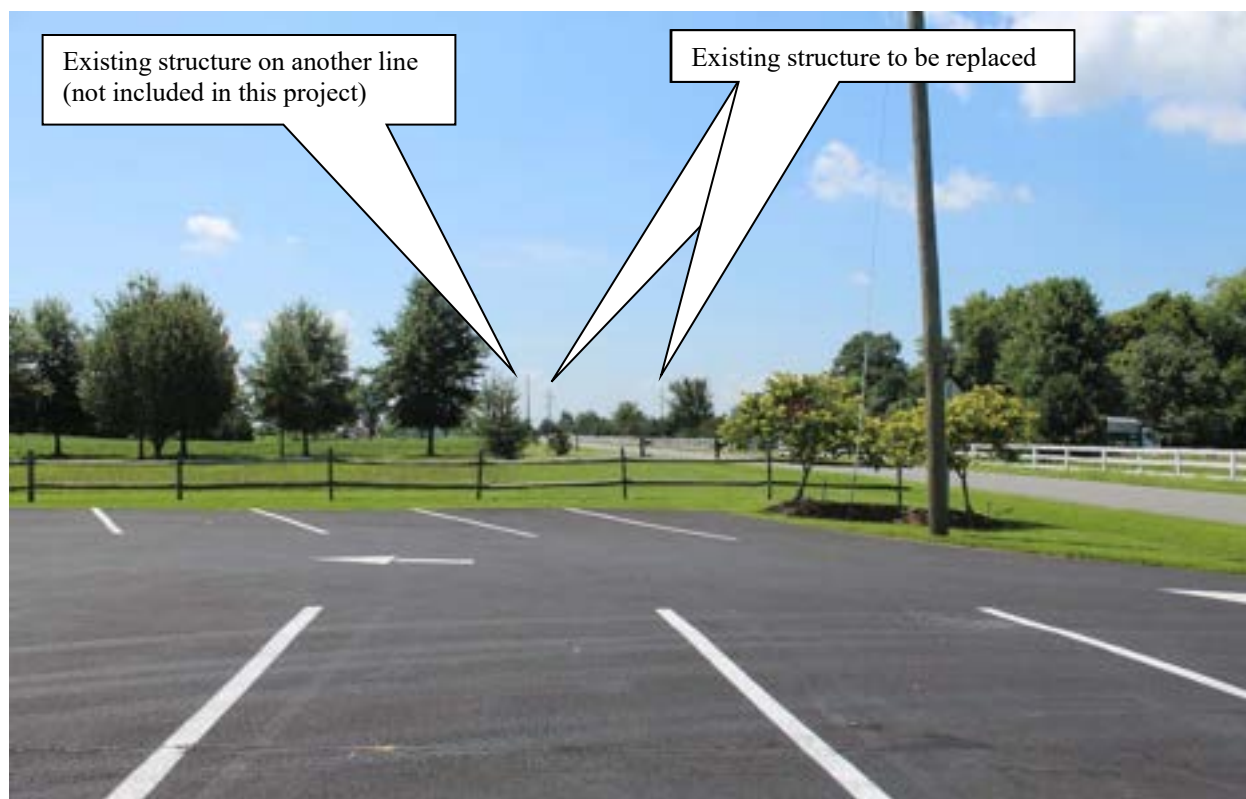


Figure 5-140: Photo location 3- View from Stevensburg United Methodist Church (Two existing project structures and one structure on another line visible), facing south.



Figure 5-141: Photo location 4- View from Rose Hill Farm (One existing project structure visible), facing west.

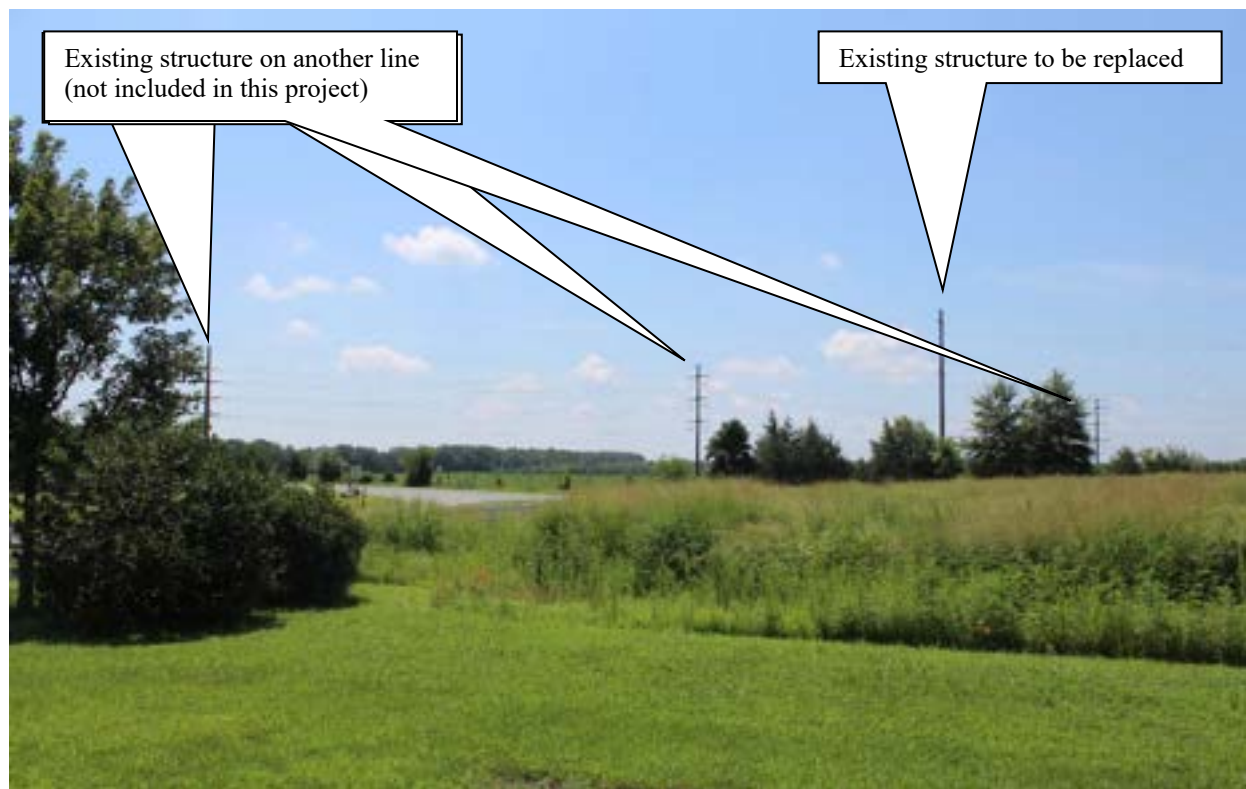


Figure 5-142: Photo location 5- View from Rose Hill Farm driveway (One existing project structure and multiple structures on another line visible), facing southeast.

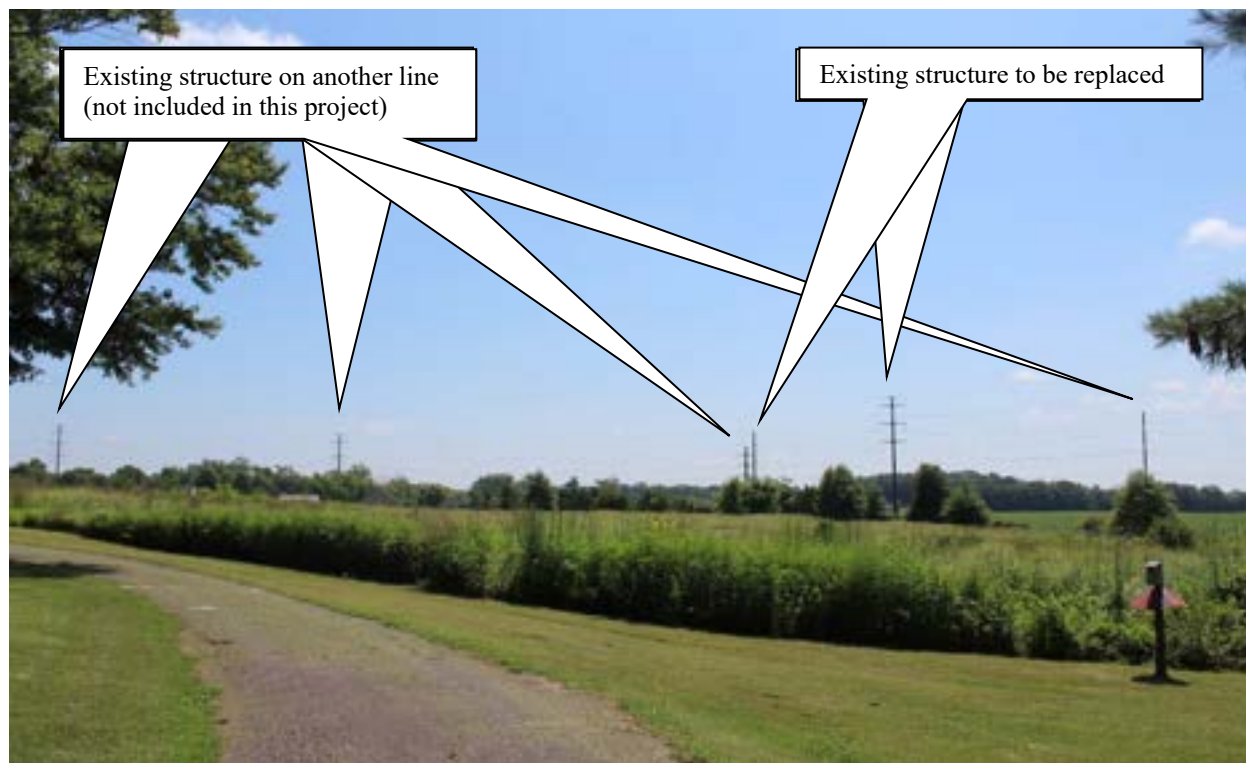


Figure 5-143: Photo location 6- View from Rose Hill Farm (Multiple existing project structures and structures on another line visible), facing southeast.



Figure 5-144: Photo location 7- View from Batna Road at Blackjack Road (One existing project structure visible), facing west.

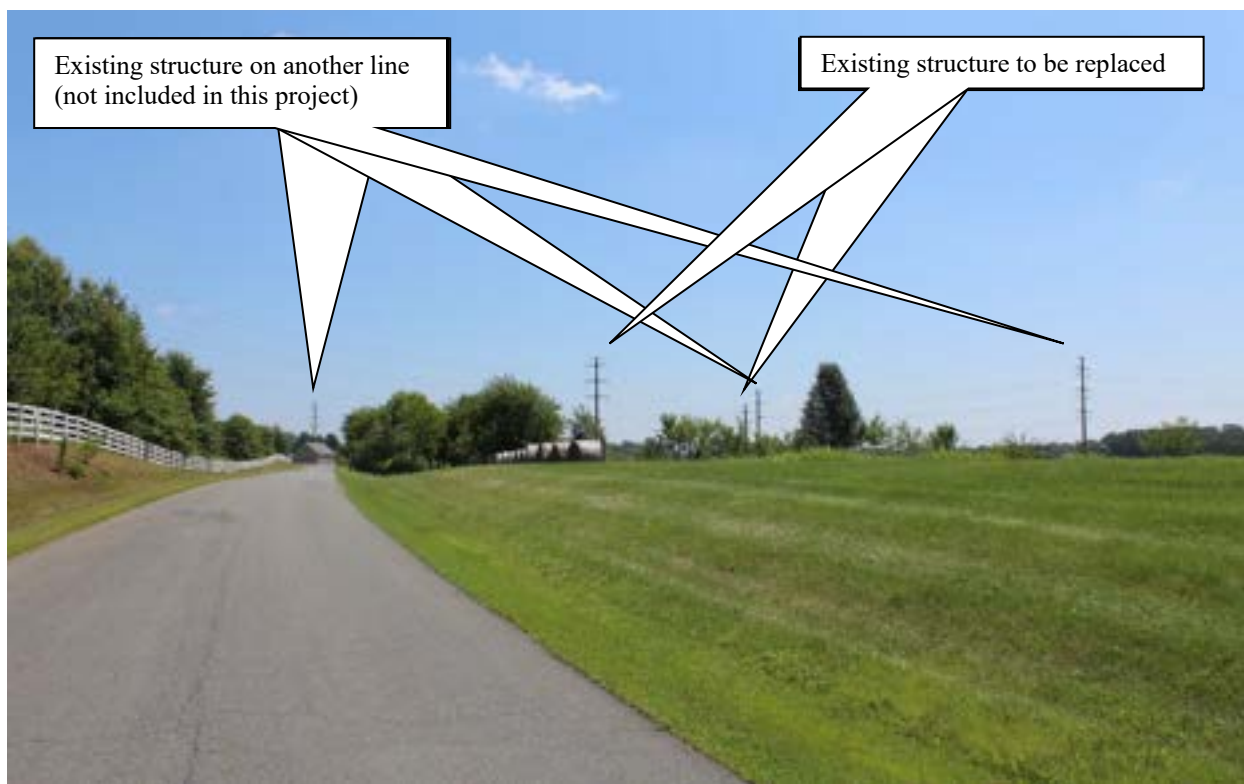


Figure 5-145: Photo location 8- View from Blackjack Road (Multiple existing project structures and structures on another line visible), facing northeast.

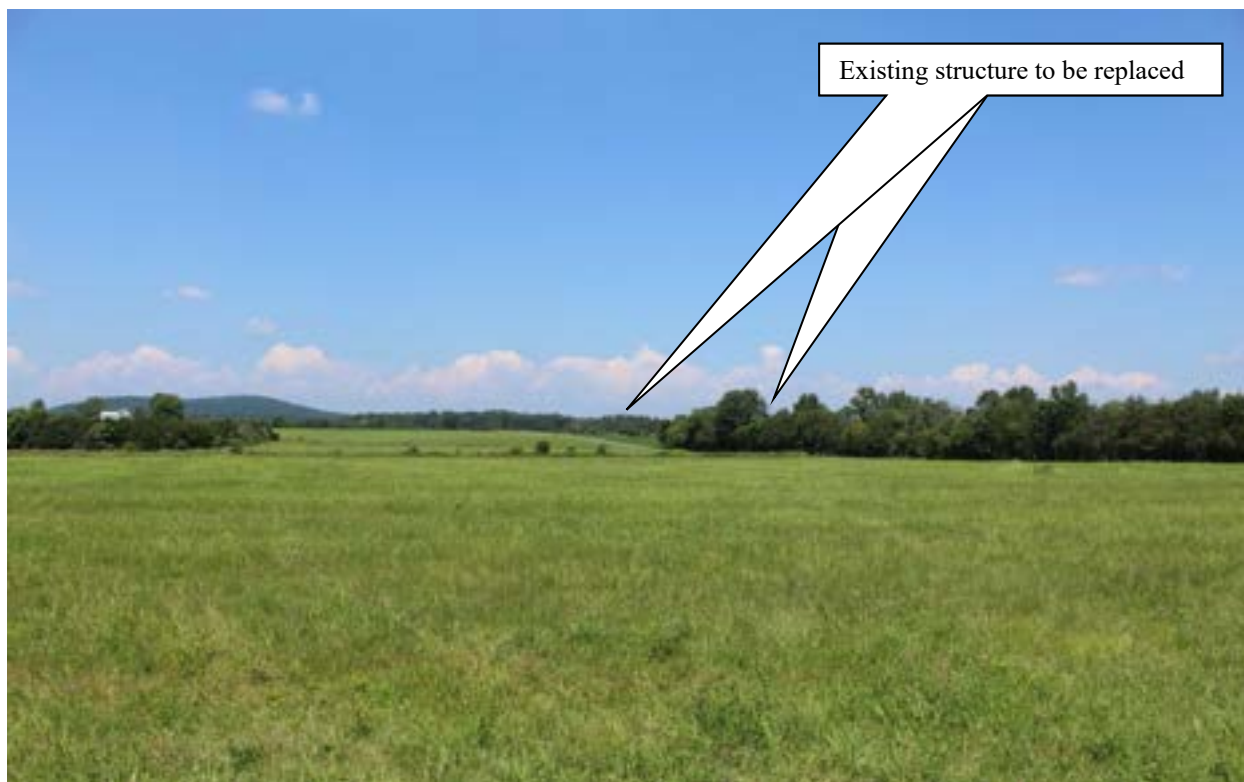


Figure 5-146: Photo location 9- View from Blackjack Road (Multiple existing project structures visible), facing northwest.

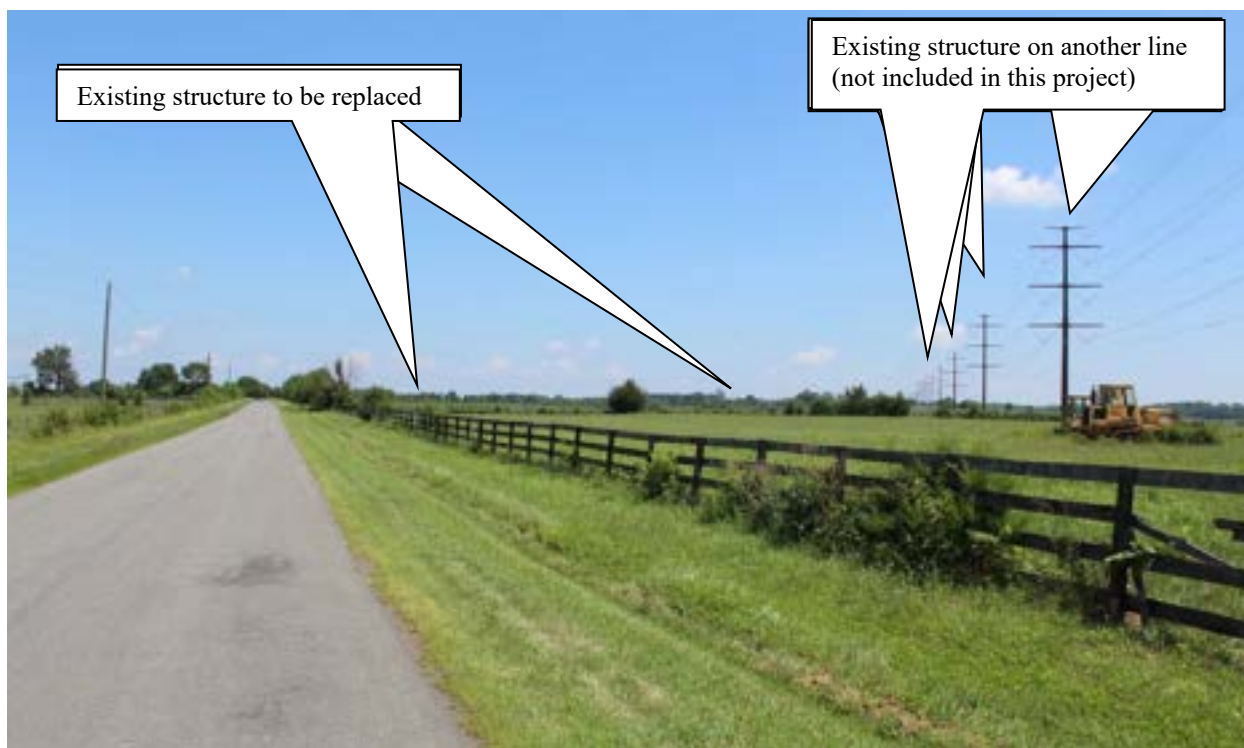


Figure 5-147: Photo location 10- View from Blackjack Road (Multiple existing project structures and structures on another line visible), facing northeast.

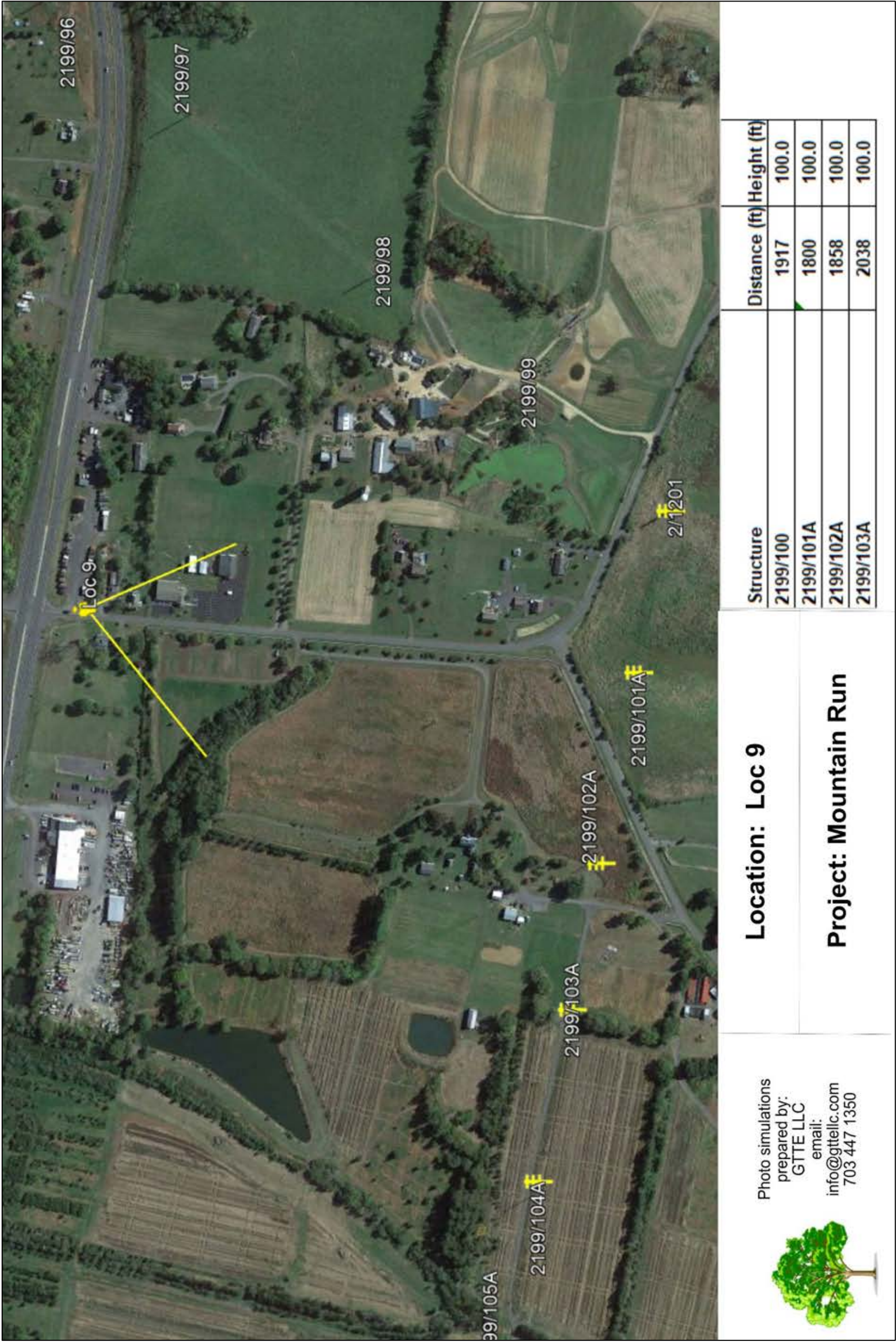


Figure 5-148: Mortons Ford Battlefield Simulation 1 – Simulation location, direction of view, and structures modeled from Batna Road at Route 3. Source: GTTE, LLC


		Project: Mountain Run		Location 9	Existing View
 <div>Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350</div>		Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.	

Figure 5-149: Mortons Ford Battlefield Simulation 1 – Existing view from Batna Road at Route 3. Source: GTTE, LLC

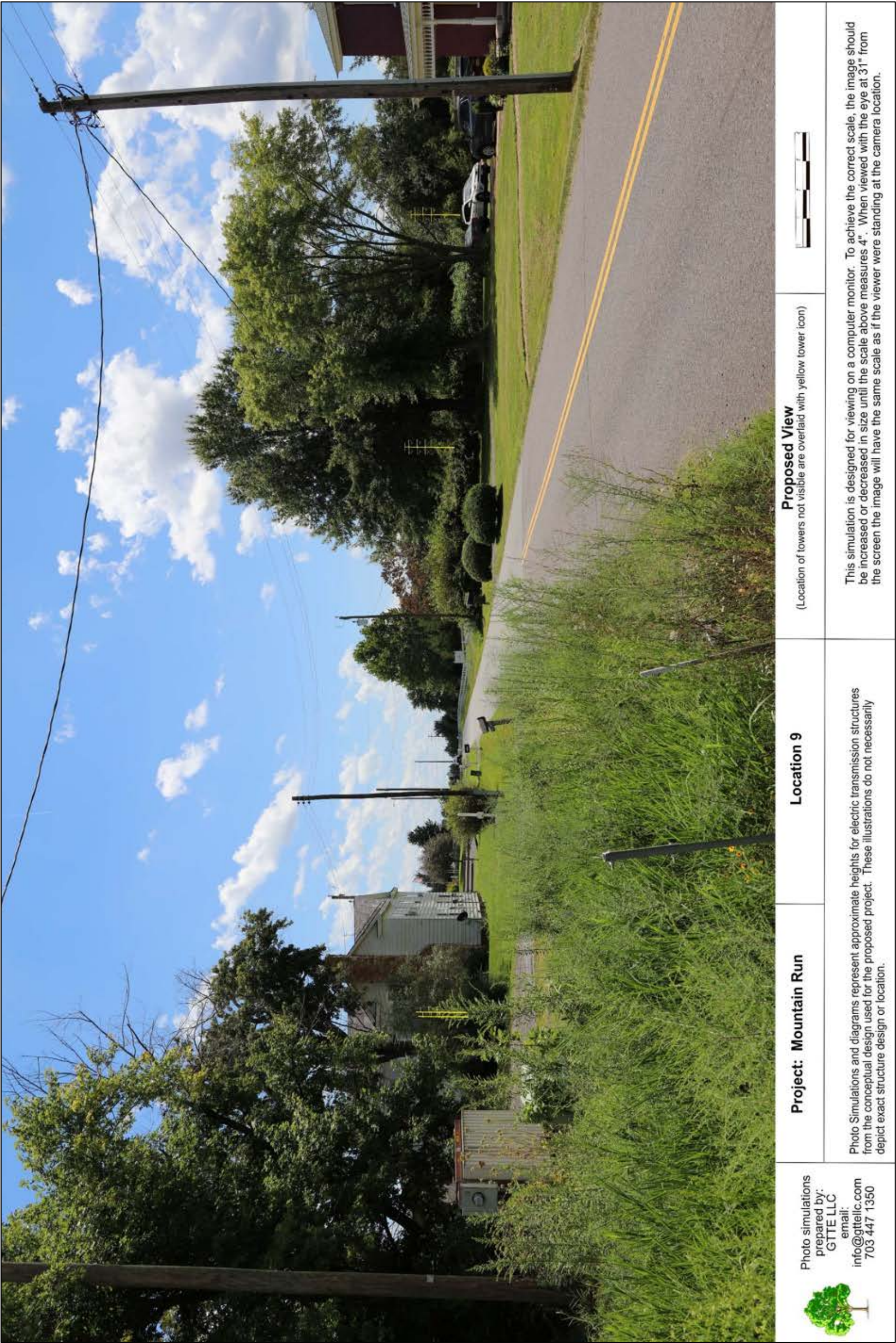


Figure 5-150: Mortons Ford Battlefield Simulation 1 – Proposed view from Batna Road at Route 3 – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC

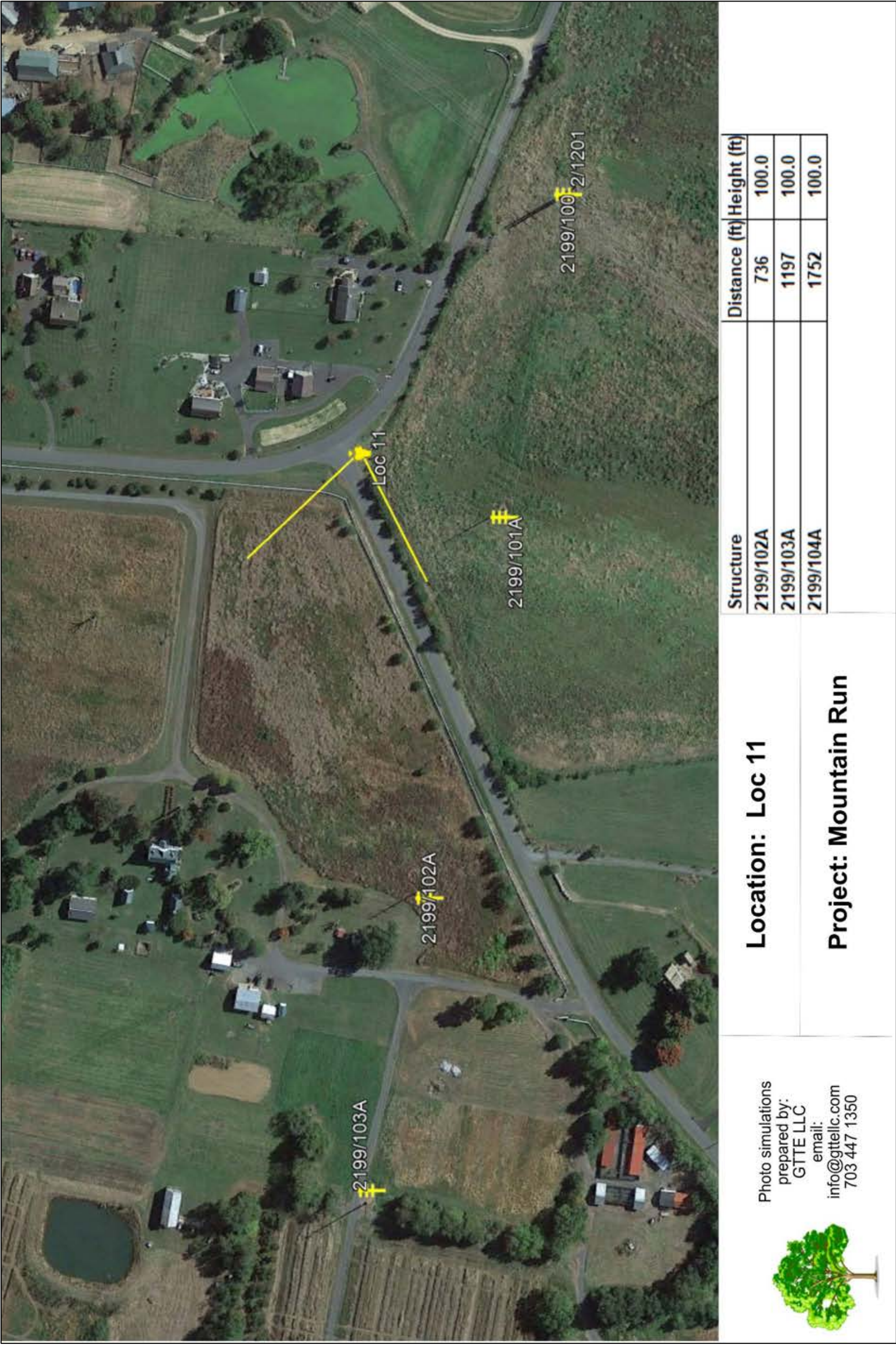


Figure 5-151: Mortons Ford Battlefield Simulation 2 – Simulation location, direction of view, and structures modeled from Batna Road at Blackjack Road. Source: GTTE, LLC

		Project: Mountain Run		Location 11	Existing View	
 <div>Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350</div>		Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.		

Figure 5-152: Mortons Ford Battlefield Simulation 2 – Existing view from Batna Road at Blackjack Road. Source: GTTE, LLC



Figure 5-153: Mortons Ford Battlefield Simulation 2 – Proposed view from Batna Road at Blackjack Road – (Visible structures shown as they would appear. Structures not visible shown in yellow). Source: GTTE, LLC

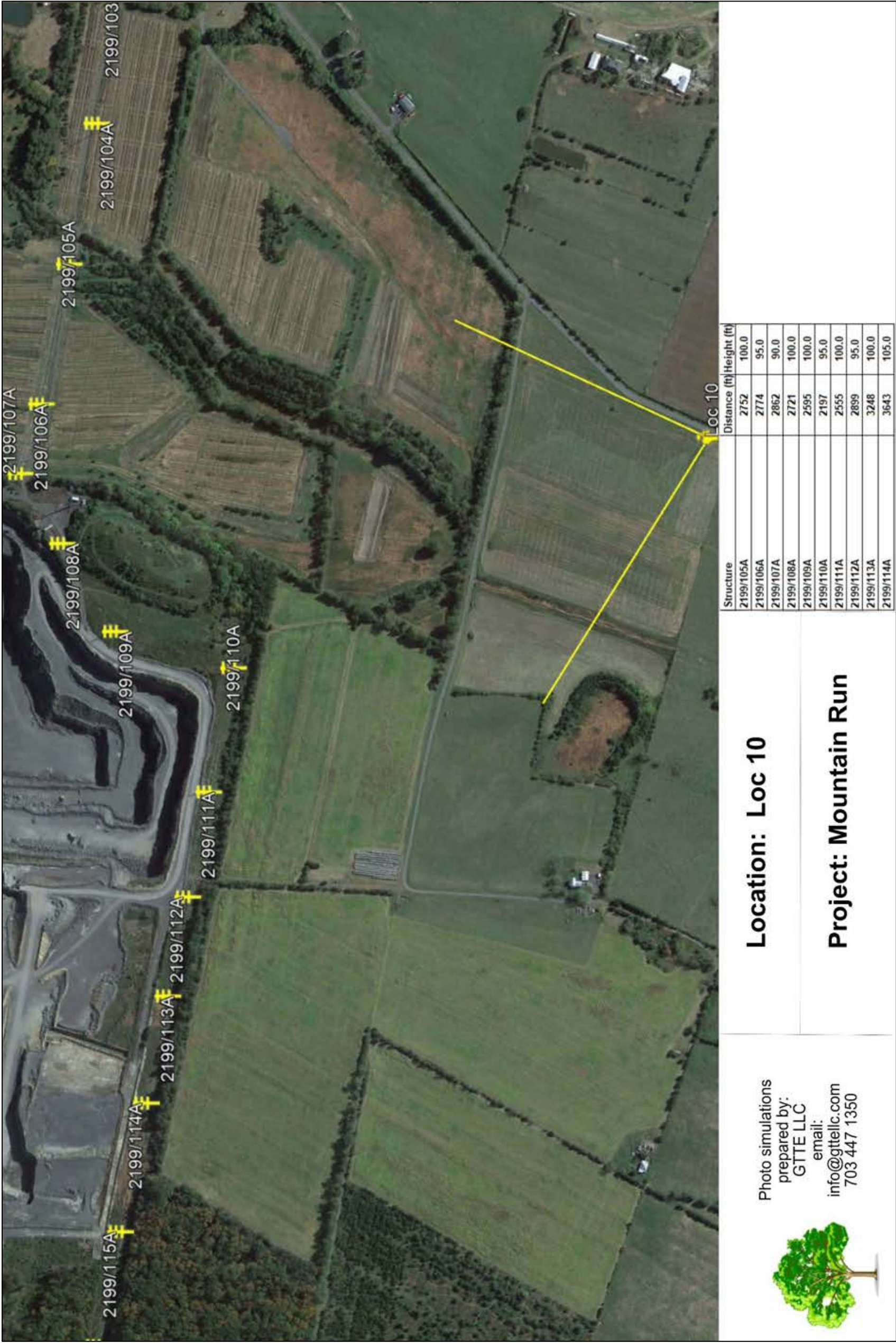


Figure 5-154: Morton's Ford Battlefield Simulation 3 – Simulation location, direction of view, and structures modeled from Blackjack Road. Source: GTTE, LLC



		Project: Mountain Run		Location 10	Existing View
<div><div>Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350</div></div>		Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.	

Figure 5-155: Mortons Ford Battlefield Simulation 3 – Existing view from Blackjack Road. Source: GTTE, LLC



Figure 5-156: Mortons Ford Battlefield Simulation 3 – Proposed view from Blackjack Road – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC

THIS PAGE INTENTIONALLY LEFT BLANK

HISTORIC LANDSCAPES

Located within 1.0 Mile of the Project or Closer

Jenkins Tract on Hansbrough's Ridge (VDHR# 023-0068)

Jenkins Tract on Hansbrough's Ridge was home to the Second Corps of the Army of the Potomac as part of the army's encampment in and around Brandy Station during the winter of 1863-1864. Located approximately two miles east of Stevensburg, it extends approximately one mile north from VA Route 3, which comprises its southern boundary. The site was ideal for encampment due to its elevation, which ranges from 400 feet to 470. The high ground, along with the shallow valleys that flank the site to its east and west, made the camp easier to defend and improved its drainage and sanitation. Remaining surface features include hut sites, trash and fire pits, defensive trenches, fortifications, and camp roads. Features are arranged in an orderly fashion, suggesting that they were lined company streets. The site has also revealed significant archaeological information, and both above- and below-ground resources have remained largely undisturbed.

The site was only a small part of the Army of the Potomac 1864-1864 winter encampment, which was the largest winter encampment of the war and marked a crucial time for the Army. Camps like this one were essential to keeping up morale, health, and discipline through the winter months and were key factors in increasing reenrollment, which was on the decline at the time. They are also key locations in reforming and developing strategy and tactics. The site is significant under Criterion A as a well-preserved example of a Civil War encampment which provides insight into how the inhabitants of the camp spent everyday life and the role that these types of camps played in the war. Additionally, the site is significant for its association with the Battle of Brandy Station as it lies within the battlefield. It is also significant under Criterion D for its large amount of well-preserved archaeological remains. Jenkins Tract is recommended eligible for listing in the NRHP and was nominated in 1991, with the nomination updated in 2018. It was not listed due to objections by the owner, however it was listed in the VLR in 1991 and issued a Determination of Eligibility by the Keeper of the National Register in 1992.

The Hansbrough Ridge site is located roughly 0.98 mile from the project at its nearest point and was therefore was subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the Hansbrough Ridge site and photographs were taken to document viewshed with emphasis on views from the resource towards the project alignment. As Hansbrough Ridge is private and gated, field inspection was limited to public ROW in the vicinity of the property. The site is set just east of the small community of Stevensburg within a rural area near the eastern terminus of the project. The site includes a ridge generally perpendicular to the north side of Route 3, with the project alignment extending through the landscape to the west, terminating at a junction with the existing Gordonsville-Remington transmission line, roughly 0.98 mile west of the nearest edge of the site. The majority of the site extends away from the project to the north and east.

A site visit to the property found that it remains undeveloped and generally within a rural setting, although the vegetation patterns have likely changed since the time it was utilized as a winter encampment. Due to the topography and vegetation patterns in the area, the site is not visible from public ROW along Route 3.

As part of the project, the nearest structure to be replaced will be the tap structure where the project alignment interconnects with the existing Gordonsville-Remington transmission line that runs

generally north-south through the landscape west of Hansbrough Ridge. This structure, and others on the project alignment extending away from the site will be replaced on a one-to-one basis near the location of the existing structures, and will not require any additional ROW, clearing, or disturbance to the Hansbrough Ridge property. As such, there will be no direct impact to Hansbrough Ridge, however, because the structures on the project alignment will be increased in height, the project has the potential to introduce indirect or visual impacts.

Inspection from public ROW in the vicinity of the site found that none of the existing structures on the project alignment are visible, however, several structures on the closer Gordonsville-Remington line can be seen. These structures are closer and taller than the existing and proposed replacement structures on the project alignment. The existing structures to be replaced as part of this project are each 80-feet in height and the proposed replacement structures will generally average 100-feet in height. Structures on the Gordonsville-Remington line are closer to the property, and as they range from roughly 95- to 115-feet in height. As such, it is anticipated that the intervening topography and vegetation will continue to screen the replacement structures from public ROW near Hansbrough Ridge just as there is currently no visibility of the existing structures. This was confirmed by photo simulation from public ROW at the entry driveway to the site that reveals proposed structures will remain completely screened behind and beneath the intervening topography and vegetation. Inspection and analysis could not be conducted from the interior of the site to determine whether any existing structures are visible or if proposed structures may become visible. However, if existing or proposed structures may be visible from within the site, they would be seen in conjunction with and behind the taller structures on the Gordonsville-Remington transmission line and at a much greater distance. As such, the increase in height may be perceptible, but would not introduce any substantial cumulative change in setting or viewshed of or from the property. It is further noted that while Hansbrough Ridge is considered significant for its association to the Civil War and battles in the region, its primary significance is derived from its intact archaeological potential which would not be directly impacted by a change in visibility of a distant transmission line. It is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose no more than a *minimal impact* on the Hansbrough Ridge Winter Encampment site.

Figure 5-157 depicts the location of Hansbrough Ridge in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-158 through 5-161 are representative photographs of the property, as well as those taken from locations within and near the property towards the project area. Figures 5-162 through 5-164 provide photo simulation from the property.

RESULTS OF FIELD RECONNAISSANCE

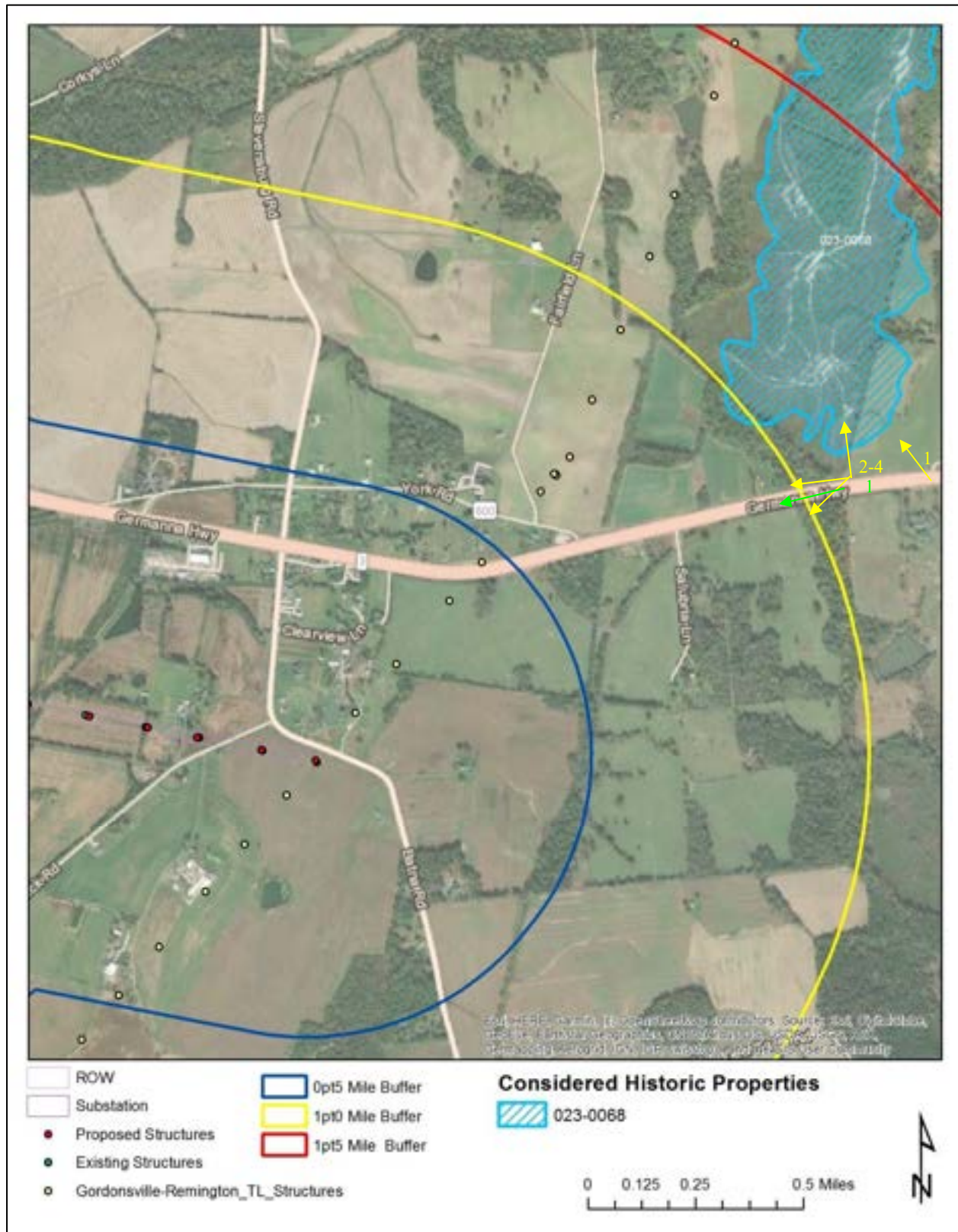


Figure 5-157: Location of Hansbrough Ridge in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).



Figure 5-158: Photo location 1- View of Hansbrough Ridge from Route 3 (No structures visible), facing northwest.



Figure 5-159: Photo location 2- View of entry drive to Hansbrough Ridge (No structures visible), facing north.



Figure 5-160: Photo location 3- View from entry drive to Hansbrough Ridge (No project structures visible. Several structures on another line visible), facing west.



Figure 5-161: Photo location 4- View from entry drive to Hansbrough Ridge (No project structures visible. Several structures on another line visible), facing west.

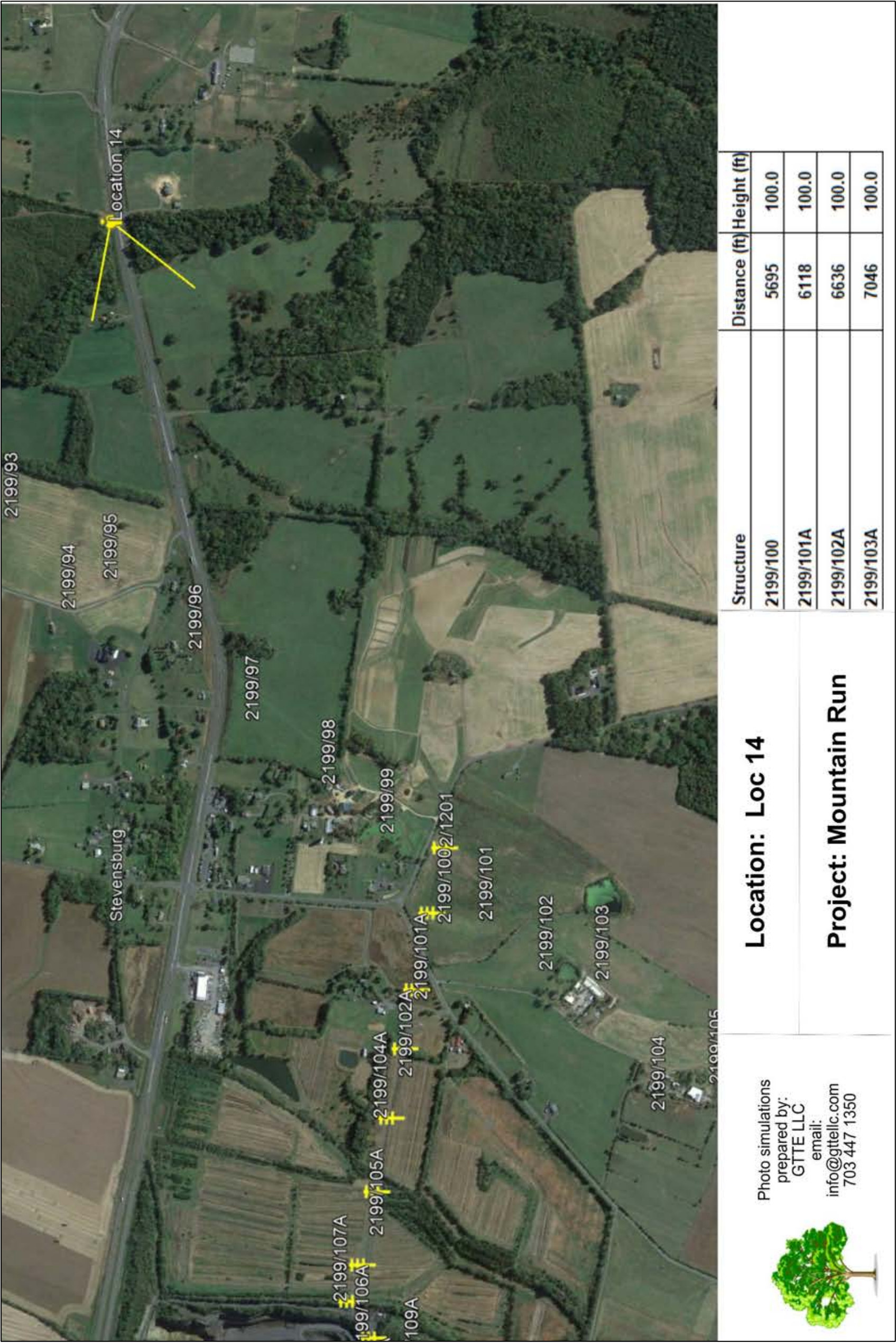


Figure 5-162: Hansbrough Ridge Simulation 1 – Simulation location, direction of view, and structures modeled from Route 3 at entry to site. Source: GTTE, LLC

		Project: Mountain Run		Location 14	Existing View
 <div>Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350</div>		<div>Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.</div>		<div>This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.</div> 	

Figure 5-163: Hansbrough Ridge Simulation 1 – Existing view from Route 3 at entry to site. Source: GTTE, LLC



Figure 5-164: Hansbrough Ridge Simulation 1 – Proposed view from Route 3 at entry to site – (Structures not visible shown in yellow). Source: GTTE, LLC

THIS PAGE INTENTIONALLY LEFT BLANK

Mount Pony Rural Historic District (VDHR# 023-0084)

The Mount Pony Rural Historic District is comprised of open farmland surrounded by the rolling hills of the Piedmont Triassic Basin area. The district is about four miles wide and nine miles long and sits at an elevation of approximately 800 feet above sea level. Mountain Run River, which is included in the district, drains into the Rappahannock River and was once connected to the 55-mile canal system that was instrumental in the development of early mills and commerce in the area. The homes in the district range from the pre-revolutionary era to the post-World War II era. The oldest home is Salubria, constructed circa 1743, with several homes dating pre-Civil War. Below-ground resources include collections of American Indian artifacts and mineral springs. A carving of a horse's head in granite within a cave of Mount Pony stands as a well-preserved bas relief.

In 1718, King George II granted Robert Carter the 3,940 acres that is now the Mount Pony district. Robert Carter was an influential figure in Culpeper and Virginia history who went on to become the Rector of William and Mary, Speaker of the House of Burgesses, and active Governor of the colony. The Mount Pony Historic District is significant under Criterion A for its associations with broad patterns of history, namely its association with the development of society and commerce in Culpeper County. As such, this site was determined eligible for listing in the NRHP in 1996 by DHR. The district retains high levels of integrity, having experienced little alteration except the widening of Route 3, which runs through the site, and is therefore recommended to maintain its eligible status.

The Mount Pony Historic District is directly crossed by the project alignment and therefore was subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the district and photographs were taken to document viewshed with emphasis on views from the associated properties towards the project alignment. As the majority of properties within the historic district are private and gated, field inspection was conducted from public ROW along Route 3 which extends through the district and serves as the primary transportation corridor. The district is set east of Culpeper within a rural area and extends much of the overall length of the project alignment. The western half of the district is bisected by the project alignment before it extends out of the district and borders the lower edge throughout the eastern half of the district. A total of twenty-one (21) existing transmission structures associated with this project area located directly within the historic district boundaries and an additional five (5) immediately border the southern edge.

A site visit to the district found that the overall setting within and bordering it remains rural and primarily intact, although a large open-pit strip mine now occupies the eastern edge near the village of Stevensburg. The district is also crossed by several existing transmission lines, including the project alignment and a number of additional distribution lines. Route 3 which is the historic transportation corridor through the area has also been widened and realigned into a four-lane divided highway. Still, the setting remains primarily rural and due to the open and agricultural character of much of the landscape, views throughout the district are generally wide and unobstructed, although intermittent treelines and the rolling topography do break up views from some vantages.

As part of the project, all 21 structures within the district will be replaced, as will adjacent structures to each side. The vast majority of structures will be replaced on a one-to-one basis near the location of the existing structures although two structures will be slightly shifted. The project will not require any additional ROW or clearing. As a result, the project will have a direct impact on the district, however, because it will not introduce any substantially new or different components into the landscape of the property, nor will it require clearing or demolition of any cultural features, the direct impact will be minimal.

Because the structures within the district as well as additional structures in the vicinity will be increased in height, the project also has the potential to introduce indirect or visual impacts. Inspection from publicly-accessible vantage point throughout the district towards the project area revealed that the numerous existing transmission line structures, including those within the district and beyond are visible from public ROW. From many locations, views include multiple existing structures and wide stretches of transmission line spanning open field. From other locations, views are more limited or consist of a few structures seen against the backdrop of treelines. The views are most prominent where the project alignment crosses Route 3 and therefore a wide stretch of structures are visible extending away from the road. The alignment then parallels the road at a greater distance resulting in less apparent visibility, but structures remain visible.

The existing structures throughout the district are each 80-feet in height and the proposed replacement structures will generally average 100-feet in height, although several structures in the immediate vicinity of the Route 3 crossing will not be increased in height. Most structures will be replaced on a one-to-one basis near the existing locations and all new structures will be of a similar design, material, and overall appearance. As such, it is anticipated that views following structure replacement will remain similar due to the unobstructed nature of many structures. The increase in height will be less perceptible for those structures visible in open field than those seen against a backdrop of trees which would allow for the increase to be more apparent. It is not anticipated that the increase in height would result in the visibility of a substantial number of additional structures not already visible. This was confirmed by photo simulation from multiple locations and properties along Route 3 within the district that confirmed many structures will remain visible, however, the change in height will not substantially or cumulatively increase visibility of the transmission line. Therefore, the increase in height may be perceptible from discrete vantage points but less noticeable from others, and overall will not introduce any substantially new or cumulative impacts to the viewshed or setting of the district that already includes multiple transmission structures and wide views of the transmission line. It is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose no more than a *minimal impact* on the Mount Pony Historic District.

Figure 5-165 depicts the location of the Mount Pony Historic District in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-166 through 5-181 are representative photographs of the district, as well as those taken from locations within and near the district towards the project area. Figures 5-182 through 5-202 provide photo simulation from the district.

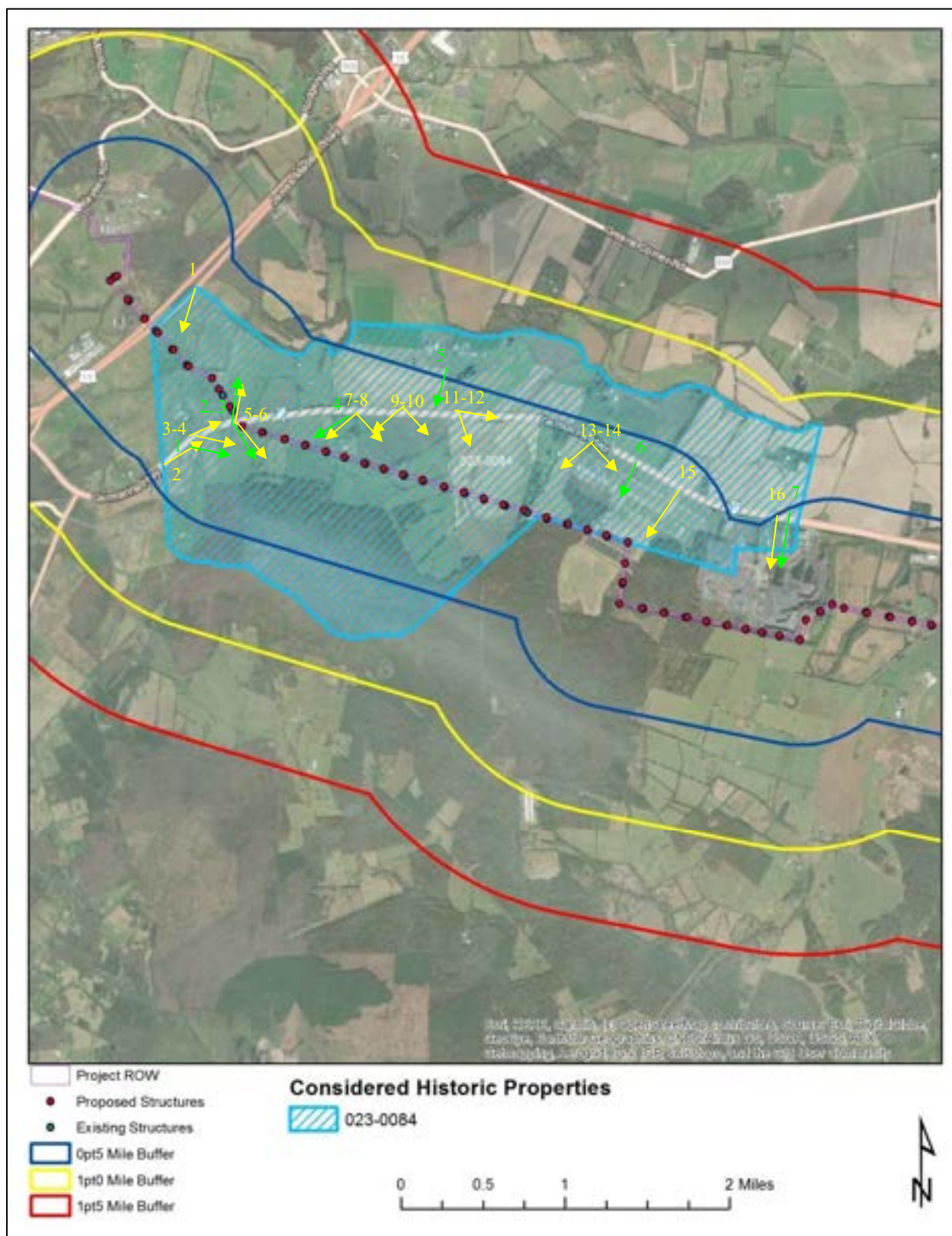


Figure 5-165: Location of Mount Pony Historic District in relation to the project alignment (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).



Figure 5-166: Photo location 1- View from US-29 at western edge of district (One existing project structure visible), facing south.



Figure 5-167: Photo location 2- View from Route 3 near western edge of district (One existing project structure visible), facing east.



Figure 5-168: Photo location 3- View from Route 3 at Croftburn Farm (One existing project structure visible), facing east.



Figure 5-169: Photo location 4- View from Route 3 at Croftburn Farm (Multiple existing project structures visible), facing southeast.



Figure 5-170: Photo location 5- View from Route 3 at edge of Croftburn Farm (Multiple existing project structures visible), facing north.



Figure 5-171: Photo location 6- View from Route 3 towards contributing properties (No structures visible), facing northeast.



Figure 5-172: Photo location 7- View from Route 3 at Signal Hill Farm (Multiple existing project structures visible), facing southwest.



Figure 5-173: Photo location 8- View from Route 3 at Signal Hill Farm (Multiple existing project structures visible), facing southeast.

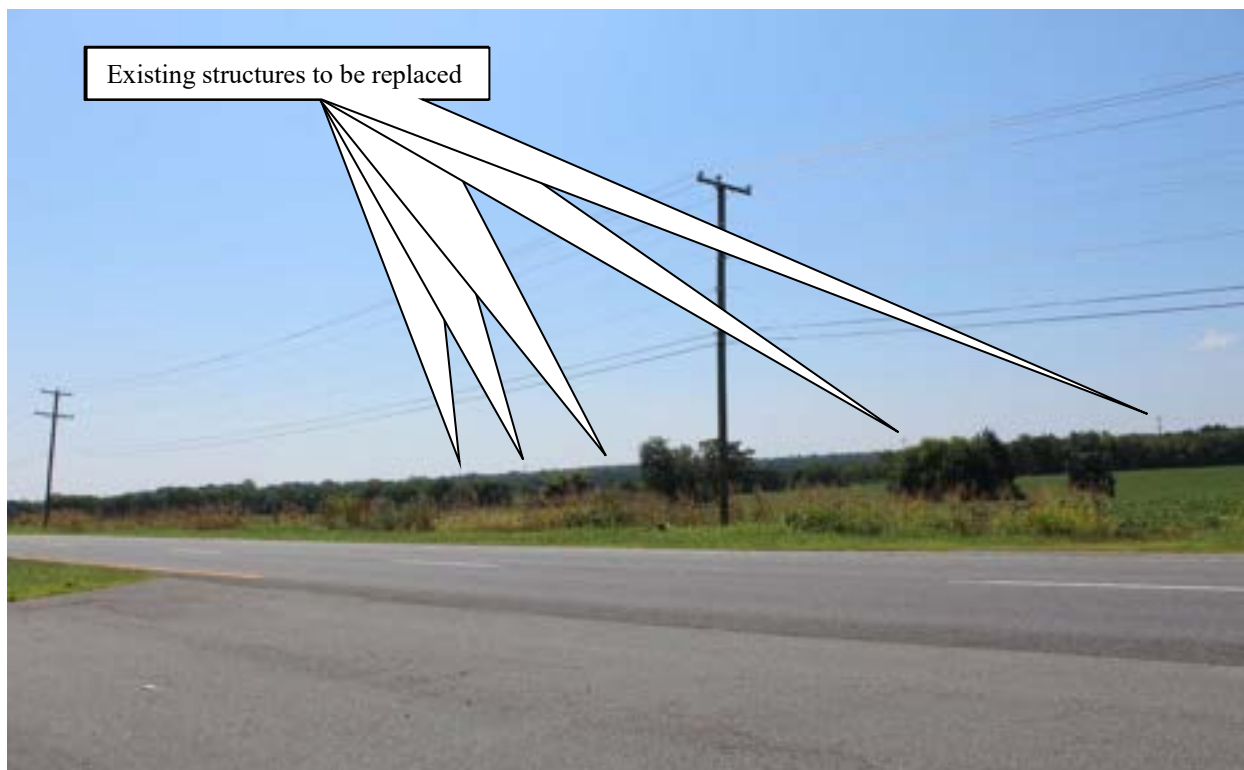


Figure 5-174: Photo location 9- View from Route 3 near Signal Hill Farm (Multiple existing project structures visible), facing southeast.



Figure 5-175: Photo location 10- View from Route 3 near Signal Hill Farm (Multiple existing project structures visible), facing southwest.



Figure 5-176: Photo location 11- View from Route 3 in central portion of district (Multiple existing project structures visible), facing southeast.



Figure 5-177: Photo location 12- View from Route 3 in central portion of district (No structures visible), facing east.



Figure 5-178: Photo location 13- View from Route 3 near eastern edge of district (Multiple existing project structures visible), facing south.



Figure 5-179: Photo location 14- View from Route 3 near eastern edge of district (Multiple existing project structures visible), facing southeast.



Figure 5-180: Photo location 15- View from Route 3 near eastern edge of district (Multiple existing project structures visible), facing south.

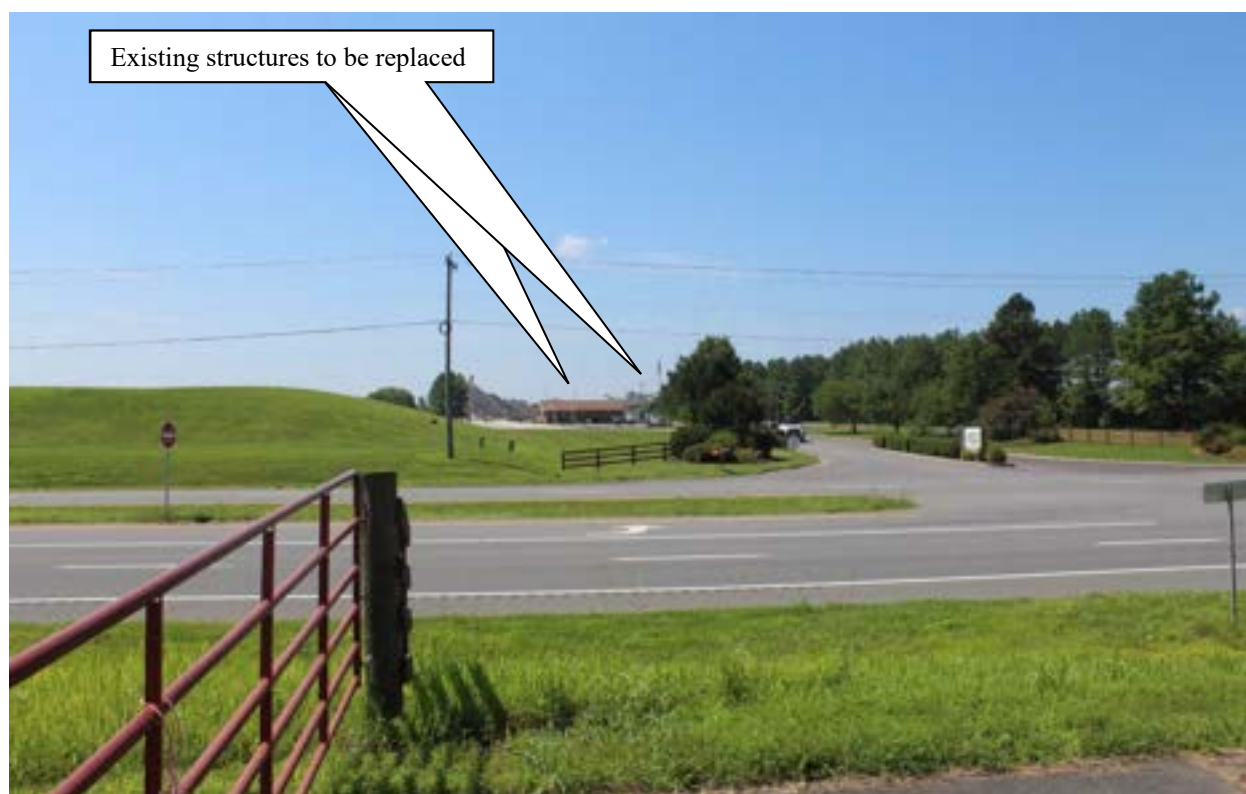


Figure 5-181: Photo location 16- View from Route 3 at eastern edge of district (Multiple existing project structures visible), facing south.

THIS PAGE INTENTIONALLY LEFT BLANK

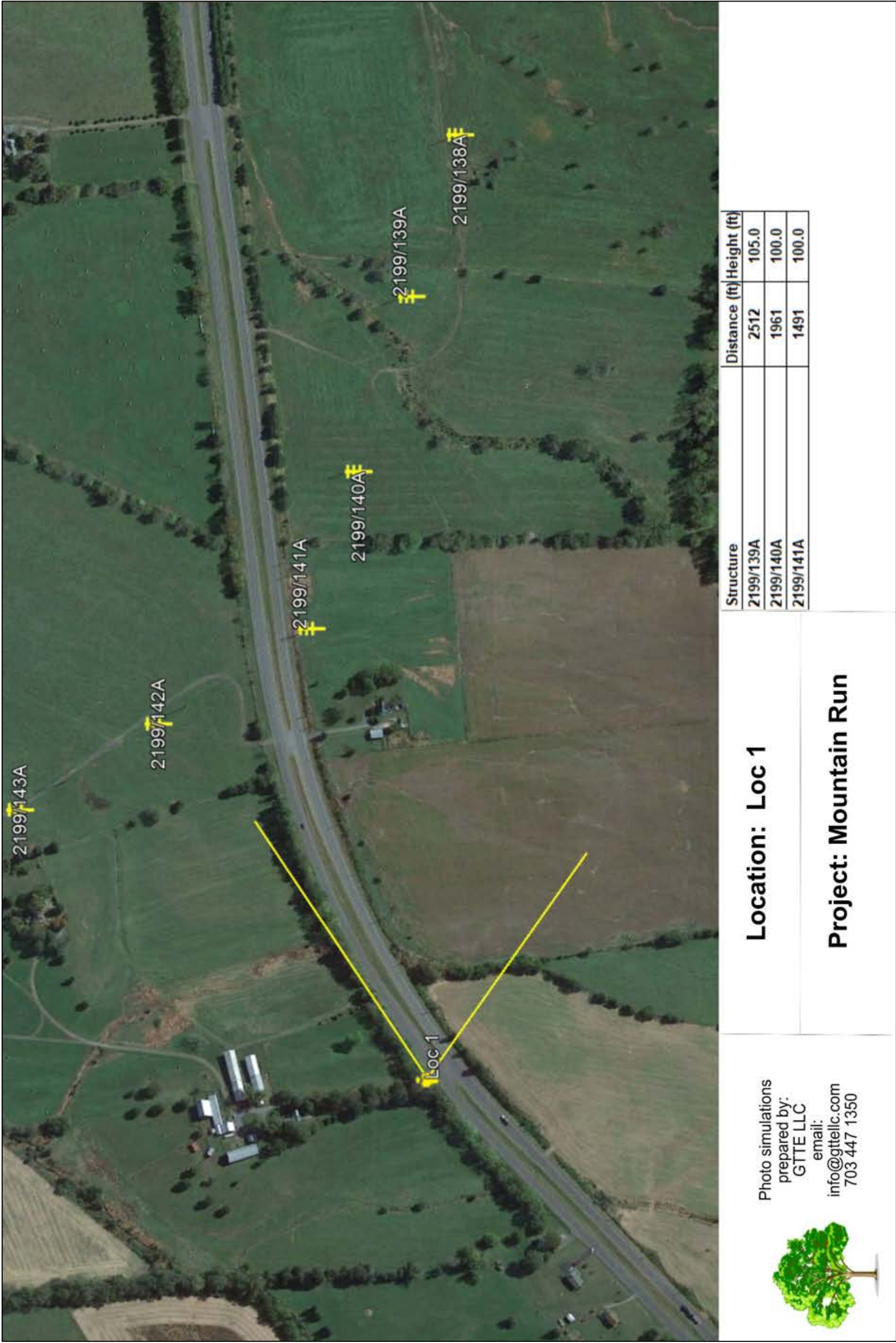


Figure 5-182: Mount Pony Rural Historic District Simulation 1 – Simulation location, direction of view, and structures modeled from driveway to Croftburn Farm. Source: GTTE, LLC



Figure 5-183: Mount Pony Rural Historic District Simulation 1 – Existing view from driveway to Croftburn Farm. Source: GTTE, LLC



Figure 5-184: Mount Pony Rural Historic District Simulation 1 – Proposed view from driveway to Croftburn Farm – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC

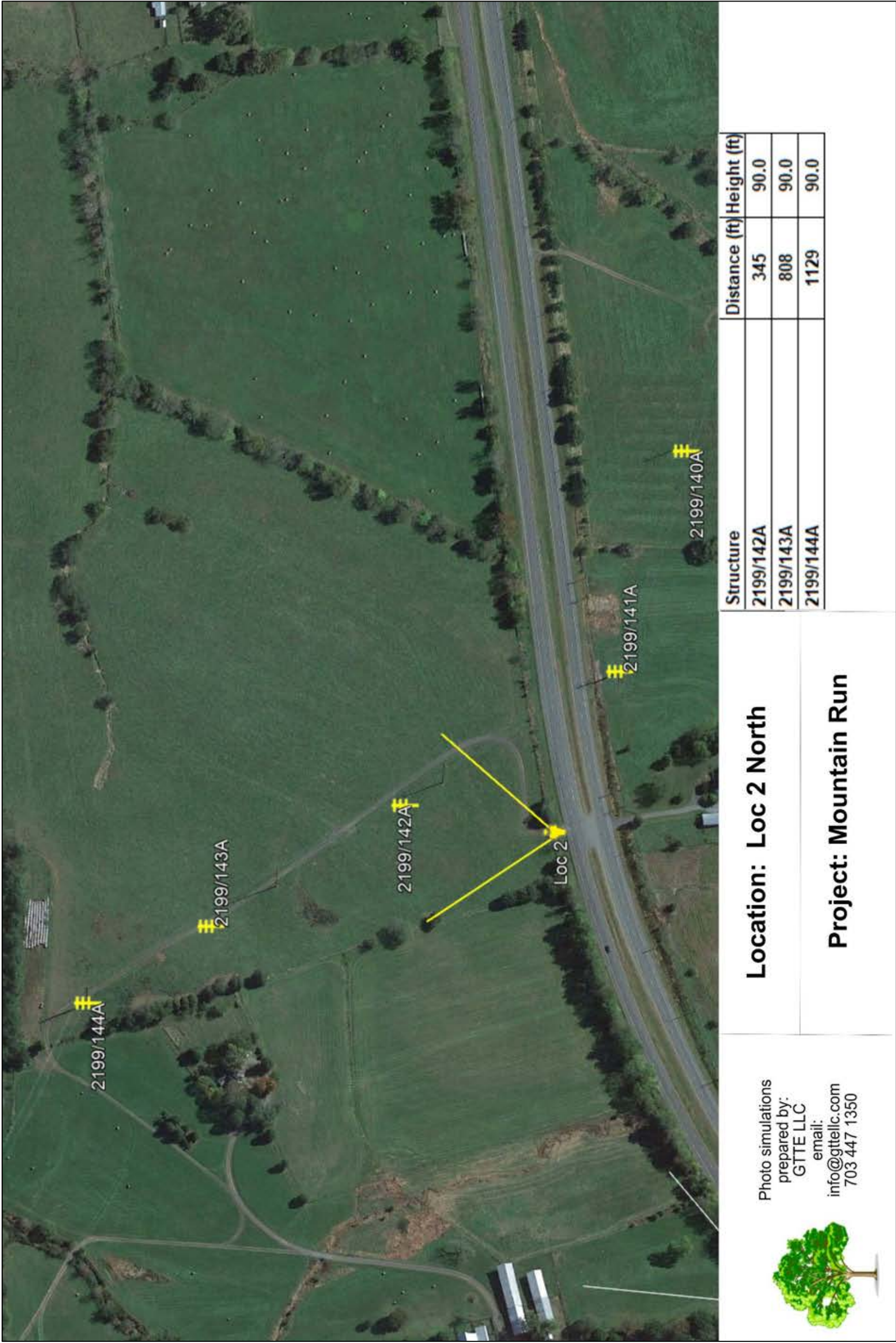


Figure 5-185: Mount Pony Rural Historic District Simulation 2 – Simulation location, direction of view, and structures modeled from edge of Croftburn Farm property along Route 3. Source: GTTE, LLC



Figure 5-186: Mount Pony Rural Historic District Simulation 2 – Existing view from edge of Croftburn Farm property along Route 3. Source: GTTE, LLC



Figure 5-187: Mount Pony Rural Historic District Simulation 2 – Proposed view from edge of Croftburn Farm property along Route 3 – (Visible structure shown as it would appear). Source: GTTE, LLC

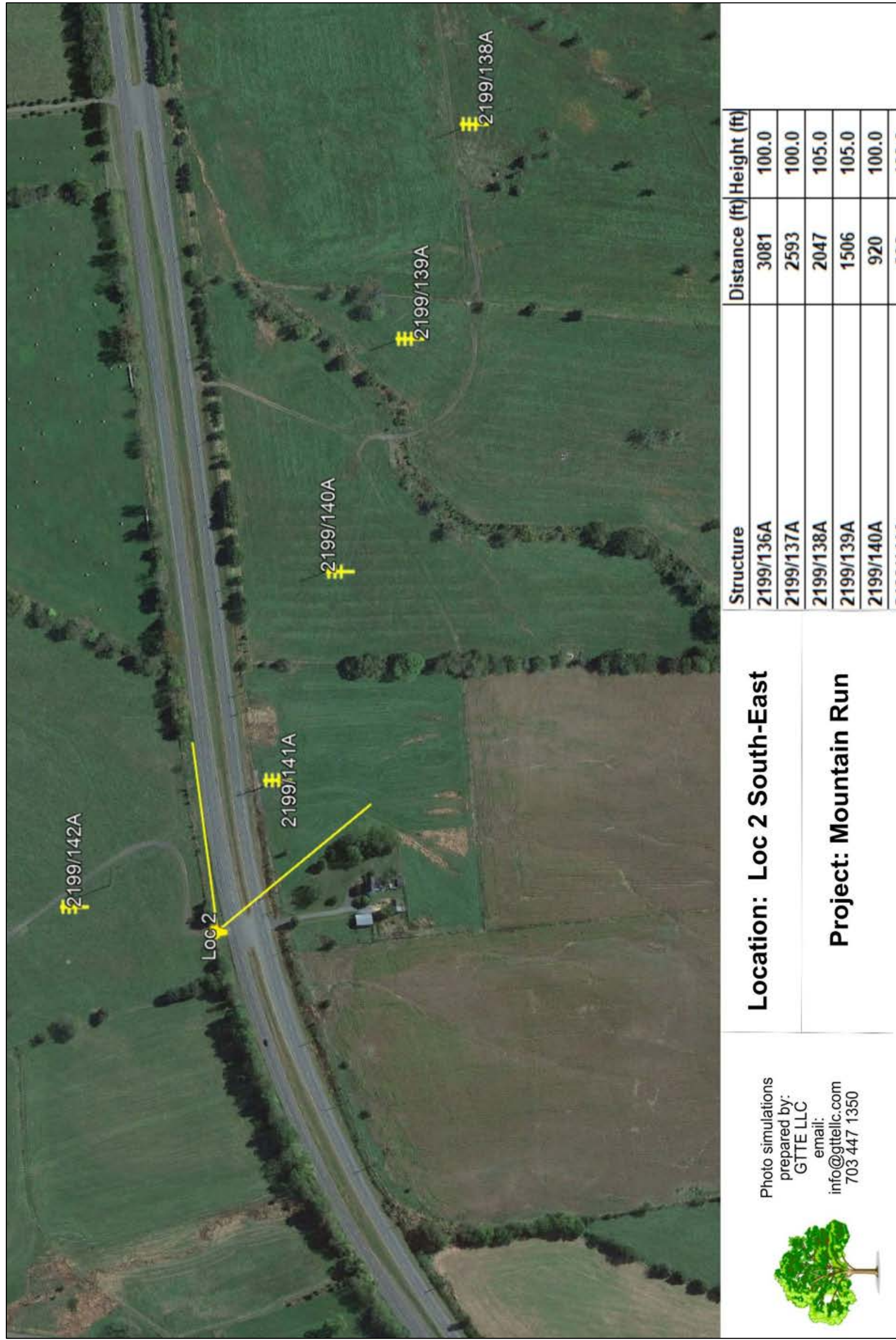


Figure 5-188: Mount Pony Rural Historic District Simulation 3 – Simulation location, direction of view, and structures modeled across road from Croftburn Farm. Source: GTTE, LLC

		Project: Mountain Run		Location 2		Existing View	
 Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350		Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.				This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.	

Figure 5-189: Mount Pony Rural Historic District Simulation 3 – Existing view across road from Croftburn Farm. Source: GTTE, LLC



Figure 5-190: Mount Pony Rural Historic District Simulation 3 – Proposed view across road from Croftburn Farm – (Visible structures shown as they would appear). Source: GTTE, LLC

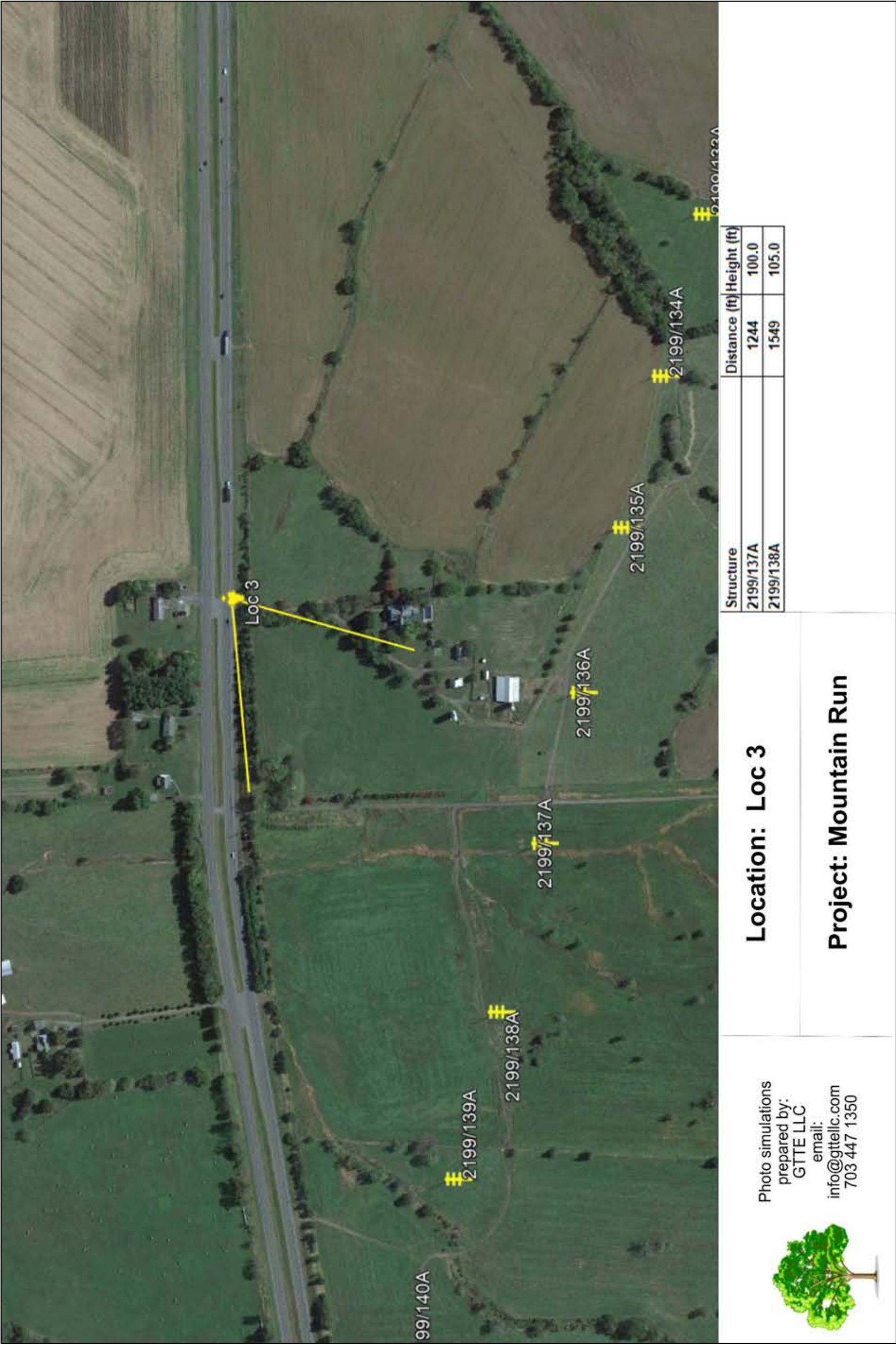


Figure 5-191: Mount Pony Rural Historic District Simulation 4 – Simulation location, direction of view, and structures modeled from driveway to Signal Hill Farm. Source: GTTE, LLC



		Project: Mountain Run		Location 3	Existing View
 <div>Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350</div>		Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.	

Figure 5-192: Mount Pony Rural Historic District Simulation 4 – Existing view from driveway to Signal Hill Farm. Source: GTTE, LLC



Figure 5-193: Mount Pony Rural Historic District Simulation 4 – Proposed view from driveway to Signal Hill Farm – (Visible structures shown as they would appear). Source: GTTE, LLC

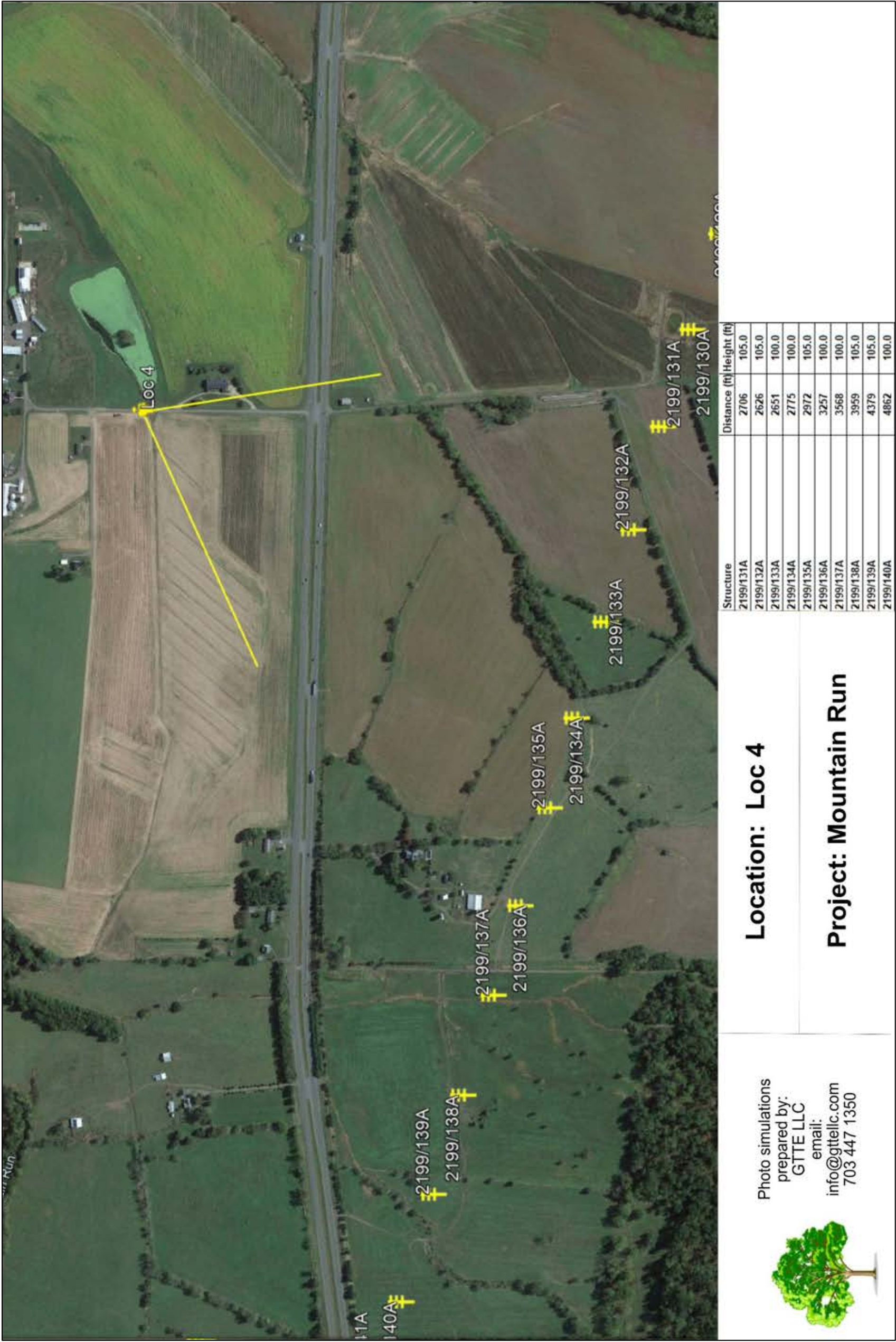


Figure 5-194: Mount Pony Rural Historic District Simulation 5 – Simulation location, direction of view, and structures modeled from Ashland Farm Road. Source: GTTE, LLC



Figure 5-195: Mount Pony Rural Historic District Simulation 5 – Existing view from Ashland Farm Road. Source: GTTE, LLC



Figure 5-196: Mount Pony Rural Historic District Simulation 5 – Proposed view from Ashland Farm Road – (Visible structures shown as they would appear). Source: GTTE, LLC

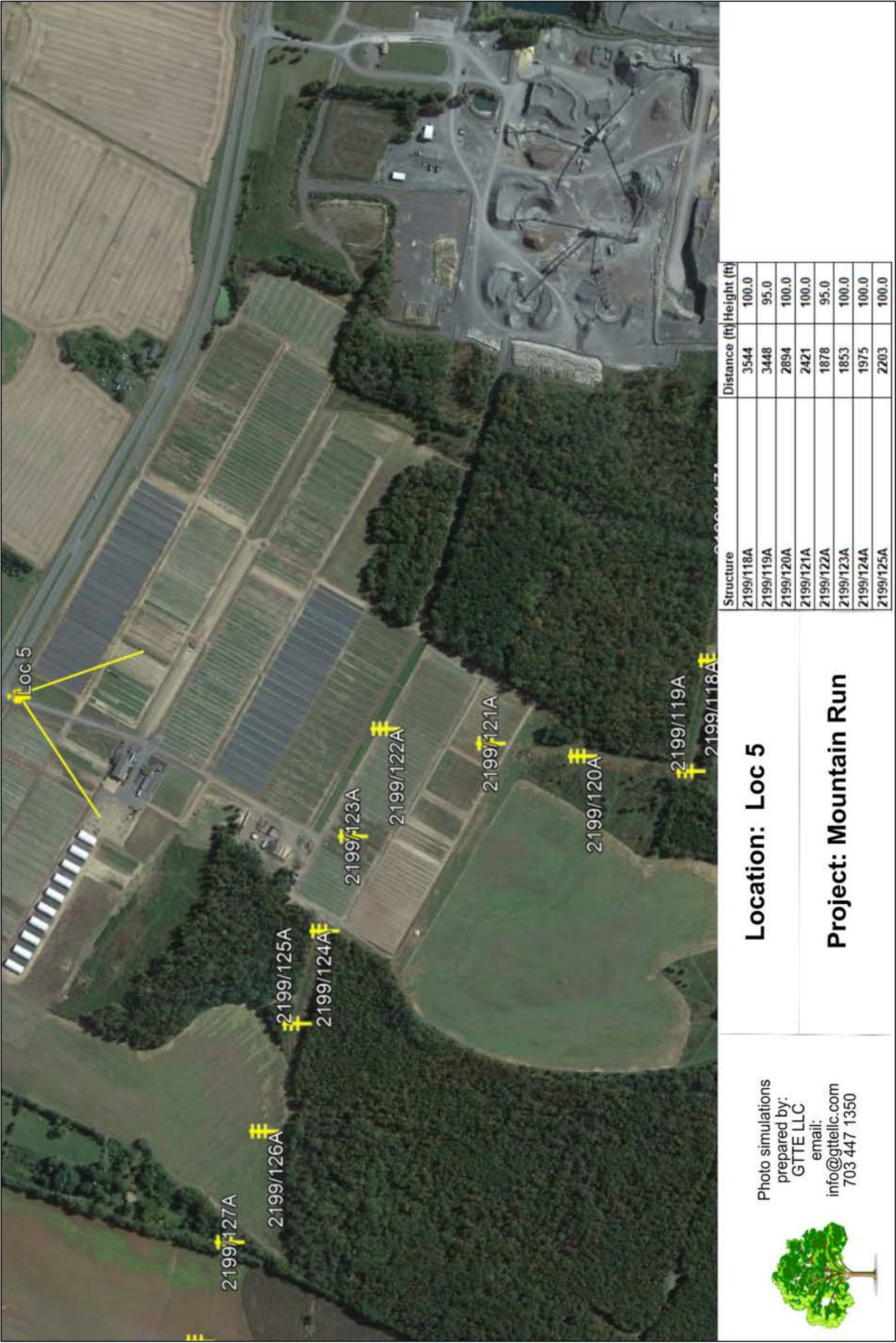


Figure 5-197: Mount Pony Rural Historic District Simulation 6 – Simulation location, direction of view, and structures modeled from Route 3 at Moerings Nursery. Source: GTTE, LLC



Figure 5-198: Mount Pony Rural Historic District Simulation 6 – Existing view from Route 3 at Moerings Nursery. Source: GTTE, LLC



Figure 5-199: Mount Pony Rural Historic District Simulation 6 – Proposed view from Route 3 at Moerings Nursery – (Visible structures shown as they would appear. Structures not visible shown in yellow). Source: GTTE, LLC

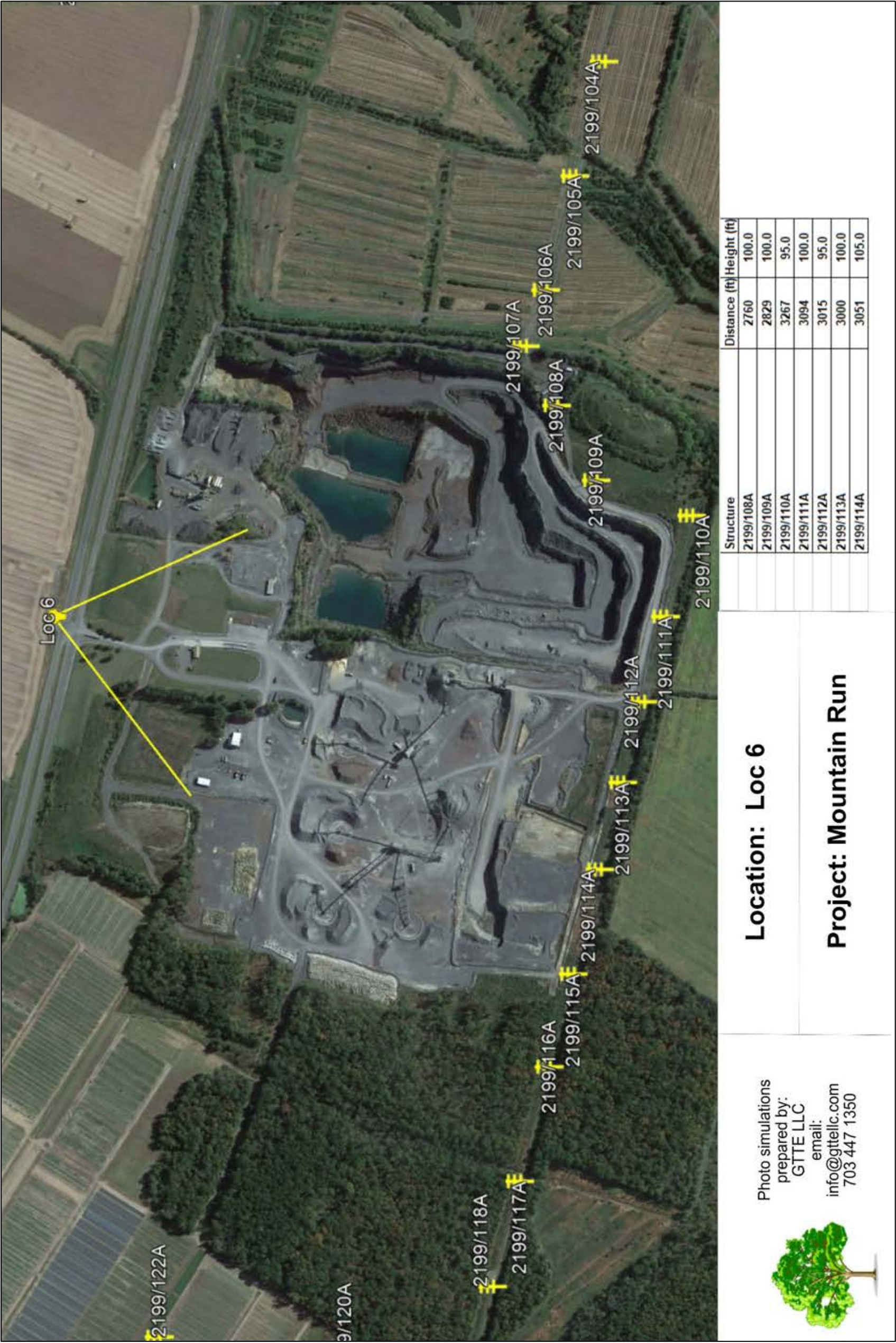




Figure 5-201: Mount Pony Rural Historic District Simulation 7 – Existing view from Route 3 at Clover Hill Road. Source: GTTE, LLC



Figure 5-202: Mount Pony Rural Historic District Simulation 7 – Proposed view from Route 3 at Clover Hill Road – (Visible structure shown as it would appear. Structures not visible shown in yellow). Source: GTTE, LLC

THIS PAGE INTENTIONALLY LEFT BLANK

Mountain Run Historic District (VDHR# 023-5441)

The Mountain Run Historic District is located in the south-central sector of Culpeper County, approximately three-quarters of a mile north of Stevensburg. It is bounded by Jonas Run and Mountain Run to the north and south, respectively, and Hansbrough's Ridge to the east. Stevensburg Road (Route 663), which generally follows the alignment of Old Carolina Road, comprises its western boundary. Old Carolina Road was an important Colonial-era travel route that extended from Philadelphia to Raleigh, North Carolina. The district's built resources consist primarily of four large farming complexes dating to the late nineteenth and early twentieth centuries, the above-ground remains of Norman's Mill and Dam, traces of the Old Carolina Road, and several Civil War-related sites and associated landscapes. Norman's Mill, acquired by Thomas Norman in the late eighteenth century, prospered through the first half of the century, catering to local farmers and producing grain for Norman and his family. Only portions of the facility remain extant, much of it having been damaged or destroyed by fire or neglect. The four farm houses, exhibiting Late Victorian and Queen Anne styles, represent a regional vernacular of rural farm homes in Culpeper County. The district is located within the battlefield of the Battle of Brandy Station, the largest Cavalry battle of the Civil War, and exhibits trench sections, artifacts, and other landscape features associated with Civil War activities.

In the 1760s, Charles Carter, the administrator of the Mountain Run estate, began selling plots of land to would-be settlers. Since then, this rural landscape has come to represent a mix of cultural and natural resources that embody several important themes and phases of local and regional development from the eighteenth century to the present. The district is significant for its association with the development of Culpeper County's transportation networks and industrial and agricultural sectors, as well as its association with the Battle of Brandy Station. Additionally, it draws architectural significance from the relatively high level of integrity of its buildings, which represent vernacular styles that prevailed in certain sectors of the county in the late nineteenth and early twentieth centuries. Below-ground resources related to Civil War activities and associated with Norman's Mill and Dam also lend significance to the site. The district is therefore recommended eligible for listing in the NRHP under Criteria A, C, and D.

The Mountain Run Historic District is located roughly 0.89 mile from the project at its nearest point and was therefore was subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the district and photographs were taken to document viewshed with emphasis on views from the resource towards the project alignment. Only a small portion of the historic district is located within one mile of the project and that portion does not include any built resources. The associated property is private, and therefore field inspection was conducted from public ROW along the front of the property. The district is located generally north of the small community of Stevensburg within a rural area near the eastern terminus of the project. The district is comprised of four large properties, all along Stevensburg Road, with the project alignment extending through the landscape to the south and west, before terminating at a junction with the existing Gordonsville-Remington transmission line, roughly 0.89 mile south of the southernmost associated property.

A site visit to the district found that it continues to be comprised of four large, rural properties, each with a collection of buildings. The overall setting and within the district remains primarily

rural and agricultural, however, a municipal park has been developed within the central portion of the district and includes a variety of modern infrastructure, facilities, and landscape. Due to the open and rolling topography and vegetation patterns in the district, views within and out of the district tend to be wide and fairly open.

As part of the project, six structures to be replaced are located within one mile of the district. These include the tap structure where the project alignment interconnects with the existing Gordonsville-Remington transmission line and additional structures extending to the west. All structures within one mile will be replaced on a one-to-one basis near the location of the existing structures, and will not require any additional ROW, clearing, or disturbance within the historic district. As such, there will be no direct impact to Mountain Run Historic District, however, because the structures on the project alignment will be increased in height, the project has the potential to introduce indirect or visual impacts.

Inspection from public ROW within the district revealed that none of the existing structures on the project alignment are visible, although a number of structures on the Gordonsville-Remington line are. Views in the direction of the nearest project structures to the south are screened by intervening vegetation and development around and within the village of Stevensburg. Meanwhile views across towards structures set further away to the southwest are across open fields which permit more distant visibility and a smaller distribution line immediately bordering Route 3 may be seen, however, the project alignment is set further in the distance beyond a treeline and rolling topography. The existing structures to be replaced as part of this project are each 80-feet in height and the proposed replacement structures will generally average 100-feet in height. As such, it is anticipated that the intervening topography and vegetation will continue to screen the replacement structures set in the closest proximity to the district and will likely continue to screen those set at a greater distance as well. If structures were to rise above the treeline in the distance, they would be at a distance of more than a mile and a half, and therefore would not easily be recognizable amongst other features on the landscape. Views would also be limited to the extreme southern edge of the historic district, whereas portions and properties further to the north are beyond additional wooded areas that screen all views in the direction of the project. This was confirmed by photo simulation from the nearest edge of the historic district which reveals all proposed structures will remain screened behind intervening vegetation in the distance. As such, the increase in height is not anticipated to introduce any noticeable change in setting or viewshed of or from the district, nor would it detract from those qualities and characteristics that make it eligible for listing in the NRHP. It is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose no more than a *minimal impact* on the Mountain Run Historic District.

Figure 5-203 depicts the location of the Mountain Run Historic District in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-204 through 5-208 are representative photographs of the district, as well as those taken from locations within and near the district towards the project area. Figures 5-209 through 5-211 provide photo simulation from the district.

RESULTS OF FIELD RECONNAISSANCE

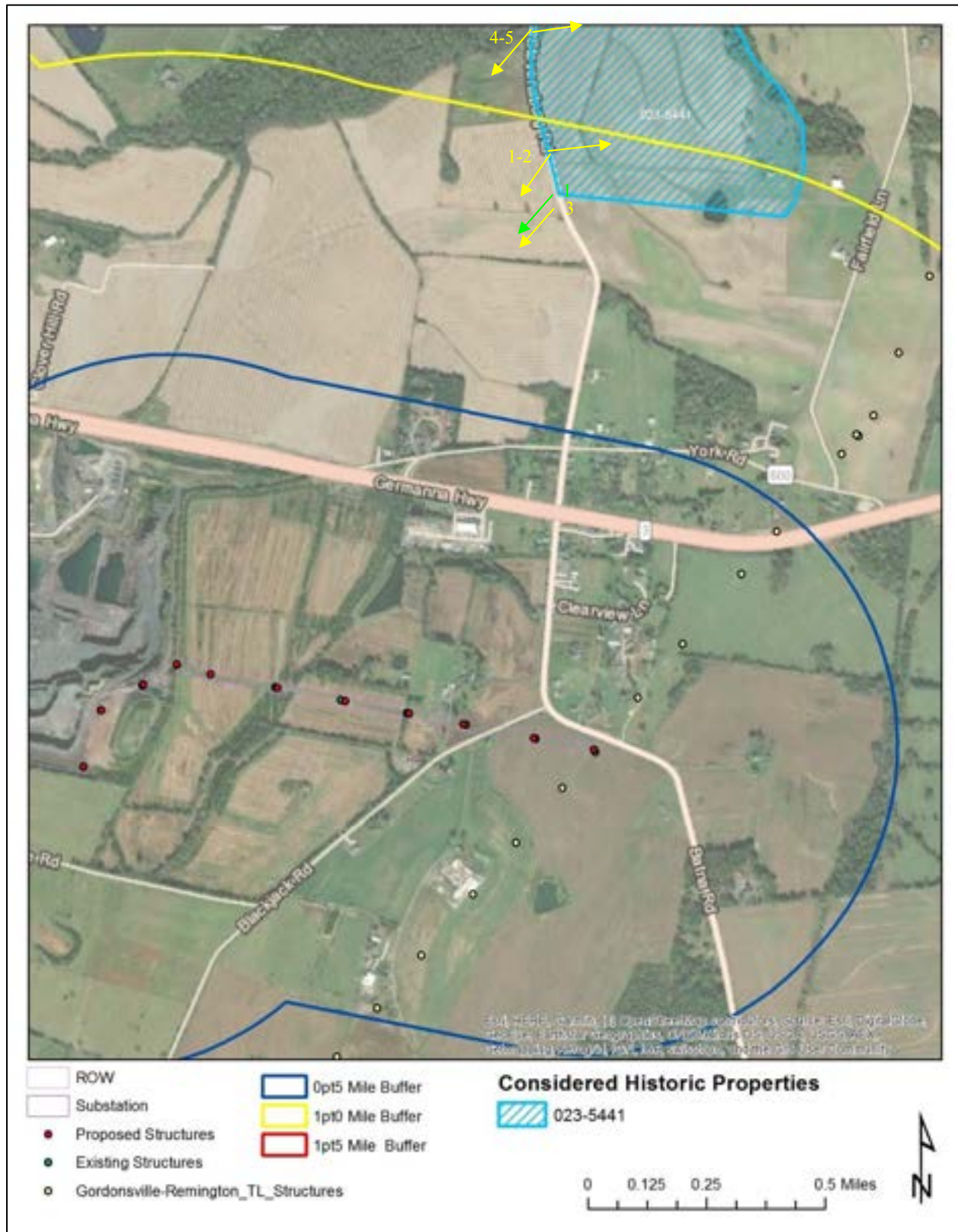


Figure 5-203: Location of Mountain Run Historic District in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).



Figure 5-204: Photo location 1- View from Stevensburg Road at contributing property (No project structures visible. Multiple structures on another line visible), facing east.



Figure 5-205: Photo location 2- View from Stevensburg Road at contributing property (No structures visible), facing southeast.



Figure 5-206: Photo location 3- View from Stevensburg Road at lower edge of district (No structures visible), facing southeast.



Figure 5-207: Photo location 4- View from Lenn Park (No structures visible), facing southeast.



Figure 5-208: Photo location 5- View from Lenn Park (No project structures visible. Multiple structures on another line visible), facing east.



		Project: Mountain Run		Location 16		Existing View	
<div><div>Photo simulations prepared by: GTTE LLC email: info@gttelc.com 703 447 1350</div></div>		Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.			

Figure 5-210: Mountain Run Historic District Simulation 1 – Existing view from Stevensburg Road at southern edge of district. Source: GTTE, LLC

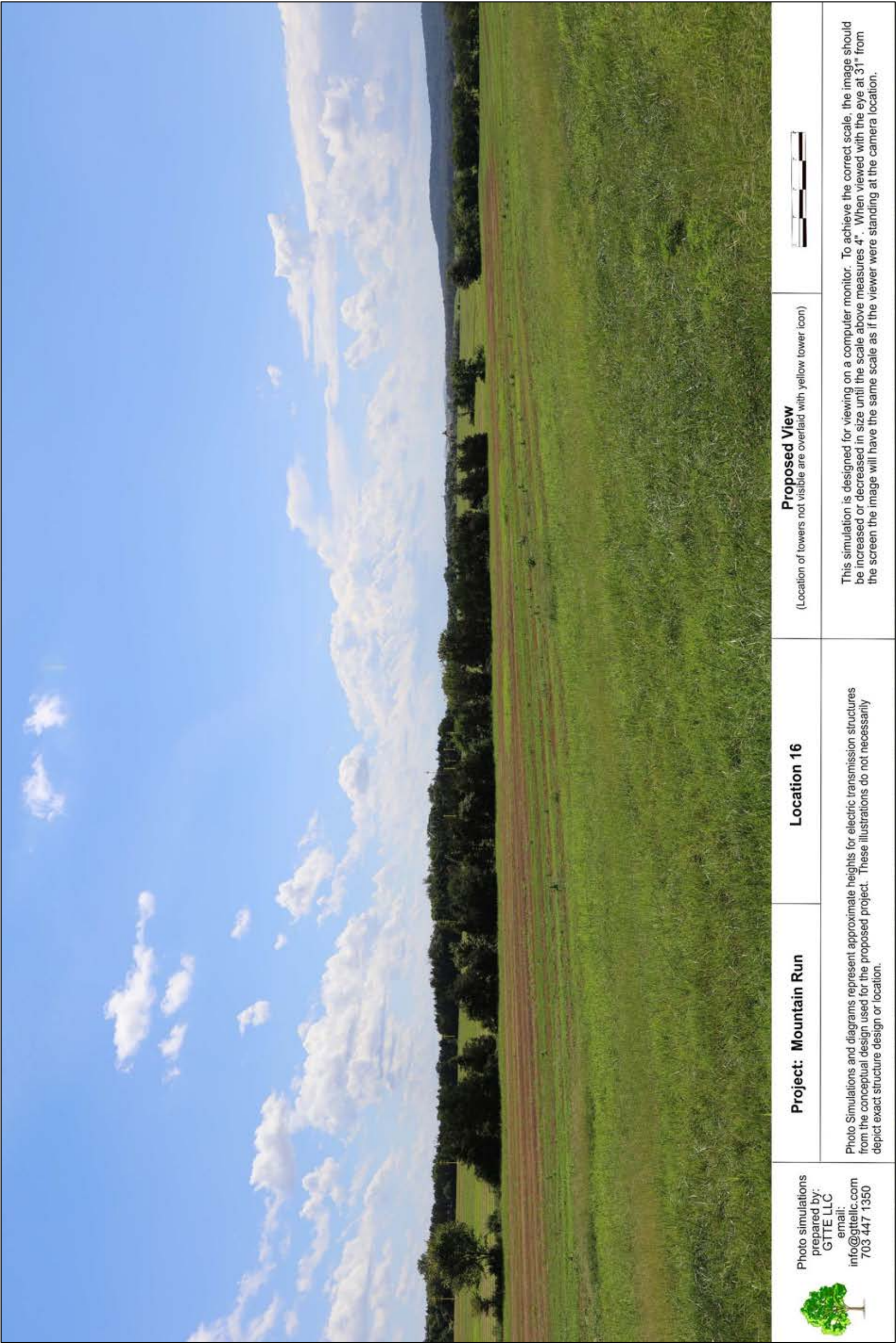


Figure 5-211: Mountain Run Historic District Simulation 1 – Proposed view from Stevensburg Road at southern edge of district – (Structures not visible shown in yellow). Source: GTTE, LLC

THIS PAGE INTENTIONALLY LEFT BLANK

**NATIONAL REGISTER OF HISTORIC PLACES – ELIGIBLE
PROPERTIES**
Located within 0.5 Mile of the Project or Closer

THIS PAGE INTENTIONALLY LEFT BLANK

Zimmerman's Tavern (VDHR# 023-5162)

Zimmerman's Tavern was constructed in 1735 and represents a vernacular style. The two-and-a-half-story, three-bay structure rests on a continuous brick foundation. It is laid out in a double-pile rectangular plan with a full-width, one-story rear ell. The frame structure is clad in weatherboard siding and is topped by a front gable roof sheathed in standing-seam metal. Two large, brick exterior end chimneys extend up the south elevation of the main block, enclosed by a one-story, shed-roofed addition. Fenestration consists of mostly six-over-six double-hung sash windows. A one-story front porch extends nearly the entire length of the primary elevation topped by a metal-sheathed roof supported by Tuscan columns. The primary entrance consists of a four-paneled door topped by a simple transom and flanked by sidelights located near the west end of the primary elevation. Ornamentation on the structure includes boxed cornices, gable returns, a plain frieze cornerboards, and a gable vent with a pedimented lintel.

Zimmerman's Tavern is situated on relatively flat topography on the south side of York Road. It is among the oldest building in the area near Kirtley Road, now York Road, an important artery through the county during the eighteenth and early nineteenth centuries. The tavern has hosted several notable patrons including Thomas Jefferson, General Lafayette, and reportedly, President-elect Bill Clinton in 1993. First owned by Christopher Zimmerman, it functioned as one of the county's first inns. It is significant under Criterion A because of its association with the early development of the crossroads hamlet that would become the town of Stevensburg in 1782. It is significant under Criterion C as an excellent surviving example of a Colonial-era commercial building. Although the former tavern now functions as a residence, its form is intact and it retains much of its character and original fabric. It is therefore recommended eligible for listing in the NRHP.

The Zimmerman's Tavern property is located roughly 0.38 mile from the project at its nearest point and was therefore was subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the Zimmerman's Tavern property and photographs were taken to document viewshed with emphasis on views from the resource towards the project alignment. Zimmerman's Tavern is set within the small community of Stevensburg in a village setting near the eastern terminus of the project. The tavern building is oriented to the north, facing York Road with the modern alignment of Route 3 extending along the rear of the property. The project alignment is set across Route 3 and generally extends through the landscape to the south and west, terminating at a junction with the existing Gordonsville-Remington transmission line, just south of the property.

A site visit to the property found that it is set on a moderately large property at the edge of a village setting. Although the home is set near the intersection of Stevensburg Road and York Road adjacent to a number of other homes and buildings, the associated property extends well to the west. Bordering the northwest corner of the property is a modern refuse and recycling center while a small-scale industrial complex and storage yard are set across Route 3 to the south. Because the tavern is set within a dense village setting, views of the building are generally limited to a short distance of the road bordering the front of the property. Other development and vegetation screens view of the property from more distant vantages and also inhibits views outward from the property in several directions.

As part of the project, eight structures within one-half mile are to be replaced extending west from the tap structure where the project alignment interconnects with the existing Gordonsville-Remington transmission line that runs generally north-south through the landscape east of the Zimmerman's Tavern. These structures, and others on the project alignment extending further away from the property will be replaced on a one-to-one basis near the location of the existing structures, and will not require any additional ROW or clearing within the property. As such, there will be no direct impact to the property, however, because the structures on the project alignment will be increased in height, the project has the potential to introduce indirect or visual impacts.

Inspection from public ROW immediately in front of the tavern building found that none of the existing structures on the project alignment are visible. Vegetation and development in the immediate vicinity screens distant views to the south and west where the project is located from this vantage. Inspection from just east of the property at the intersection with Stevensburg Road revealed visibility of several structures on the Gordonsville-Remington line, but none included in this project. Inspection from the far western end of the property revealed distant visibility of several existing structures over the industrial complex and a treeline bordering Route 3.

The existing structures to be replaced as part of this project are each 80-feet in height and the proposed replacement structures will generally average 100-feet in height. As such, it is anticipated that the intervening topography, vegetation, and development will continue to screen the replacement structures from view from the front of the property. Views from the far western edge of the property may include additional portions of structures currently visible above development and vegetation, however, the viewshed and setting in this portion of the property includes extensive other nonhistoric development and intrusion. This was confirmed by photo simulation that reveals all proposed structures will remain screened by intervening vegetation from the front of the house, and portions of structures may rise above the treeline from the western edge of the property, most of the structures would be screened and seen behind modern infrastructure in the foreground. Therefore, while the increase in height may be visible from discrete vantage points, it will not be visible from the primary resource or public ROW nearby, and therefore the project will not introduce any substantial or cumulative change in setting or viewshed of or from the property. It is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose no more than a *minimal impact* on Zimmerman's Tavern.

Figure 5-212 depicts the location of Zimmerman's Tavern in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-213 through 5-218 are representative photographs of the property, as well as those taken from locations within and near the property towards the project area. Figures 5-219 through 5-224 provide photo simulation from the property.

RESULTS OF FIELD RECONNAISSANCE

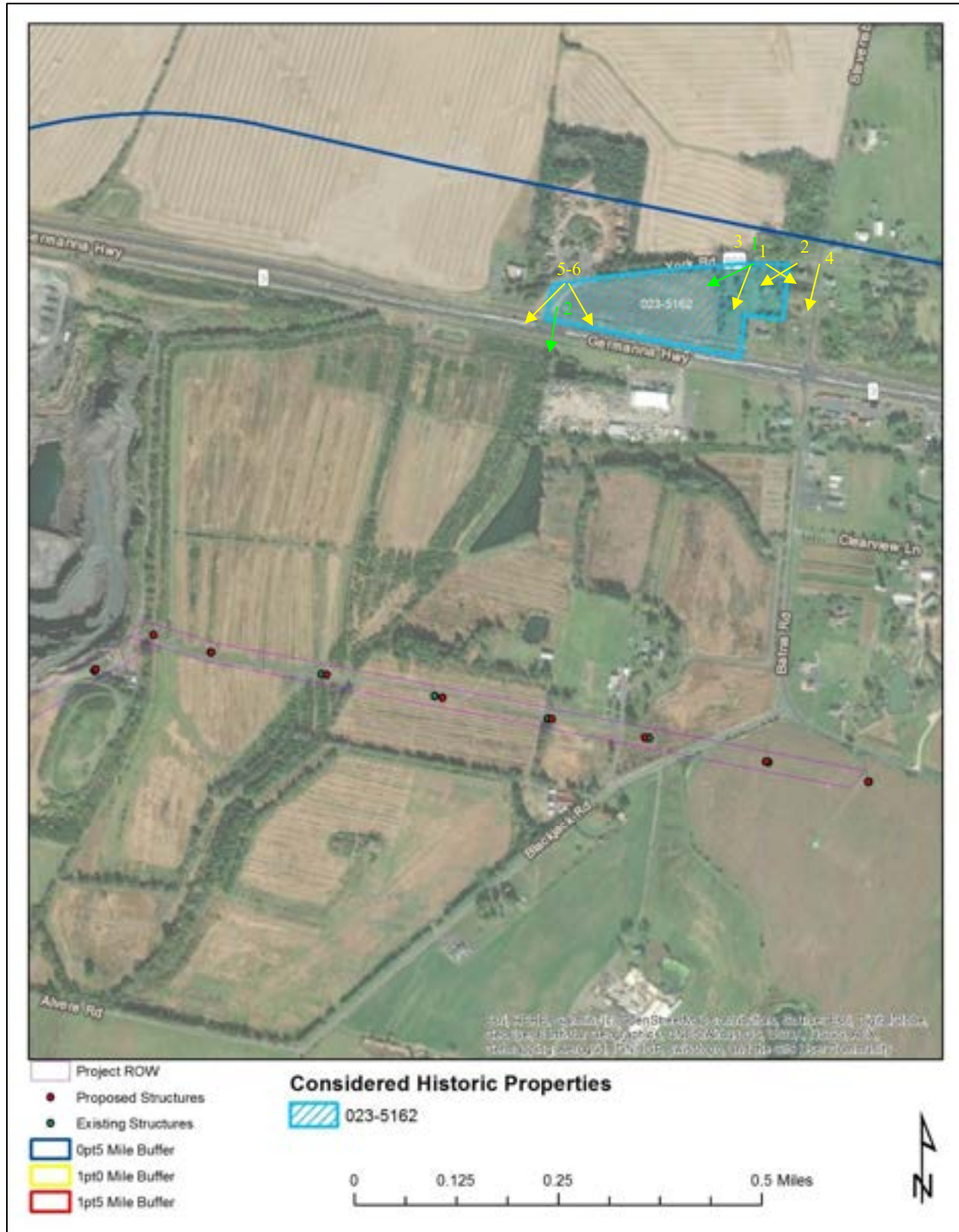


Figure 5-212: Location of Zimmerman's Tavern in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).



Figure 5-213: Photo location 1- View of Zimmerman's Tavern from York Road (No structures visible), facing southeast.



Figure 5-214: Photo location 2- View from front of Zimmerman's Tavern (No structures visible), facing southwest.



Figure 5-215: Photo location 3- View from front of Zimmerman's Tavern (No structures visible), facing southwest.



Figure 5-216: Photo location 4- View from intersection of York Road and Stevensburg Road (No structures visible), facing south.



Figure 5-217: Photo location 5- View from west edge of Zimmerman's Tavern property (No structures visible), facing southwest.



Figure 5-218: Photo location 6- View from west edge of Zimmerman's Tavern property (No structures visible), facing southwest.

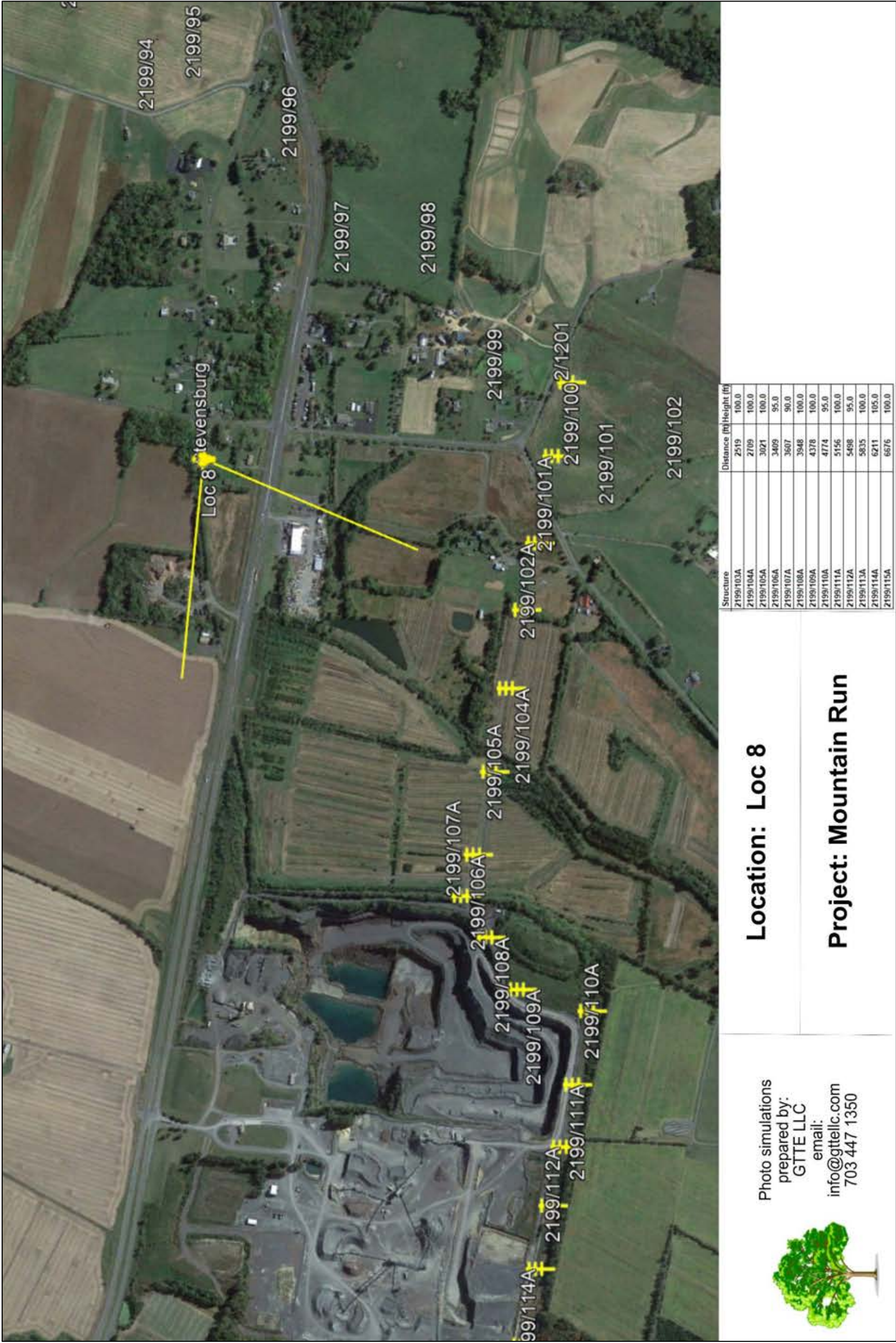


Figure 5-219: Zimmerman’s Tavern Simulation 1 – Simulation location, direction of view, and structures modeled from front of the building. Source: GTTE, LLC



Figure 5-220: Zimmerman’s Tavern Simulation 1 – Existing view from front of the building. Source: GTTE, LLC



Figure 5-221: Zimmerman’s Tavern Simulation 1 – Proposed view from front of the building – (Structures not visible shown in yellow). Source: GTTE, LLC

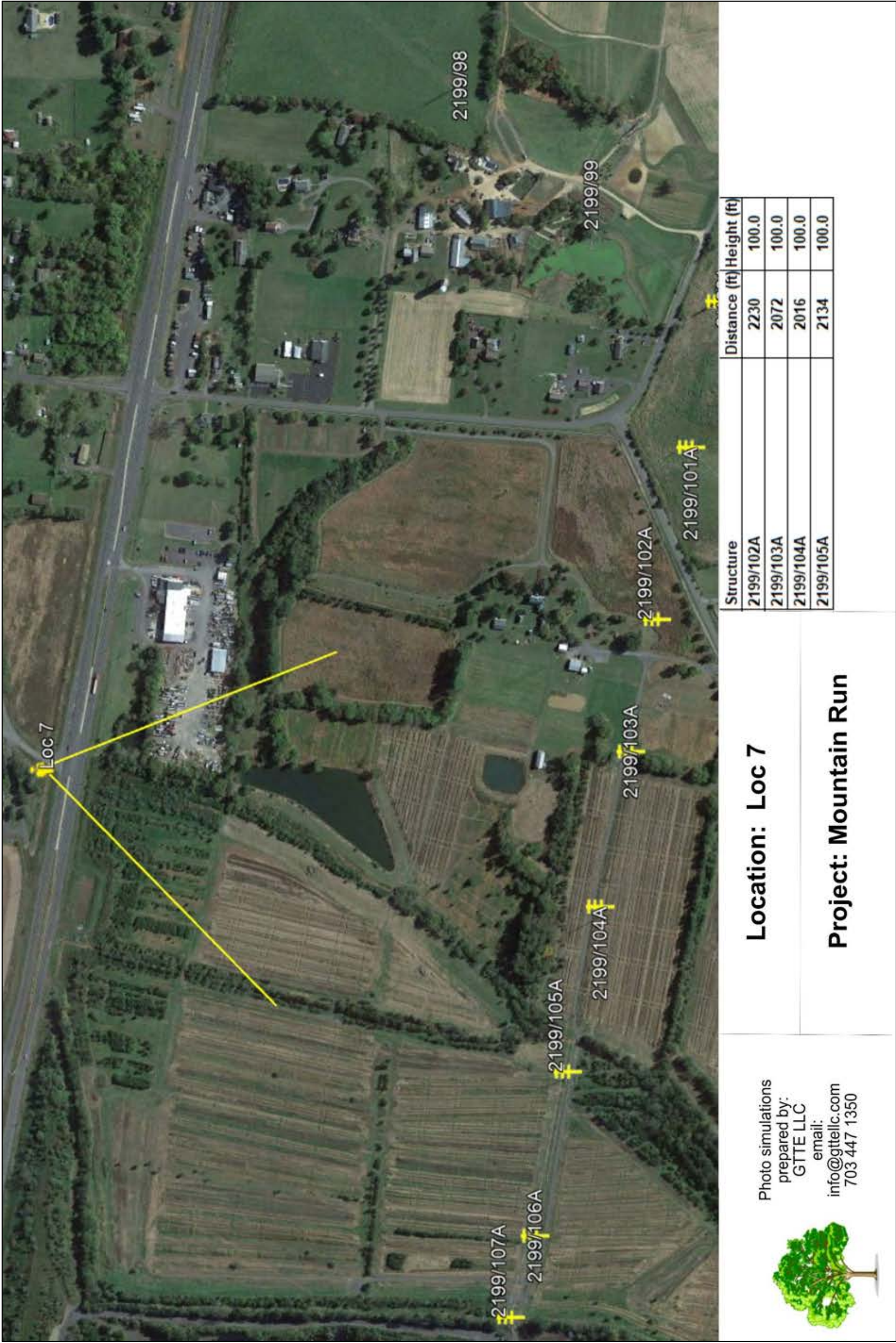


Figure 5-222: Zimmerman’s Tavern Simulation 2 – Simulation location, direction of view, and structures modeled from west edge of property along Route 3. Source: GTTE, LLC



Figure 5-223: Zimmerman’s Tavern Simulation 2 – Existing view from west edge of property along Route 3. Source: GTTE, LLC



Figure 5-224: Zimmermann’s Tavern Simulation 2 – Proposed view from west edge of property along Route 3 – (Visible structures shown as they would appear. Structures not visible shown in yellow). Source: GTTE, LLC

House, 19564 Alvere Road (VDHR# 023-5494)

The house at 19564 Alvere Road was constructed circa 1938 according to local records and is located on a 210-acre property on the southwest side of Alvere Road. The house is surrounded by overgrown open fields and scattered mature trees with wood and metal rail fences scattered throughout the parcel. It is accessed by a gravel driveway leading from Alvere Road to the house. Five outbuildings are present on the property, including four barns and one pole barn, along with one ruin. The house was not accessible or visible from the public ROW at the time it was surveyed, so conditions were unknown, but it was recommended for further survey and treated as potentially eligible for the purposes of that effort. As such it will continue to be treated as potentially eligible until further evaluation is conducted.

The property associated with the house at 19564 Alvere Road is immediately adjacent to the project alignment and was therefore subject to assessment for potential impacts. In order to assess the potential impact of the proposed project, visual inspection was conducted of the setting around and within the property and photographs were taken to document viewshed with emphasis on views from the resource towards the project alignment. The house at 19564 Alvere Road is set on a large rural property just south of the small community of Stevensburg near the eastern terminus of the project. The home is oriented to the north, generally facing the project alignment as it extends through the landscape to the front.

A site visit to the property found that the home is set far back from the road, centrally within a large property that generally retains a rural character and intact setting. However, the northern edge of the property, where the project alignment is located, is bordered by a large, modern, open-pit strip mine. A variety of vertical elements associated with the strip mine are visible, including cranes and ramps, as well as a cellular communication tower. Because the home is setback far from the road within a vegetated homesite, it is mostly screened from view from the road. Because the property bordering the homesite is generally open and agricultural field, views outward from the house are likely wide and distant.

As part of the project, ten structures to be replaced border the northern edge of the property, between it and the adjacent quarry. These structures, and others on the project alignment extending further away from the property will be replaced on a one-to-one basis near the location of the existing structures, and will not require any additional ROW or clearing within the property. As such, there will be no direct impact to the property, however, because the structures on the project alignment will be increased in height, the project has the potential to introduce indirect or visual impacts.

Inspection from Batna Road bordering the east edge of property revealed that several of the existing structures on the project alignment bordering the property are visible. These structures can be seen rising above and through breaks in the treeline along the ROW. Meanwhile, views across the road from the property include nearly unobstructed views of multiple existing structures on the Gordonsville-Remington line as they approach the interconnect with the project alignment. Inspection from Alvere Road extending to the property revealed more unobstructed views of multiple structures associated with the project, including those adjacent to the property and

beyond. Views from this vantage allow visibility of larger portions of the structures, as well as increased visibility of the quarry infrastructure and nearby cellular antenna tower.

The existing structures to be replaced as part of this project are each 80-feet in height and the proposed replacement structures will generally average 100-feet in height. As such, it is anticipated that the increase in structure height may be noticeable from both public ROW as well as the property, however, the views already include large portions of multiple existing structures, as well as a variety of other nonhistoric features and intrusions. While the visible project structures will rise higher above the intervening treeline, it is not anticipated that any new or additional structures not currently visible will become such. This was confirmed by photo simulation from public ROW bordering the property that shows currently visible structures will increase in height above the treeline while structures that are currently screened behind vegetation will remain as such, although all proposed structures will remain lower than an existing cellular communications tower visible in the same direction. Therefore, while the increase in height may be noticeable, however, it will be seen in conjunction with and amongst a wide variety of nonhistoric features. Further, the eligibility of this property has not been confirmed, and at this time is only being treated as potentially eligible due to insufficient data as a part of previous study. It is therefore D+A's opinion that the Cirrus – Keyser 230 kV Loop and Related Projects will pose no more than a *minimal impact* on the house at 19564 Alvere Road.

Figure 5-225 depicts the location of the house at 19564 Alvere Road in relation to the project area and viewshed buffers, with the location and direction of all representative photographs and photo simulations. Figures 5-226 through 5-231 are representative photographs of the property, as well as those taken from locations within and near the property towards the project area. Figures 5-232 through 5-234 provide photo simulation from the property.

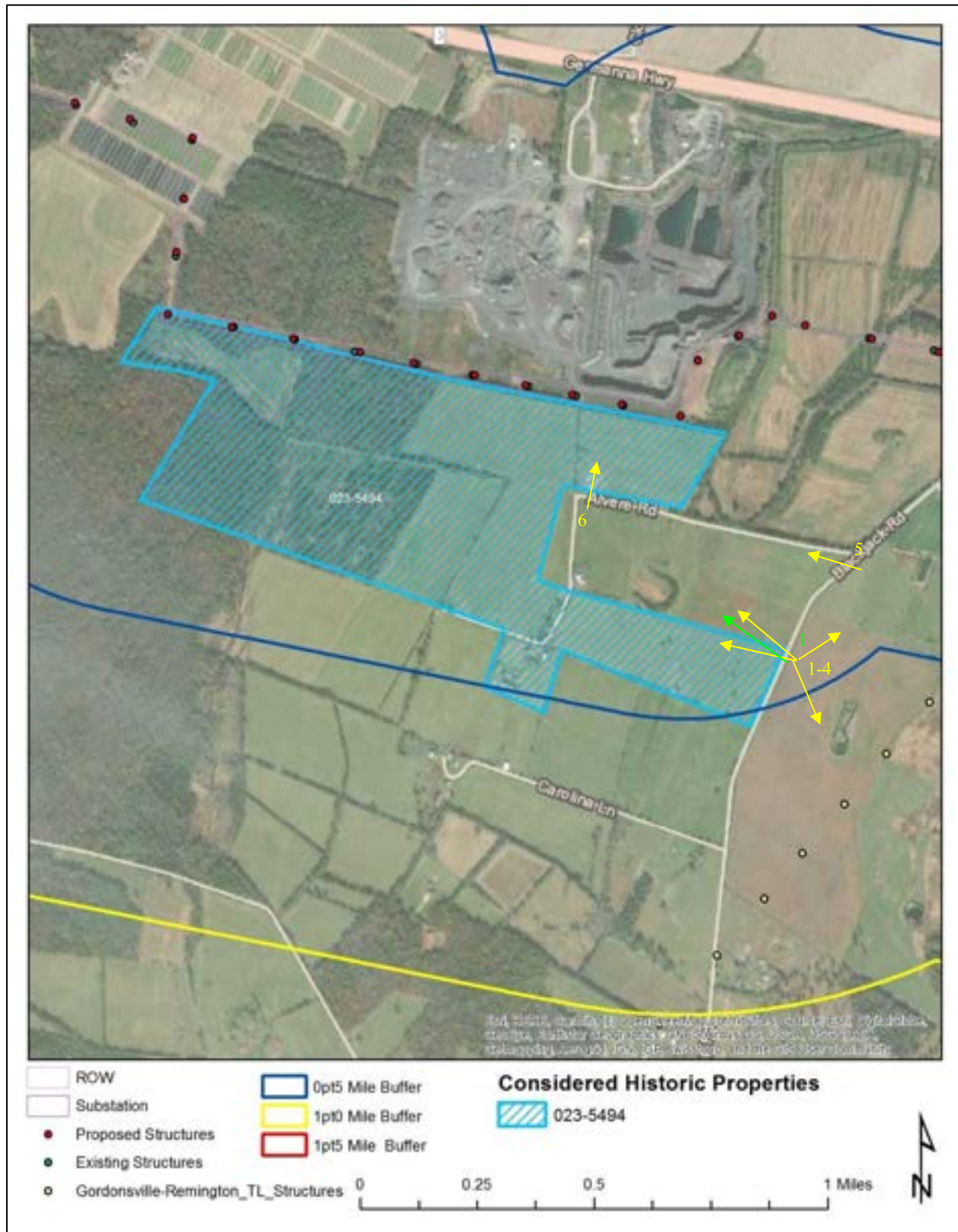


Figure 5-225: Location of house at 19564 Alvere Road in relation to the project area (Representative photographs and views towards the project area depicted in yellow, photo simulations depicted in green).



Figure 5-226: Photo location 1- View of property from Blackjack Road (existing project structure visible), facing south.

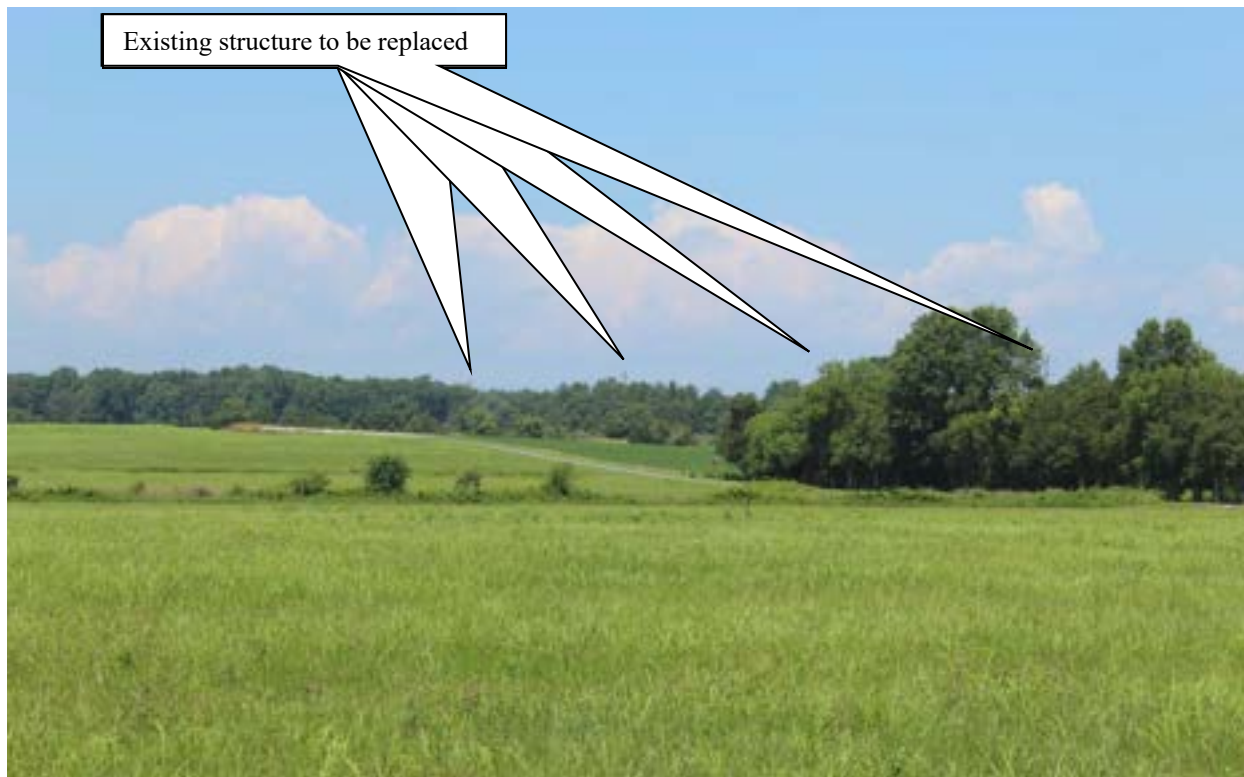


Figure 5-227: Photo location 2- View from edge of property along Blackjack Road (multiple project structures visible), facing northwest.



Figure 5-228: Photo location 3- View from edge of property along Blackjack Road (multiple project structures visible), facing northwest.

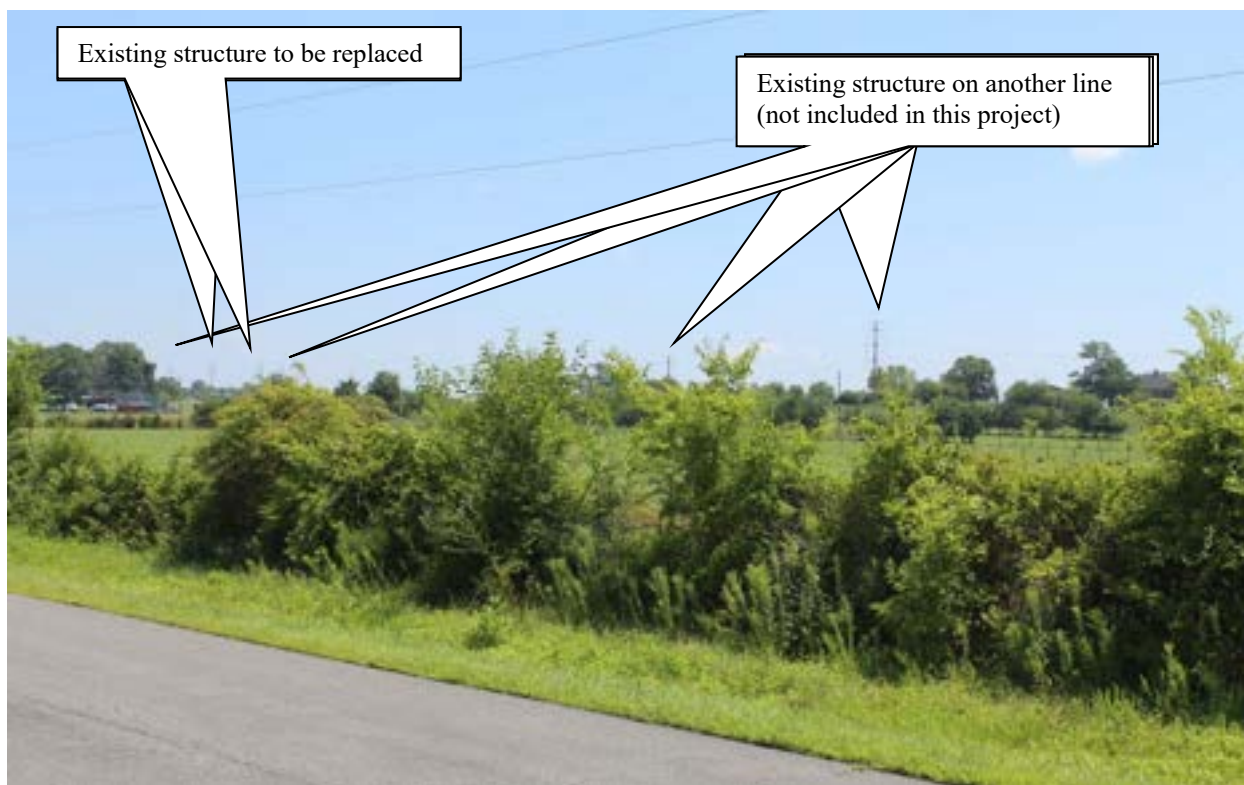


Figure 5-229: Photo location 4- View from edge of property along Blackjack Road (multiple project structures visible), facing northwest.



Figure 5-230: Photo location 5- View from intersection of Blackjack Road and Alvere Road (No structures visible), facing northwest.

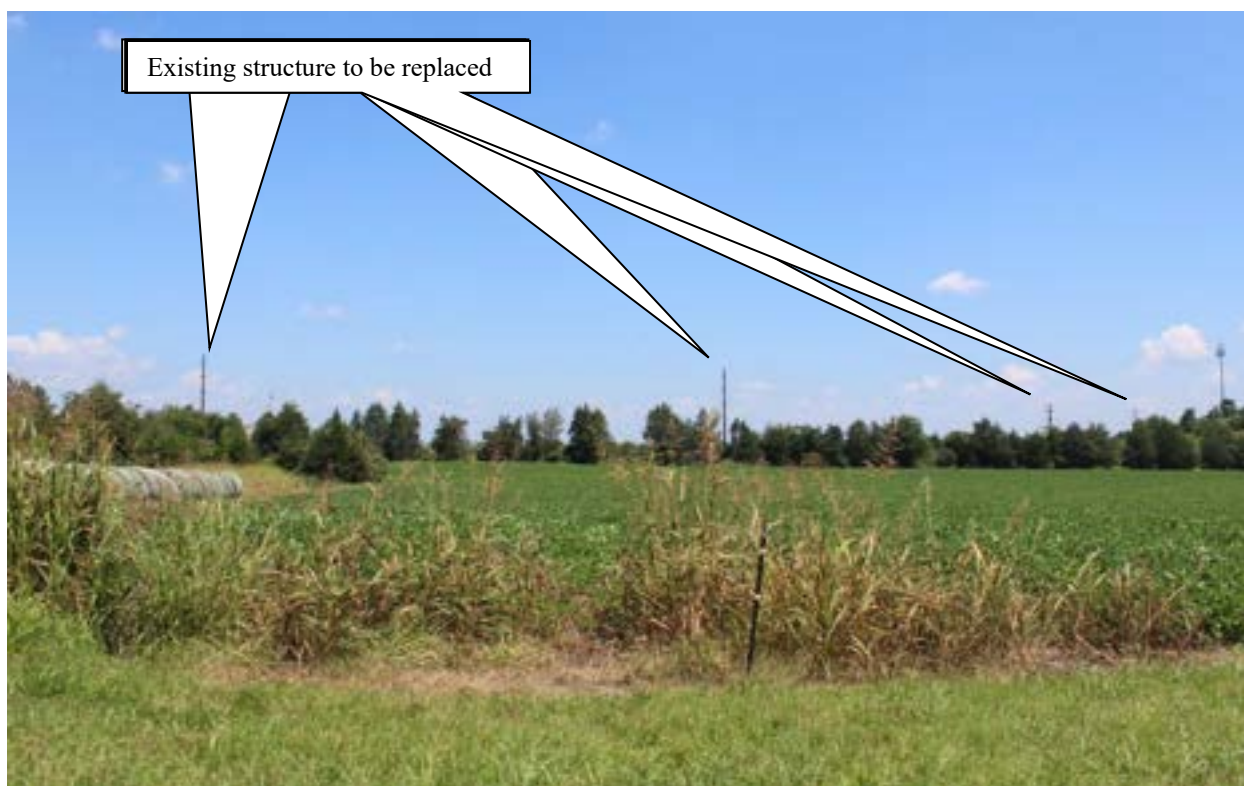


Figure 5-231: Photo location 6- View from edge of property along Alvere Road (multiple project structures visible), facing north.

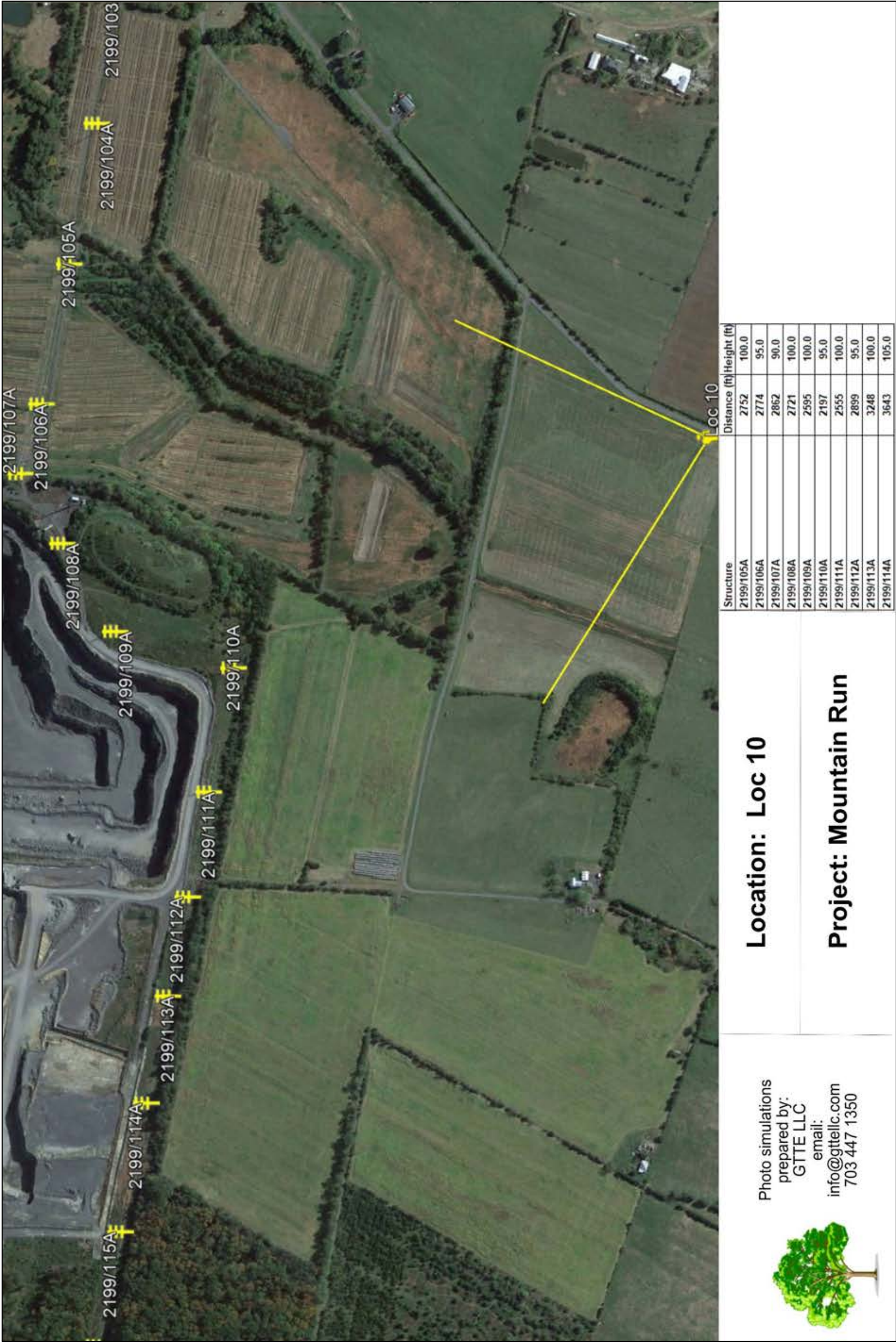


Figure 5-232: 19564 Alvere Road Simulation 1 – Simulation location, direction of view, and structures modeled from Blackjack Road. Source: GTTE, LLC



		Project: Mountain Run		Location 10	Existing View
<div>Photo simulations prepared by: GTTE LLC email: info@gttelic.com 703 447 1350</div> 		Photo Simulations and diagrams represent approximate heights for electric transmission structures from the conceptual design used for the proposed project. These illustrations do not necessarily depict exact structure design or location.		This simulation is designed for viewing on a computer monitor. To achieve the correct scale, the image should be increased or decreased in size until the scale above measures 4". When viewed with the eye at 31" from the screen the image will have the same scale as if the viewer were standing at the camera location.	

Figure 5-233: 19564 Alvere Road Simulation 1 – Existing view from Blackjack Road. Source: GTTE, LLC



Figure 5-234: 19564 Alvere Road Simulation 1 – Proposed view from Blackjack Road – (Visible structures shown as they would appear. Structures not visible shown in yellow). Source: GTTE, LLC

THIS PAGE INTENTIONALLY LEFT BLANK

6. SUMMARY OF POTENTIAL IMPACTS

As part of this pre-application analysis of cultural resources for the Cirrus – Keyser 230 kV Loop and Related Projects, potential impacts to previously recorded historic properties designated an NHL, NRHP-listed, or considered eligible for listing in the NRHP within the VDHR-defined buffered tiers were assessed in accordance with the VDHR guidelines. For the purposes of this analysis, an impact is one that alters, either directly or indirectly, those qualities or characteristics that qualify a particular property for listing in the NRHP and does so in a manner that diminishes the integrity of a property's materials, workmanship, design, location, setting, feeling, and/or association. With respect to transmission lines, direct impacts typically are associated with ground disturbance resulting from ROW clearing and structure construction. Indirect impacts typically are associated with the introduction of new visual elements or changes to the physical features of a property's setting or viewshed. According to VDHR guidance, project impacts are characterized as such:

- **None** – Project is not visible from the property
- **Minimal** – Occur within viewsheds that have existing transmission lines, locations where there will only be a minor change in tower height, and/or views that have been partially obstructed by intervening topography and vegetation.
- **Moderate** – Include viewsheds with expansive views of the transmission line, more dramatic changes in the line and tower height, and/or an overall increase in the visibility of the route from the historic properties.
- **Severe** – Occur within viewsheds that do not have existing transmission lines and where the views are primarily unobstructed, locations where there will be a dramatic increase in tower visibility due to the close proximity of the route to historic properties, and viewsheds where the visual introduction of the transmission line is a significant change in the setting of the historic properties.

With regards to architectural resources, there are a total of thirteen (13) historic properties located within the defined study tiers that warrant consideration of impacts. This includes no (0) NHLs located within 1.5 mile of the proposed project or closer, six (6) properties listed in the NRHP located within 1.0 mile or closer of the project, two (2) battlefields located within 1.0 mile or closer of the project, three (3) historic landscapes within 1.0 mile or closer of the project, and two (2) properties that have been determined eligible or potentially eligible for listing in the NRHP within 0.5 mile or closer of the project. Of these resources, three (3) of the NRHP-listed properties, two (2) battlefields, one (1) historic landscape, and one (1) NRHP-eligible property are directly crossed by the project area.

Inspection of and from these resources found that most located within a mostly rural setting bordering Route 3 between Culpeper and the village of Stevensburg, while two are located within the urban core of Culpeper. Other than some modern development and infill in the vicinity of Stevensburg, as well as a number of existing transmission lines, and a large quarry operation, the historic setting of the area remains largely intact. In general, the development patterns are light, and the landscape is gently rolling and mostly open, with just occasional treelines and field breaks. As such, views throughout the study area are generally wide and open. This permits extensive visibility of the existing project transmission line and associated

SUMMARY OF POTENTIAL IMPACTS

structures from many vantage points and properties. In some areas, the project structures are visible at a close distance and/or across open field, while from other areas visibility is more limited to the upper portions of structures above treelines. This is in contrast to the two properties located within Culpeper that are bordered by dense commercial and residential development, as well as thick vegetation that screens distant views in the direction of the project. The existing structures average 80-feet in height and the proposed replacement structures will average roughly 100-feet in height. Structures will generally be replaced on a one-to-one basis near the existing locations, with structures of similar design, finish, and appearance. As such, visibility of the transmission line is anticipated to remain largely unchanged as a result of the project, despite the increase in height. While the increase in height may be more perceptible for those structures seen above a treeline as more of the structure will become visible; the increase in height for those structures seen across open field will not be as noticeable without the context of the treeline. Overall, existing and proposed views from the study area and the considered historic properties include multiple structures and lengths of transmission line, often seen in conjunction with structures on the existing Gordonsville-Remington line that the project interconnects with. ***It is therefore D+A's opinion that based upon the definition of impacts above, the proposed Cirrus – Keyser 230 kV Loop and Related Projects will have no more than a minimal impact on any architectural resources that are designated an NHL, listed in the NRHP, or determined eligible or potentially eligible for listing (Table 6-1).***

Table 6-1: Potential impacts summary for architectural resources.

VDHR #	Resource Name, Address	NRHP-Status	Distance from Project	Recommended Impact
023-0018	Rose Hill	NRHP-Listed	Directly Crossed	Minimal Impact
023-0020	Salubria	NRHP-Listed	~0.64 Mile	No Impact
023-0068	Hansbrough Ridge Winter Encampment	NRHP-Listed	~0.98 Mile	Minimal Impact
023-0084	Mount Pony Rural Historic District	NRHP-Eligible	Directly Crossed	Minimal Impact
023-5023	Signal Hill	NRHP-Listed	Directly Crossed	Minimal Impact
023-5040	Croftburn Farm	NRHP-Listed	Directly Crossed	Minimal Impact
023-5055	Brandy Station Battlefields	NRHP-Potentially Eligible	Directly Crossed	Minimal Impact
023-5162	Zimmerman's Tavern	NRHP-Eligible	~0.38 Mile	Minimal Impact
023-5441	Mountain Run Historic District	NRHP-Eligible	~0.89 Mile	Minimal Impact
023-5494	House, 19564 Alvere Road	NRHP-Eligible	Immediately Adjacent	Minimal Impact
068-5007	Battle of Morton's Ford	NRHP-Potentially Eligible	Directly Crossed	Minimal Impact
204-0064	South East Street Historic District	NRHP-Listed	~0.92 Mile	No Impact
204-0069	Culpeper National Cemetery	NRHP-Listed	~0.92 Mile	No Impact

With regards to archaeology, roughly half of the project ROW has been subject to survey and one previously recorded site is crossed by it. This includes a length of a nineteenth century road trace that has not been subject to formal evaluation. No archaeological field work was conducted as part of this effort and the previously recorded site within or adjacent to the project ROW was not visited or assessed at this time (Table 6-2). ***It is therefore D+A's opinion that surveyed portions of the project ROW be surveyed and identified sites be assessed for impacts.***

SUMMARY OF POTENTIAL IMPACTS

Table 6-2: Summary of potential impacts summary for archaeological resources.

VDHR#	NRHP Status	Proximity to Project Area	Impacts
44CU0137, Road Trace	Not Evaluated	Directly Crossed	TBD

THIS PAGE INTENTIONALLY LEFT BLANK

7. REFERENCES

National Park Service

2009 “Civil War Sites Advisory Commission Report Update and Resurvey,” American Battlefield Protection Program

Virginia Department of Historic Resources

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

Virginia Department of Historic Resources

2016 Virginia Cultural Resource Information System (VCRIS) database and GIS server.

THIS PAGE LEFT INTENTIONALLY BLANK