

May 1, 2023

## **APPALACHIAN POWER COMPANY**

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**Stuart Area 138-kV Transmission Improvements Project  
Component 2: Mayo River (Stuart) to Floyd Transmission Improvements**

**SCC Case No. PUR-2023-00024  
Floyd and Patrick Counties, Virginia**

*Virginia Department of Environmental Quality (“VDEQ”) Supplement*

**PROJECT NUMBER:**

158529

**PREPARED FOR:**

Appalachian Power Company

**PREPARED BY:**



Based on consultations with the Virginia Department of Environmental Quality (“VDEQ”), POWER Engineers, Inc., on behalf of Appalachian Power Company, has developed this VDEQ Supplement to facilitate review and analysis of the Mayo River (Stuart) to Floyd Transmission Improvements Component, which is Component 2 of the larger Stuart Area 138-kV Transmission Improvements Project, by the VDEQ and other relevant agencies.

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## ACRONYMS AND ABBREVIATIONS

Appalachian Power	Appalachian Power Company
BMPs	Best management practices
CIR	Color Infrared
Component 2	Mayo River (Stuart) to Floyd Transmission Improvements
FAA	Federal Aviation Administration
GIS	Geographic Information System
HUC	Hydrologic Unit Code
IPaC	Information for Planning and Consultation
kV	kilovolt
NHD	National Hydrography Dataset
NPL	National Priority List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory
PEM	Palustrine Emergent Wetland
PFO	Palustrine Forested Wetland
POWER	POWER Engineers, Inc.
PSS	Palustrine Scrub-Shrub Wetland
RCRA	Resource Conservation and Recovery Act
ROW	Right-of-way
SCC	State Corporation Commission
Stuart Project	Stuart Area 138-kV Transmission Improvements Project
TRI	Toxics Release Inventory
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VAFWIS	Virginia Fish and Wildlife Information Service
VDACS	Virginia Department of Agriculture and Consumer Services
VDCR	Virginia Department of Conservation and Recreation
VDEQ	Virginia Department of Environmental Quality
VDHR	Virginia Department of Historic Resources
VDWR	Virginia Department of Wildlife Resources
VDOF	Virginia Department of Forestry
VDOT	Virginia Department of Transportation
VRP	Voluntary Remediation Program

## 1. PROJECT DESCRIPTION

With the Stuart Area 138-kV Transmission Improvements Project (“Stuart Project”), Appalachian Power Company (“Appalachian Power”) is planning to upgrade the local electric transmission grid in four Virginia counties: Carroll, Floyd, Henry, and Patrick. The Stuart Project provides a new electrical source for the area, upgrades the voltage of equipment from 69-kilovolt (“kV”) to 138-kV, improves the local distribution system, and addresses deteriorating infrastructure. The Stuart Project will ensure adequate power delivery to the area to support today’s electrical load and provide continued support during an extended outage.

The Stuart Project is organized into three components, which generally follow the Project construction sequence. The Mayo River (Stuart) to Floyd Transmission Improvements Component (“Component 2”) is the subject of this Virginia Department of Environmental Quality (“VDEQ”) Supplement. Component 2 involves rebuilding approximately 22.0 miles of the existing Floyd – Stuart 69-kV Transmission Line to 138-kV in Patrick (approximately 17.0 miles) and Floyd (approximately 5.0 miles) Counties, between the proposed Mayo River Substation and the existing Woolwine and Floyd Substations. The transmission line will be rebuilt to upgrade the voltage of aging equipment originally constructed in the 1950s. In addition, Appalachian Power’s existing Woolwine Substation will be upgraded, and the Floyd Substation will be expanded to accommodate the future electrical upgrades associated with the Project. The proposed Mayo River Substation will replace the existing Stuart Substation, which is to be retired. A substation site selection process was required for the proposed Mayo River Substation. Component 2 will be constructed largely within the existing right-of-way (“ROW”), where existing easements range from an undefined width to 100 feet wide. In areas where the existing ROW is undefined or new ROW is required, the Company typically will plan to secure 100 feet for ROW to meet current design requirements. Component 2 includes minor deviations from the existing centerline to optimize the design or avoid constraints.

A siting effort was undertaken to determine the alignment for Component 2 (the “Proposed Route”). From the proposed Mayo River Substation in Patrick County, the Proposed Route extends generally northeast, crossing United States (“U.S.”) Route 58 (Jeb Stuart Highway) before turning northwest and connecting to the existing centerline after 3.5 miles. The Proposed Route then continues north for approximately 18.5 miles, primarily following the existing centerline, to reach the Floyd Substation, crossing the Blue Ridge Parkway along the route. See Exhibit 3 in the Company’s Virginia State Corporation Commission (“SCC”) Application for a detailed overview map of the Stuart Project Area.

Transmission line structure types may vary along the line route depending on topography, design, and needs of Component 2. Appalachian Power plans to build the 138-kV transmission lines primarily using dilled galvanized steel single-circuit H-frame structures. Double-circuit monopole structures will be used on the 1.0-mile double-circuit section coming out of Mayo River Substation on the Mayo River – Woolwine 138-kV line and the 0.5-mile double-circuit section coming out of Floyd Substation on the Floyd – Woolwine 138-kV line. The proposed single-circuit structures will have an average structure height of approximately 80 feet and the proposed double-circuit structures will have an average structure height of approximately 100 feet. The proposed structures for the rebuilt line will typically be 35 feet taller on average than the existing structures, with the largest height difference being approximately 65 feet but will largely be constructed near their existing locations.

Appalachian Power’s application to the SCC, describes the overall need and necessity for the Stuart Area 138-kV Transmission Improvements Project (SCC Case No. PUR-2023-00024).

## 2. ENVIRONMENTAL ANALYSIS

Appalachian Power and POWER Engineers, Inc. (“POWER”) solicited input from 22 federal, state, and local agencies and/or officials regarding the Stuart Project. Nine responses were received and are included along with the letters in the Agency Correspondence attachment within Volume 3 of the Application. POWER also obtained relevant environmental data from field reconnaissance, online databases, and other publicly available sources.

### A. Air Quality

Component 2 does not involve the construction or expansion of any thermal emission generating sources and therefore no direct operational emissions from the Project are anticipated. During construction, emissions from heavy equipment and dust could occur, but will be kept at a minimum. No permanent impacts on air quality are anticipated, and temporary impacts will only last the duration of the construction phase. Appalachian Power does not expect to burn cleared material but, if burning becomes necessary, Appalachian Power will coordinate with the responsible locality to obtain permits and will comply with conditions imposed by the locality. Appalachian Power’s tree-clearing methods can be found in Section II.A.7 of the Response to Guidelines in Volume 1 of the Application.

### B. Water Source

Component 2 is located in six sub-watersheds: Smith River – Rock Castle Creek (Hydrologic Unit Code [“HUC”] 12 030101030601); Sycamore Creek – Little Sycamore Creek (HUC12 030101030602); Smith River – Widgeon Creek (HUC12 030101030603); Upper South Mayo River (HUC12 030101030401); Little River – Pine Creek (HUC12 050500011602) and West Fork Little River – Dodd Creek (HUC12 050500011604). Component 2 is located in the Upper Dan sub-basin (HUC8 03010103) and the Upper New sub-basin (HUC805050001). No water source is required for the transmission line operation.

Appalachian Power and POWER solicited comments from various environmental agencies in a letter and Project map dated November 23, 2021. In an email received on December 13, 2021, the Virginia Department of Health’s Office of Drinking Water noted receipt of the letter and no concerns related to Component 2 of the Project. The Virginia Department of Health’s Office of Drinking Water also noted public groundwater wells located within one mile of the Project, and wells within a 1,000-foot radius that should be field marked and protected from accidental damage during the construction phase of the Project.

A project review request was completed by the Virginia Department of Conservation and Recreation’s (“VDCR”) Natural Heritage Program on December 17, 2021. Per the VDCR, the Smith River – Sycamore Creek – White Falls Stream Conservation Unit is located downstream from the area of Component 2 and has been given a biodiversity ranking of “very high significance” (B2). Additionally, the Smith River has been designated by the Virginia Department of Wildlife Resources (“VDWR”) as a “Threatened and Endangered Species Water” and is downstream of Component 2 and is approximately 13 miles from the Component 2 centerline at its nearest point. Other conservation sites including the Oldfield Creek Seep Conservation Site, the Thomas Groves Flats Conservation Site, the Slusher Bog Conservation Site, the Robertson Bog Conservation Site, and the Dodd Creek – Rakes Mill Pond Conservation Site were identified. No response was received from the VDEQ Office of Wetland and Stream Protection, VDEQ Blue Ridge Regional Office, United State Army

Corps of Engineers (“USACE”), or the Virginia Marine Resources Commission regarding Component 2 or the larger Stuart Project.

Responses from the Virginia Department of Health’s Office of Drinking Water and VDCR in regard to water sources are included in the Agency Correspondence attachment within Volume 3 of the Application. Coordination and review with the VDEQ, USACE, and Virginia Marine Resources Commission will be conducted during the Project’s environmental studies.

**C. Discharge of Cooling Waters**

No discharge of cooling waters is associated with Component 2.

**D. Tidal and Non-tidal Wetlands**

No tidal wetlands are associated with Component 2 and no response was received from the Virginia Marine Resources Commission. A desktop wetland and stream delineation report was prepared in March 2023 and identified potential non-tidal wetlands and streams for Component 2 (Attachment 2.D.1). The desktop features were identified within the typical 100-foot-wide ROW for the approximately 22.0-mile portion of the Floyd - Stuart 69 kV transmission line to be rebuilt and Alternative Routes considered. The majority of Component 2 can be rebuilt within or near the existing ROW (Rebuild Route) however; two alternative routes (Alternative Routes A and B) were identified for Component 2. The results of the desktop wetland and stream delineation report are briefly summarized below.

Table 1 below shows the criteria used to determine the wetland and stream probability within the typical 100-foot-wide ROW for the Project. The current potential streams and wetlands were assigned a probability of low potential, moderate potential, or high potential of being a regulated resource.

**Table 1 Wetland Evaluation Criteria**

PROBABILITY	WETLAND ASSESSMENT CRITERIA	STREAM ASSESSMENT CRITERIA
High	Aerial imagery (color and color infrared [“CIR”]) and/or topography combined with <b>two</b> other indicators such as National Wetland Inventory (“NWI”) wetlands, National Hydrography Dataset (“NHD”) streams, hydric soils, or a regulated floodplain.	Streams identified with NHD and aerial imagery (color and CIR).
Moderate	Aerial imagery (color and CIR) and/or topography combined with <b>one</b> other indicator such as NWI wetlands, NHD streams, hydric soils, or a regulated floodplain.	Either (1) streams identified with aerial imagery (color and CIR) and topography; or (2) aerial imagery or topography combined with one other indicator, such as NWI riverine features or county or city stream data.
Low	Areas identified as wetland with topography and aerial photography only.	Areas identified as streams with topography or aerial photography only.



**Alternative Routes**

***Alternative Route A***

Alternative Route A consists of approximately 2.2 miles of greenfield and approximately 2.0 miles of existing ROW alignments located to the north of the proposed Mayo River Substation in Patrick County. Alternative Route A crosses the South Mayo River approximately 0.25 mile north of the Mayo River Substation and splits in two directions after that point. A portion of Alternative Route A continues generally northeast and terminates at the existing Fieldale – Stuart 69-kV Transmission Line. The second alignment angles to the northwest towards the existing Floyd-Stuart 69-kV Transmission Line, intersecting the existing line near Structure No. 452-130 and continuing north and terminating at the southern end of the Rebuild Route. Within a 100-foot-wide ROW, the desktop wetland and stream delineation identified two potential wetlands (totaling 0.24 acre) and 20 streams (totaling 4,221 linear feet). The results of the desktop wetland and stream delineations for Alternative Route A are summarized in Table 2 below.

**Table 2            Alternative Route A: Desktop Wetland and Stream Delineation Results**

PROBABILITY	POTENTIAL WETLAND/STREAM CLASSIFICATION*	ESTIMATED NUMBER OF OCCURRENCES	ESTIMATED ACREAGE/LINEAR FEET WITHIN ROW
<b>High</b>			
	PSS, PEM/PFO	0	0 acre
	Streams	8	1,173 linear feet
<b>Moderate</b>			
	PFO, PSS, PEM	0	0 acre
	Streams	4	703 linear feet
<b>Low</b>			
	PFO, PSS, PEM	2	0.24 acre
	Streams	8	2,345 linear feet
<b>Wetland Total</b>		<b>2</b>	<b>0.24 acre</b>
<b>Stream Total</b>		<b>20</b>	<b>4,221 linear feet</b>

Note: PSS = Palustrine Scrub-Shrub; PEM = Palustrine Emergent; PFO = Palustrine Forested.

***Alternative Route B (Proposed Route)***

Alternative Route B consists of approximately 3.5 miles of greenfield alignment located to the north of the proposed Mayo River Substation in Patrick County. This route initially follows the same alignment as Alternative Route A northeast of the substation towards the existing Fieldale – Stuart 69-kV Transmission Line. The line then continues to the north and northwest before terminating at the southern end of the Rebuild Route. Within a 100-foot-wide ROW, the desktop wetland and stream delineation identified 2 potential wetlands (totaling 0.24 acre) and 12 streams (totaling 1,532 linear feet). The results of the desktop wetland and stream delineations for Alternative Route B are summarized in Table 3 below.

**Table 3 Alternative Route B (Proposed Route): Desktop Wetland and Stream Delineation Results**

PROBABILITY	POTENTIAL WETLAND/STREAM CLASSIFICATION*	ESTIMATED NUMBER OF OCCURRENCES	ESTIMATED ACREAGE/LINEAR FEET WITHIN ROW
<b>High</b>			
	PSS, PEM/PFO	0	0 acre
	Streams	4	518 linear feet
<b>Moderate</b>			
	PFO, PSS, PEM	0	0 acre
	Streams	2	317 linear feet
<b>Low</b>			
	PFO, PSS, PEM	2	0.24 acre
	Streams	6	697 linear feet
<b>Wetland Total</b>		<b>2</b>	<b>0.24 acre</b>
<b>Stream Total</b>		<b>12</b>	<b>1,532 linear feet</b>

Note: PSS = Palustrine Scrub-Shrub; PEM = Palustrine Emergent; PFO = Palustrine Forested.

**Rebuild Route (Proposed Route)**

The Rebuild Route consists of a total of approximately 18.5 miles of the existing Floyd – Stuart 69-kV Transmission Line between Structure No. 452-130 in Patrick County and the existing Floyd Substation in Floyd County. Approximately 13.7 miles are located in Patrick County and 4.8 miles are located in Floyd County. The Rebuild Route intersects with the existing Woolwine Substation, including two separate crossings of the Smith River, in the central portion of the alignment. Within a 100-foot-wide ROW, the desktop wetland and stream delineation identified 53 potential wetlands (totaling 7.13 acres) and 79 streams (totaling 11,170 linear feet). The results of the desktop wetland and stream delineations for the Rebuild Route are summarized in Table 4 below.

**Table 4 Rebuild Route (Proposed Route): Desktop Wetland and Stream Delineation Results**

PROBABILITY	POTENTIAL WETLAND/STREAM CLASSIFICATION*	ESTIMATED NUMBER OF OCCURRENCES	ESTIMATED ACREAGE/LINEAR FEET WITHIN ROW
<b>High</b>			
	PSS, PEM/PFO	4	0.61 acre
	Streams	31	4,559 linear feet
<b>Moderate</b>			
	PFO, PSS, PEM	22	3.10 acres
	Streams	19	3,105 linear feet
<b>Low</b>			
	PFO, PSS, PEM	27	3.42 acres
	Streams	29	3,506 linear feet
<b>Wetland Total</b>		<b>53</b>	<b>7.13 acres</b>
<b>Stream Total</b>		<b>79</b>	<b>11,170 linear feet</b>

Note: PSS = Palustrine Scrub-Shrub; PEM = Palustrine Emergent; PFO = Palustrine Forested.

The Proposed Route (Alternative Route B and Rebuild Route) for Component 2 is approximately 22.0 miles long and is largely within or adjacent to the existing transmission line ROW. The Proposed Route includes minor deviations from the centerline and new greenfield portions to optimize the design or avoid constraints. Within an assumed 100-foot-wide ROW for Component 2 Proposed Route, the desktop wetland and stream delineation identified 55 potential wetlands (7.37 acres total) and 91 potential streams (12,702 linear feet total).

The proposed structures will generally be located near their existing locations and away from the desktop delineated stream and wetland features, as shown in the Desktop Wetland and Stream Delineation Report (Attachment 2.D.1). A field delineation will be required to locate jurisdictional features along the Proposed Route.

Strategic siting of transmission structures/foundations and construction access roads should minimize impacts to regulated resources. In most cases, wetlands and streams can be spanned entirely by a transmission line, however ROW clearing may still result in permanent conversion of forested wetlands. Impacts to wetlands from access roads and clearing equipment can be minimized through the use of temporary timber matting. In some cases, timber mat bridges can also be used to span stream channels.

**E. Solid and Hazardous Waste**

A Geographic Information System (“GIS”) database search was conducted to identify solid and hazardous waste sites near Component 2. The database search included the United States Environmental Protection Agency’s (“USEPA’s”) National Priority List (“NPL”); the USEPA’s Superfund Enterprise Management System; the USEPA’s Resource Conservation and Recovery Act Information System (“RCRA”); the USEPA’s Toxics Release Inventory (“TRI”); USEPA’s Underground Storage Tank Finder; the VDEQ’s Solid Waste Management Facilities; and the VDEQ’s Voluntary Remediation Program. Results from the solid and hazardous waste database search are shown in Table 5 below.

**Table 5 Solid and Hazardous Waste Sites**

CRITERIA	UNIT	VALUE
Number of National Priority List sites within 1.0 mile of centerline	Count	0
Number of Superfund sites within 1.0 mile of centerline	Count	0
Number of Resource Conservation and Recovery Act (“RCRA”) sites within Patrick County	Count	20
Number of RCRA sites within Floyd County	Count	16
Number of RCRA sites within 1.0 mile of centerline	Count	14
Distance of closest RCRA facility	Miles	0.1
Number of leaking underground storage tanks within 1.0 mile of centerline	Count	0
Number of Volunteer Remediation Program (“VRP”) sites within 1.0 mile of centerline	Count	0
Distance of closest VRP site	Miles	14.9

The USEPA’s Superfund NPL online mapper and Superfund Enterprise Management System database (database last updated September 2022) identified no NPL sites within one mile of Component 2. The RCRA database (database last updated September 2022) includes information on

facilities that generate, transport, store, treat, and/or dispose of hazardous waste as defined by RCRA. Facilities are classified as large quantity generators, small quantity generators, or conditionally exempt small quantity generators depending on the amount of waste they handle. The USEPA's RCRA database identified 20 active RCRA facilities in Patrick County and 16 active RCRA sites in Floyd County. Within one mile of the Proposed Route for Component 2, there are 14 total RCRA sites including 12 active and two inactive RCRA sites. The TRI database (database last updated in 2021) includes information about toxic chemical releases and pollution prevention activities reported by industrial and federal facilities. The TRI database identified 5 TRI facilities in Patrick County and 2 in Floyd County. The closest TRI facility is located 0.12 miles from the Proposed Route and will not be impacted or crossed by Component 2. USEPA's Underground Storage Tank finder did not identify any leaking underground storage tanks with an open release status<sup>1</sup> within one mile of the Proposed Route centerline.

Patrick County has one transfer station that accepts waste from the public to ship out to area landfills. The transfer station is located approximately one mile from the Proposed Route and will not be impacted by Component 2. Floyd County has one transfer station that is located approximately 0.7-mile from the Proposed Route and will not be impacted by Component 2. There are no Voluntary Remediation Program ("VRP") sites in proximity to the Component area according to VDEQ's VRP database (last updated in May 2022). The closest VRP site is located approximately 15 miles from the Proposed Route and will not be crossed or impacted by Component 2.

Care will be taken to operate and maintain construction equipment to prevent any fuel or oil spills. Any waste created by the construction crews will be disposed of in a proper manner and recycled where appropriate and will be further detailed in Appalachian Power's stormwater pollution prevention plan. The Proposed Route predominantly crosses forested, agricultural, recreational, residential, and commercial land uses within or parallel to the existing ROW. Appalachian Power will comply with the stormwater pollution prevention plan.

#### **F. Natural Heritage, Threatened and Endangered Species**

A United States Fish and Wildlife Service ("USFWS") Information for Planning and Consultation ("IPaC") report was generated to verify potential habitat occurrences of threatened and endangered species in April 2023. Six USFWS-listed species were identified to potentially occur within the Study Area of Component 2: the Indiana bat (endangered), northern long-eared bat (endangered), Roanoke logperch (endangered), James spiny mussel (endangered), Mitchell's satyr butterfly (endangered), and the small-anthered bittercress (endangered). In addition, the monarch butterfly is shown as a candidate species and the tricolored bat is shown as a proposed endangered species. The USFWS IPaC report is included as Attachment 2.F.1 to this supplement.

In a letter received from the VDCR's Division of Natural Heritage on December 17, 2021, ecological core areas were identified throughout the Component area. VDCR defines ecological cores as areas of unfragmented natural cover with at least 100 acres of interior that provide habitat for a wide range of species and are numerically ranked based on their ecological integrity and relative contribution to the ecosystem and natural heritage systems in the area. Highly categorized cores with significant integrity, C1 and C2 core areas as determined by the VDCR, were identified within the Component 2 area along with multiple "Moderate and General" C4 and C5 core areas (Virginia

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<sup>1</sup> An open release status generally means the leaking underground storage tank site has not been remediated and is undergoing assessment, treatment, and/or further monitoring.

Natural Heritage Data Explorer 2017). Component 2 will be constructed largely within or near the existing ROW which aligns with the VDCR recommendation to undertake efforts to minimize fragmentation of ecological core areas and retain natural corridors to allow movement between fragments. The VDCR recommends the following maintenance practices for the ROW as preventative measures to protect potential habitats of state-listed species and minimize impacts to ecological cores:

- Invasive species plan including invasive species inventory for the Project based on the current VDCR Invasive Species List from VDCR’s website; methods for treating the invasive species.
- ROW restoration and revegetation including native species in a mix of grasses and forbs; monitoring and adaptive management plan for unsuccessful restoration efforts.

There were no State Natural Area Preserves noted under VDCR’s jurisdiction within five miles of Component 2. Under a Memorandum of Agreement established between the Virginia Department of Agriculture and Consumer Services (“VDACS”) and the VDCR, the VDCR represents the VDACS in comments regarding potential impacts on state-listed, threatened, and endangered plant and insect species.

VDWR’s spatial dataset, Wildlife Environmental Review Map Service (“WERMS”), was used to identify sensitive species potentially located within a five-mile buffer along the Proposed Route for Component 2. Seven species were identified by the VDWR WERMS dataset and are shown in Table 6 below. There are no bald eagle nests documented by the Center for Conservation Biology’s Bald Eagle Nest Locator within close proximity of Component 2. The closest documented nest is more than 20 miles from Component 2.

**Table 6 VDWR-Listed Species within five miles of Component 2**

SPECIES NAME	STATE STATUS
Roanoke logperch*	Endangered
Bog turtle*	Endangered
Northern long-eared bat*	Threatened
Little brown bat	Endangered
Orangefin madtom*	Threatened
Timber rattlesnake	Collected Concern
Eastern hellbender	Collected Concern

\* Indicates USFWS listed species.

Appalachian Power will coordinate with the VDWR, the USFWS, and the VDCR as appropriate to minimize impacts on these resources during the environmental permitting phase of the Project.

**G. Erosion and Sediment Control**

Appalachian Power submits their erosion and sediment control specifications for construction and maintenance of electric utility lines annually to the VDEQ for all upcoming projects. The approved erosion and sediment control specifications will be implemented for all transmission facility construction related to the larger Stuart Project, which includes, but is not limited to, transmission line construction, structure erection, substation construction and upgrades, construction of new and

use of existing access roads, when practicable. In addition, a site-specific erosion and sediment control plan will be prepared for Component 2 as required by the VDEQ.

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

In August 2022, POWER conducted a Pre-Application Analysis of cultural resources for the Component 2 Proposed Route (composed of Alternative Route B and the Rebuild Route) and Alternative Route A in support of the Virginia SCC application. The background research conducted as part of this analysis was designed to identify all previously recorded cultural resources using the tiered study areas outlined within the Virginia Department of Historic Resources’ (“VDHR”) *Guidelines for Assessing Impacts of Proposed Electric Transmission Lines and Associated Facilities on Historic Resources in the Commonwealth of Virginia* (2008). Archival research of previously recorded historic resources and field reconnaissance was part of the analysis and is summarized in Table 7 below.

**Table 7                      Previously Recorded Historic Resources**

<b>RADIAL BUFFER (MILES)</b>	<b>CONSIDERED RESOURCES</b>	<b>ALTERNATIVE ROUTE A</b>	<b>ALTERNATIVE ROUTE B (PROPOSED ROUTE)</b>	<b>REBUILD ROUTE (PROPOSED ROUTE)</b>
0.0 to 1.5	National Historic Landmarks	None	None	None
0.0 to 1.0	Above resources, and; NRHP-listed, Battlefields, Historic Landscapes (e.g., Rural Historic District)	Stuart Uptown Historic District (307-5004 / NR-01001512)  Stuart Downtown Historic District (307-5005 / NR-Unknown)	None	Phlegar Farm / Phlegar House (031-0179 / NR-03000565)  Jack’s Creek Covered Bridge (070-0002 / NR-73002050)  Floyd Presbyterian Church / Jacksonville Presbyterian Church / Word of Truth Baptist Church (219-0003 / NR-76002105)  Floyd Historic District (219-0015 / NR-05001266)

RADIAL BUFFER (MILES)	CONSIDERED RESOURCES	ALTERNATIVE ROUTE A	ALTERNATIVE ROUTE B (PROPOSED ROUTE)	REBUILD ROUTE (PROPOSED ROUTE)
0.0 to 0.5	Above resources and NRHP-eligible or potentially eligible (determined by VDHR)	None	None	Zion Lutheran Cemetery and Church (031-0024)  The Pines, Valentine M. Sowder House (031-0169)  Mountain Rose (070-0016)  Blue Ridge Parkway Historic District (080-5161)
0.0 (within ROW)	Above resources and Archaeological sites	None	None	Unnamed (44FD0153)  Rock Castle III (44PK0064)  Unnamed (44PK0323)  Woods Gap Quarry (44FD0147)

Note: NRHP = National Register of Historic Places; VDHR = Virginia Department of Historic Resources.

There are no National Register of Historic Places (“NHRP”)-listed resources crossed by Component 2 Proposed Route (Alternative Route B and Rebuild Route) or Alternative Route A. There are no resources visible from Alternative Route A or Alternative Route B (portion of the Proposed Route).

Of the 12 resources located within the tiered study areas of the Rebuild Route, six NRHP-listed resources are within 1.0 mile of the centerline, four are eligible for listing in the NRHP within 0.5 mile of the centerline, and four archaeological sites are within the Rebuild Route proposed ROW. However, the Rebuild Route portion of the Proposed Route is only partially or fully visible from eight of these resources, which are discussed further below. The Rebuild Route is primarily rebuilt on centerline and therefore minimal to no impacts are anticipated to the majority of the resources once intervening terrain and vegetation are considered.

- The **Zion Lutheran Cemetery and Church (VDHR# 031-0024)** is located on the west side of Route 693 just south of its junction with Route 615 in Floyd County. At its nearest point, the existing Floyd Substation is located near the northeast corner of the resource and opposite of Route 615. The Rebuild Route (portion of the Proposed Route) is located 407 feet from the resource and is clearly visible. However, the difference in the viewshed from the existing and proposed conditions would be nominal. Based on field reconnaissance, several other existing transmission and distribution lines are in the foreground and in the viewshed of the resource and no new impacts are expected to be introduced.

- The **Pines/Valentine M. Sowder House (VDHR# 031-0169)** is located off Route 221. The resource is not within the tiered study area of Alternative Route A or B. The existing and proposed Rebuild Route transmission line runs through the resource property and is visible at several different points, as shown in the photo-simulations as part of Attachment 2.H.1. Based on field reconnaissance, several other existing transmission and distribution lines are already located within the resource property and the viewshed of the resource. Two of the existing transmission structures are proposed to be replaced with taller towers; however, their monopole design will be less conspicuous than the existing H-frame structures. Overall, minimal impact is anticipated to this resource due to existing vegetation and utility lines.
- The **Phlegar Farm / Phlegar House (VDHR# 031-0179)** is located north of the Town of Floyd. At its nearest point, the existing Floyd Substation is located near the northwest corner of the resource and opposite of Commerce Center Drive Northeast. The Rebuild Route is located 466 feet from the resource and will be visible. The resource is not within the tiered study area of Alternative Route A or B. Minimal impact is anticipated due to being rebuilt on centerline and utilizing existing viewshed.
- The **Woods Gap Quarry (44FD0147)** is a prehistoric lithic workshop and quarry within the Blue Ridge Parkway Historic District (VDHR# 080-5161). There are no proposed ground disturbing activities within the bounds of the resource as the Rebuild Route will span across it at its existing location. No physical impacts are anticipated due to nearby pole removal or placements. No change in visual impacts are anticipated due to existing transmission lines. The resource is not within the tiered study area of Alternative Route A or B.
- The **Blue Ridge Parkway Historic District (VDHR# 080-5161)** is a historic district that runs for 469 miles through the Southern Appalachian Mountains and ends at Highway 441 beside the Oconaluftee River. The resource is not within the tiered study area of Alternative Route A or B. The existing line and Rebuild Route run through the resource for 0.9 mile, running north to south. Four proposed structures are planned to replace the five existing structures within the resource boundary. These structures will be taller but will have minimal impact on the existing viewshed. Overall, minimal impact is anticipated to this resource due to existing transmission line and viewshed.
- One resource, an **unnamed archaeological site (44FD0153)**, is a farm access road located near the historic Phlegar home and existing Floyd Substation in Floyd County. The Rebuild Route centerline is located along and adjacent to the existing road, reducing the probability of intact cultural deposits within the Rebuild Route ROW. The Proposed Route near the resource consists of replacing existing transmission structures with monopoles; however, none of the poles are proposed to be placed within or 100 feet from the site boundary. Minimal impact is anticipated due to this pole placement and existing line. The resource is not within the tiered study area of Alternative Route A or B.
- **Rock Castle III (44PK0064)** is a farm access road located near the historic Phlegar home in Patrick County. The resource is not within the tiered study area of Alternative Route A or B. The Rebuild Route will span this resource and will have no proposed ground disturbing activities near the area. The existing transmission structures here will also be replaced with monopoles; however, none of the poles are proposed to be placed within or 100 feet from



the site boundary. No impacts are anticipated due to this pole placement and existing line.

- One resource, an **unnamed archaeological site (44PK0323)**, is a pre-contact lithic scatter in Patrick County. The Rebuild Route involves the replacement of an existing transmission pole within the footprint of this resource; however, the proposed pole will not be placed within or 100 feet from the site boundary and minimal impact is anticipated. The resource is not within the tiered study area of Alternative Route A or B.

The following four resources are within the tiered study areas but are not expected to be visible by the Rebuild Route as they are blocked by vegetation and terrain:

- Jack's Creek Covered Bridge (VDHR# 070-0002)
- Mountain Rose (VDHR# 070-0016)
- Floyd Presbyterian Church / Jacksonville Presbyterian Church / Word of Truth Baptist Church (VDHR# 219-0003)
- Floyd Historic District (VDHR# 219-0015)

The following two resources are only within the tiered study area of unchosen Alternative Route A. They are not expected to be visible by Alternative Route A or the Proposed Route as they are blocked by vegetation and terrain:

- Stuart Uptown Historic District (307-5004 / NR-01001512)
- Stuart Downtown Historic District (307-5005 / NR-Unknown)

No National Historic Landmarks are within 1.5 miles of the Proposed Route. Refer to Attachment 2.H.1 for the Pre-Application Analysis for historical resources.

#### **I. Chesapeake Bay Preservation Areas**

Construction, installation, operation, and maintenance of electric transmission lines are conditionally exempt from the Chesapeake Bay Preservation Act as stated in the exemption for public utilities, railroads, public roads, and facilities in 9 VAC 25-830-150. Appalachian Power will meet applicable conditions as needed.

#### **J. Wildlife Resources**

USFWS-listed and VDWR-listed species are discussed in Section 2.F. Consultation with the USFWS, the VDWR, and the VDCR will be on-going as the Project progresses. Appalachian Power will coordinate with the appropriate agencies to determine whether surveys are necessary and to minimize impacts to wildlife resources. Component 2 will primarily be constructed within or near the existing ROW for most of its length, minimizing habitat fragmentation and tree clearing to the extent possible. Minimal tree clearing will be required in locations where the Proposed Route is within the existing ROW to maintain the typical 100-foot-wide ROW and accounts for the removal of danger trees or other vegetation that may be located within or immediately adjacent to the ROW.

#### **K. Recreation, Agricultural, and Forest Resources**

The general character of the Component 2 area is characterized predominantly by forested, agricultural, recreational, residential, and commercial land uses. Component 2 will be constructed

predominantly within or parallel to the existing ROW. As a result, minimal impacts are anticipated to recreation, agricultural, and forest resources.

The Proposed Route for Component 2 crosses the Blue Ridge Parkway near the border of Floyd and Patrick counties; however, minimal impact is anticipated due to utilization of existing ROW. No state parks are crossed by Component 2. The Proposed Route for Component 2 crosses the Fairystone Loop and the Sweet Mountain Laurel Loop, designated wildlife viewing driving routes that are part of the Virginia Bird and Wildlife Trail system. The proposed crossings are located within the existing ROW to minimize recreational and visual impacts. One state scenic river, the South Mayo River, is crossed by the Proposed Route. Additional visual impacts to the river, recreational trails, and the Blue Ridge Parkway are not expected or will be minimized, as the line will span above the resources and have a similar character as the existing facilities.

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 as conservation easements. The Project Team solicited input from the Virginia Outdoors Foundation and determined three conservation easements are crossed by Component 2, according to a letter received on January 20, 2022. Minimal impacts are anticipated as the Proposed Route crosses the easements at their existing crossing locations.

The Proposed Route has approximately 155 acres of either prime and unique farmland or farmland of statewide importance located within the ROW based on United States Department of Agriculture Natural Resources Conservation Service ("NRCS") Soil Survey Geographic Database. Based on NRCS data, approximately 52 acres of pasture/rangeland or cropland is within the Proposed Route ROW. The Proposed Route crosses agricultural areas in or near existing ROW locations and avoids significant diversions on properties; therefore, it is not expected that Component 2 will permanently impact farmland.

Component 2 will primarily be constructed within or near the existing ROW, minimizing habitat fragmentation and tree clearing to the extent possible. Minimal tree clearing will be required in locations where the Proposed Route is within the existing ROW to maintain the typical 100-foot-wide ROW and where danger trees or other vegetation that may be located within or immediately adjacent to the ROW. In a letter received from the Virginia Department of Forestry ("VDof") on January 7, 2022, it stated that Component 2 contains over 4,000 acres of forest considered very high or outstanding conservation value. Appalachian Power's tree clearing methods use the VDof's best management practices ("BMPs") for water quality. Specific sections of the BMPs that are pertinent to transmission line clearing operations include:

- Equipment Maintenance and Litter
- Harvest Closure (rehabilitation of the ROW after construction)
- Revegetation of Disturbed Areas

Appalachian Power will utilize the above BMPs for the Project. Further discussion of ROW clearing, rehabilitation and maintenance can be found in Section II.A.7 of the Response to Guidelines in Volume 1 of the Application.

## **L. Use of Pesticides and Herbicides**

When herbicides are used to maintain Appalachian Power's transmission ROW, they are registered with the USEPA and with the VDACS. All herbicides will be used in accordance with label and manufacturer directions. Regarding herbicide applications (additionally, see Section II.A.7 of the SCC Response to Guidelines in Volume 1 of the Application):

- Herbicides will not be applied when rainfall is imminent, during rainfall, or within one day of large rain events (usually greater than one centimeter) that result in soil moisture capacity occurring above field capacity.
- Buffer zones will be maintained and used in accordance with herbicide label and manufacturer directions around streams, ponds, springs, wetlands, water supply wells, channelized drainage ways (perennial or intermittent), and karst features.

## **M. Geology and Mineral Resources**

According to the Division of Geology and Mineral Resources Interactive Geologic Map, Component 2 is located in the Piedmont and Blue Ridge physiographic province of Virginia and consists primarily of gravel, sand, granite, and metamorphic and sedimentary rock. Appalachian Power requested comments on the Project and Component 2 from the Virginia Departments of Mines, Minerals, and Energy in November of 2021, but no response was received regarding karst, geology, and mineral resources. According to their interactive map, no sinkholes, active mines or stone quarries are crossed by the Component 2. Appalachian Power does not anticipate that Component 2 will result in negative impacts on the geology or mineral resources.

## **N. Transportation Infrastructure**

The width of the existing transmission line ROW is approximately 100 feet where defined and is currently maintained for operation of the existing transmission facilities. The Proposed Route of Component 2 will largely use the existing ROW or parallel the existing ROW to minimize outages and avoid impacts as necessary. Between the Proposed Mayo River Substation and the existing Woolwine and Floyd Substations, Component 2 crosses two U.S. highways, including U.S. Route 58 (Jeb Stuart Highway) and U.S. Route 221, three state highways (Routes 57, 8, and 40) a total of four times, the Blue Ridge Parkway, and 25 local/county roads. The Proposed Route primarily crosses highways at or near existing locations to avoid constraints or maximize constructability.

The Siting Team contacted the Virginia Department of Transportation ("VDOT") and reviewed the Proposed Routes for all components of the Project. A letter received from VDOT on January 3, 2022, did not indicate any major concerns regarding the Proposed Route for Component 2. Accordingly, Appalachian Power will coordinate with VDOT during the permitting phase of the Project to determine the extent of land use permits, construction entrances, and traffic control plans needed for the Project.

Appalachian Power utilized the Federal Aviation Administration's ("FAA") Obstruction Evaluation/Airport Airspace Analysis tool to review the proposed structure locations. Based on preliminary engineering, Appalachian Power does not expect to file Form 7460 for any Component 2 structures. Preliminary desktop reviews indicated that there are two airports within 10 miles of Component 2: Alum Ridge Airport and Moorefield's Airstrip. A letter received from the Virginia Department of Aviation on December 7, 2021, indicated that no portion of Component 2 is located within 20,000 linear feet of a public use airport. Appalachian Power will continue to coordinate with

the Virginia Department of Aviation and FAA as necessary to obtain all appropriate approvals.

## **ATTACHMENT 2.D.1: DESKTOP WETLAND AND STREAM DELINEATION REPORT**

May 2023

## **APPALACHIAN POWER COMPANY**

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### **Stuart Area 138-kV Transmission Improvements Project Component 2: Mayo River (Stuart) to Floyd Transmission Improvements**

**SCC Case No. PUR-2023-00024  
Patrick and Floyd Counties, Virginia**

*Virginia Department of Environmental Quality  
Desktop Wetland and Stream Delineation Report*

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0158529

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ATTACHMENT A: DESKTOP STREAM AND WETLAND DELINEATION MAP – ALTERNATIVE ROUTES A AND B

ATTACHMENT B: DESKTOP STREAM AND WETLAND DELINEATION MAP – REBUILD ROUTE

## ACRONYMS AND ABBREVIATIONS

Appalachian Power	Appalachian Power Company
CIR	Color Infrared
Component 2	Mayo River (Stuart) to Floyd Transmission Improvements
Component 2 Proposed Route	Alignments for the Mayo River – Floyd 138-kV Transmission Line
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
kV	kilovolt
NFHL	National Flood Hazard Layer
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
PEM	Palustrine Emergent Wetland
PFO	Palustrine Forested Wetland
POWER	POWER Engineers, Inc.
PSS	Palustrine Scrub-Shrub Wetland
PUB	Palustrine Unconsolidated Bottom Wetland
ROW	Right-of-way
SCC	State Corporation Commission
Stuart Project	Stuart Area Transmission Improvements Project
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VBMP	Virginia Base Mapping Program
VGIN	Virginia Geographic Information Network



## **1.0 INTRODUCTION**

With the Stuart Area 138-kV Transmission Improvements Project (“Stuart Project”), Appalachian Power Company (“Appalachian Power”) is planning to upgrade the local electric transmission grid in four Virginia counties (Carroll, Floyd, Henry, and Patrick). The Stuart Project provides a new electrical source for the area, upgrades the voltage of equipment from 69-kilovolt (“kV”) to 138-kV, improves the local distribution system, and addresses aging infrastructure. The Stuart Project will ensure adequate power delivery to the area to support today’s electrical load and provide continued support during an extended outage.

The Project is organized into three components which are generally the construction sequence. The Mayo River (Stuart) to Floyd Transmission Improvements Component 2 (“Component 2”) is the subject of this report and is depicted on Attachments A and B. Component 2 involves rebuilding approximately 22.0 miles of the existing Floyd – Stuart 69-kV Transmission Line to 138-kV standards and constructing approximately 3.4 miles of new 138-kV transmission line from the proposed Mayo River Substation to existing Structure No. 452-118 on the Floyd – Stuart 69-kV Transmission Line.

The existing transmission line will be rebuilt to upgrade the voltage of aging equipment originally constructed in the 1950s. Component 2 will be constructed largely within and/or adjacent to the existing 60-foot-wide right-of-way (“ROW”); however, there are minor deviations from the existing centerline and new greenfield portions to optimize the design or avoid constraints.

Appalachian Power contracted POWER Engineers, Inc. (“POWER”) to prepare this Desktop Wetland and Stream Delineation Report for inclusion in the Stuart Area Transmission Improvements Project’s Application for a Certificate of Public Convenience and Necessity to be filed with the Virginia State Corporation Commission (“SCC”), which approves or denies such applications. This report is included as Attachment 2.D.1 in the Virginia Department of Environmental Quality Supplement, located in Volume 3 of the Application (SCC Case No. PUR-2023-00024).

The purpose of the Desktop Wetland and Stream Delineation Report is to identify potential federally regulated waters of the United States within the proposed 100-foot-wide ROW. A siting effort was undertaken to determine the alignments for the Mayo River – Floyd 138-kV Transmission Line (“Component 2 Proposed Route”). The majority of Component 2 can be rebuilt within or near the existing ROW (“Rebuild Route”) however; two alternative routes (Alternative Routes A and B) were identified for Component 2, as further detailed in the Component 2 Siting Study in Volume 2 of the Company’s Application. This report includes a description of the methodologies POWER used to determine the location and size of potential regulated waters within the ROW of Component 2 and guidance regarding probability of encountering the identified features during a field verification.

## 2.0 METHODS

### 2.1 Data Sources and Background Information

POWER reviewed various mapping sources and Geographic Information System (“GIS”) data in order to identify areas where wetlands or streams could potentially be located within the proposed ROW of Component 2. The GIS data and mapping sources reviewed include the following:

- United States Geological Survey (“USGS”), United States Elevation Data (USGS 2021).
- Virginia Geographic Information Network (“VGIN”) Virginia Base Mapping Program (“VBMP”) color orthoimagery (VGIN 2015, 2018, 2019).
- Color Infrared (“CIR”) aerial imagery and orthophotography (VBMP 2018 and 2019).
- Google Earth color aerial photography, including historical aerial data (Google Earth, 2002, 2003, 2005, 2006, 2007, 2008, 2011, 2013, 2015, 2017, 2021).
- Esri Terrain with Labels online basemap (Esri 2016).
- National Hydrography Dataset (“NHD”) stream and river data (USGS 2022).
- United States Fish and Wildlife Service (“USFWS”) National Wetland Inventory (NWI) mapping (USFWS 2022).
- United States Department of Agriculture (“USDA”) Natural Resources Conservation Service (“NRCS”) Soil Survey of Floyd and Patrick Counties, Virginia (USDA NRCS 2009a; USDA NRCS 2009b).
- USDA NRCS Web Soil Survey (USDA NRCS 2022).
- Federal Emergency Management Agency (“FEMA”) National Flood Hazard Layer (“NFHL”) data (FEMA 2022).

### 2.2 Wetland Definitions

Federal regulations define wetlands as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation, typically adapted for life in saturated soil conditions” (United States Environmental Protection Agency [“USEPA”] 2022).

Under normal circumstances, three parameters must be present for an area to be considered a wetland: hydrophytic vegetation, wetland hydrology, and hydric soils. Applicable technical guidance that defines these parameters and provides criteria for the evaluation of associated data and field indicators is provided in the *1987 Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the United States Army Corps of Engineers*

("USACE") *Wetland Delineation Manual, Eastern Mountains and Piedmont Region* (USACE 2012).

Using the data sources outlined above, POWER identified areas that could potentially satisfy the three parameters required to meet the definition of a wetland provided by the USACE.

Aerial imagery and NWI mapping for Component 2 were used to determine potential habitat type of the desktop delineated wetlands. NWI maps use the Classification of Wetlands and Deepwater Habitats of the United States to classify wetland habitat types (Cowardin et al. 1979). This classification system is hierarchical and defines five major systems: Marine, Estuarine, Riverine, Lacustrine, and Palustrine. The Palustrine system is the only type of wetland system likely to be present within the study area and is defined as including all nontidal wetlands dominated by trees, shrubs, persistent emergent herbaceous plants, emergent mosses, or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean driven-derived salts is below 0.5 percent (Cowardin et al. 1979). Cowardin wetland types likely to be encountered along the proposed ROW fall into the following four classifications:

- **Palustrine Emergent (PEM) Wetlands.** Emergent wetlands are typically characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is usually present for most of the growing season in most years.
- **Palustrine Scrub-Shrub (PSS) Wetlands.** Scrub-shrub wetlands are typically characterized by woody vegetation less than 20 feet tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions.
- **Palustrine Forested (PFO) Wetlands.** Forested wetlands are usually characterized by woody vegetation that is 20 feet tall or taller. These wetlands typically possess an overstory of trees, an understory of young trees or shrubs, and an herbaceous layer.
- **Palustrine Unconsolidated Bottom (PUB) Wetlands.** Unconsolidated bottom wetlands include all wetland and deepwater habitats with at least 25 percent cover of particles smaller than stones and a vegetative cover less than 30 percent.

### 2.3 Stream Definitions

Streams are described by the USEPA as channels that are natural or artificial open areas that connect two bodies of water and may have water flowing in them continuously or periodically. They are further placed into three general stream habitat types:

- **Perennial Streams.** These channels typically have water throughout the year except during extreme drought. Most of the water comes from smaller upstream waters or groundwater while runoff from rainfall or other precipitation is supplemental.

- **Intermittent Streams.** These channels flow a considerable portion of the time but cease to flow occasionally or seasonally.
- **Ephemeral Streams.** These channels have flowing water only during and for a short duration after precipitation events in a typical year. Ephemeral streambeds are located above the ground water table year-round and are often described as headwater streams

POWER used aerial imagery, topographic mapping, and NHD datasets, to determine the location of potential streams. Stream habitat types were not identified during this desktop delineation.

## **2.4 Wetland and Stream Data Interpretation**

In order to assess the probability for streams and wetlands to occur along the proposed ROW of the transmission line route, POWER biologists utilized available desktop data for this report.

### **2.4.1 Aerial Imagery and Topographic Mapping**

The CIR aerial imagery (VBMP 2019), current and historical aerial photography (Google Earth, 2002, 2003, 2005, 2006, 2007, 2008, 2011, 2013, 2015, 2017, 2021; VGIN 2015, 2018, 2019), USGS topographic data (USGS 2021), and Esri world terrain base mapping (Esri 2016) were used to help determine the location and size of potential wetland and stream resources within the Component 2 ROW. The USGS topographic contour lines were used to identify potential drainage areas ranging from small headwater streams to larger perennial streams. The contour lines were also used to determine areas of flat or depressed terrain where water is more likely to pool for a sufficient duration that allows development of the three required wetland parameters.

Several years of aerial imagery were reviewed for signs of potential wetland and stream resources such as apparent drainage lines, areas with changes in vegetation, and areas with apparent water ponding. CIR aerial imagery was also reviewed, which provides a higher level of contrast compared to traditional aerial photography since it renders the scene in colors not normally seen by the human eye. Open water and saturated areas are typically depicted as black or dark blue since they do not reflect much light in the infrared spectrum (Minnesota IT Services n.d.). Areas with a shift in vegetation (as observed between wetland and upland boundaries) are more apparent on CIR aerial imagery as areas with dead or stressed vegetation appear in lighter shades of red and pink, and areas with actively photosynthesizing vegetation appear bright red. Aerial imagery was also used to estimate the desktop delineated wetland's Cowardin classification. The CIR aerial imagery is used on the Desktop Wetland and Stream Delineation maps included in Attachments A and B.

## **2.4.2 National Wetland Inventory Dataset**

POWER reviewed NWI mapping to help identify potential wetland areas. NWI maps were published by the USFWS and depict probable wetland areas based on stereoscopic analysis of high-altitude aerial photographs and analysis of infrared bands from remotely sensed imagery. Therefore, NWI mapping reflects conditions during the specific year and season the data was acquired and should not be considered precise, field-verified wetlands (USFWS 2022). NWI mapping was also used to estimate the desktop delineated wetland's Cowardin classification. NWI mapping is included on the Desktop Wetland and Stream Delineation maps included in Attachments A and B.

## **2.4.3 National Hydrography Dataset**

The NHD (USGS 2022) was used to identify potential and known streams within the Component 2 ROW. The NHD is a comprehensive set of digital spatial data representing surface waters, including common features such as lakes, ponds, streams, rivers, canals, and oceans (Simley and Carswell 2009). Although not field verified, the NHD shows the general locations of streams, rivers, and open waters, and provides insight into the general location of waters (USGS 2022). NHD mapping is included on the Desktop Wetland and Stream Delineation maps included in Attachments A and B.

## **2.4.4 National Flood Hazard Layer Floodplain Dataset**

The NFHL dataset was reviewed to identify floodplains within the Component 2 ROW. The FEMA NFHL dataset (FEMA 2022) provides digital spatial data representing floodplains associated with recorded streams (see Section 2.4.3, USGS NHD streams) as well as riverine mapping. Floodplain boundaries are divided into flood insurance rate zones that are rated between 100-year and 500-year floodplains. Both 100-year and 500-year are considered areas of moderate flood hazard. All remaining areas fall under the terms of minimal flood hazard (FEMA 2022). Floodplain mapping is included on the Desktop Wetland and Stream Delineation maps included in Attachments A and B.

## **2.4.5 Soil Survey Mapping**

USDA NRCS digital soil survey data for Patrick and Floyd Counties, Virginia were used to locate areas of hydric soils, which are typically found in wetlands (USDA NRCS 2009a, 2009b, 2022). The NRCS soil survey groups soil map units into three categories; non-hydric soil units, soil units with hydric soil inclusions, and units that contained all hydric soils. Areas that contain hydric or hydric inclusion map units have a greater probability of supporting wetlands relative to those mapped as non-hydric soil units. Hydric inclusion soils are identified on the map sheets included in Attachments A and B. There are four hydric soil areas mapped within the Component ROW, which are shown in Attachments A and B.

## 2.5 Wetland and Stream Data Evaluation

Potential streams and wetlands were assigned a probability of low, moderate, or high potential of being a regulated resource if a field verification were to be done. Tables 1 and 2 show the criteria used to assign the probability of an identified feature within the proposed ROW.

**TABLE 1 WETLAND EVALUATION CRITERIA**

WETLAND PROBABILITY	ASSESSMENT CRITERIA
High	Aerial imagery (color and CIR) and/or topography combined with <b>two</b> other indicators such as NWI wetlands, NHD streams, hydric soils, or a regulated floodplain.
Moderate	Aerial imagery (color and CIR) and/or topography combined with <b>one</b> other indicator such as NWI wetlands, NHD streams, hydric soils, or a regulated floodplain.
Low	Areas identified as wetland with topography and aerial photography only.

**TABLE 2 STREAM EVALUATION CRITERIA**

STREAM PROBABILITY	ASSESSMENT CRITERIA
High	Streams identified with NHD and aerial imagery (color and CIR) or topography.
Moderate	Either (1) streams identified with aerial imagery (color and CIR) and topography; or (2) aerial imagery or topography combined with one other indicator, such as NWI riverine features or county or city stream data.
Low	Areas identified as streams with topography or aerial photography only.

## 3.0 RESULTS AND DISCUSSION

The results of the desktop wetland and stream delineation are presented for potential wetlands and streams in Tables 3 and 4, respectively. Mapping showing the location of desktop delineated wetlands and streams are included as Attachments A and B.

The desktop delineation assumed a 100-foot-wide ROW on the Component 2 Proposed Route to assess potential acreage and linear feet of wetlands and streams, respectively for Alternative Routes A and B and the Rebuild Route. Due to limitations in aerial photography and available data, the probability and estimated number of occurrences provided below are for planning purposes and likely do not represent the full extent of potentially jurisdictional aquatic resources that may be identified later during a field study.

**TABLE 3 DESKTOP WETLAND DELINEATION RESULTS**

WETLAND TYPES	ALTERNATIVE ROUTE A		ALTERNATIVE ROUTE B (PROPOSED ROUTE)		REBUILD ROUTE (PROPOSED ROUTE)	
	NUMBER OF WETLAND OCCURRENCES	ACREAGE WITHIN ROW	NUMBER OF WETLAND OCCURRENCES	ACREAGE WITHIN ROW	NUMBER OF WETLAND OCCURRENCES	ACREAGE WITHIN ROW
High	0	0	0	0	4	0.61
Moderate	0	0	0	0	22	3.10
Low	2	0.24	2	0.24	27	3.42
<b>Totals</b>	<b>2</b>	<b>0.24</b>	<b>2</b>	<b>0.24</b>	<b>53</b>	<b>7.13</b>

**TABLE 4 DESKTOP STREAM DELINEATION RESULTS**

STREAM TYPES	ALTERNATIVE ROUTE A		ALTERNATIVE ROUTE B (PROPOSED ROUTE)		REBUILD ROUTE (PROPOSED ROUTE)	
	NUMBER OF STREAM OCCURRENCES	LINEAR FOOTAGE WITHIN ROW	NUMBER OF STREAM OCCURRENCES	LINEAR FOOTAGE WITHIN ROW	NUMBER OF STREAM OCCURRENCES	LINEAR FOOTAGE WITHIN ROW
High	8	1,173	4	518	31	4,559
Moderate	4	703	2	317	19	3,105
Low	8	2,345	6	697	29	3,506
<b>Totals</b>	<b>20</b>	<b>4,221</b>	<b>12</b>	<b>1,532</b>	<b>79</b>	<b>11,170</b>

**3.1.1 Alternative Route A**

Alternative Route A consists of approximately 2.2 miles of greenfield and approximately 2.0 miles of existing ROW alignments located to the north of the proposed Mayo River Substation in Patrick County (Attachment A, Map Tiles 1- 12). Alternative Route A crosses the South Mayo River approximately 0.25 mile north of the Mayo River Substation and splits in two directions after that point. A portion of Alternative Route A continues generally northeast and terminates at the existing Fieldale – Stuart 69-kV Transmission Line. The second alignment angles to the northwest towards the existing Floyd-Stuart 69-kV Transmission Line, intersecting the existing line near Structure No. 452-130 and continuing north and terminating at the southern end of the Rebuild Route. The Alternative Route A ROW contains

a total of two wetlands (totaling 0.24 acre) and 20 streams (totaling 4,221 linear feet). Additional details on the probability of the identified features are included below.

### **High Probability**

No high probability wetlands were identified within the ROW of Alternative Route A. A total of eight high probability streams (totaling approximately 1,173 linear feet), including three separate crossings of the South Mayo River, are within the ROW of Alternative Route A (Attachment A, Map Tiles 1-3, 6, 8, 9, and 12).

### **Moderate Probability**

No moderate probability wetlands were identified within the ROW of Alternative Route A. A total of four moderate probability streams (totaling approximately 703 linear feet) were identified within the ROW of Alternative Route A (Attachment A, Map Tiles 3-5).

### **Low Probability**

Two low probability wetlands (totaling approximately 0.24 acre) were identified along the ROW of Alternative Route A (Attachment A, Map Tile 3). A total of eight low probability streams (totaling approximately 2,345 linear feet) were identified within the ROW of Alternative Route A (Attachment A, Map Tiles 3, 4, 6, 7, 11, and 12).

## **3.1.2 Alternative Route B (Proposed Route)**

Alternative Route B consists of approximately 3.5 miles of greenfield alignment located to the north of the proposed Mayo River Substation in Patrick County (Attachment A, Map Tiles 1-3, and 9-16). This route initially follows the same alignment as Alternative Route A northeast of the proposed Mayo River Substation towards the existing Fieldale – Stuart 69-kV Transmission Line (Attachment A, Map Tiles 1-3 and 12). The line then continues to the north and northwest before terminating at the southern end of the Rebuild Route. The Alternative Route B ROW contains a total of two wetlands (totaling 0.24 acre) and 12 streams (totaling 1,532 linear feet). Additional details on the probability of the identified features are included below.

### **High Probability**

No high probability wetlands were identified within the ROW of Alternative Route B. A total of four high probability streams (totaling approximately 518 linear feet), including a single crossing of the South Mayo River, were identified within the ROW of Alternative Route B (Attachment A, Map Tiles 1, 9, 10, and 12).



### **Moderate Probability**

No moderate probability wetlands were identified within the ROW of Alternative Route B. A total of two moderate probability streams (totaling 317 linear feet) were identified within the ROW of Alternative Route B (Map Tiles 15 and 16, Attachment A).

### **Low Probability**

Two low probability wetlands (totaling 0.24 acre) were identified within the ROW of Alternative Route B (Attachment A, Map Tile 3). Six low probability streams (totaling 697 linear feet) were identified within the ROW of Alternative Route B (Attachment A, Map Tiles 3 and 12-16).

## **3.2 Rebuild Route (Proposed Route)**

The Rebuild Route consists of a total of approximately 18.5 miles of the existing Floyd – Stuart 69-kV Transmission Line between Structure No. 452-130 in Patrick County and the existing Floyd Substation in Floyd County (Attachment B, Map Tiles 1-60). Approximately 13.7 miles are located in Patrick County and 4.8 miles are located in Floyd County. The Rebuild Route intersects with the existing Woolwine Substation, including two separate crossings of the Smith River, in the central portion of the alignment (Attachment B, Map Tile 24). The Rebuild Route ROW contains a total of 53 wetlands (totaling 7.13 acres) and 79 streams (totaling 11,170 linear feet). Additional details on the probability of the identified features are included below.

### **High Probability**

A total of four high probability wetlands (totaling 0.61 acre) were identified within the ROW of the Rebuild Route (Attachment B, Map Tiles 24, 47, and 49). A total of 31 high probability streams (totaling 4,559 linear feet) were identified within the ROW of the Rebuild Route (Attachment B, Map Tiles 4, 7-9, 12, 14, 16-18, 20, 21, 24, 26, 27, 29, 31, 32, 34, 38, 41, 42, 44, 47, 49, 52, 53, 55, 58, and 59).

### **Moderate Probability**

A total of 22 moderate probability wetlands (totaling 3.10 acres) were identified within the ROW of the Rebuild Route (Attachment B, Map Tiles 30, 31, 46-49, 52, 55, 58 and 59). A total of 19 moderate probability streams (totaling 3,105 linear feet) are within the ROW of the Rebuild Route (Attachment B, Map Tiles 1-5, 7-10, 26, 30, 34, 38-40, 47-49, and 51).

**Low Probability**

A total of 27 low probability wetlands (totaling 3.42 acres) were identified along the ROW of the Rebuild Route (Attachment B, Map Tiles 15-17, 27-29, 38, 44, 46-49, 52-56, 58, and 59). A total of 29 low probability streams (totaling 3,506 linear feet) are within the ROW of the Rebuild Route (Attachment B, Map Tiles 1-3, 6, 8-10, 14-16, 19-23, 30, 31, 33, 38-40, 42-44, 46, 51, and 56).

**4.0 CONCLUSION**

A summary of the desktop wetland and stream resources identified for Component 2 is provided in Table 5. The Proposed Route consists of the existing 18.5 mile Rebuild Route portion and the 3.5 mile Alternative B portion for a total of 22 miles.

**TABLE 5 SUMMARY OF DESKTOP WETLAND AND STREAM DELINEATIONS**

TYPES	ALTERNATIVE ROUTE A		ALTERNATIVE ROUTE B (PROPOSED ROUTE)		REBUILD ROUTE (PROPOSED ROUTE)	
	NUMBER OF OCCURRENCES	ACREAGE/LINEAR FOOTAGE WITHIN ROW	NUMBER OF OCCURRENCES	ACREAGE/LINEAR FOOTAGE WITHIN ROW	NUMBER OF OCCURRENCES	ACREAGE/LINEAR FOOTAGE WITHIN ROW
<b>Wetland Total</b>	<b>2</b>	<b>0.24</b>	<b>2</b>	<b>0.24</b>	<b>53</b>	<b>7.13</b>
<b>Stream Total</b>	<b>20</b>	<b>4,221</b>	<b>12</b>	<b>1,532</b>	<b>79</b>	<b>11,170</b>

**4.1 Alternative Routes A and B**

There are two short (Alternative A is 4.2 and Alternative B is 3.5 miles) alternative routes for the Mayo River (Stuart) to Floyd Transmission Line. Alternative Route B (Proposed Route) includes two wetlands with a total combined area of 0.24 acre and crosses 12 streams with a total combined linear footage of 1,532 linear feet. Alternative Route A includes the same number (two) and amount of wetlands (0.24 acre), but would cross more streams (20), with a total combined linear footage of 4,221 linear feet (Attachment A). Alternative Route A would require three more crossings of high probability streams, including two additional crossings of the South Mayo River, as well as two additional crossings of moderate probability streams and two additional crossings of low probability streams, compared with Alternative Route B.

## 4.2 Rebuild Route

The Rebuild Route crosses a total of 53 wetlands and 79 streams. The Rebuild Route will largely be rebuilt within or directly adjacent to the existing ROW (Attachment B) and will be constructed in such a way that any stream or wetland features that are crossed can likely be spanned or avoided during construction.

Strategic siting of transmission structures/foundations and construction access roads should minimize impacts to regulated resources. In most cases, wetlands and streams can be spanned entirely by a transmission line, however ROW clearing may still result in permanent conversion of forested wetlands. Impacts to wetlands from access roads and clearing equipment can be minimized through the use of temporary timber matting. In some cases, timber mat bridges can also be used to span stream channels.

Impacts from access roads are often temporary in nature, as access roads are often restored to pre-construction conditions at the end of construction.

The results of this desktop wetland and stream delineation are intended solely for use as an indication of probable wetlands and streams within the ROWs associated with Component 2. This analysis is designed for planning purposes only and does not represent the results of an on-the-ground, wetland, and stream field delineation. Accurate determination of regulated resource boundaries is only possible through field delineations of wetlands and streams utilizing the USACE wetland delineation manual (Environmental Laboratory 1987), the applicable regional supplement (USACE 2012), and other appropriate regulatory guidance.

## 5.0 REFERENCES

- Cowardin, L.M., F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. Office of Biological Services, Fish and Wildlife Service, U.S. Department of the Interior, Washington, DC. 103 p.
- Environmental Laboratory. 1987. U.S. Army Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1. U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi. 100 p, plus appendices.
- Esri. 2016. "Terrain with Labels" [basemap]. Scale Not Given. June 9, 2016.  
<https://www.arcgis.com/home/item.html?id=a52ab98763904006aa382d90e906fdd5>. Accessed July, 2022.
- Federal Emergency Management Agency (FEMA). 2022. National Flood Hazard Layer Viewer. Available at: <https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd>. Accessed July, 2022.
- Google Earth. 2002. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.
- \_\_\_\_\_. 2003. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.
- \_\_\_\_\_. 2005. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.
- \_\_\_\_\_. 2006. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.
- \_\_\_\_\_. 2007. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.
- \_\_\_\_\_. 2008. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.
- \_\_\_\_\_. 2011. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.
- \_\_\_\_\_. 2013. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.
- \_\_\_\_\_. 2014. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.

- \_\_\_\_\_. 2015. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.
- \_\_\_\_\_. 2016. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.
- \_\_\_\_\_. 2017. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.
- \_\_\_\_\_. 2021. Imagery dates vary by location. Google Earth Pro, Version 7.3.4.8642. Available at: <https://www.google.com/earth/>. Accessed July, 2022.
- Minnesota IT Services. n.d. Geospatial Information Office: Color Infrared (CIR) Imagery. Available at: <http://www.mngeo.state.mn.us/chouse/airphoto/cir.html>. Accessed July, 2022.
- Simley, J.D. and W.J. Carswell, Jr. 2009. The National Map - Hydrography: US Geological Survey Fact Sheet 2009-3054, 4 pp.
- United States Army Corps of Engineers (USACE). 2012. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region, Version 2.0. Eds: J.F. Berkowitz, J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-12-9. Vicksburg, MS: U.S. Army Engineer Research and Development Center. 147 pp, plus appendices.
- United States Department of Agriculture Natural Resource Conservation Service (USDA NRCS). 2009a. Soil Survey of Floyd County, Virginia. Available at: [https://www.nrcs.usda.gov/Internet/FSE\\_MANUSCRIPTS/virginia/floydVA2009/Floyd\\_VA.pdf](https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/virginia/floydVA2009/Floyd_VA.pdf).
- \_\_\_\_\_. 2009b. Soil Survey of Patrick County, Virginia. Available at: [https://www.nrcs.usda.gov/Internet/FSE\\_MANUSCRIPTS/virginia/patrickVA2009/Patrick\\_VA.pdf](https://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/virginia/patrickVA2009/Patrick_VA.pdf).
- \_\_\_\_\_. 2022. Web Soil Survey. Soil Survey Staff. Available online at: <https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx>. Accessed May 18, 2022.
- United States Environmental Protection Agency (USEPA). 2022. Section 404 of the Clean Water Act: How Wetlands are Defined and Identified. Available at: <https://www.epa.gov/cwa-404/section-404-clean-water-act-how-wetlands-are-defined-and-identified>. Accessed July, 2022.

United States Fish and Wildlife Service (USFWS). 2022. National Wetlands Inventory (NWI) by state. Available online at: <http://www.fws.gov/wetlands/data/State-Downloads.html>. Accessed July, 2022.

United States Geological Survey (USGS). 2021. United States Elevation Data (NED – Legacy 10m Resolution). Available at <https://www.usgs.gov/programs/national-geospatial-program/national-map>. Accessed July, 2022.

\_\_\_\_\_. 2022. National Hydrography Dataset (NHD). Available at: [https://www.usgs.gov/core-science-systems/ngp/national-hydrography/national-hydrography-dataset?qt-science\\_support\\_page\\_related\\_con=0#qt-science\\_support\\_page\\_related\\_con](https://www.usgs.gov/core-science-systems/ngp/national-hydrography/national-hydrography-dataset?qt-science_support_page_related_con=0#qt-science_support_page_related_con). Accessed July, 2022.

Virginia Base Mapping Program (VBMP). 2018. CIR Imagery and Orthophotography. Available at: [https://gismaps.vdem.virginia.gov/arcgis/rest/services/VBMP\\_Imagery/VBMP2018\\_Infrared\\_WGS/MapServer](https://gismaps.vdem.virginia.gov/arcgis/rest/services/VBMP_Imagery/VBMP2018_Infrared_WGS/MapServer). Accessed July, 2022.

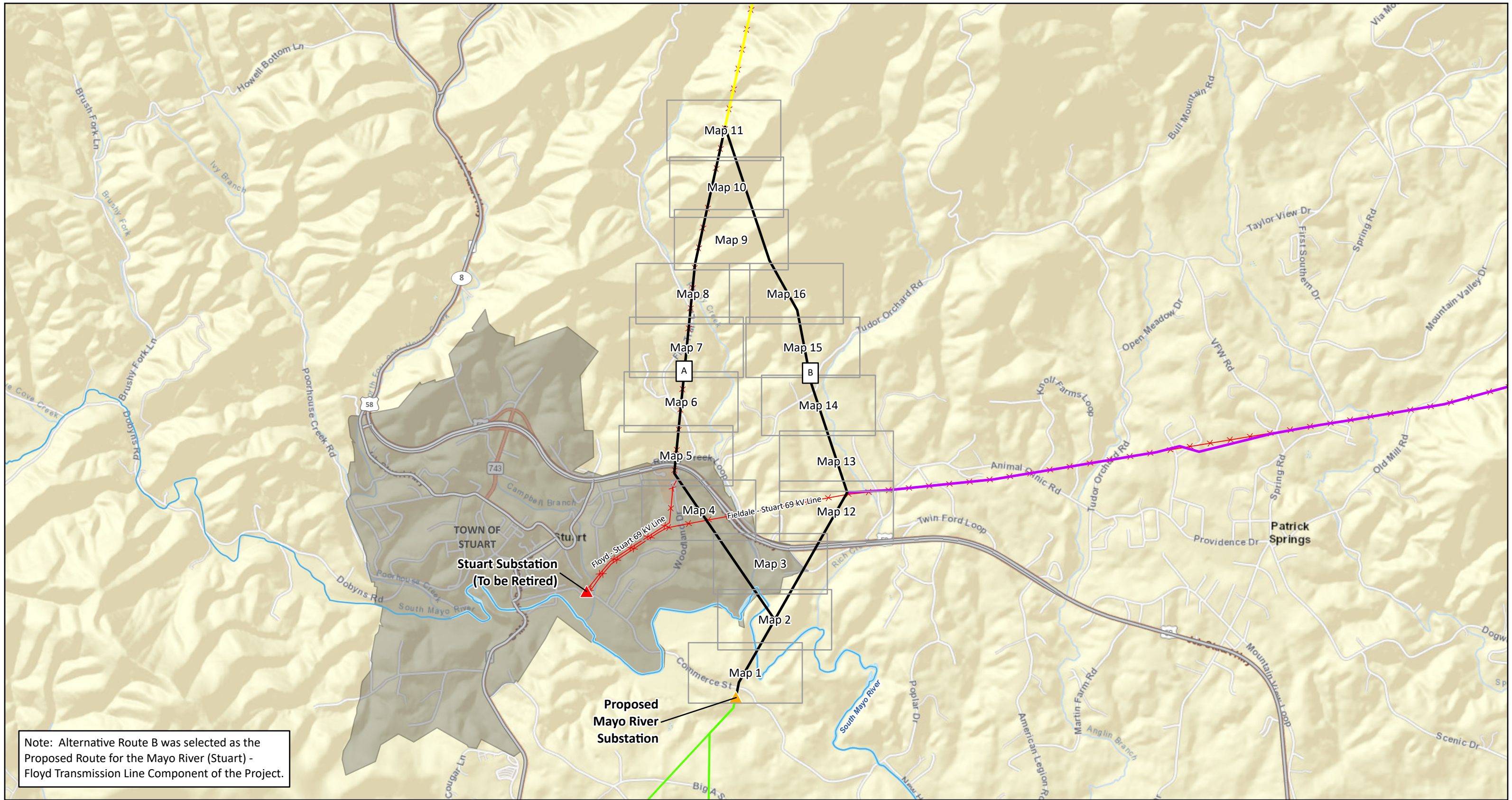
\_\_\_\_\_. 2019. CIR Imagery and Orthophotography. Available at: [https://gismaps.vdem.virginia.gov/arcgis/rest/services/VBMP\\_Imagery/VBMP2018\\_Infrared\\_WGS/MapServer](https://gismaps.vdem.virginia.gov/arcgis/rest/services/VBMP_Imagery/VBMP2018_Infrared_WGS/MapServer). Accessed July, 2022.

Virginia Geographic Information Network (VGIN). 2015. Virginia Base Mapping Program Orthoimagery. Available at: <https://vgin.maps.arcgis.com/apps/Viewer/index.html?appid=cbe6a0c1b2c440168e228ee33b89cb38#>. Accessed July, 2022.

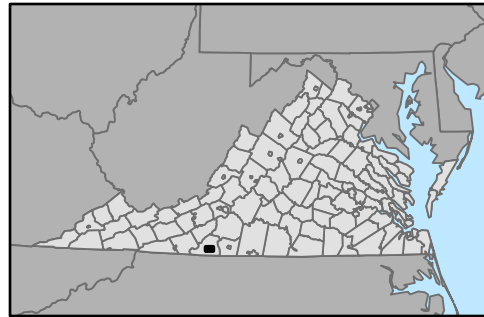
\_\_\_\_\_. 2018. Virginia Base Mapping Program Orthoimagery. Available at: <https://vgin.maps.arcgis.com/apps/Viewer/index.html?appid=cbe6a0c1b2c440168e228ee33b89cb38#>. Accessed July, 2022.

\_\_\_\_\_. 2019. Virginia Base Mapping Program Orthoimagery. Available at: <https://vgin.maps.arcgis.com/apps/Viewer/index.html?appid=cbe6a0c1b2c440168e228ee33b89cb38#>. Accessed July, 2022.

**ATTACHMENT A: DESKTOP STREAM AND WETLAND DELINEATION MAP –  
ALTERNATIVE ROUTES A AND B**



Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



Map Tile	Component 2 Alternative Routes	Highway
Proposed APCo Substation	Component 2 Rebuild Route	Stream (NHD)
Existing APCo Substation to be Retired	Component 3 Proposed Route	River (NHD)
Component 1 Alternative Routes	Existing Transmission Line to be Retired	Town Boundary
		County Boundary

Patrick County,  
Virginia

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Miles

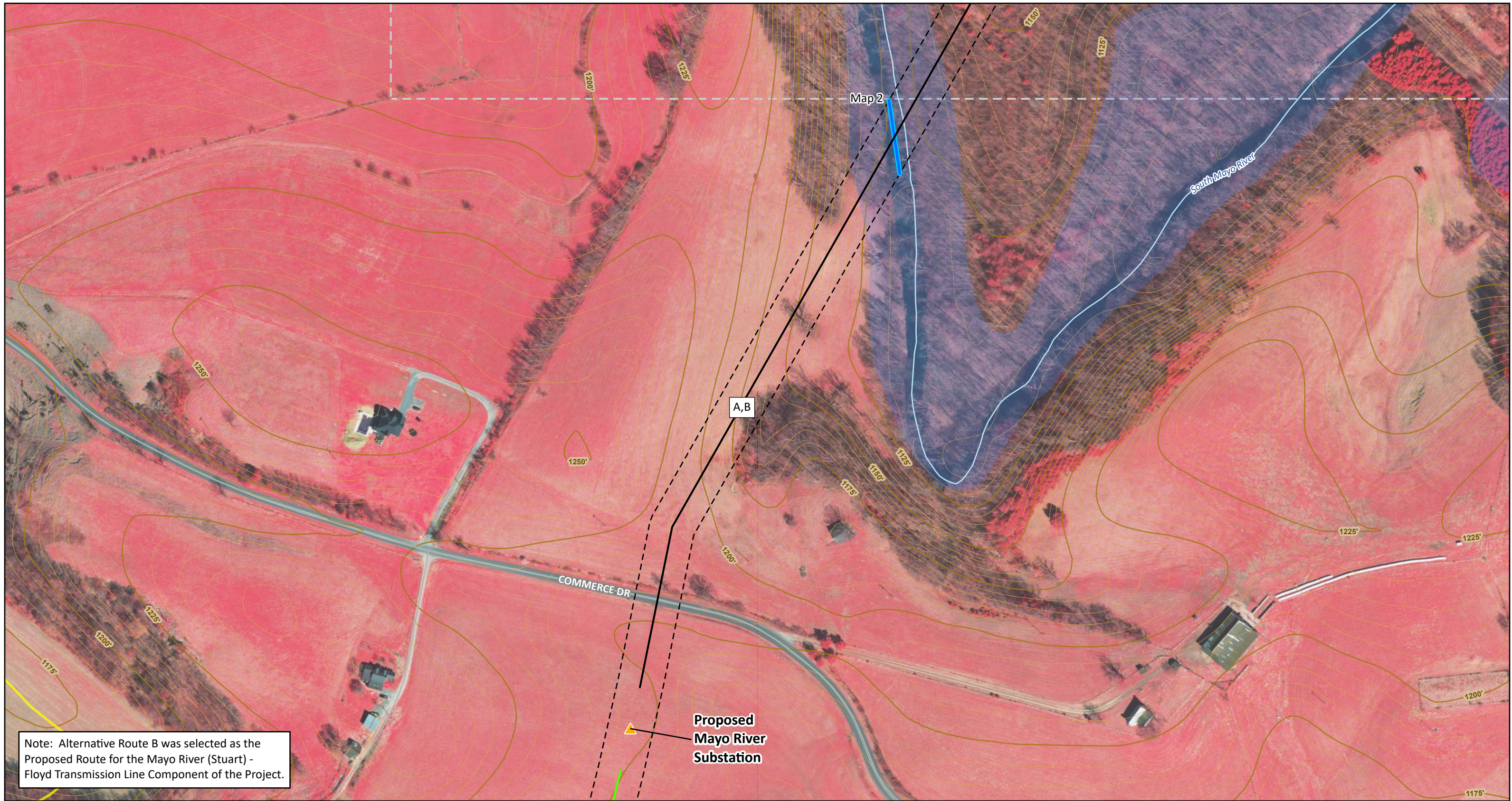
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**Attachment A:**  
**Desktop Stream and Wetland**  
**Delineation Index**

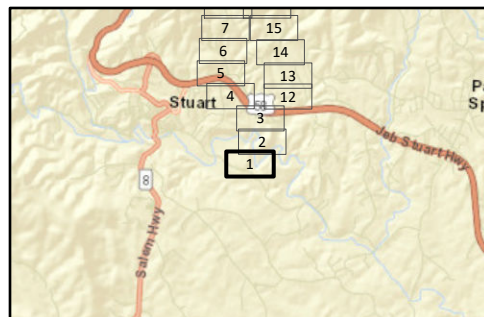
Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B

An AEP Company





Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



High Probability Stream	Right-of-Way (100')	County Boundary
Proposed APCo Substation	Stream (NHD)	Map Tile
Component 2 Alternative Routes	Road	Index Contour (25')
Mayo River - Claudville Alternative Routes	Hydric Soils	Intermediate Contour (5')
	Floodplain	

Patrick County,  
Virginia

Date: 3/27/2023; Author: ckunde; Project: 159298

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Feet

1" = 200'

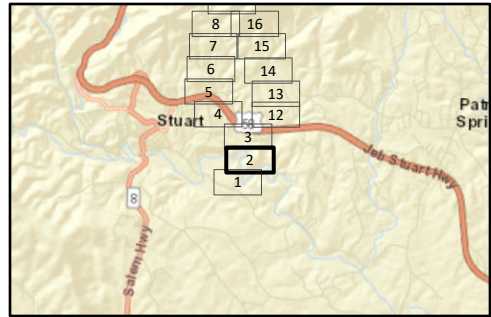
**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 1 of 16**

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B

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Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



High Probability Stream	Hydric Soils	Town Boundary
Component 2 Alternative Routes	Floodplain	Map Tile
Right-of-Way (100')	Wetland (NWI)	Index Contour (25')
Stream (NHD)	County Boundary	Intermediate Contour (5')

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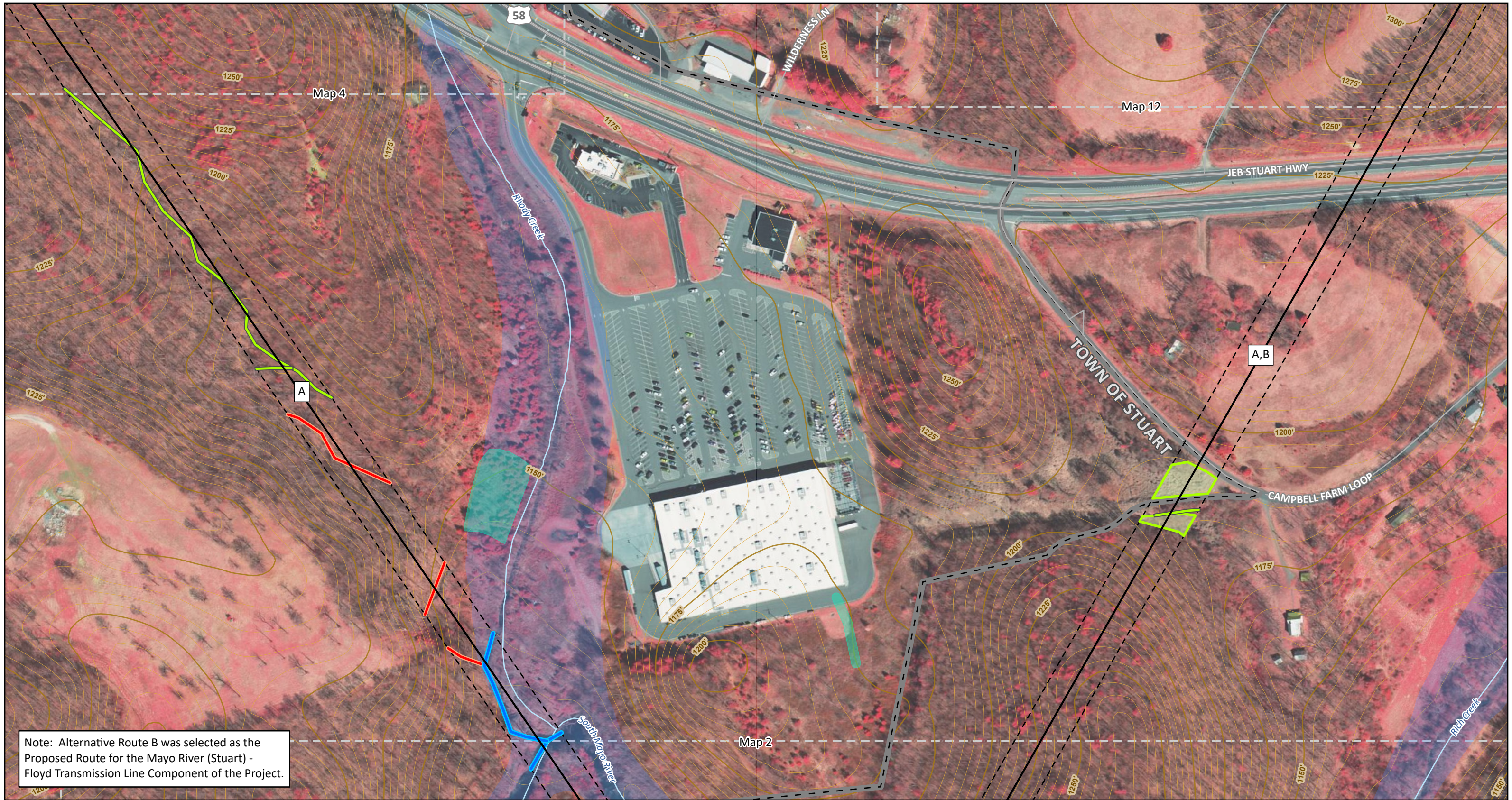
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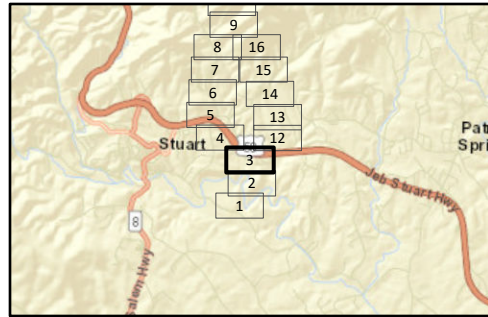
**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 2 of 16**

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B

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Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



High Probability Stream	Right-of-Way (100')	County Boundary
Low Probability Stream	Stream (NHD)	Town Boundary
Moderate Probability Stream	Road	Map Tile
Low Probability Wetland	Floodplain	Index Contour (25')
Component 2 Alternative Routes	Wetland (NWI)	Intermediate Contour (5')

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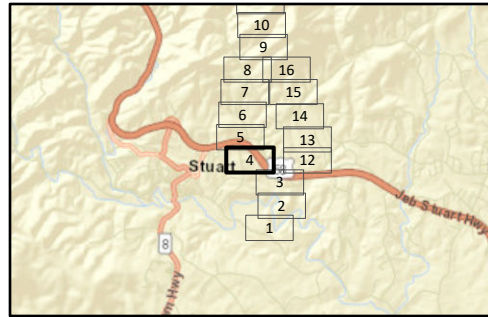
**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 3 of 16**

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B

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Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



Low Probability Stream	Existing APCo Transmission to be Retired	County Boundary
Moderate Probability Stream	Stream (NHD)	Town Boundary
Component 2 Alternative Routes	Road	Map Tile
Right-of-Way (100')	Floodplain	Index Contour (25')
		Intermediate Contour (5')

Patrick County,  
Virginia

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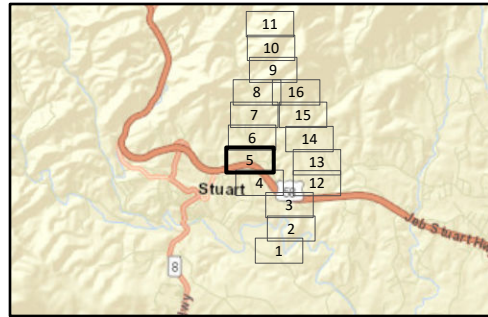
**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 4 of 16**

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B

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Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



- Moderate Probability Stream
- Stream (NHD)
- Component 2 Alternative Routes
- Road
- Right-of-Way (100')
- County Boundary
- X Existing APCo Transmission to be Retired
- Town Boundary

- Map Tile
- Index Contour (25')
- Intermediate Contour (5')




Patrick County,  
Virginia

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Feet

1" = 200'

**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 5 of 16**

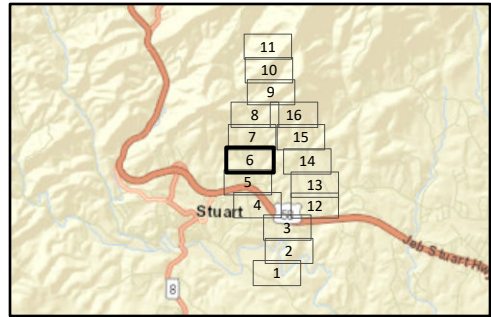


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Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B



Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



High Probability Stream	Existing APCo Transmission to be Retired	County Boundary
Low Probability Stream	Stream (NHD)	Map Tile
Component 2 Alternative Routes	Road	Index Contour (25')
Right-of-Way (100')		Intermediate Contour (5')

Patrick County,  
Virginia

Date: 3/27/2023; Author: ckunde; Project: 159298

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Feet

1" = 200'

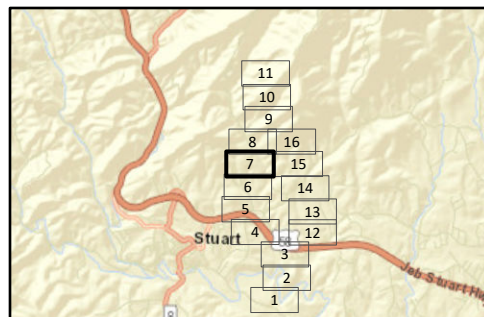
**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 6 of 16**

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Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B



Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



Low Probability Stream	Existing APCo Transmission to be Retired	County Boundary
Component 2 Alternative Routes	Stream (NHD)	Map Tile
Right-of-Way (100')	Road	Index Contour (25')
		Intermediate Contour (5')

Patrick County,  
Virginia

Date: 3/27/2023; Author: ckunde; Project: 159298

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Feet

1" = 200'

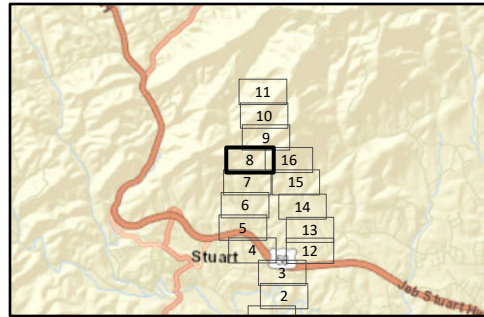
**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 7 of 16**

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B

An AEP Company



Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



High Probability Stream	Existing APCo Transmission to be Retired	County Boundary
Component 2 Alternative Routes	Stream (NHD)	Map Tile
Right-of-Way (100')	Road	Index Contour (25')
		Intermediate Contour (5')

Patrick County,  
Virginia

Date: 3/27/2023; Author: ckunde; Project: 159298

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Feet

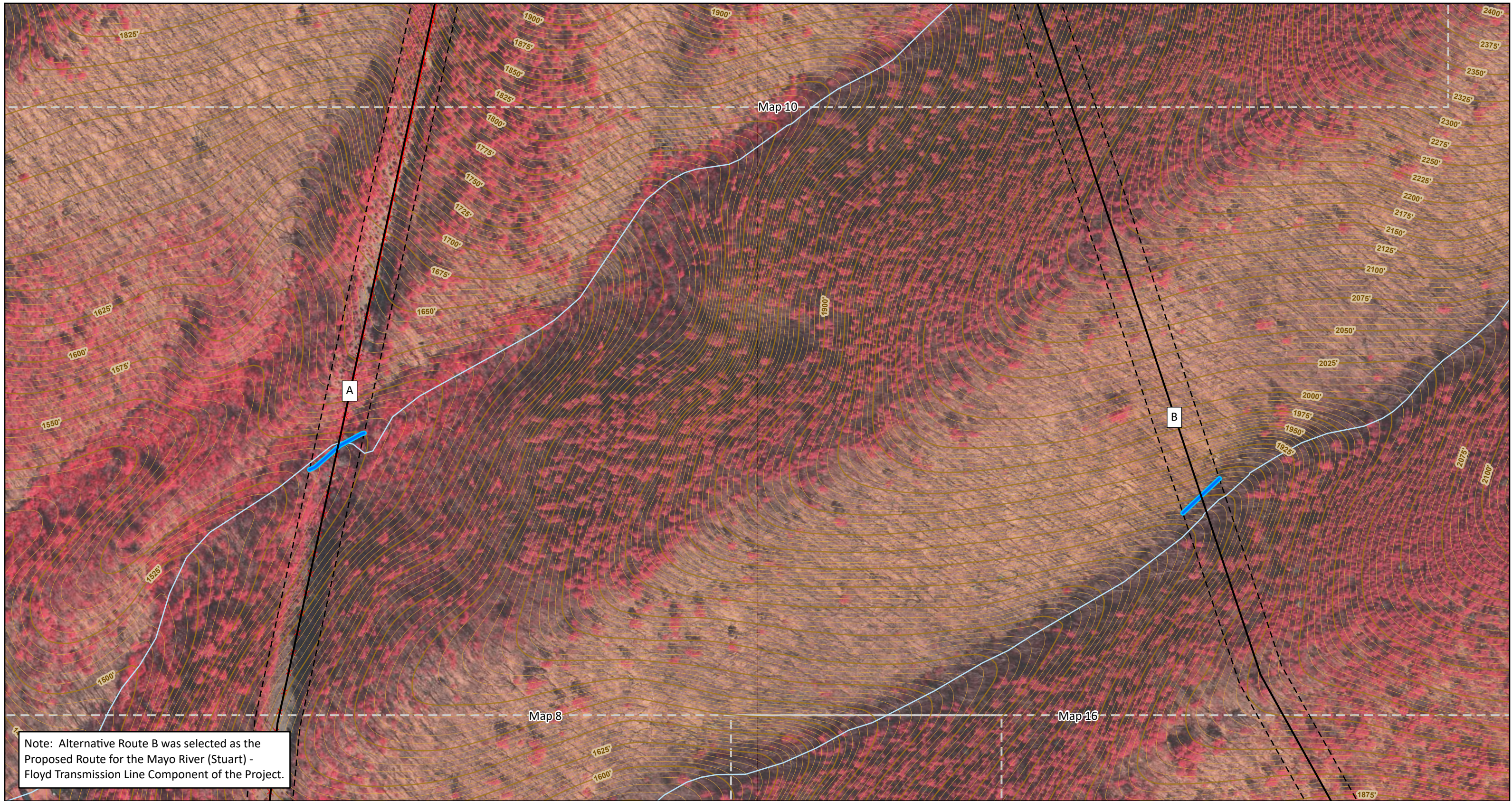
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**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 8 of 16**

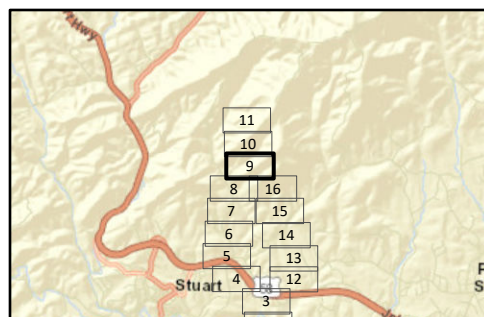
An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B





Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



High Probability Stream	Existing APCo Transmission to be Retired	Map Tile
Component 2 Alternative Routes	Stream (NHD)	Index Contour (25')
Right-of-Way (100')	County Boundary	Intermediate Contour (5')

Patrick County,  
Virginia

Date: 3/27/2023; Author: ckunde; Project: 159298

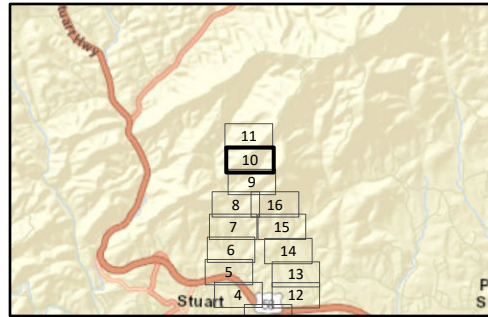
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1" = 200'

**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 9 of 16**

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B

An AEP Company



High Probability Stream	Existing APCo Transmission to be Retired	Map Tile
Component 2 Alternative Routes	Stream (NHD)	Index Contour (25')
Right-of-Way (100')	County Boundary	Intermediate Contour (5')

Patrick County, Virginia

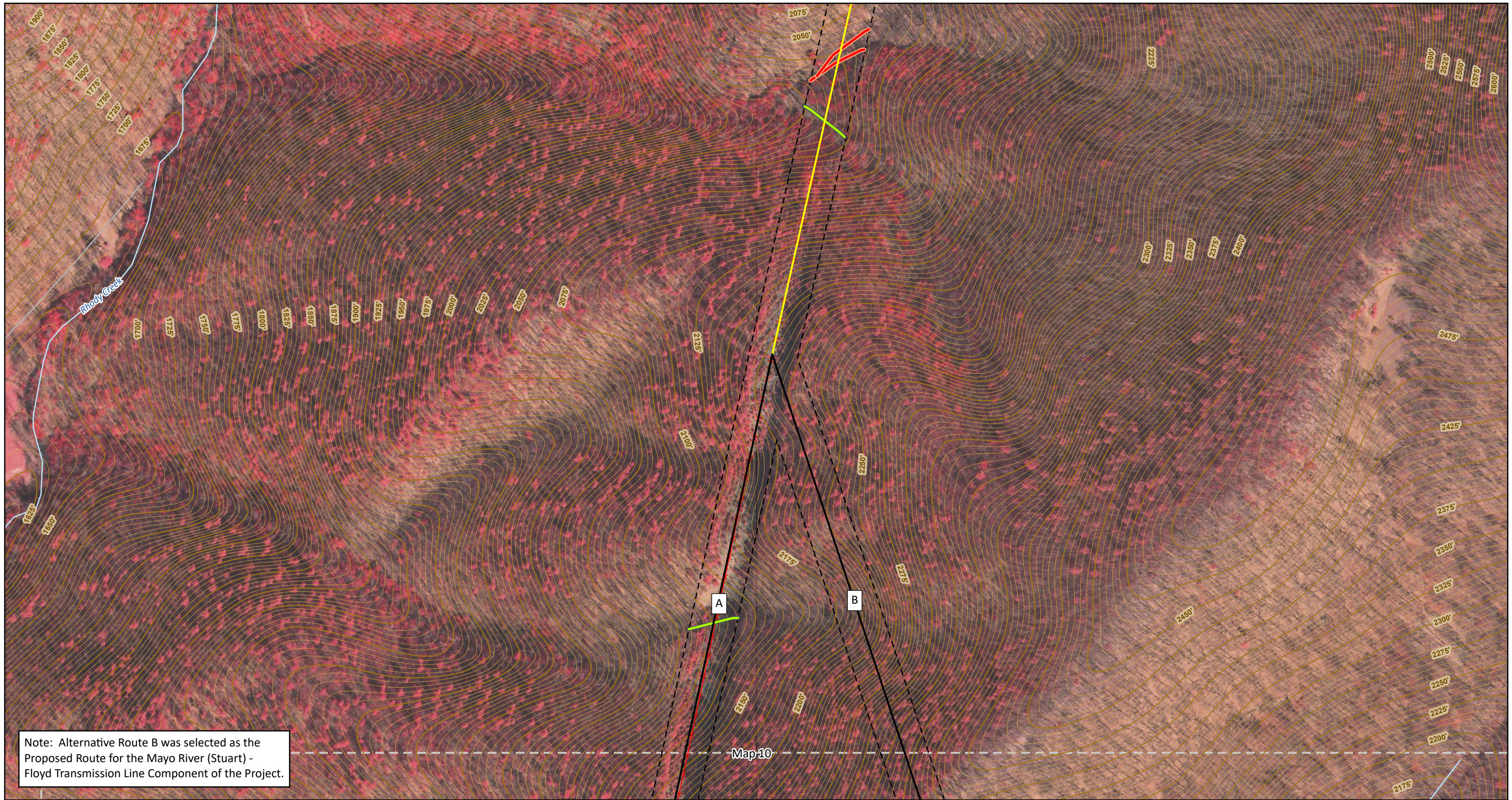
Date: 3/27/2023; Author: ckunde; Project: 159298

0 200 400  
Feet

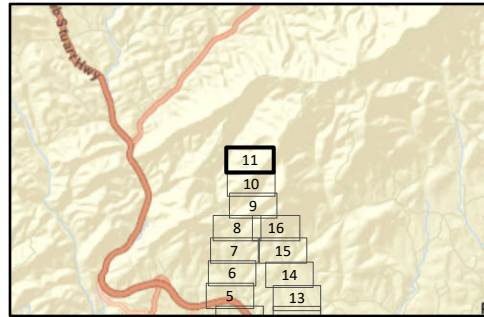
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**Attachment A:**  
Desktop Stream and Wetland Delineation  
Map 10 of 16

Stuart Area Transmission Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B



Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



Low Probability Stream	Right-of-Way (100')	County Boundary
Moderate Probability Stream	Existing APCo Transmission to be Retired	Map Tile
Component 2 Alternative Routes	Stream (NHD)	Index Contour (25')
Component 2 Rebuild Route	Road	Intermediate Contour (5')

Patrick County,  
Virginia

Date: 3/27/2023; Author: ckunde; Project: 159298

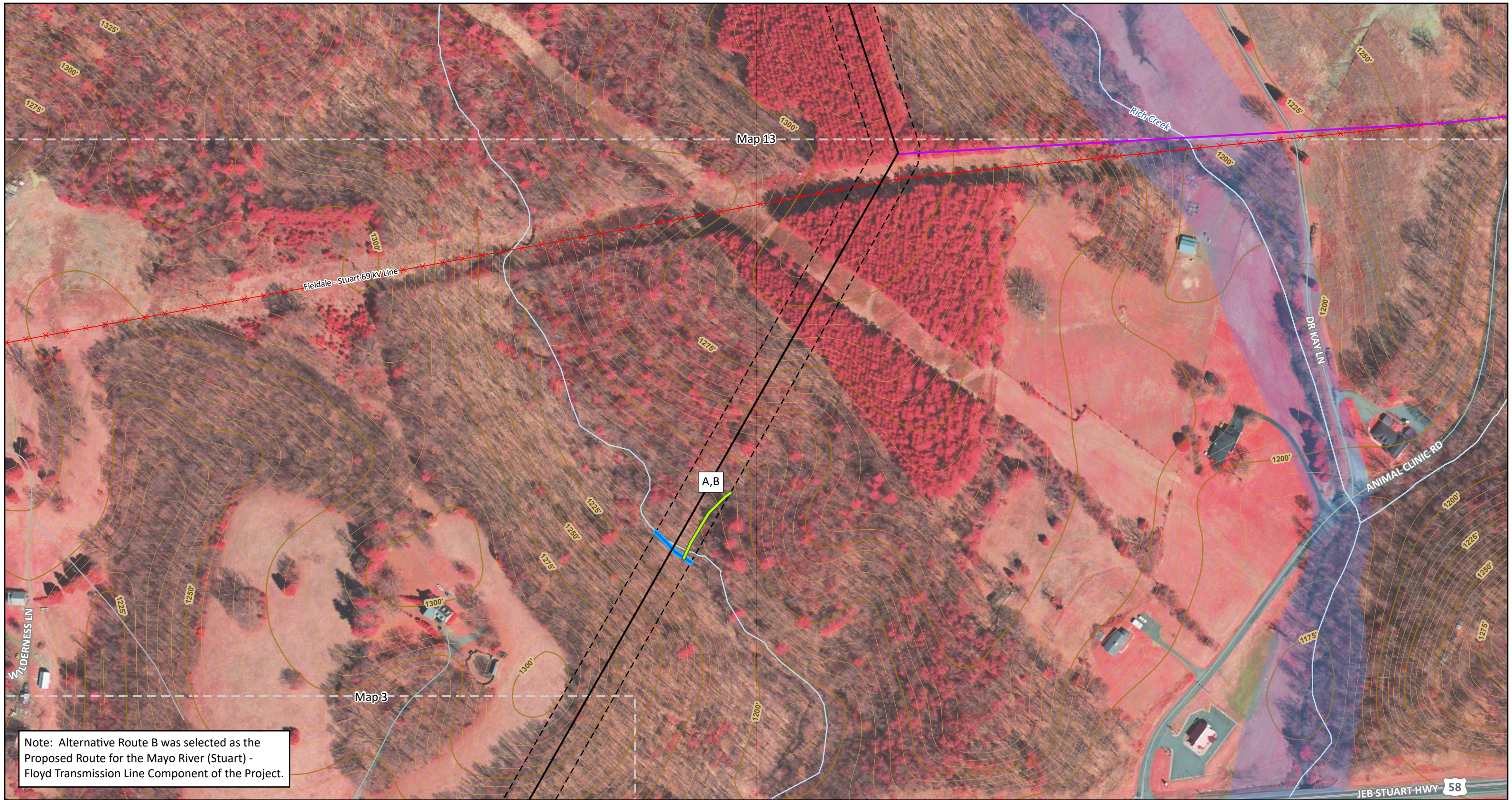
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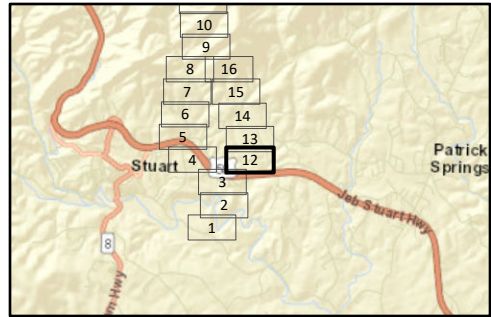
**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 11 of 16**

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B

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Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



High Probability Stream	Existing APCo Transmission to be Retired	County Boundary
Low Probability Stream	Stream (NHD)	Map Tile
Component 2 Alternative Routes	Road	Index Contour (25')
Component 3 Proposed Route	Floodplain	Intermediate Contour (5')
Right-of-Way (100')		

Patrick County,  
Virginia

Date: 3/27/2023; Author: ckunde; Project: 159298

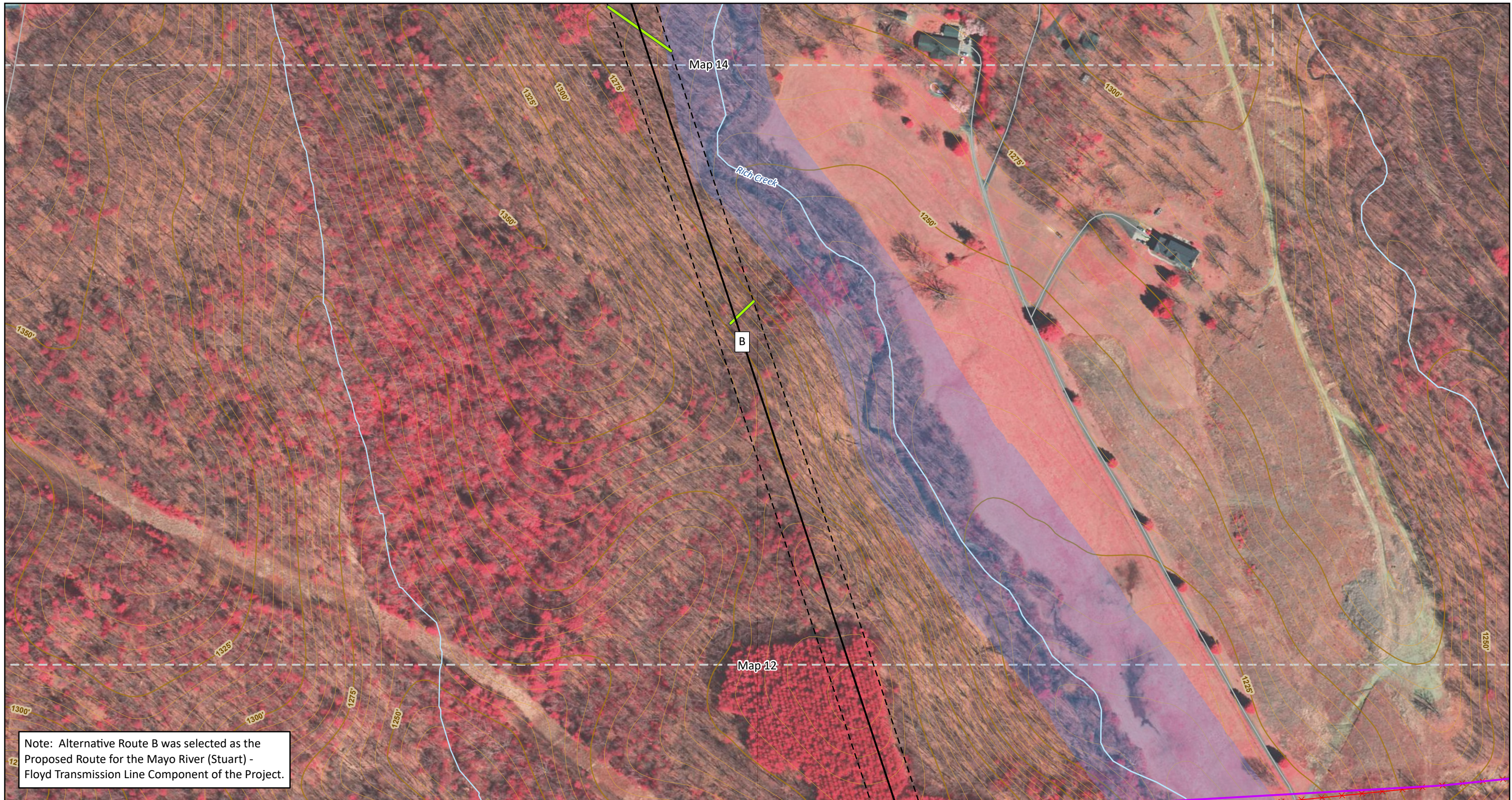
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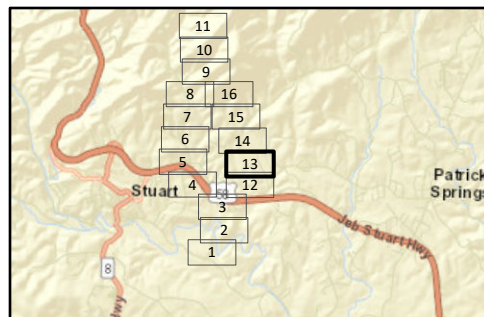
**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 12 of 16**

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Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B



Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



Low Probability Stream	Existing APCo Transmission to be Retired	County Boundary
Component 2 Alternative Routes	Stream (NHD)	Map Tile
Component 3 Proposed Route	Road	Index Contour (25')
Right-of-Way (100')	Floodplain	Intermediate Contour (5')

Patrick County,  
Virginia

Date: 3/27/2023; Author: ckunde; Project: 159298

0      200      400  
Feet

1" = 200'

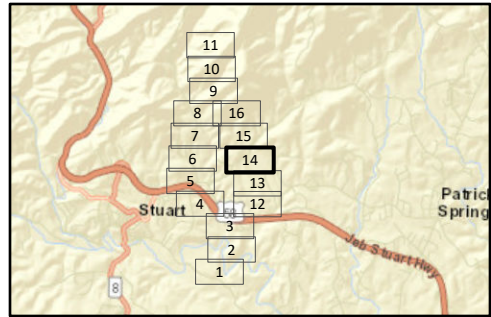
**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 13 of 16**

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B

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Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



Low Probability Stream	Road	Index Contour (25')
Component 2 Alternative Routes	Floodplain	Intermediate Contour (5')
Right-of-Way (100')	County Boundary	
Stream (NHD)	Map Tile	

Patrick County,  
Virginia

Date: 3/27/2023; Author: ckunde; Project: 159298

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Feet

1" = 200'

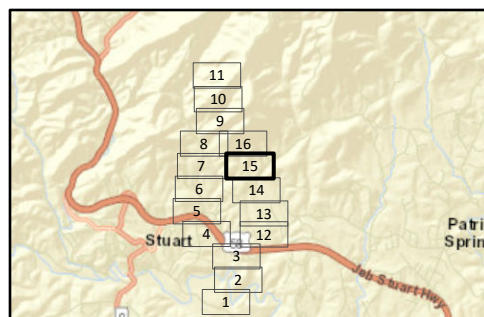
**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 14 of 16**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B



Note: Alternative Route B was selected as the Proposed Route for the Mayo River (Stuart) - Floyd Transmission Line Component of the Project.



Low Probability Stream	Stream (NHD)	Index Contour (25')
Moderate Probability Stream	Road	Intermediate Contour (5')
Component 2 Alternative Routes	County Boundary	
Right-of-Way (100')	Map Tile	

Patrick County,  
Virginia

Date: 3/27/2023; Author: ckunde; Project: 159298

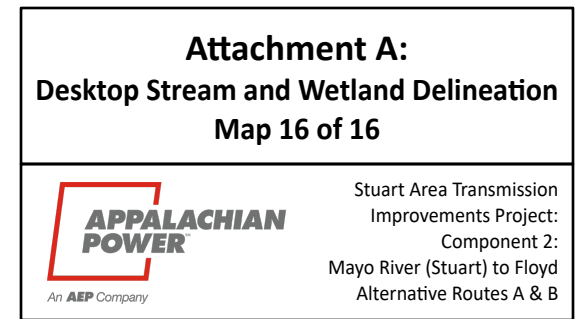
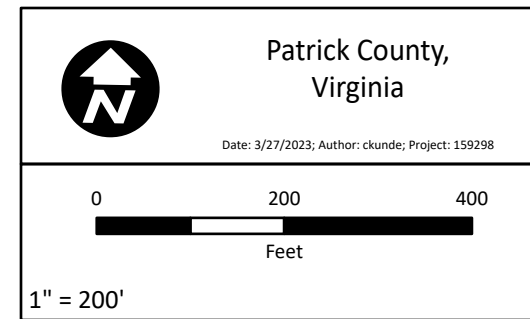
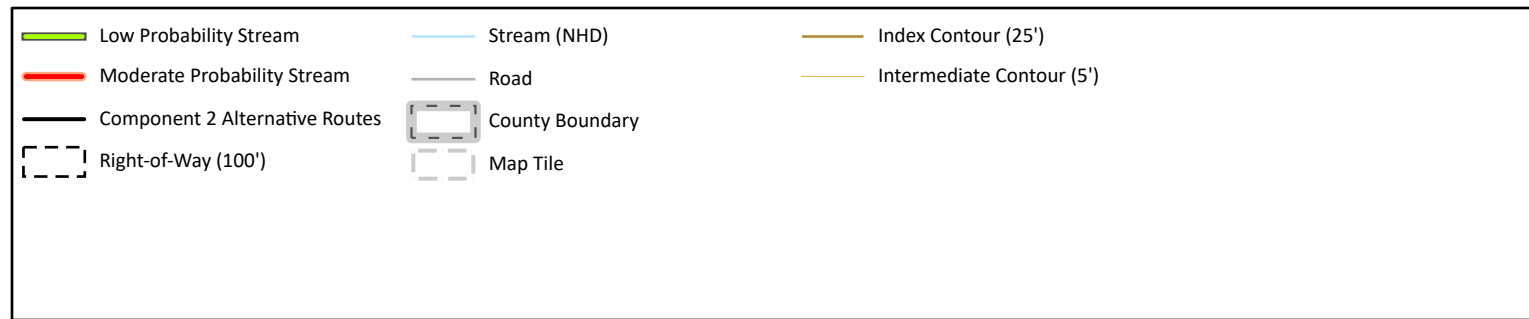
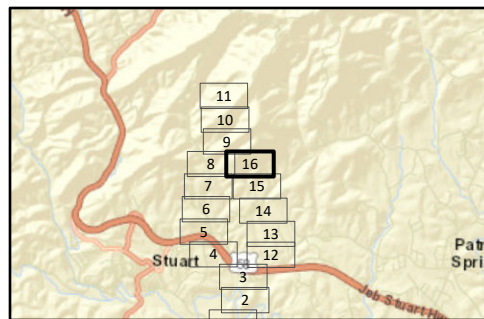
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1" = 200'

**Attachment A:**  
**Desktop Stream and Wetland Delineation**  
**Map 15 of 16**

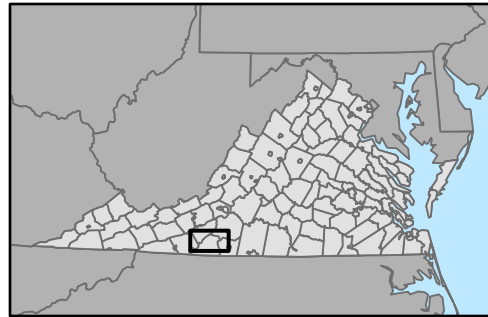
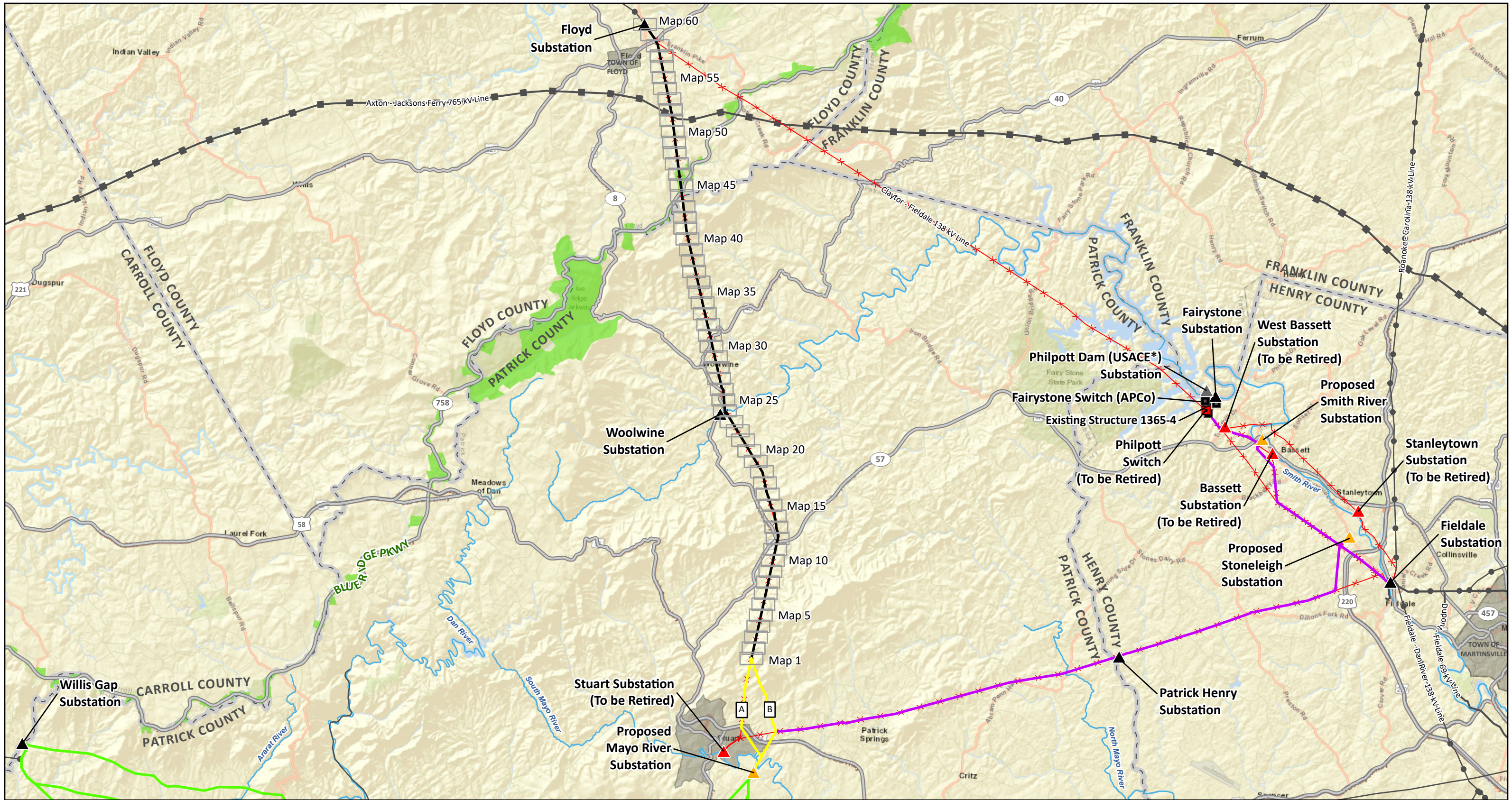
An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Alternative Routes A & B





**ATTACHMENT B: DESKTOP STREAM AND WETLAND DELINEATION MAP –  
REBUILD ROUTE**



	Map Tile		Existing Switch Station		Existing APCo Transmission Line (69 kv or lower)		Stream (NHD)
	Proposed APCo Substation		Component 1 Alternative Routes		Existing APCo Transmission Line (115 kv - 230 kv)		River (NHD)
	Existing APCo Substation		Component 2 Alternative Routes		Existing APCo Transmission Line (345 kv +)		Blue Ridge Parkway National Parkway
	Existing APCo Substation to be Retired		Component 2 Rebuild Route		Existing Non-APCo Transmission Line		Town Boundary
	Non-APCo Generation Facility		Component 3 Proposed Route		Existing Transmission Line to be Retired		County Boundary
	Existing Switch Station to be Retired				Highway		

**Patrick & Floyd Counties, Virginia**

Date: 3/27/2023; Author: ckunde; Project: 159298

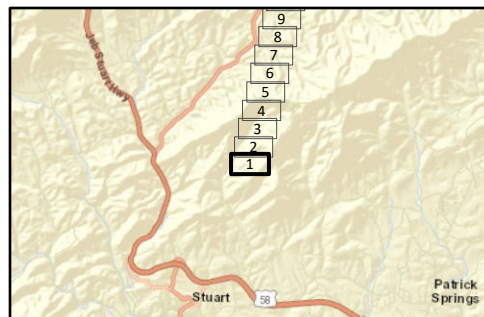
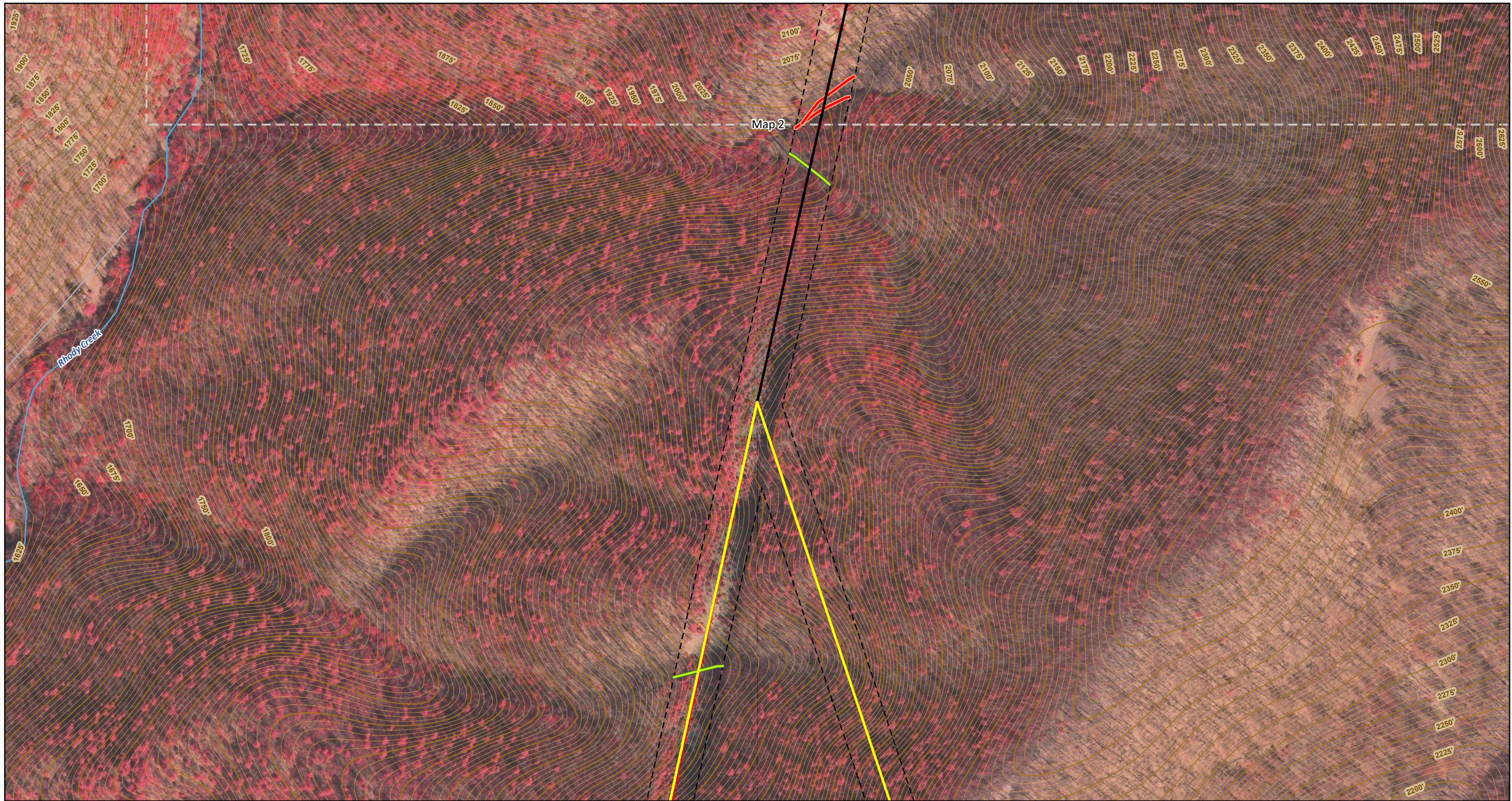
0 2.5 5  
Miles

1" = 2.5 miles

**Attachment B:  
Desktop Stream and Wetland  
Delineation Index**

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

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Low Probability Stream	Proposed Right-of-Way (100')	Stream (NHD)
Moderate Probability Stream	Existing Transmission Line to be Retired	Index Contour (25')
Component 2 Alternative Routes	Road	Intermediate Contour (5')
Component 2 Rebuild Route	Map Tile	

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

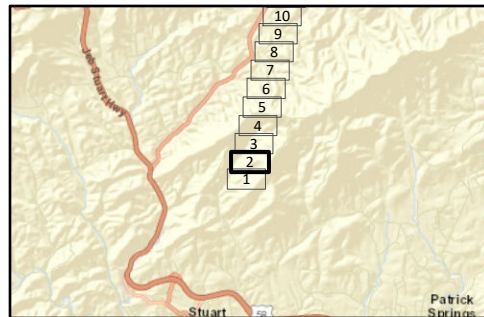
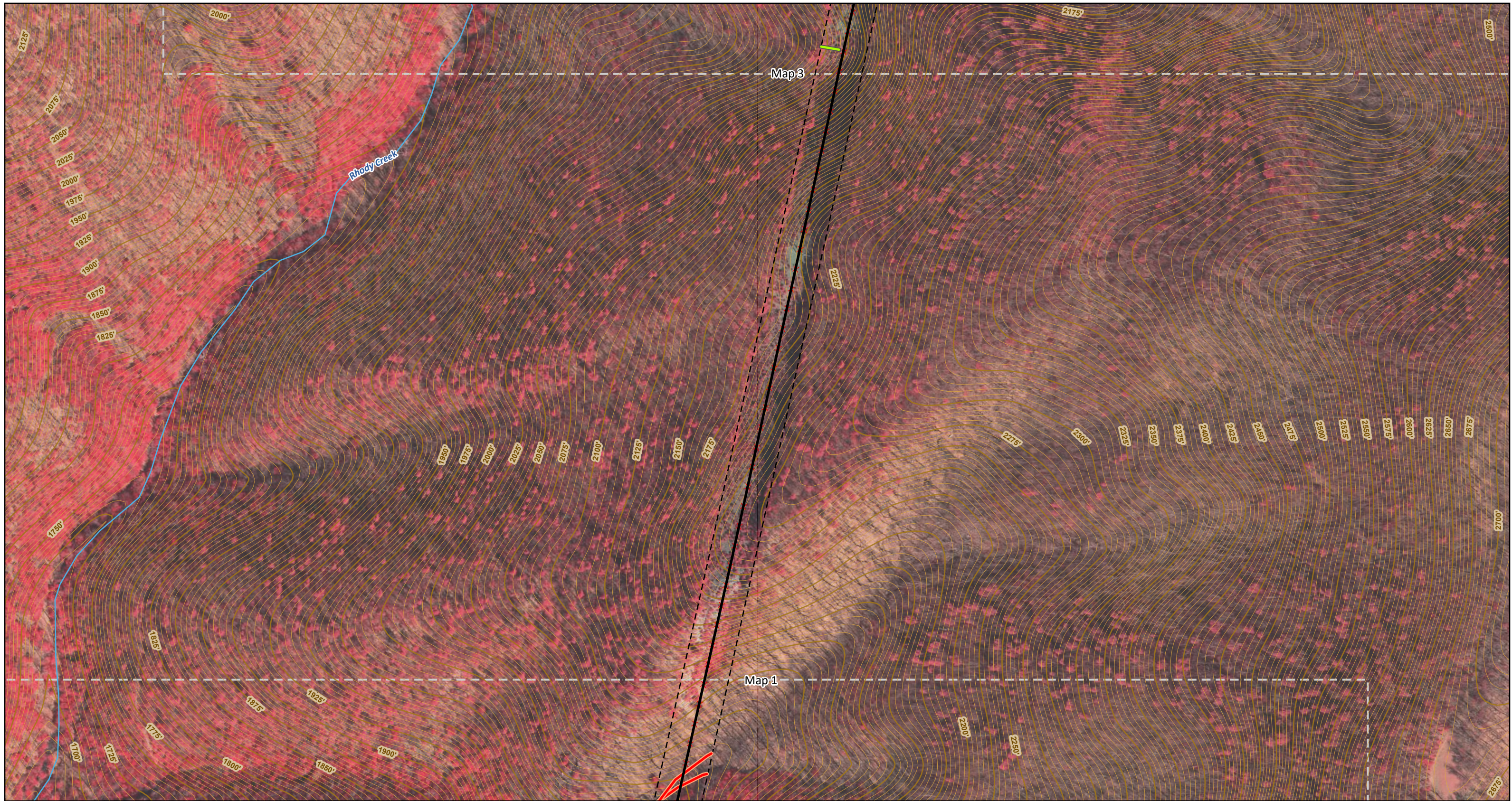
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 1 of 60**

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

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Low Probability Stream	Proposed Right-of-Way (100')	Index Contour (25')
Moderate Probability Stream	Existing Transmission Line to be Retired	Intermediate Contour (5')
Component 2 Rebuild Route	Stream (NHD)	Map Tile

Patrick & Floyd Counties, Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298

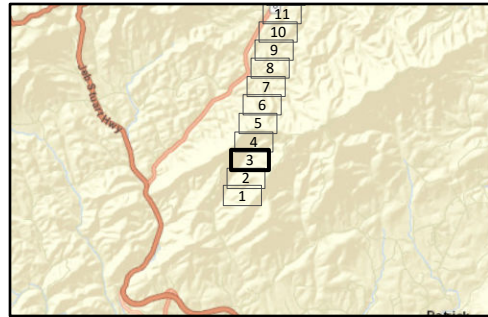
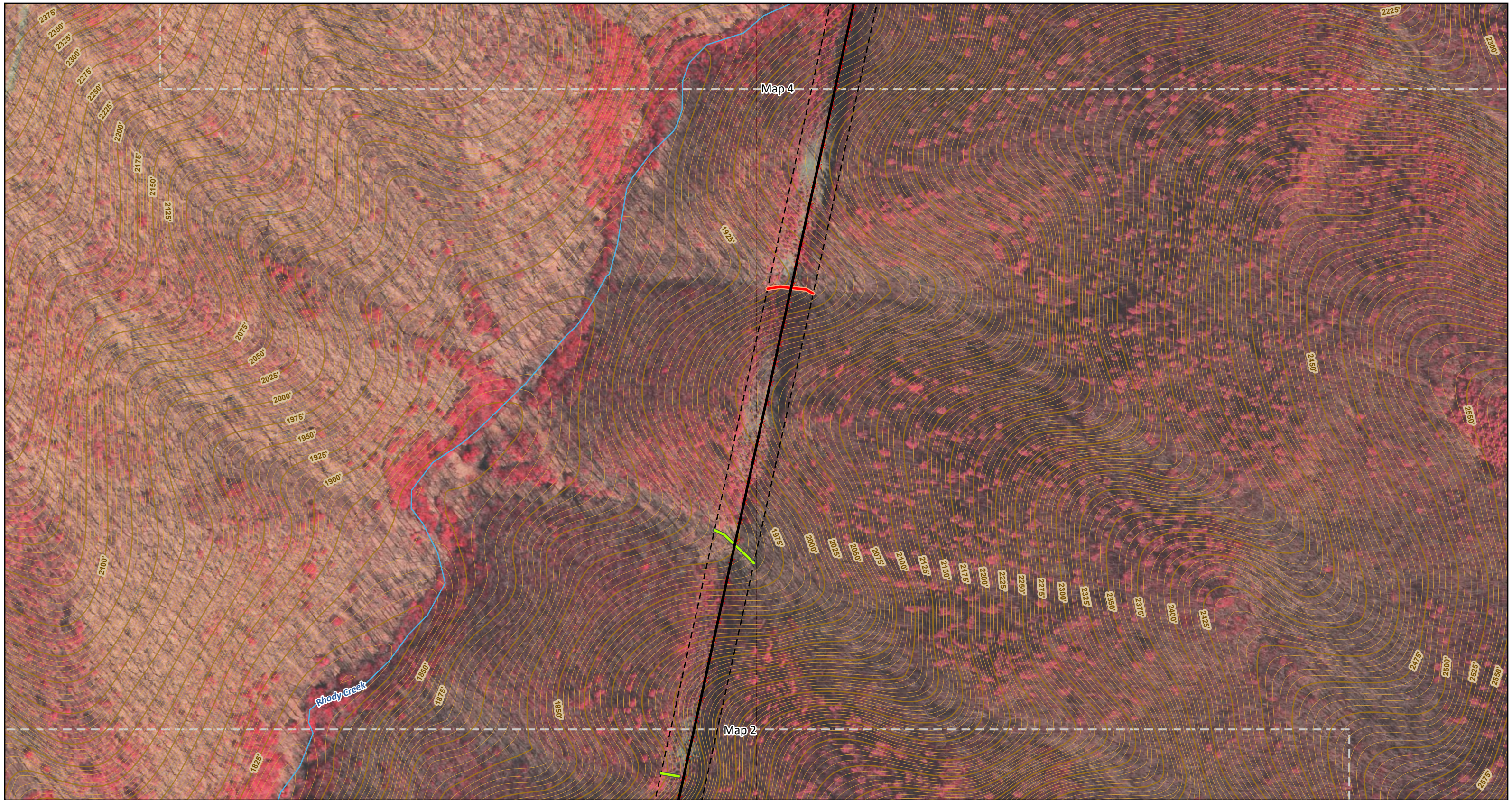
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 Feet



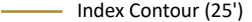
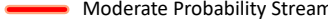
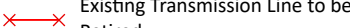

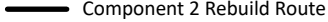


1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 2 of 60**

Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route


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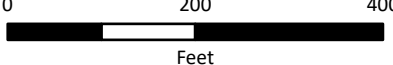


 Low Probability Stream	 Proposed Right-of-Way (100')	 Index Contour (25')
 Moderate Probability Stream	 Existing Transmission Line to be Retired	 Intermediate Contour (5')
 Component 2 Rebuild Route	 Stream (NHD)	 Map Tile

Patrick & Floyd Counties,  
Virginia

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0                      200                      400  
Feet

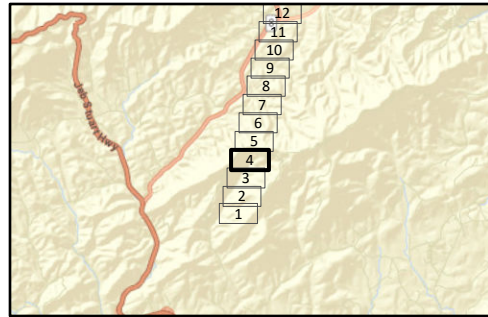
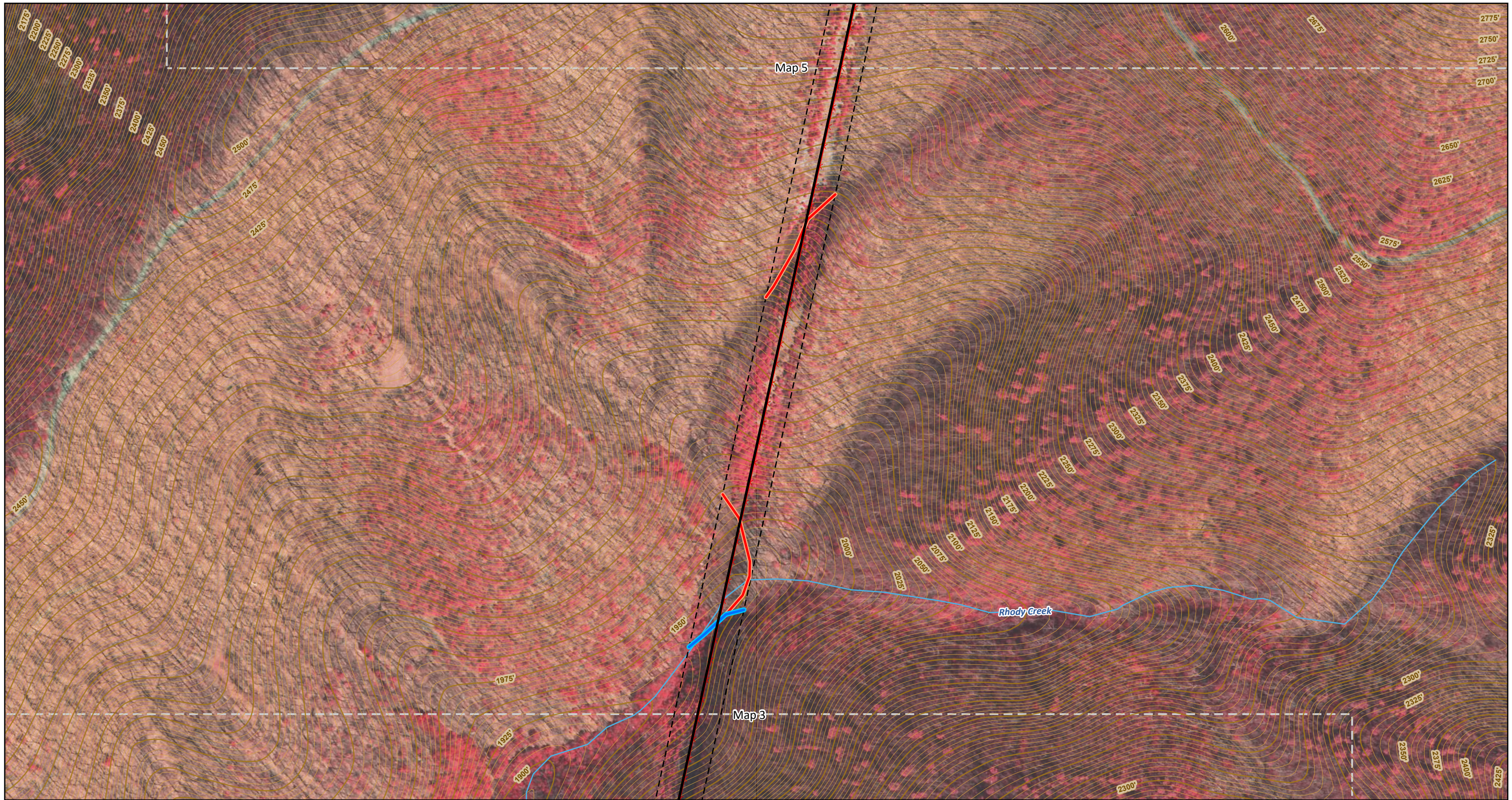
1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 3 of 60**



An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Proposed Right-of-Way (100')	Index Contour (25')
Moderate Probability Stream	Existing Transmission Line to be Retired	Intermediate Contour (5')
Component 2 Rebuild Route	Stream (NHD)	Map Tile

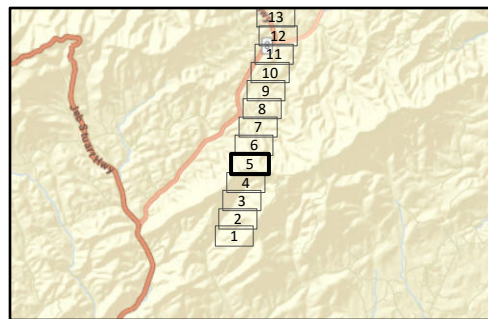
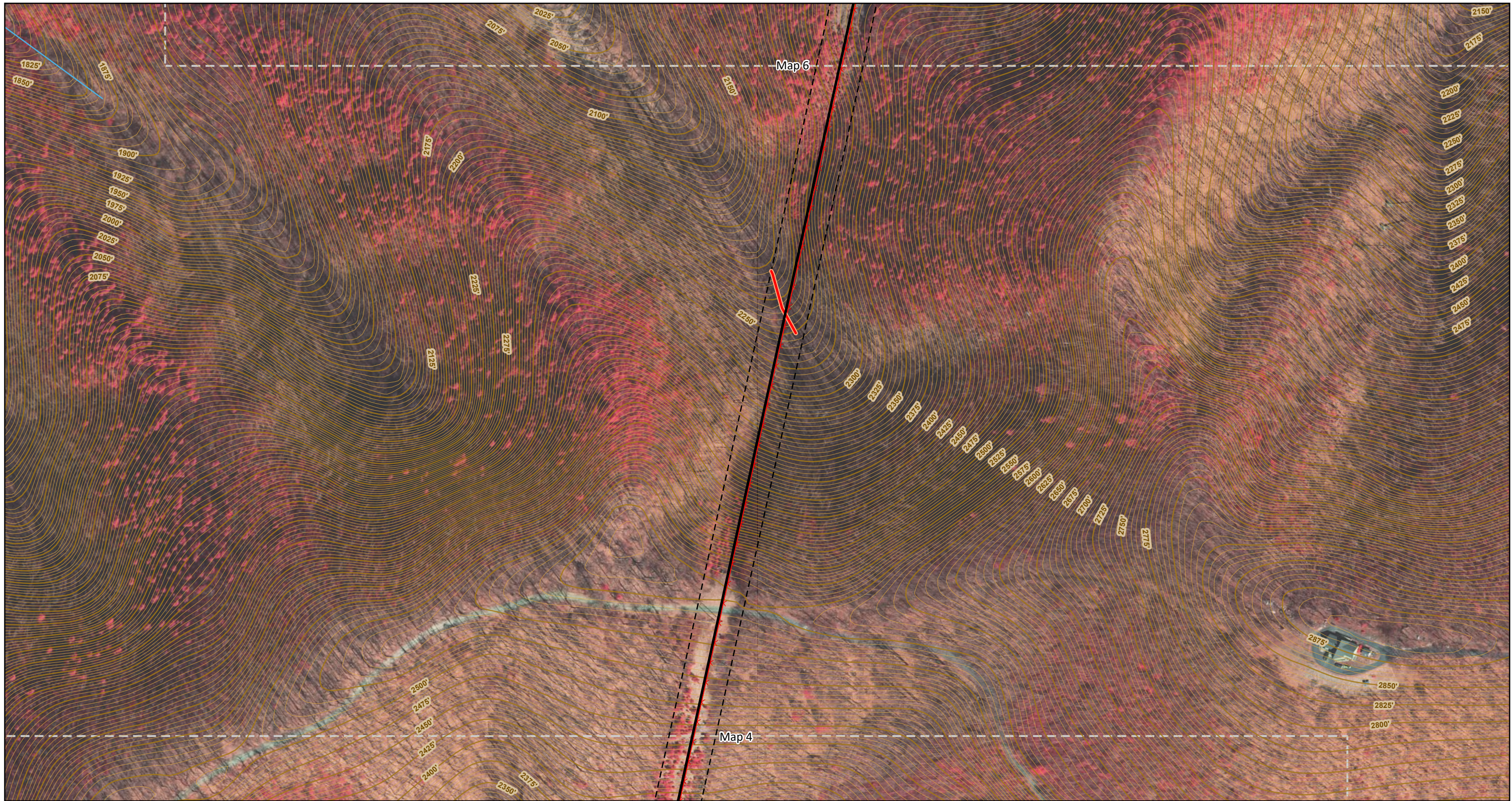
Patrick & Floyd Counties, Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298

0      200      400  
  
 Feet  
 1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 4 of 60**

Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route

An AEP Company

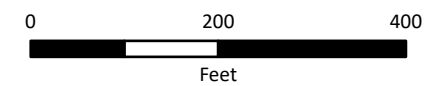


- Moderate Probability Stream
- Stream (NHD)
- Component 2 Rebuild Route
- Proposed Right-of-Way (100')
- X Existing Transmission Line to be Retired
- Map Tile
- Index Contour (25')
- Intermediate Contour (5')



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Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

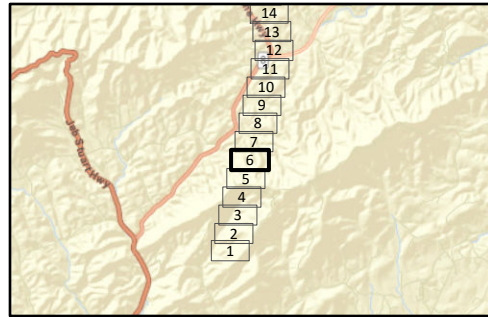
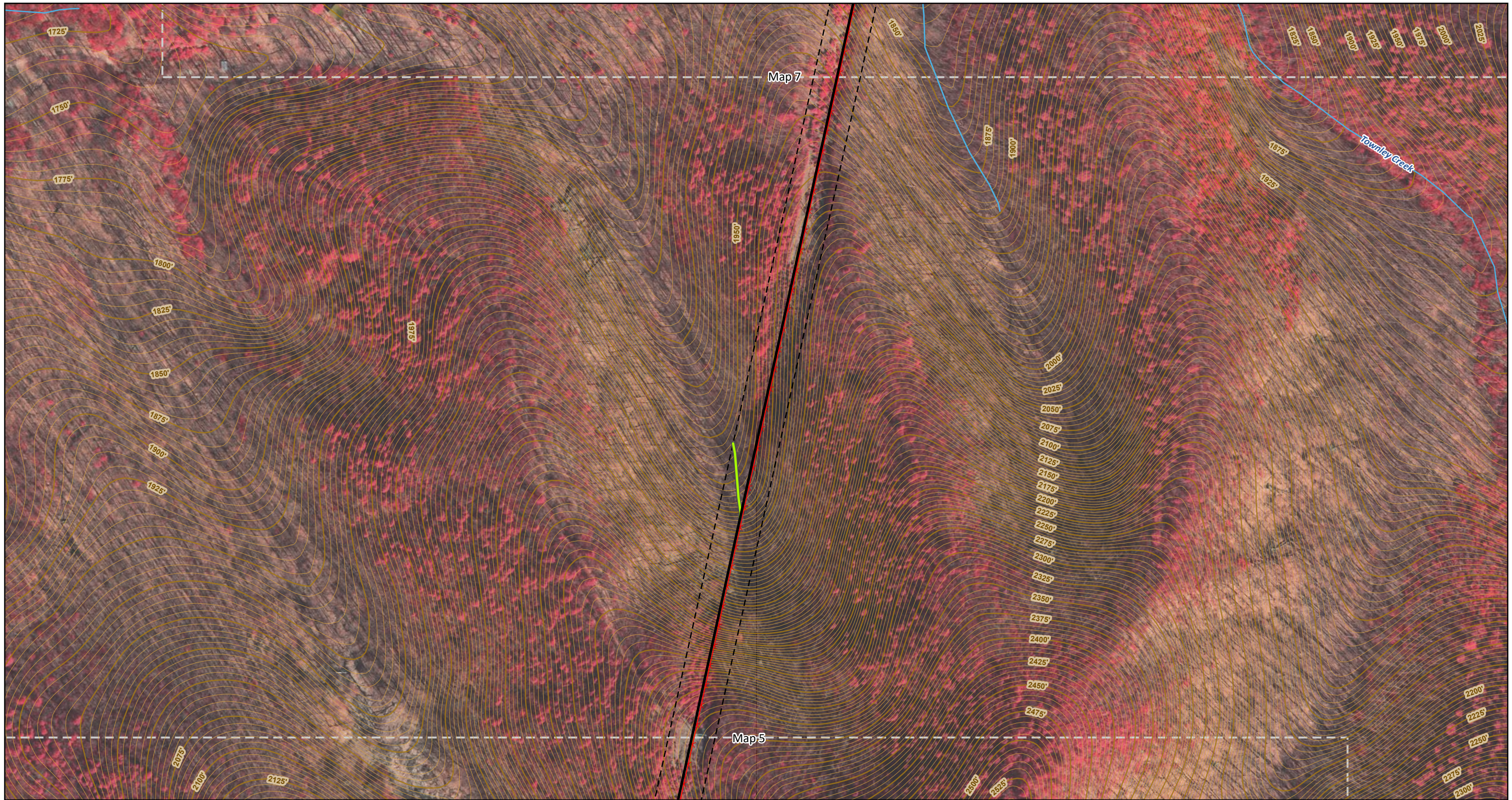


1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 5 of 60**



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



Low Probability Stream	Stream (NHD)
Component 2 Rebuild Route	Index Contour (25')
Proposed Right-of-Way (100')	Intermediate Contour (5')
Existing Transmission Line to be Retired	Map Tile

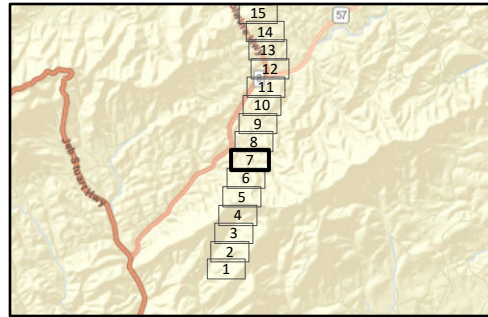
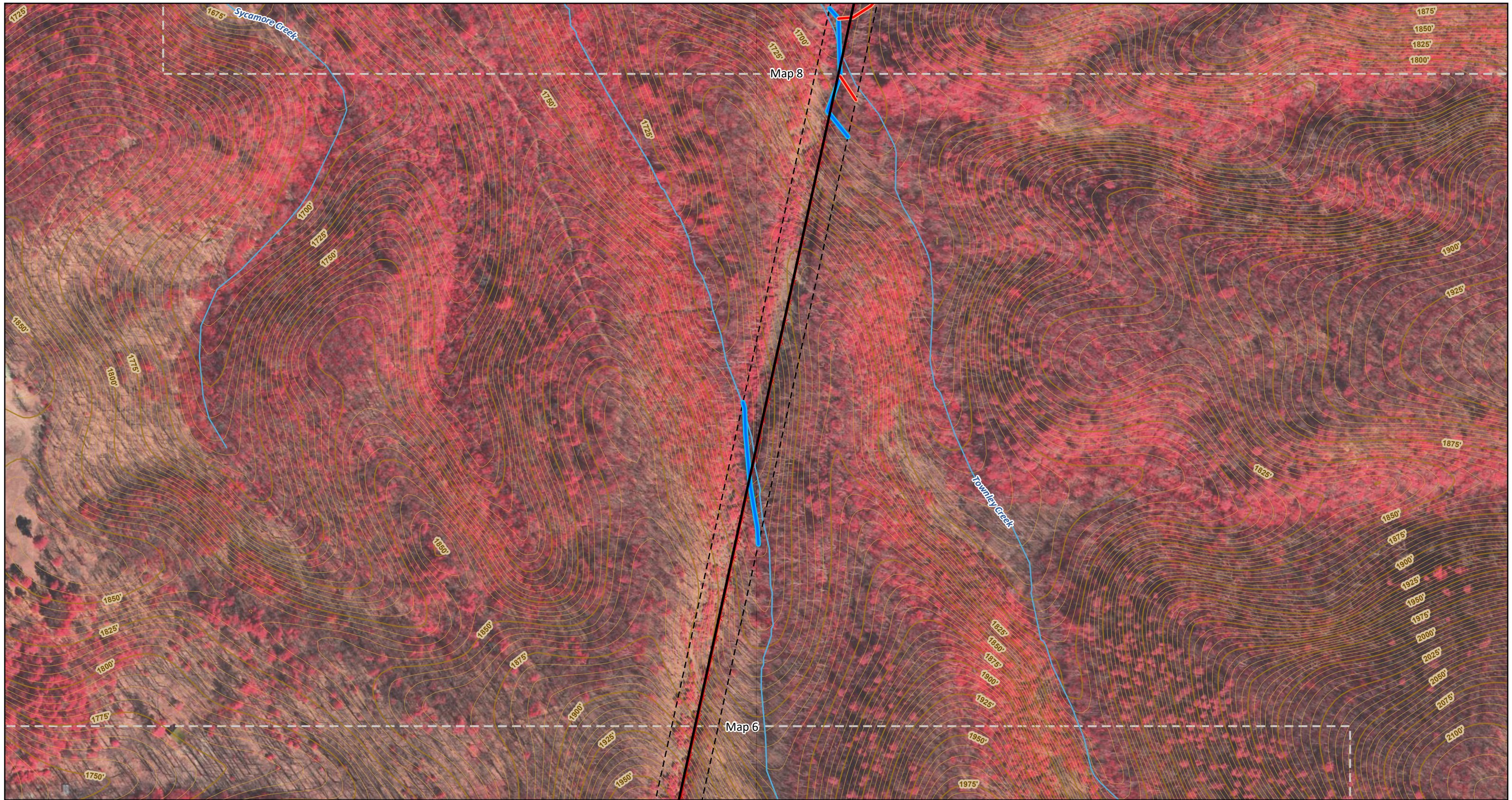
Patrick & Floyd Counties, Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298

0 200 400  
 Feet  
 1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 6 of 60**

Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route





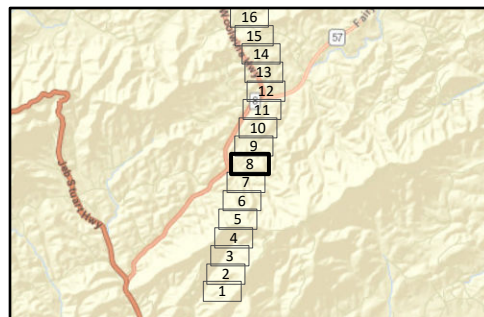
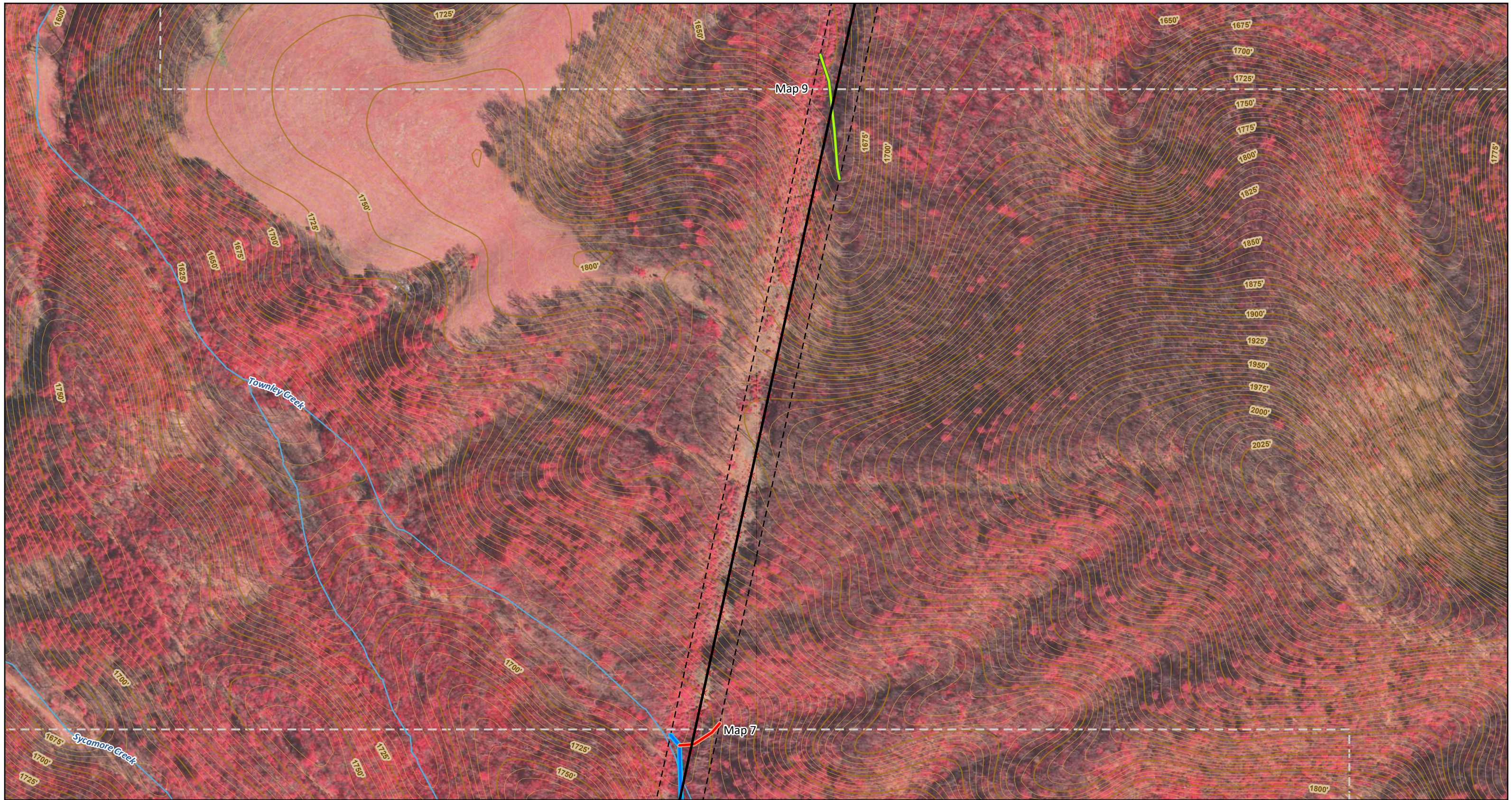
High Probability Stream	Proposed Right-of-Way (100')	Index Contour (25')
Moderate Probability Stream	Existing Transmission Line to be Retired	Intermediate Contour (5')
Component 2 Rebuild Route	Stream (NHD)	Map Tile

Patrick & Floyd Counties, Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298

0      200      400  
  
 Feet  
 1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 7 of 60**

Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route



High Probability Stream	Proposed Right-of-Way (100')	Index Contour (25')
Low Probability Stream	Existing Transmission Line to be Retired	Intermediate Contour (5')
Moderate Probability Stream	Stream (NHD)	Map Tile
Component 2 Rebuild Route		

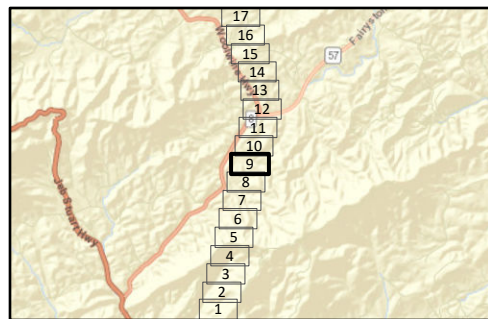
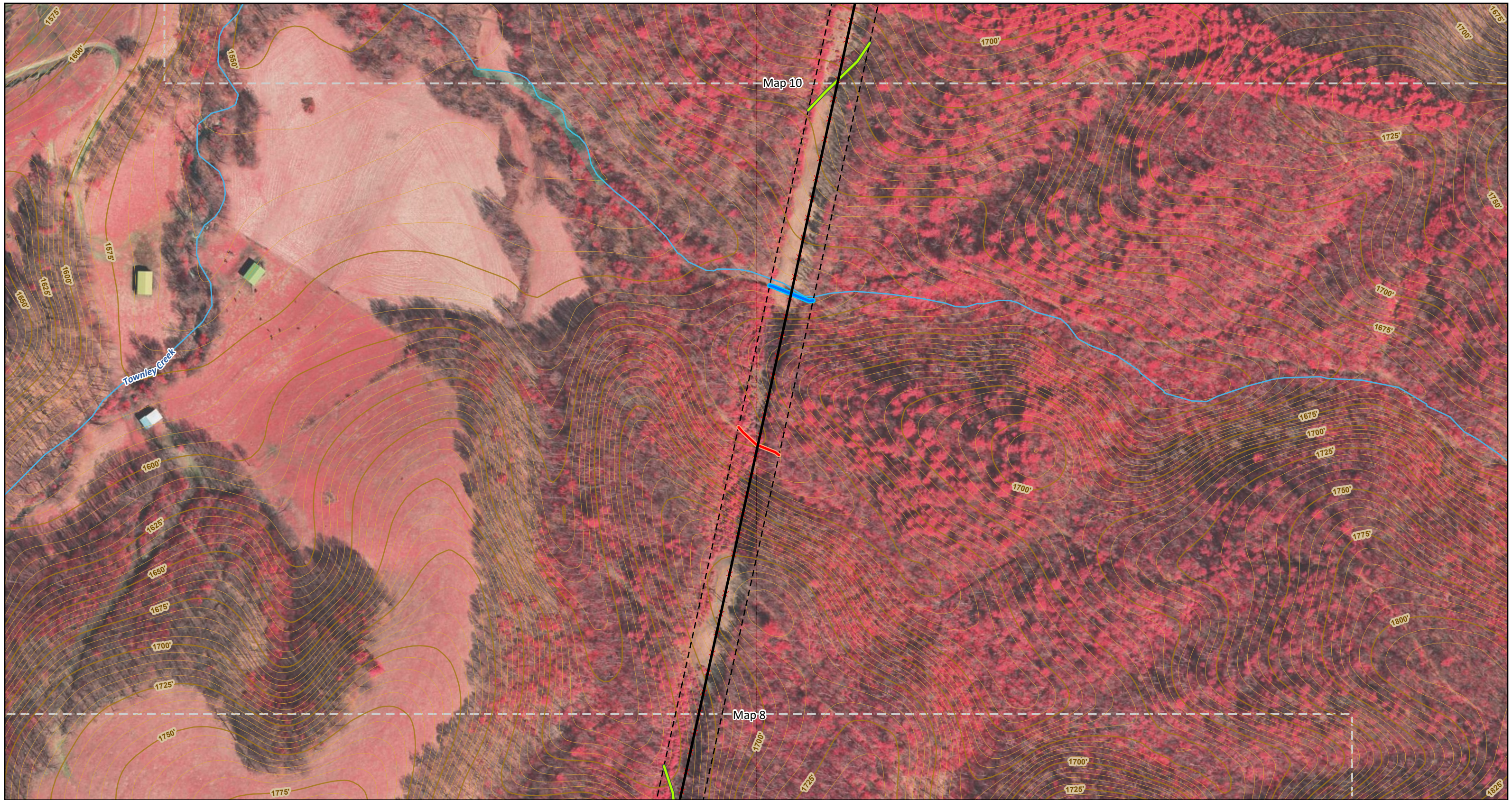
Patrick & Floyd Counties, Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298

0                      200                      400  
  
 Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 8 of 60**

Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route



High Probability Stream	Proposed Right-of-Way (100')	Stream (NHD)
Low Probability Stream	Existing Transmission Line to be Retired	Index Contour (25')
Moderate Probability Stream	Wetland (NWI)	Intermediate Contour (5')
Component 2 Rebuild Route		Map Tile

Patrick & Floyd Counties, Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298

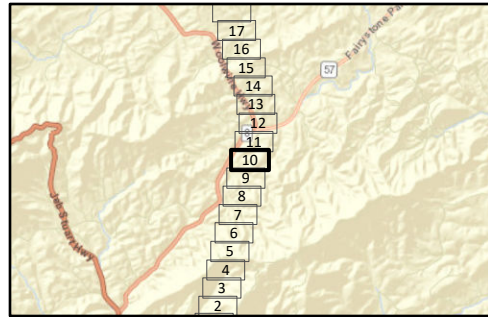
0      200      400  
  
 Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 9 of 60**

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Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route

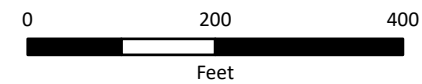


- |  |                 |                           |
|--|-----------------|---------------------------|
| Low Probability Stream                   | Highway         | Floodplain                |
| Moderate Probability Stream              | Road            | Index Contour (25')       |
| Component 2 Rebuild Route                | Waterbody (NHD) | Intermediate Contour (5') |
| Proposed Right-of-Way (100')             | Wetland (NWI)   | Map Tile                  |
| Existing Transmission Line to be Retired | Stream (NHD)    |                           |




Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298



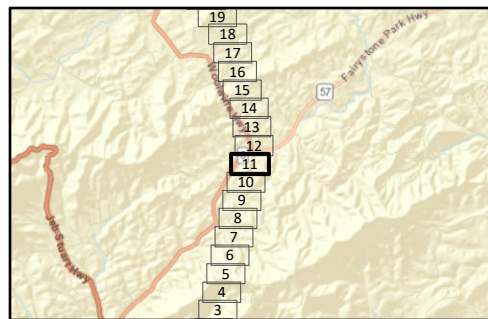
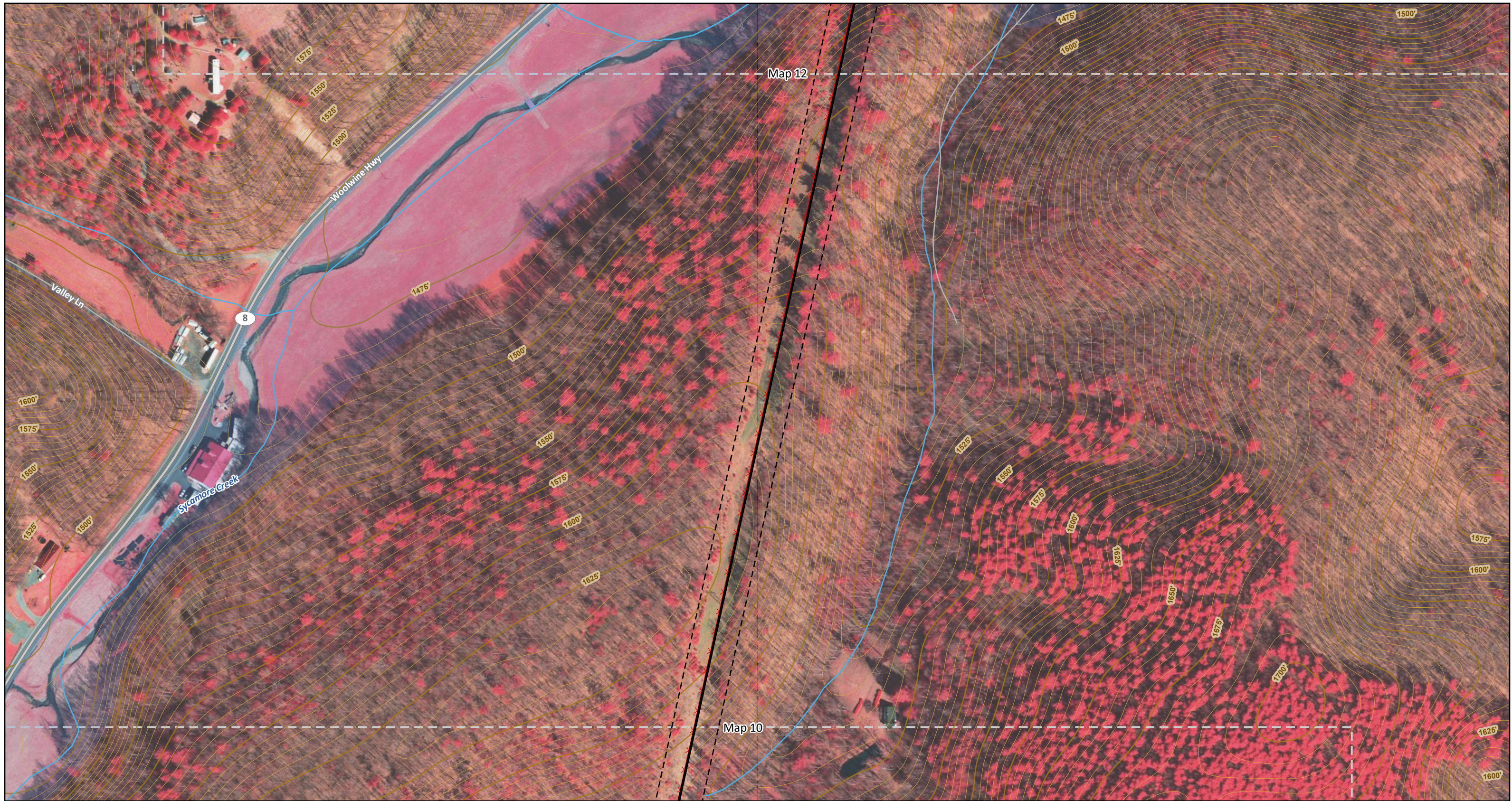
1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 10 of 60**



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

An AEP Company

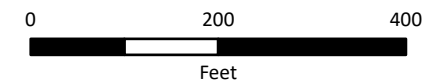


- Component 2 Rebuild Route
- Proposed Right-of-Way (100')
- Existing Transmission Line to be Retired
- Highway
- Road
- Stream (NHD)
- Floodplain
- Index Contour (25')
- Intermediate Contour (5')
- Map Tile



Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

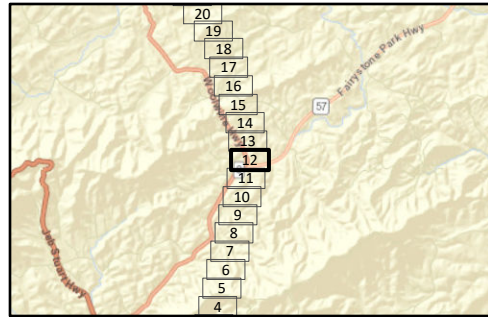
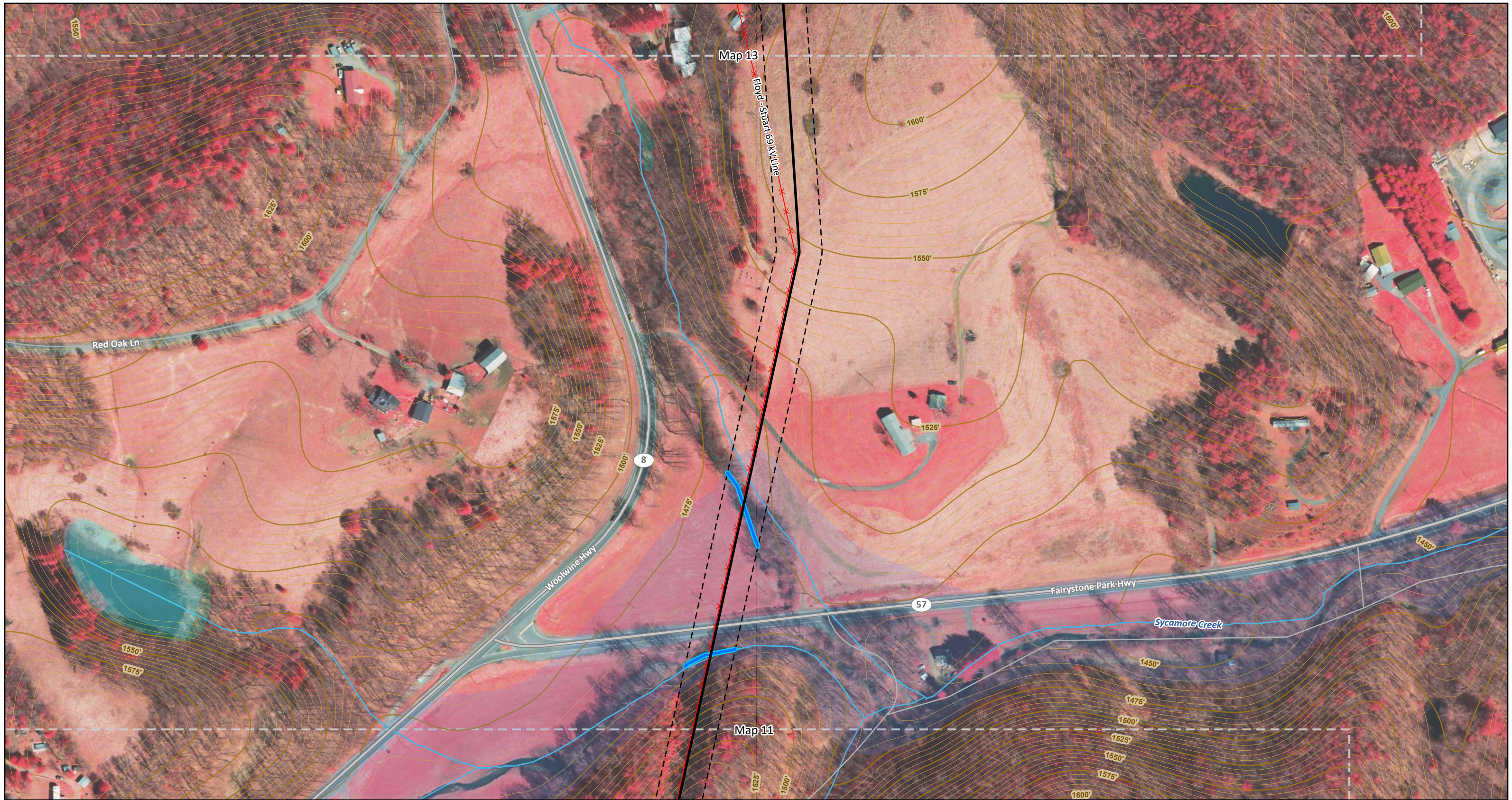


1" = 200'


### Attachment B: Desktop Stream and Wetland Delineation Map 11 of 60




Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Highway	Floodplain
Component 2 Rebuild Route	Road	Index Contour (25')
Proposed Right-of-Way (100')	Waterbody (NHD)	Intermediate Contour (5')
Existing Transmission Line to be Retired	Wetland (NWI)	Map Tile
	Stream (NHD)	



 Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

  
 0                      200                      400  
 Feet

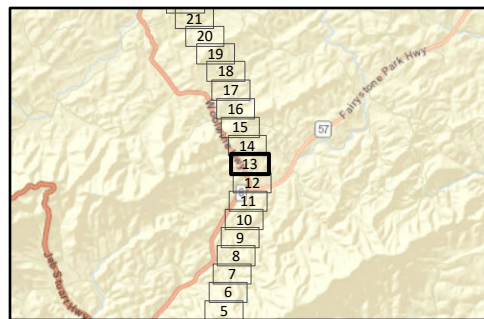
1" = 200'

**Attachment B:**  
Desktop Stream and Wetland Delineation  
Map 12 of 60



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

An AEP Company



Component 2 Rebuild Route	Highway	Index Contour (25')
Proposed Right-of-Way (100')	Road	Intermediate Contour (5')
Existing Transmission Line to be Retired	Stream (NHD)	Map Tile

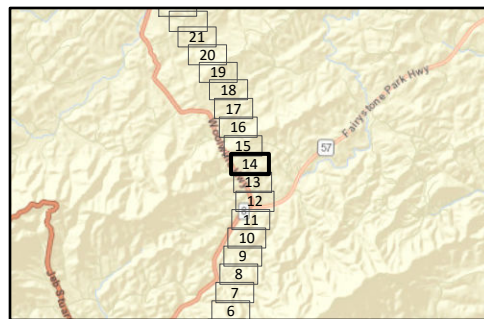
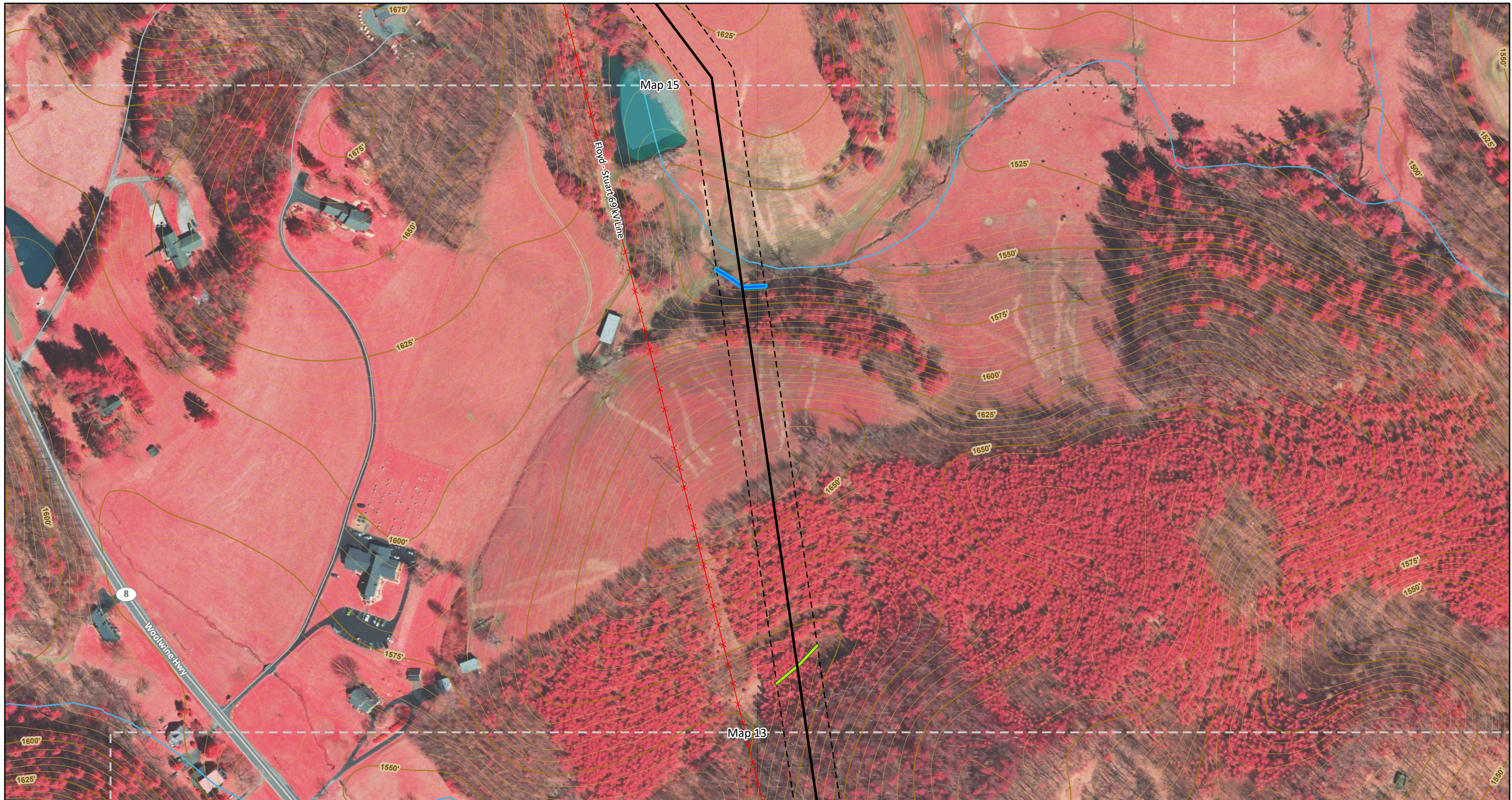
Patrick & Floyd Counties,  
Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298

0                      200                      400  
  
 Feet  
 1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 13 of 60**

Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route

An AEP Company



High Probability Stream	Existing Transmission Line to be Retired	Wetland (NWI)
Low Probability Stream	Highway	Stream (NHD)
Component 2 Rebuild Route	Road	Index Contour (25')
Proposed Right-of-Way (100')	Waterbody (NHD)	Intermediate Contour (5')
	Map Tile	

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

0      200      400  
Feet

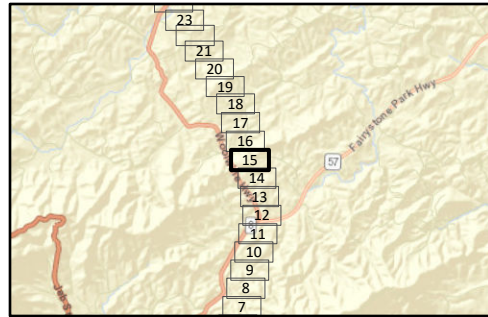
1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 14 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route





Low Probability Stream	Existing Transmission Line to be Retired	Wetland (NWI)
Low Probability Wetland	Highway	Stream (NHD)
Component 2 Rebuild Route	Road	Index Contour (25')
Proposed Right-of-Way (100')	Waterbody (NHD)	Intermediate Contour (5')
		Map Tile

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

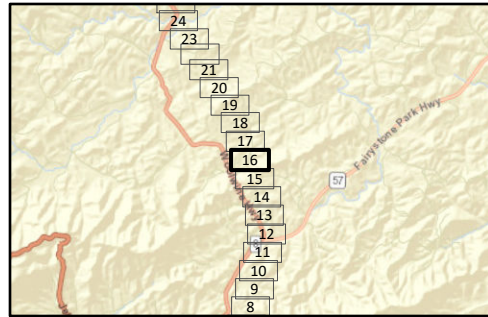
0                      200                      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 15 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Existing Transmission Line to be Retired	Stream (NHD)
Low Probability Stream	Road	Index Contour (25')
Low Probability Wetland	Waterbody (NHD)	Intermediate Contour (5')
Component 2 Rebuild Route	Wetland (NWI)	Map Tile
Proposed Right-of-Way (100')		

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

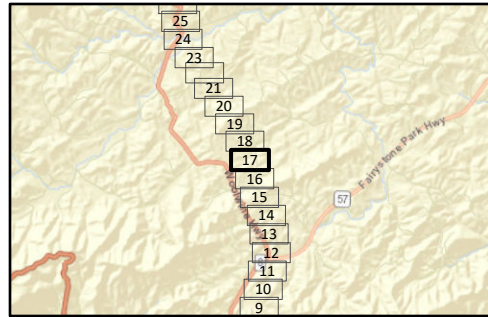
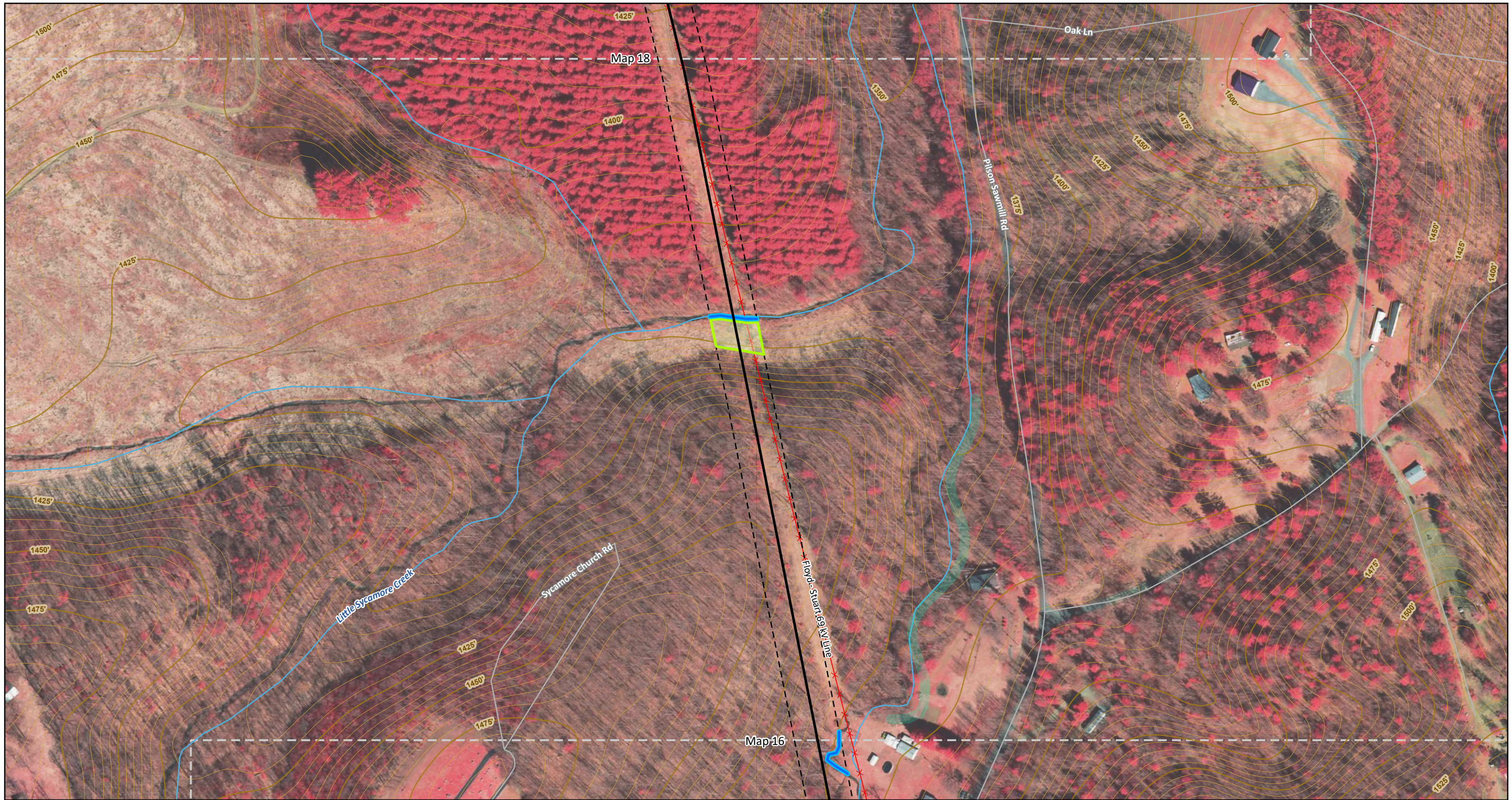
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 16 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Existing Transmission Line to be Retired	Stream (NHD)
Low Probability Wetland	Road	Index Contour (25')
Component 2 Rebuild Route	Wetland (NWI)	Intermediate Contour (5')
Proposed Right-of-Way (100')		Map Tile

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

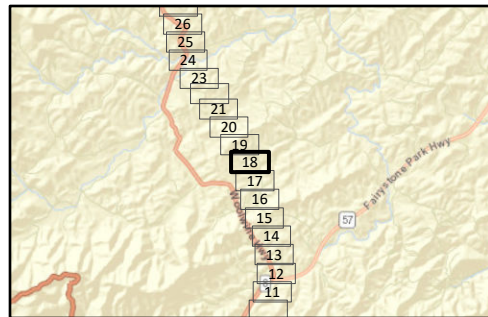
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Feet


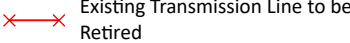
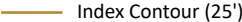
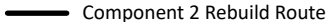


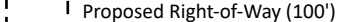
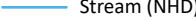

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 17 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

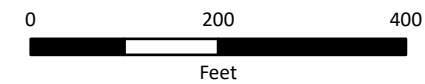


- |  |   |   |
|--|---|---|
|  High Probability Stream      |  Existing Transmission Line to be Retired |  Index Contour (25')       |
|  Component 2 Rebuild Route    |  Road                                     |  Intermediate Contour (5') |
|  Proposed Right-of-Way (100') |  Stream (NHD)                             |  Map Tile                  |



Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

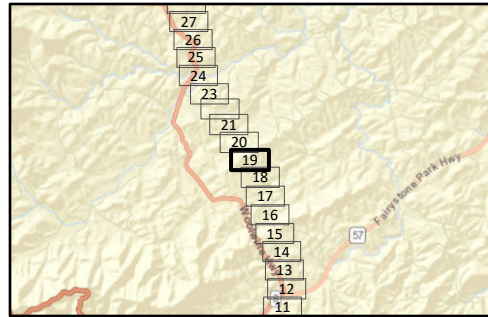


1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 18 of 60**



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



Low Probability Stream	Existing Transmission Line to be Retired	Index Contour (25')
Component 2 Rebuild Route	Road	Intermediate Contour (5')
Proposed Right-of-Way (100')	Stream (NHD)	Map Tile

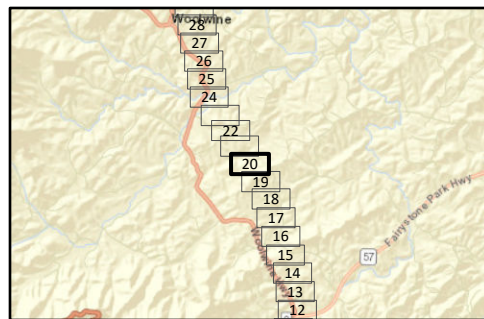
Patrick & Floyd Counties, Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298



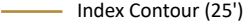

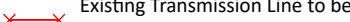

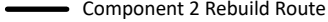
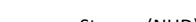

0      200      400  
  
 Feet  
 1" = 200'


**Attachment B:**  
Desktop Stream and Wetland Delineation  
Map 19 of 60

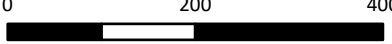
Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route

An AEP Company




 High Probability Stream	 Proposed Right-of-Way (100')	 Index Contour (25')
 Low Probability Stream	 Existing Transmission Line to be Retired	 Intermediate Contour (5')
 Component 2 Rebuild Route	 Stream (NHD)	 Map Tile

 Patrick & Floyd Counties, Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298

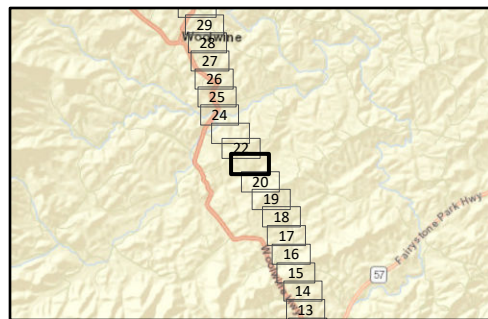
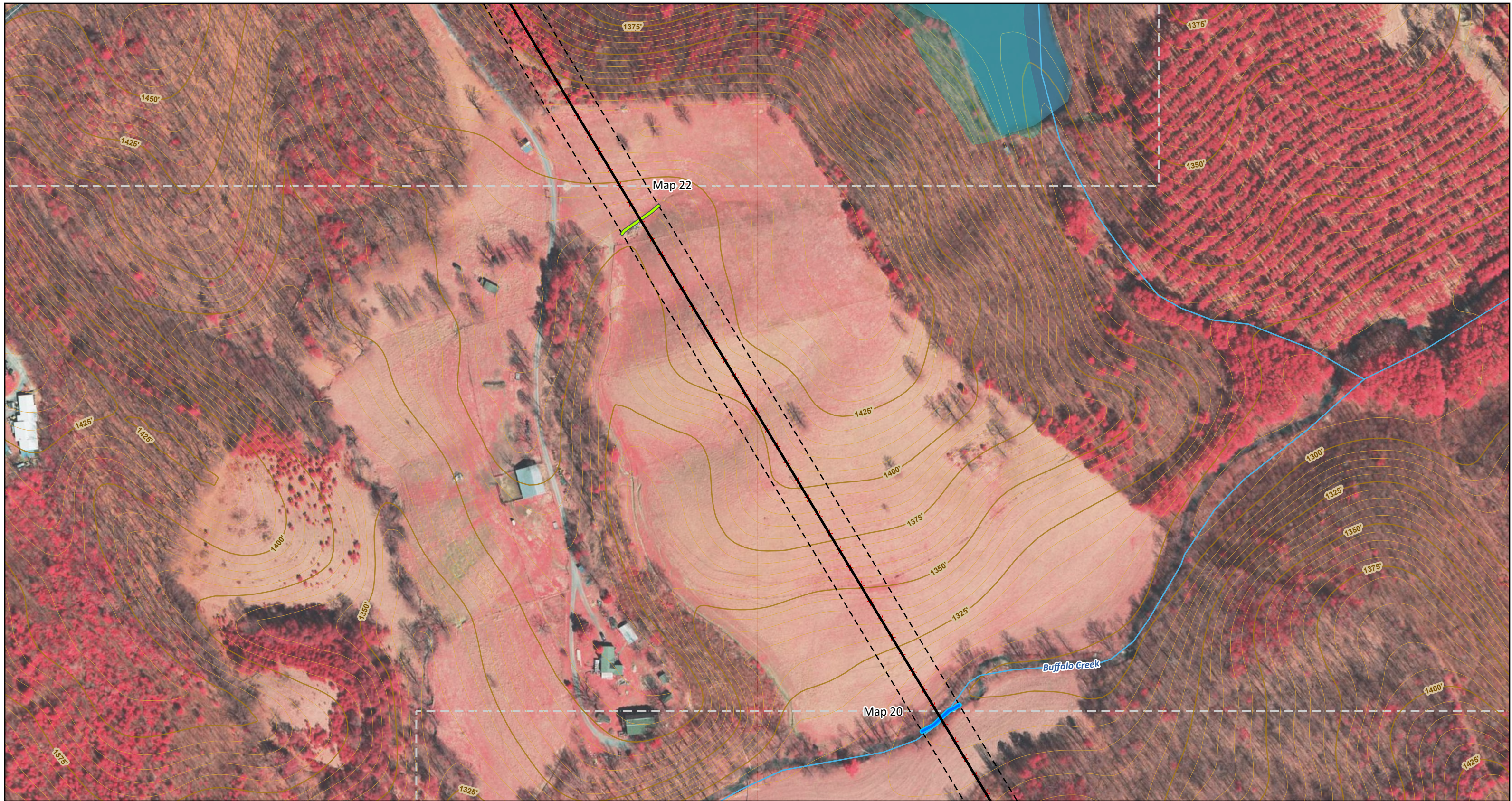
0      200      400  
  
 Feet  
 1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 20 of 60**



Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route

An AEP Company



High Probability Stream	Existing Transmission Line to be Retired	Stream (NHD)
Low Probability Stream	Road	Index Contour (25')
Component 2 Rebuild Route	Waterbody (NHD)	Intermediate Contour (5')
Proposed Right-of-Way (100')	Wetland (NWI)	Map Tile

Patrick & Floyd Counties,  
Virginia

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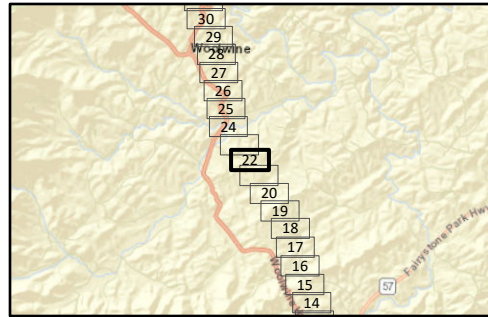
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 21 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



Low Probability Stream	Road	Index Contour (25')
Component 2 Rebuild Route	Waterbody (NHD)	Intermediate Contour (5')
Proposed Right-of-Way (100')	Wetland (NWI)	Map Tile
Existing Transmission Line to be Retired	Stream (NHD)	

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Virginia

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0                      200                      400  
Feet

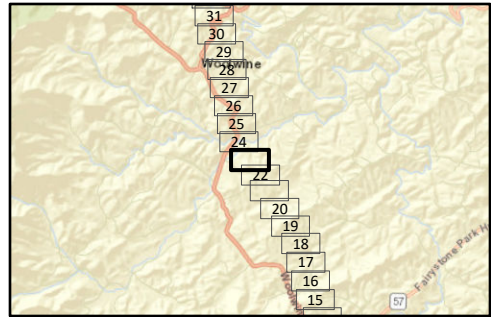
1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 22 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route





Low Probability Stream	Road	Floodplain
Component 2 Rebuild Route	Waterbody (NHD)	Index Contour (25')
Proposed Right-of-Way (100')	Wetland (NWI)	Intermediate Contour (5')
Existing Transmission Line to be Retired	Stream (NHD)	Map Tile


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Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

0                      200                      400  
Feet

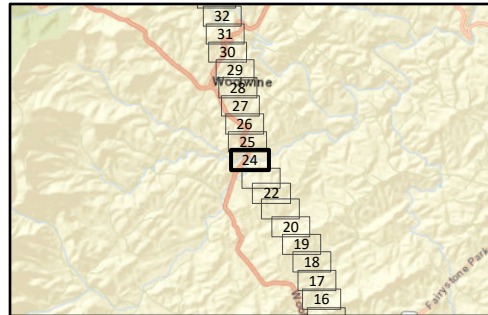
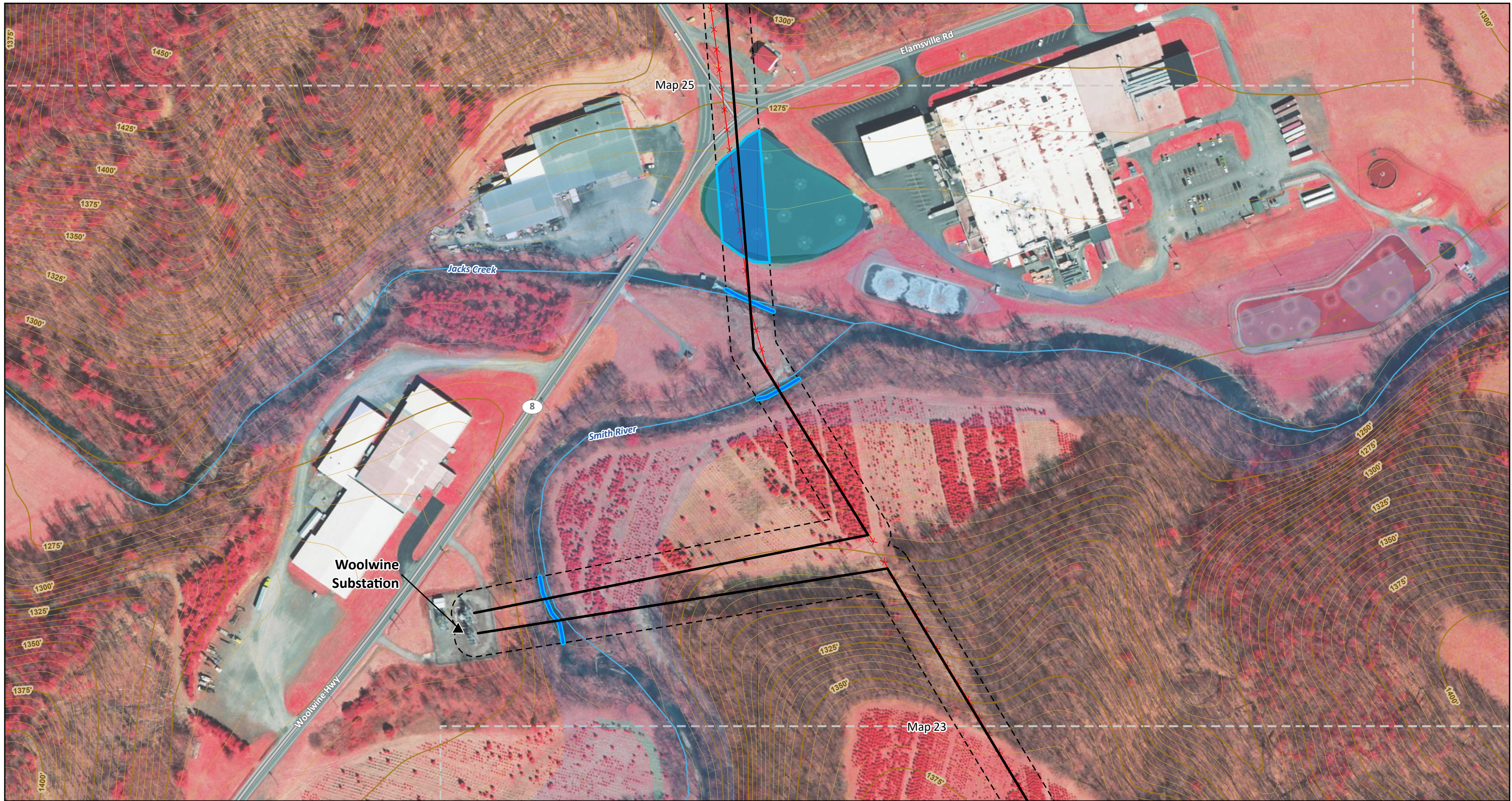
1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 23 of 60**



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

An AEP Company



High Probability Stream	Existing Transmission Line to be Retired	Stream (NHD)
High Probability Wetland	Highway	Floodplain
Existing APCo Substation	Road	Index Contour (25')
Component 2 Rebuild Route	Waterbody (NHD)	Intermediate Contour (5')
Proposed Right-of-Way (100')	Wetland (NWI)	Map Tile

Patrick & Floyd Counties, Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

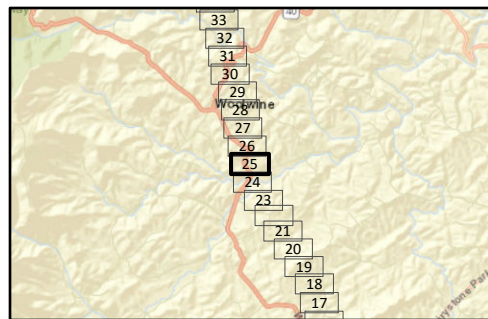
0 200 400  
Feet

1" = 200'

**Attachment B:**  
Desktop Stream and Wetland Delineation  
Map 24 of 60

**APPALACHIAN POWER**  
An AEP Company

Stuart Area Transmission Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd Rebuild Route

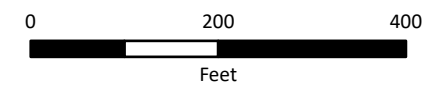


- Component 2 Rebuild Route
- Proposed Right-of-Way (100')
- Existing Transmission Line to be Retired
- Highway
- Road
- Index Contour (25')
- Intermediate Contour (5')
- Map Tile



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Virginia

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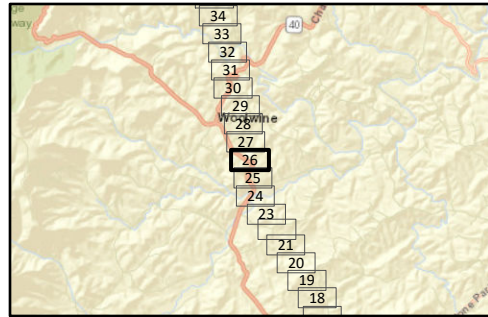


1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 25 of 60**



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Existing Transmission Line to be Retired	Stream (NHD)
Moderate Probability Stream	Highway	Index Contour (25')
Component 2 Rebuild Route	Road	Intermediate Contour (5')
Proposed Right-of-Way (100')		Map Tile

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Virginia

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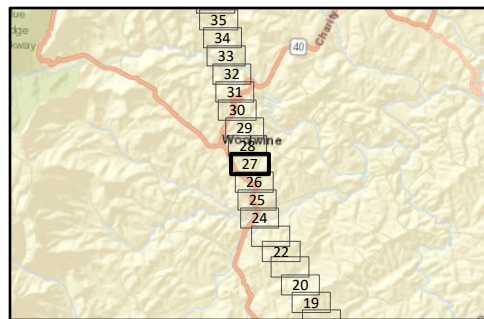
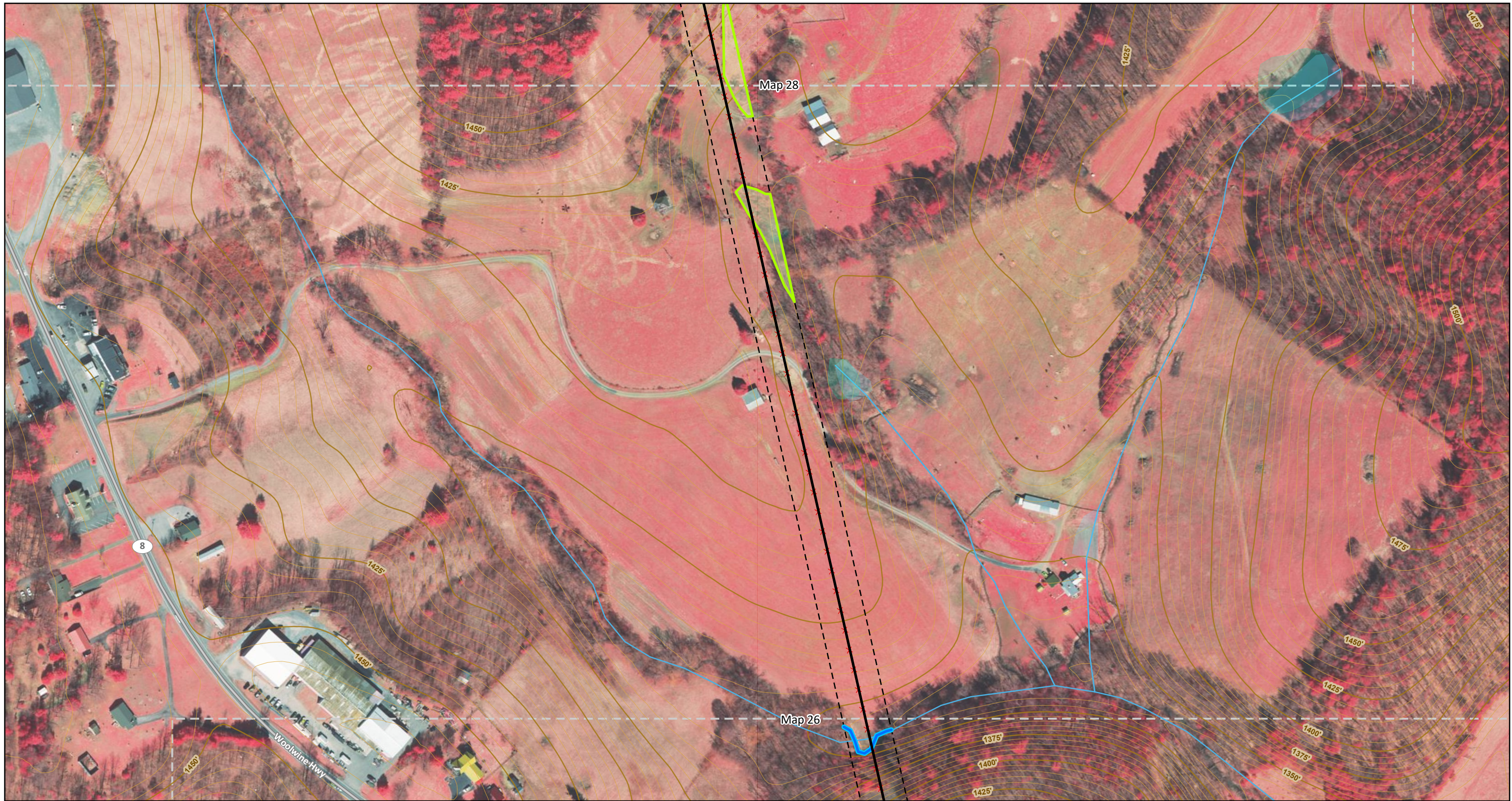
0                      200                      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 26 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Existing Transmission Line to be Retired	Wetland (NWI)
Low Probability Wetland	Highway	Stream (NHD)
Component 2 Rebuild Route	Road	Index Contour (25')
Proposed Right-of-Way (100')	Waterbody (NHD)	Intermediate Contour (5')
	Map Tile	

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Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

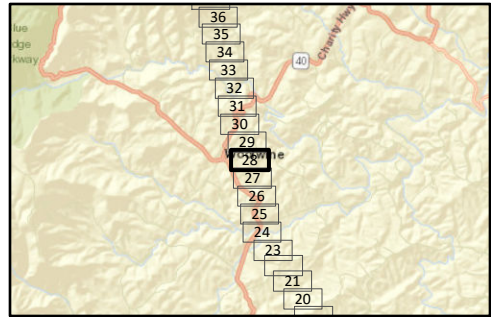
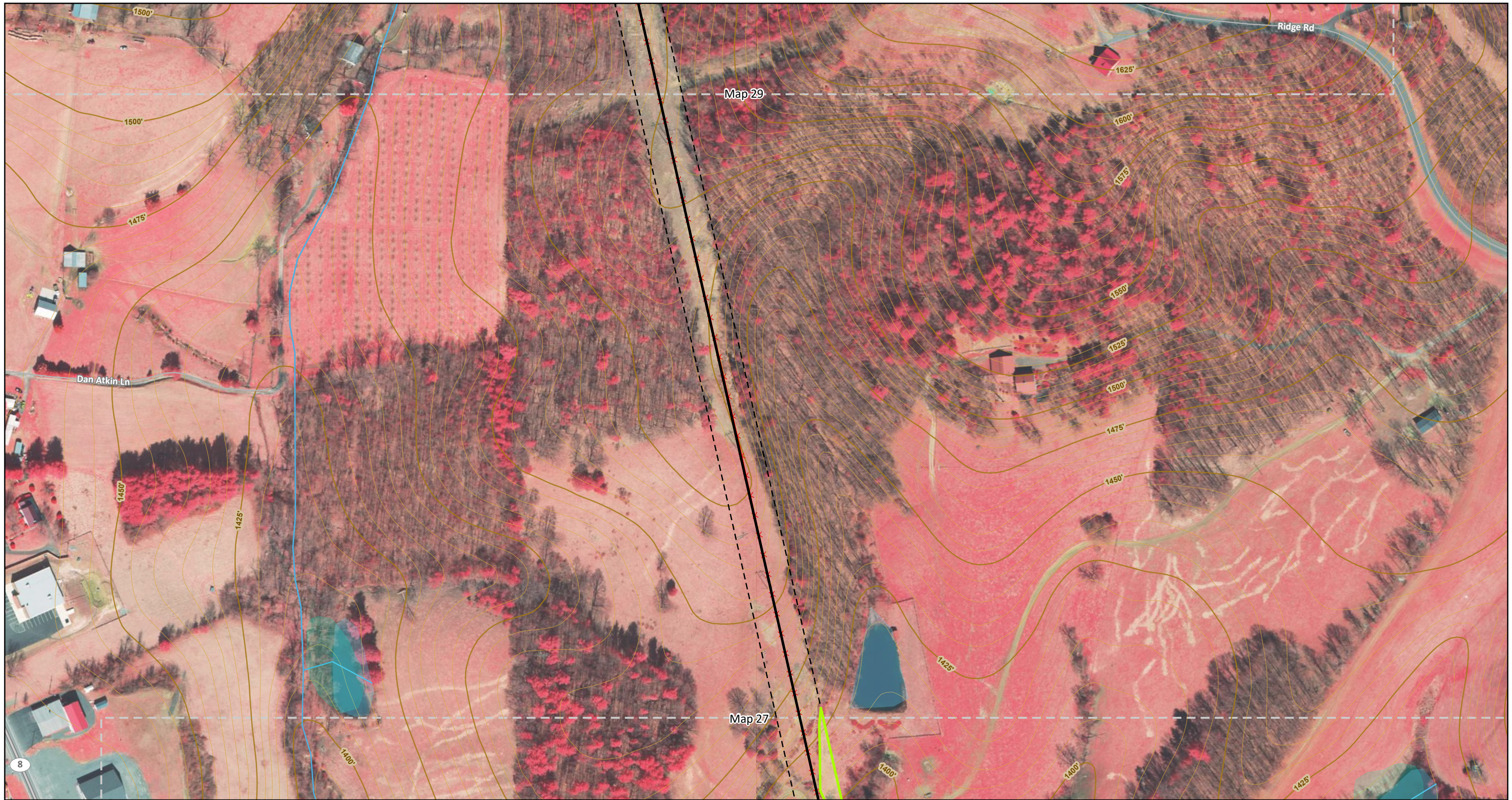
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 27 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



Low Probability Wetland	Highway	Stream (NHD)
Component 2 Rebuild Route	Road	Index Contour (25')
Proposed Right-of-Way (100')	Waterbody (NHD)	Intermediate Contour (5')
Existing Transmission Line to be Retired	Wetland (NWI)	Map Tile

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

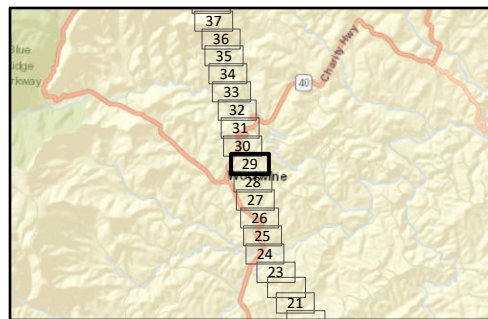
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Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 28 of 60**

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

An AEP Company

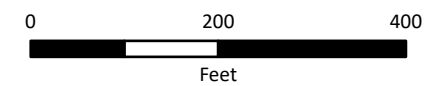


- |                              |  |                           |
|------------------------------|--|---------------------------|
| High Probability Stream      | Existing Transmission Line to be Retired | Stream (NHD)              |
| Low Probability Wetland      | Highway                                  | Index Contour (25')       |
| Component 2 Rebuild Route    | Road                                     | Intermediate Contour (5') |
| Proposed Right-of-Way (100') | Waterbody (NHD)                          | Map Tile                  |



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Virginia

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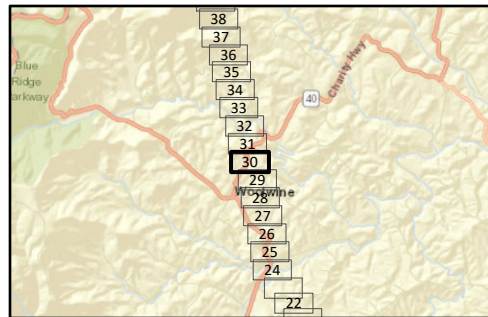
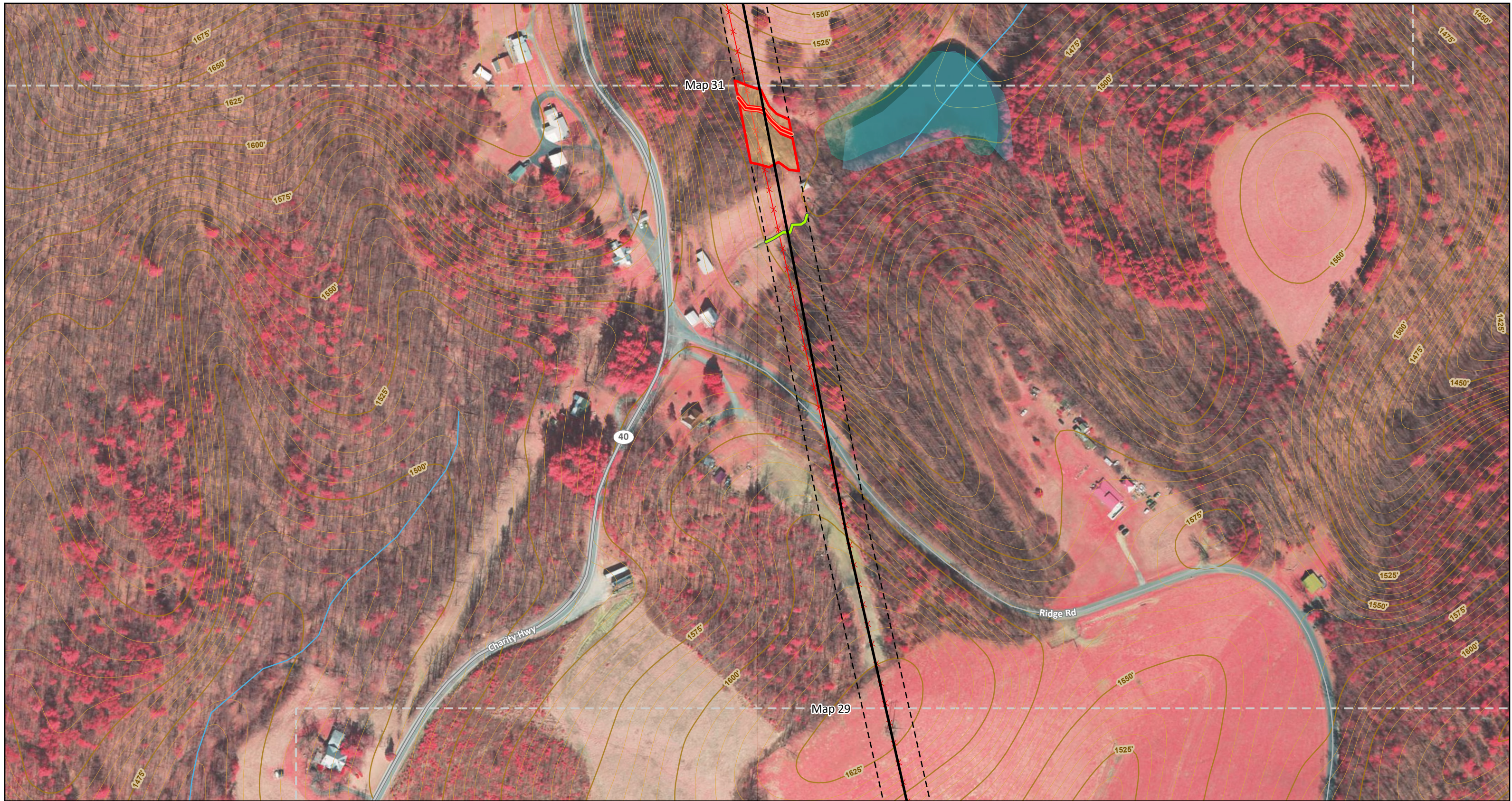


1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 29 of 60**



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

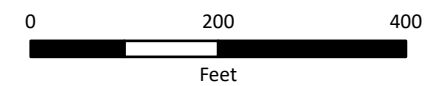


- |                              |  |                           |
|------------------------------|--|---------------------------|
| Low Probability Stream       | Existing Transmission Line to be Retired | Wetland (NWI)             |
| Moderate Probability Stream  | Highway                                  | Stream (NHD)              |
| Moderate Probability Wetland | Road                                     | Index Contour (25')       |
| Component 2 Rebuild Route    | Waterbody (NHD)                          | Intermediate Contour (5') |
| Proposed Right-of-Way (100') |  | Map Tile                  |



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Virginia

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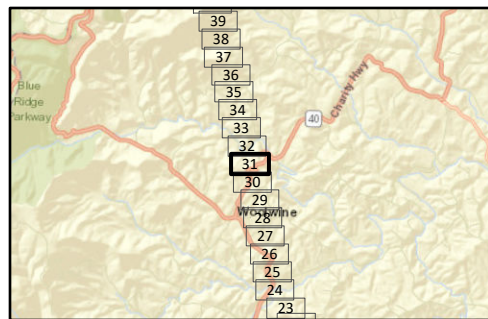
1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 30 of 60**



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route





- |                              |  |                           |
|------------------------------|--|---------------------------|
| High Probability Stream      | Existing Transmission Line to be Retired | Stream (NHD)              |
| Low Probability Stream       | Highway                                  | Floodplain                |
| Moderate Probability Wetland | Road                                     | Index Contour (25')       |
| Component 2 Rebuild Route    | Waterbody (NHD)                          | Intermediate Contour (5') |
| Proposed Right-of-Way (100') | Wetland (NWI)                            | Map Tile                  |

Patrick & Floyd Counties,  
Virginia

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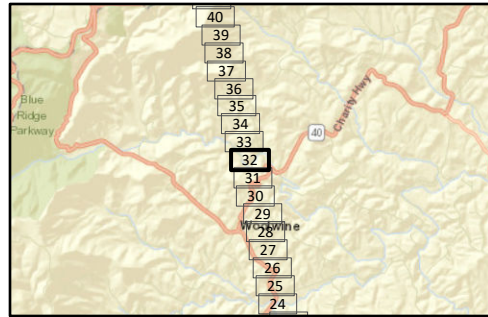
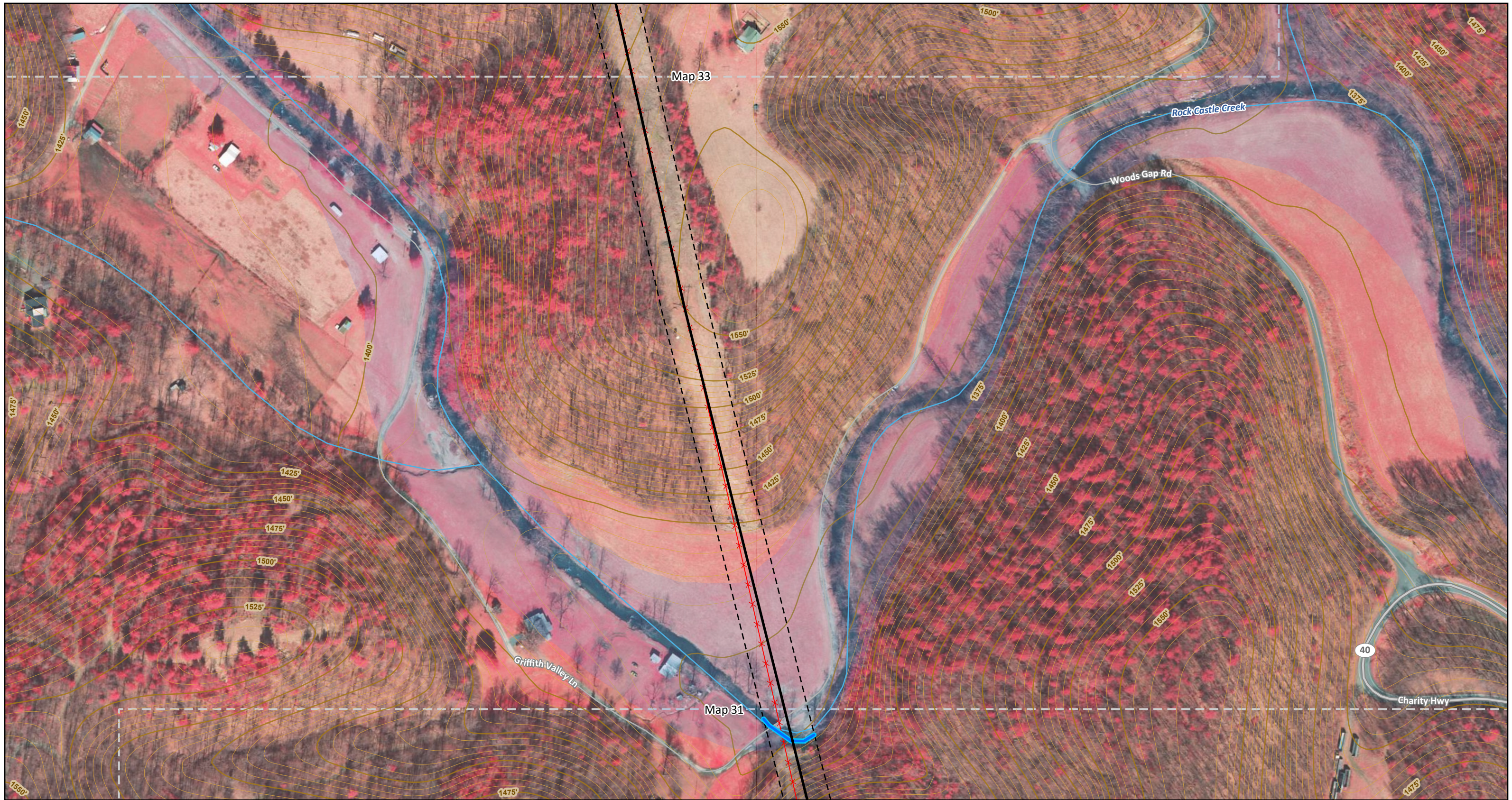
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 31 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Highway	Index Contour (25')
Component 2 Rebuild Route	Road	Intermediate Contour (5')
Proposed Right-of-Way (100')	Stream (NHD)	Map Tile
Existing Transmission Line to be Retired	Floodplain	

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

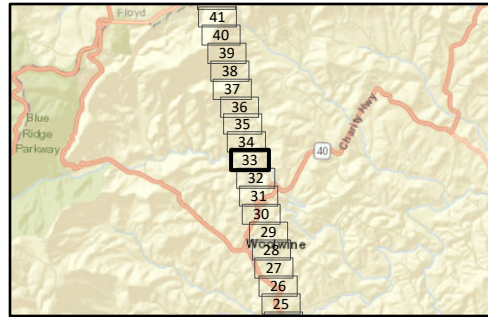
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 32 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



Low Probability Stream	Existing Transmission Line to be Retired	Floodplain
Component 2 Rebuild Route	Road	Index Contour (25')
Proposed Right-of-Way (100')	Stream (NHD)	Intermediate Contour (5')
		Map Tile

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

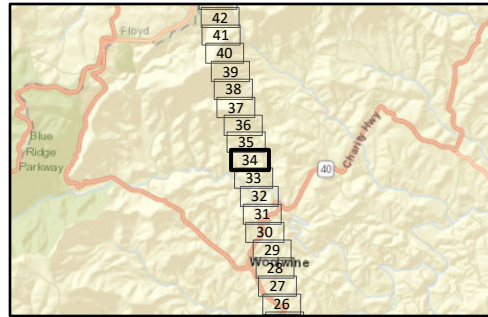
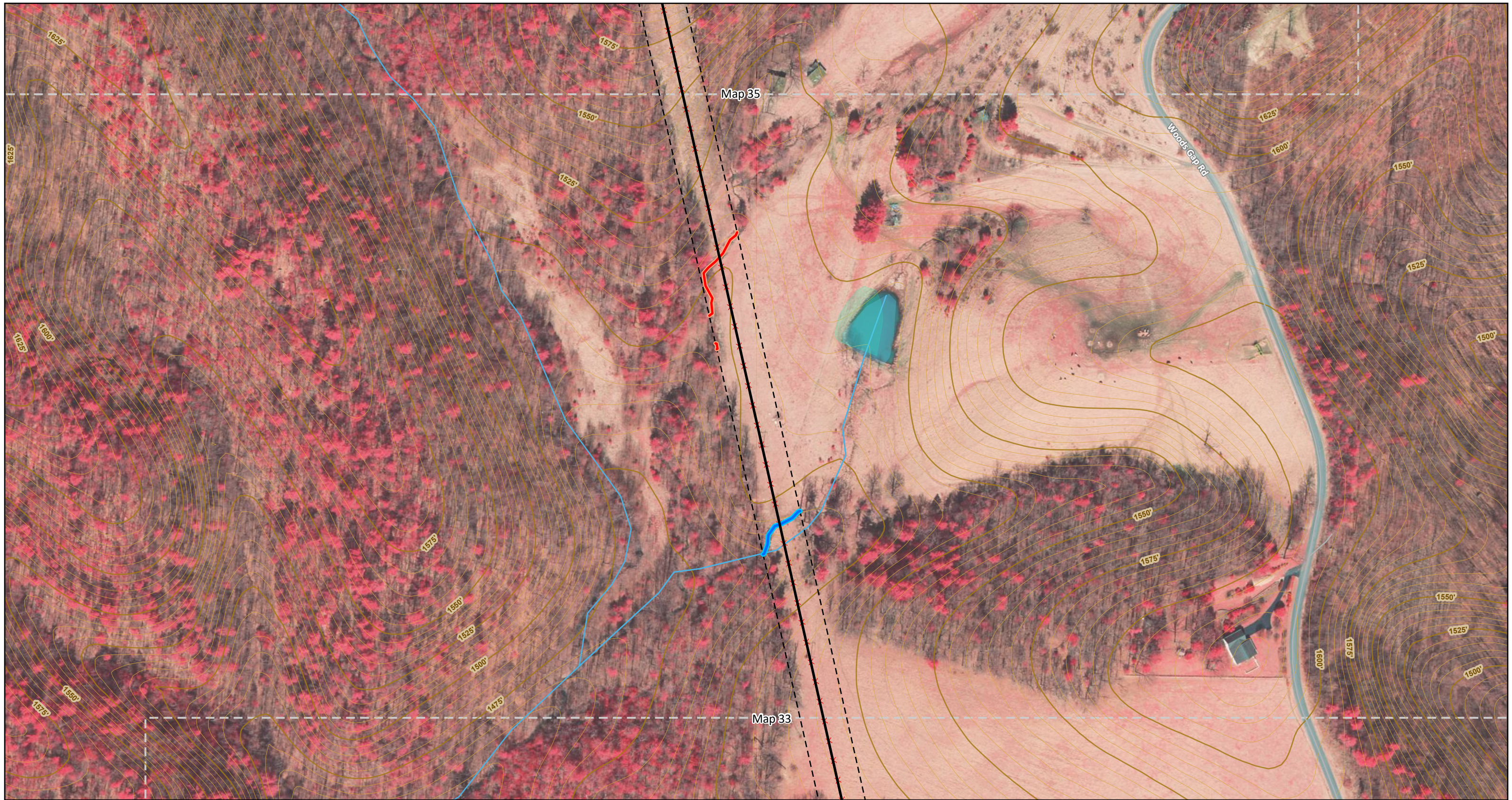
0                      200                      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 33 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Existing Transmission Line to be Retired	Stream (NHD)
Moderate Probability Stream	Road	Index Contour (25')
Component 2 Rebuild Route	Waterbody (NHD)	Intermediate Contour (5')
Proposed Right-of-Way (100')	Wetland (NWI)	Map Tile

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

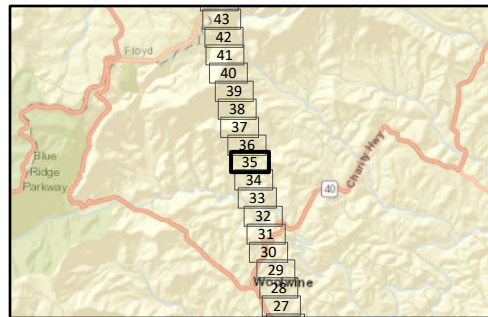
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 34 of 60**

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

An AEP Company

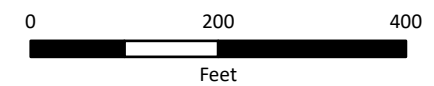


- Component 2 Rebuild Route
- Proposed Right-of-Way (100')
- Existing Transmission Line to be Retired
- Road
- Stream (NHD)
- Index Contour (25')
- Intermediate Contour (5')
- Map Tile



Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

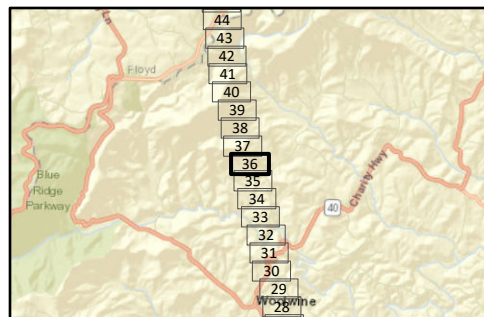


1" = 200'

### Attachment B: Desktop Stream and Wetland Delineation Map 35 of 60



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



Component 2 Rebuild Route	Stream (NHD)
Proposed Right-of-Way (100')	Index Contour (25')
Existing Transmission Line to be Retired	Intermediate Contour (5')
Road	Map Tile

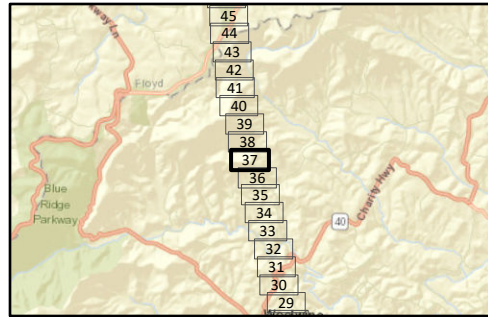
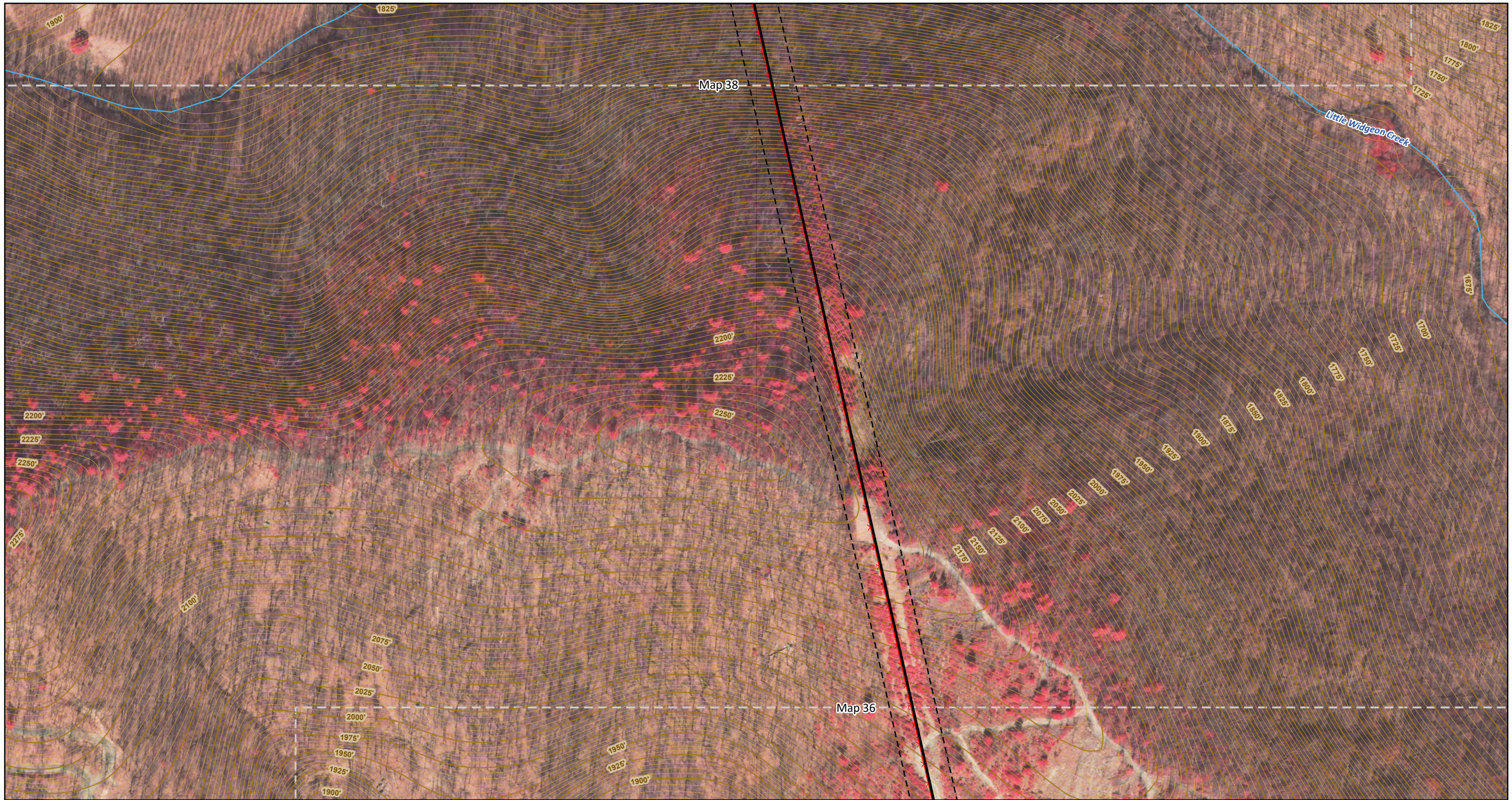
Patrick & Floyd Counties, Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 36 of 60**

Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route

An AEP Company

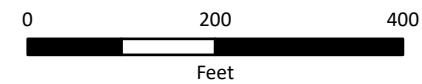


- Component 2 Rebuild Route
- Proposed Right-of-Way (100')
- Existing Transmission Line to be Retired
- Stream (NHD)
- Index Contour (25')
- Intermediate Contour (5')
- Map Tile



Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

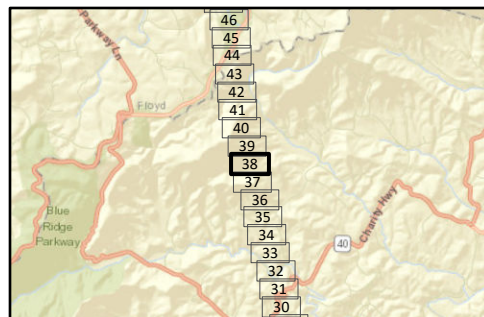
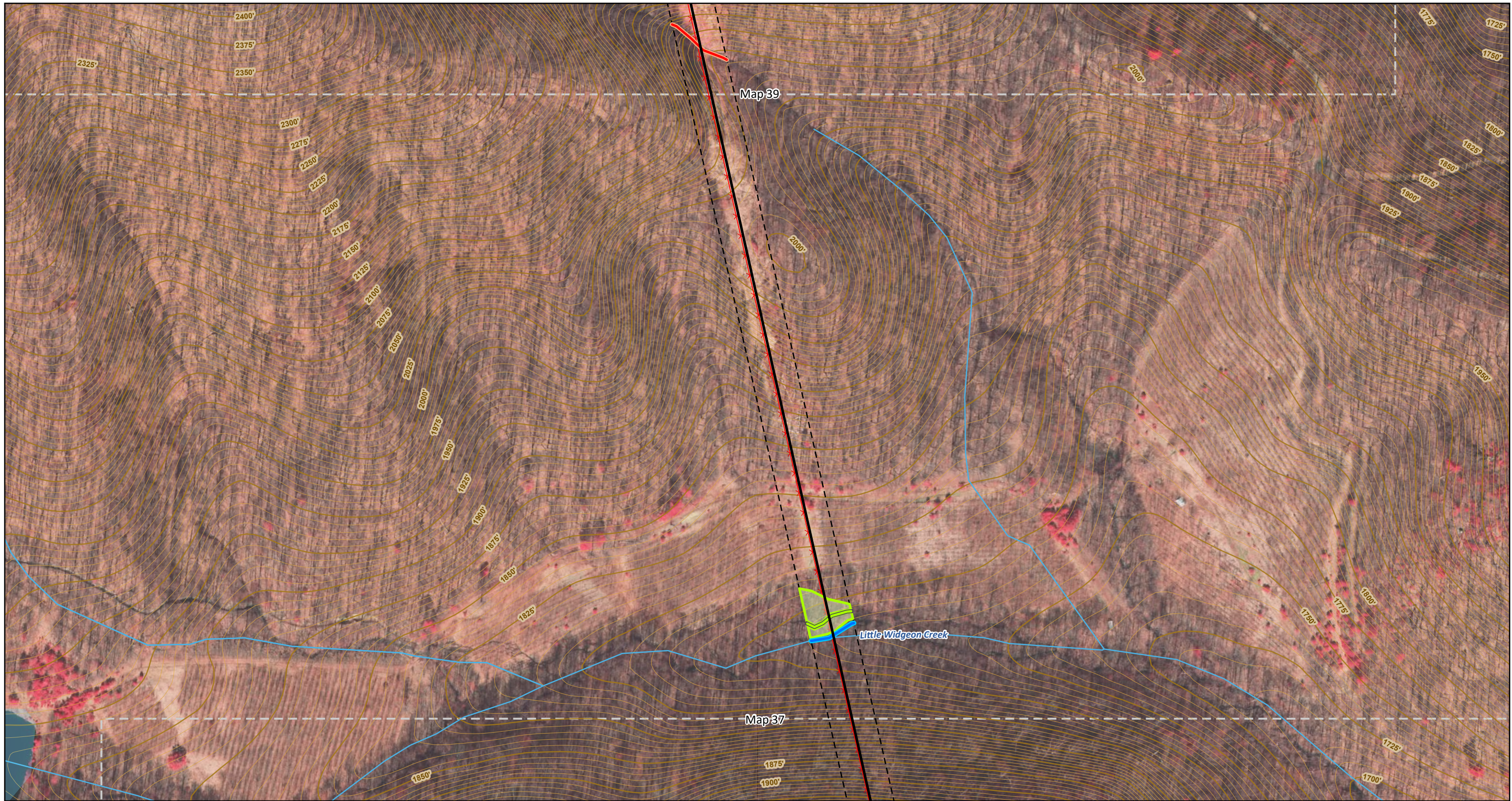


1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 37 of 60**



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Component 2 Rebuild Route	Stream (NHD)
Low Probability Wetland	Proposed Right-of-Way (100')	Index Contour (25')
Moderate Probability Stream	Existing Transmission Line to be Retired	Intermediate Contour (5')
	Waterbody (NHD)	Map Tile

Patrick & Floyd Counties, Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298

0                      200                      400  
  
 Feet

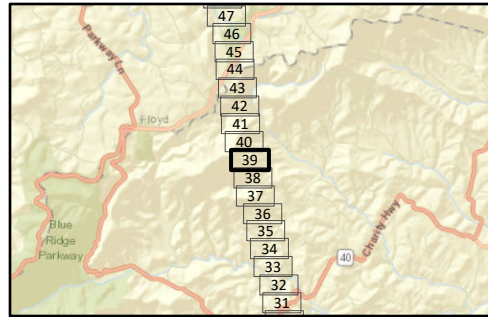
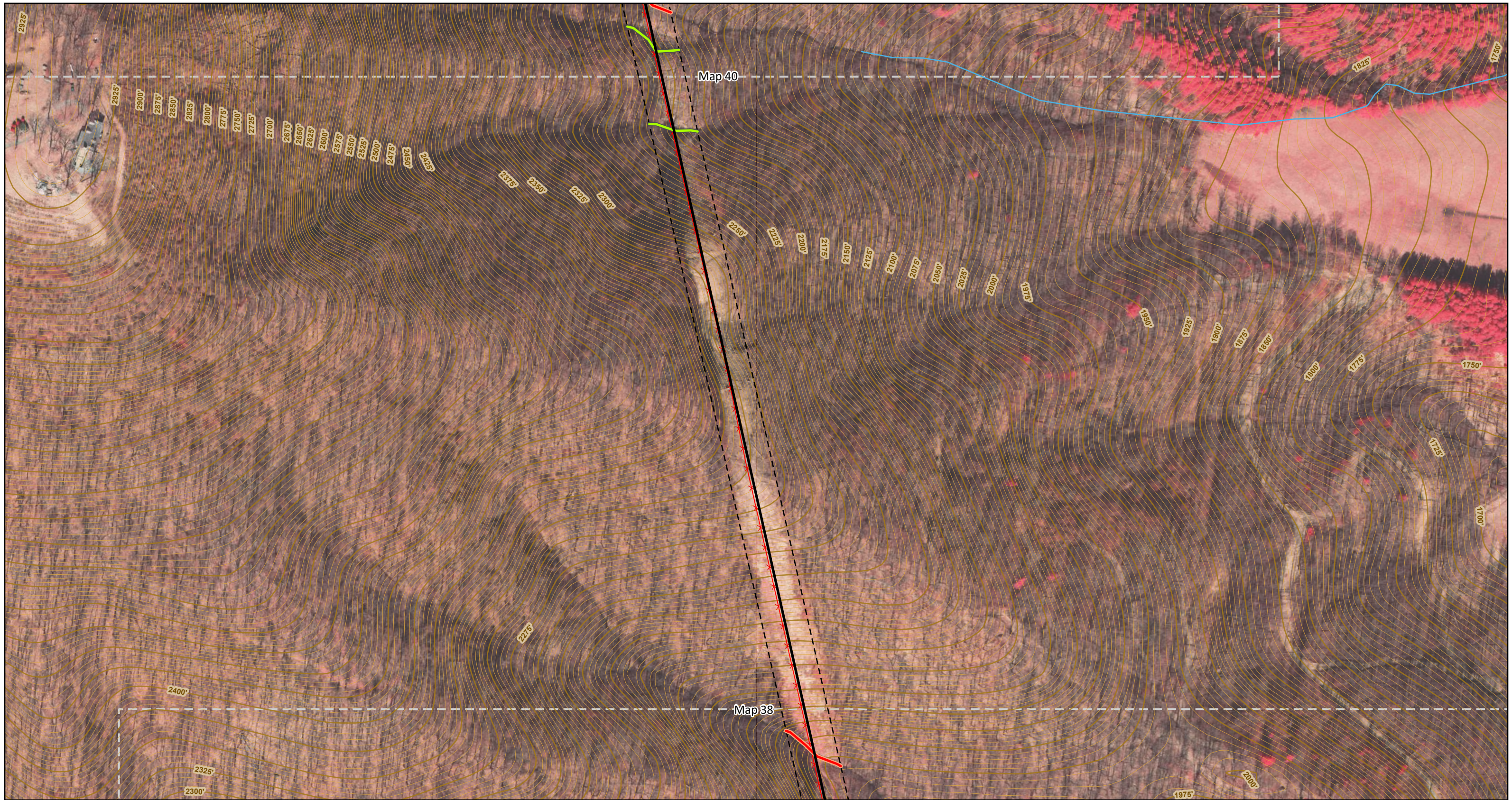
1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 38 of 60**

Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route

An AEP Company





Low Probability Stream	Proposed Right-of-Way (100')	Index Contour (25')
Moderate Probability Stream	Existing Transmission Line to be Retired	Intermediate Contour (5')
Component 2 Rebuild Route	Stream (NHD)	Map Tile

Patrick & Floyd Counties, Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298

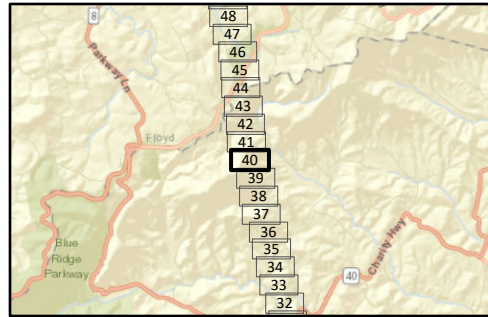
0                      200                      400  
  
 Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 39 of 60**

Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route

An AEP Company



- Low Probability Stream
- Moderate Probability Stream
- Component 2 Rebuild Route
- Proposed Right-of-Way (100')
- Existing Transmission Line to be Retired
- Stream (NHD)
- Index Contour (25')
- Intermediate Contour (5')
- Map Tile

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

0                      200                      400  

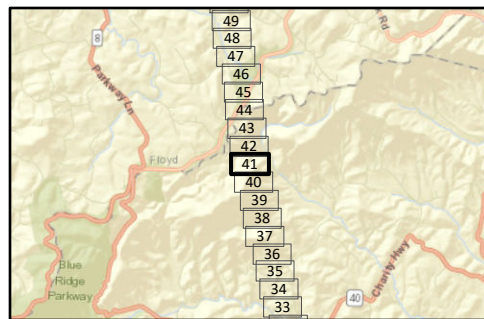
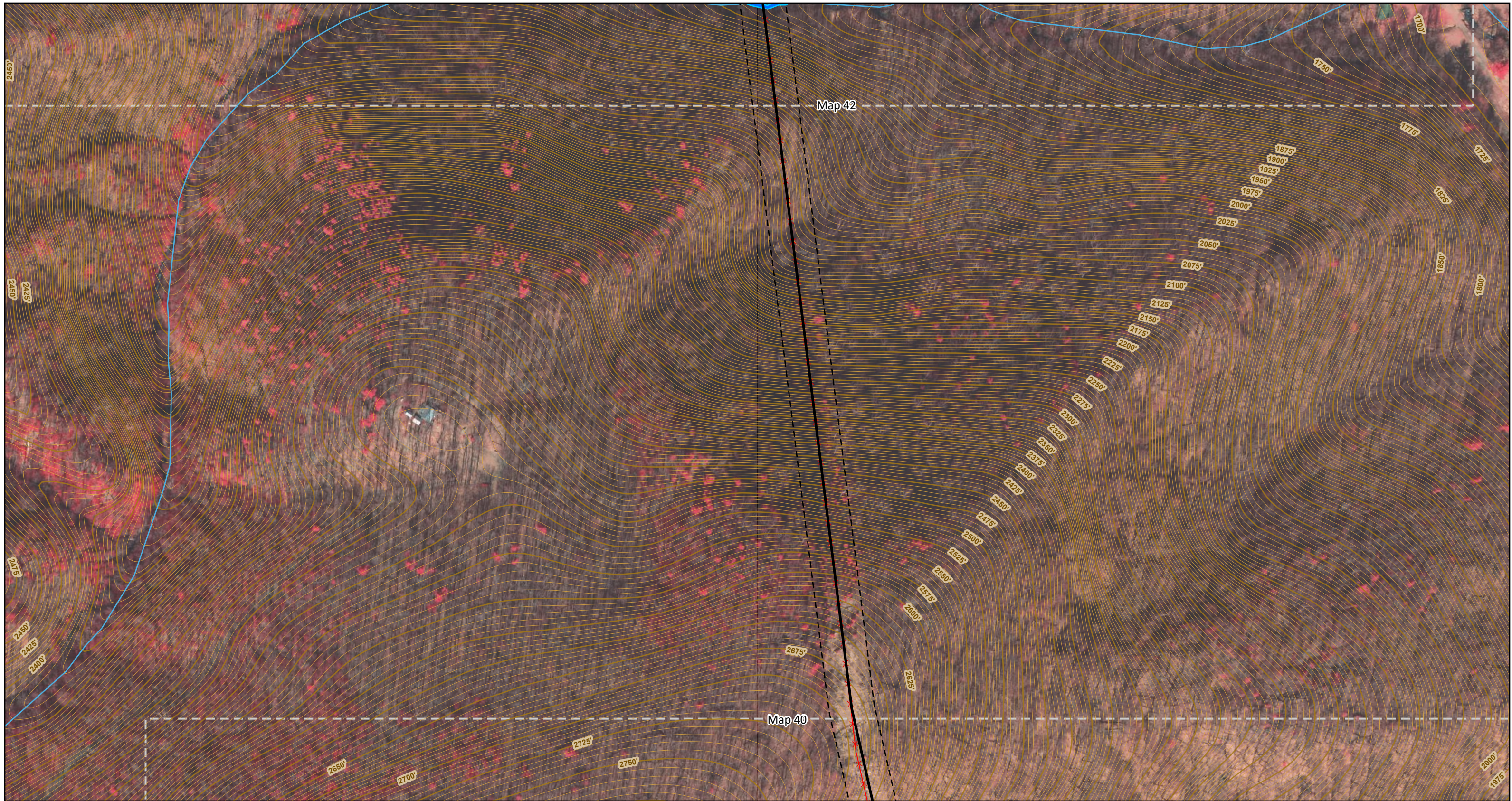
 Feet

1" = 200'


**Attachment B:**  
Desktop Stream and Wetland Delineation  
Map 40 of 60


Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

An AEP Company




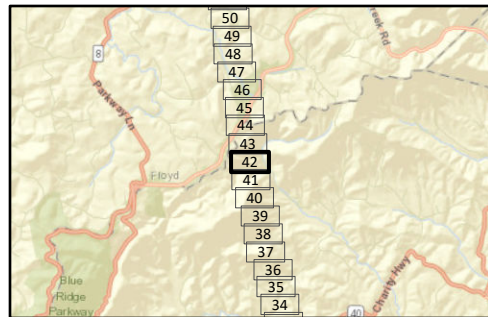
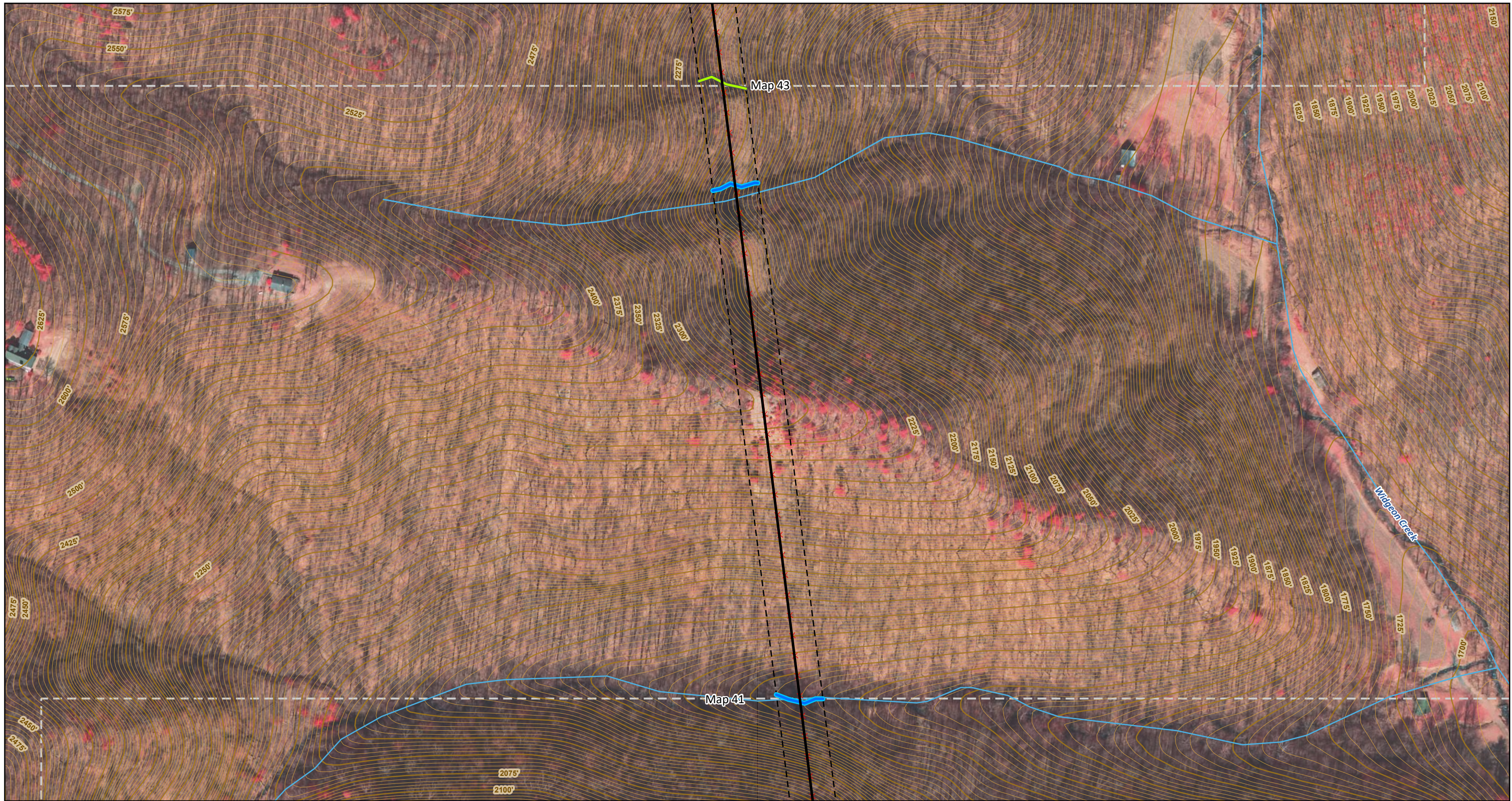
High Probability Stream	Stream (NHD)
Component 2 Rebuild Route	Index Contour (25')
Proposed Right-of-Way (100')	Intermediate Contour (5')
Existing Transmission Line to be Retired	Map Tile


 Patrick & Floyd Counties,  
Virginia  
Date: 3/17/2023; Author: ckunde; Project: 159298

  
 1" = 200'

**Attachment B:**  
Desktop Stream and Wetland Delineation  
Map 41 of 60


 Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route  
An AEP Company



High Probability Stream	Proposed Right-of-Way (100')	Index Contour (25')
Low Probability Stream	Existing Transmission Line to be Retired	Intermediate Contour (5')
Component 2 Rebuild Route	Stream (NHD)	Map Tile

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

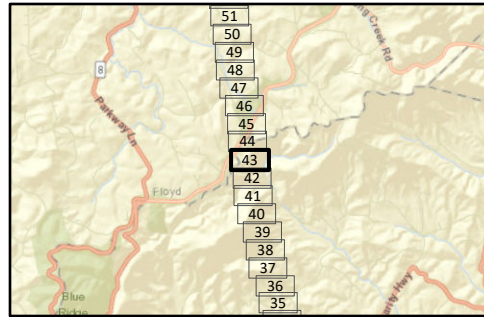
0                      200                      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 42 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



Low Probability Stream	Road	Stream (NHD)
Component 2 Rebuild Route	Waterbody (NHD)	Index Contour (25')
Proposed Right-of-Way (100')	Wetland (NWI)	Intermediate Contour (5')
Existing Transmission Line to be Retired	County Boundary	Map Tile
Highway	Blue Ridge Parkway National Parkway	

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

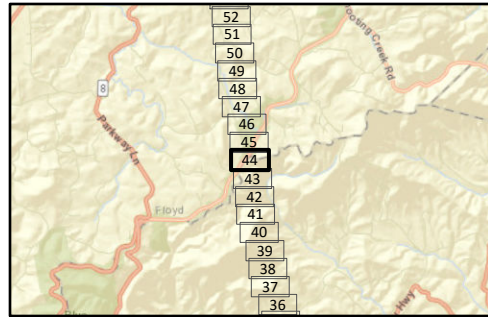
0                      200                      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 43 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Highway	Stream (NHD)
Low Probability Stream	Road	Index Contour (25')
Low Probability Wetland	Waterbody (NHD)	Intermediate Contour (5')
Component 2 Rebuild Route	Wetland (NWI)	Map Tile
Proposed Right-of-Way (100')	County Boundary	
Existing Transmission Line to be Retired	Blue Ridge Parkway National Parkway	

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

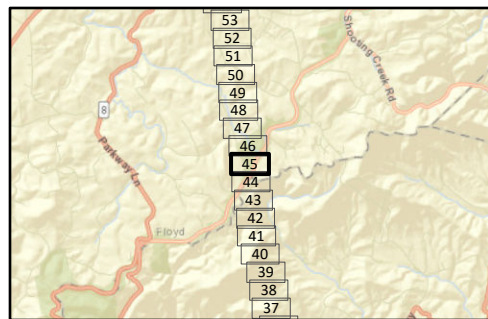
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 44 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



Component 2 Rebuild Route	Road	Index Contour (25')
Proposed Right-of-Way (100')	Wetland (NWI)	Intermediate Contour (5')
Existing Transmission Line to be Retired	Blue Ridge Parkway National Parkway	Map Tile
Highway	Stream (NHD)	

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

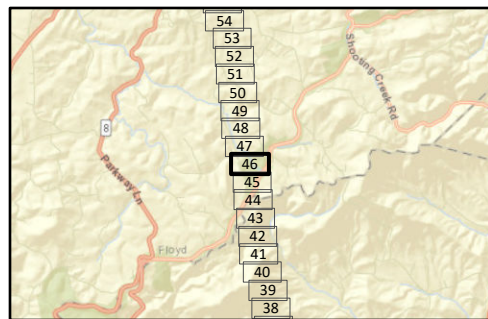
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 45 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



Low Probability Stream	Existing Transmission Line to be Retired	Blue Ridge Parkway National Parkway
Low Probability Wetland	Highway	Stream (NHD)
Moderate Probability Wetland	Road	Index Contour (25')
Component 2 Rebuild Route	Waterbody (NHD)	Intermediate Contour (5')
Proposed Right-of-Way (100')	Wetland (NWI)	Map Tile

Patrick & Floyd Counties, Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

0 200 400  
Feet

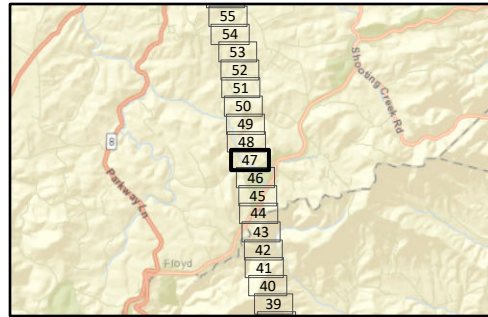
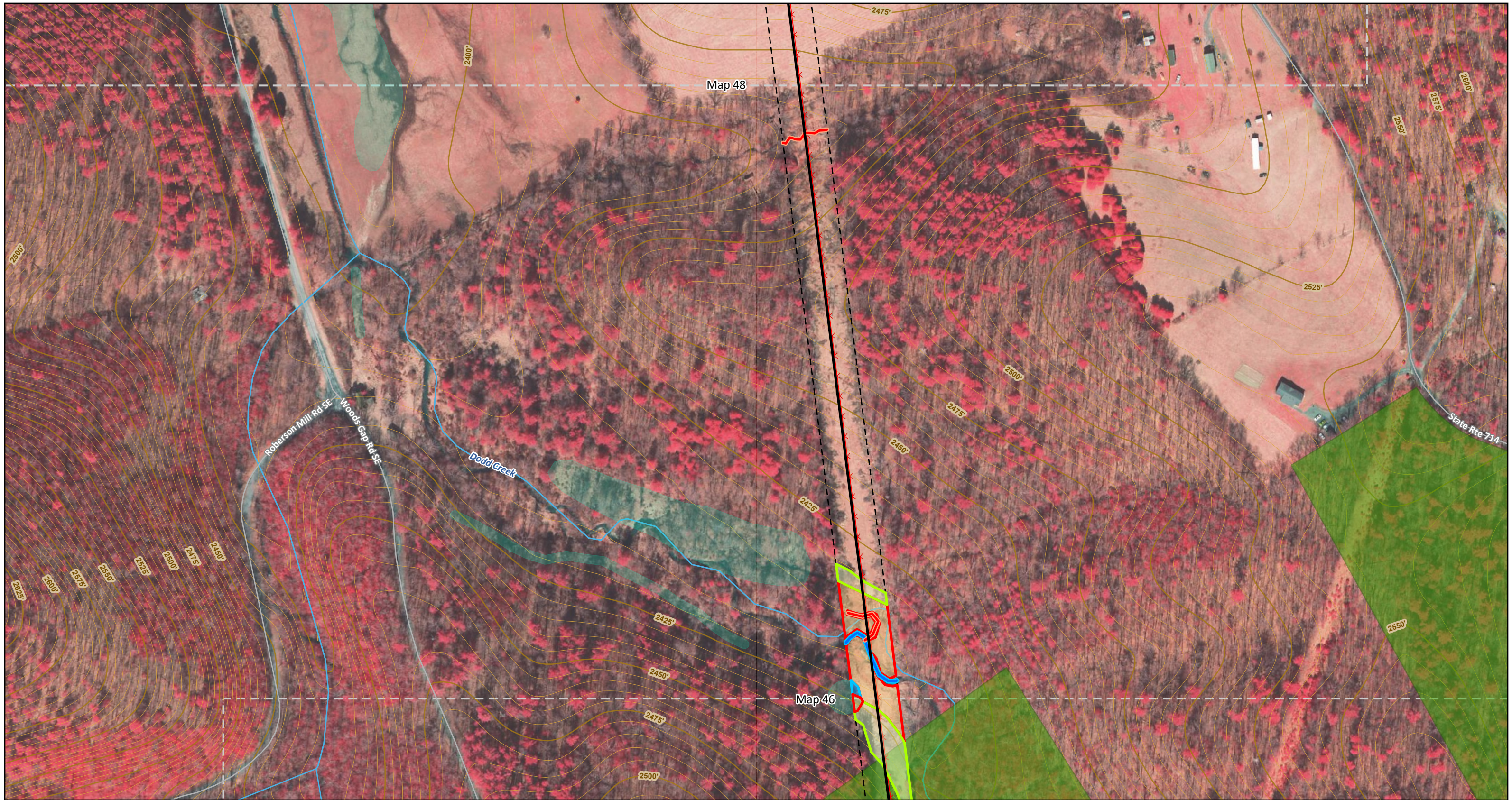
1" = 200'

**Attachment B:**  
Desktop Stream and Wetland Delineation  
Map 46 of 60

**APPALACHIAN POWER**  
An AEP Company

Stuart Area Transmission Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd Rebuild Route





High Probability Stream	Component 2 Rebuild Route	Blue Ridge Parkway National Parkway
Moderate Probability Stream	Proposed Right-of-Way (100')	Stream (NHD)
High Probability Wetland	Existing Transmission Line to be Retired	Index Contour (25')
Low Probability Wetland	Road	Intermediate Contour (5')
Moderate Probability Wetland	Wetland (NWI)	Map Tile

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

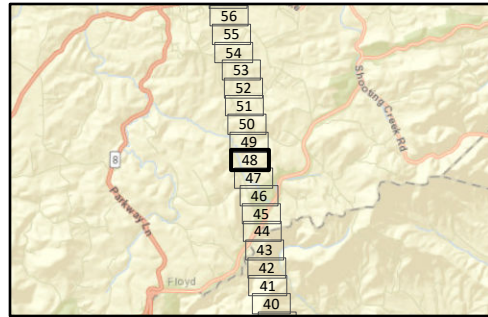
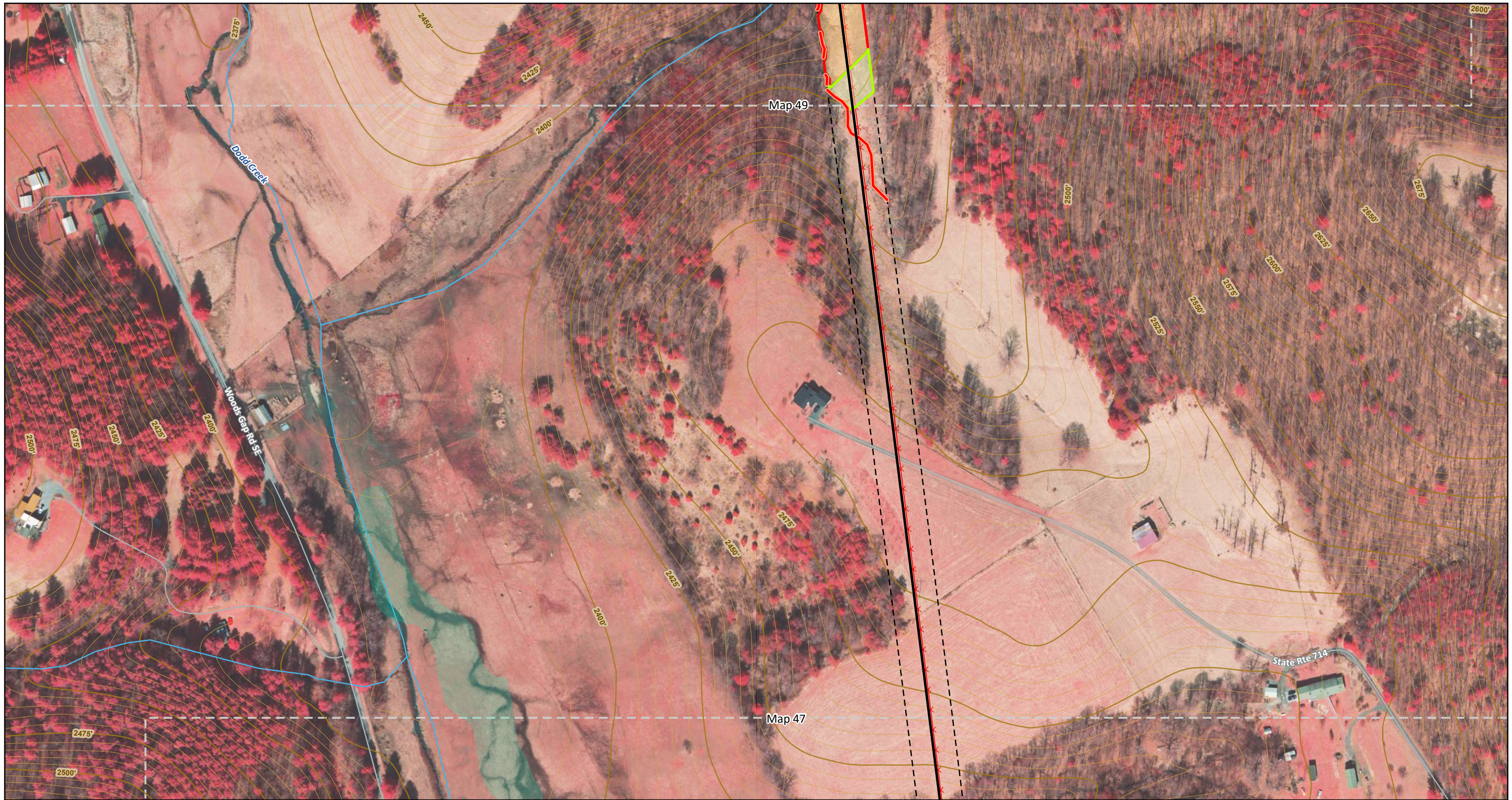
0                      200                      400  
Feet

1" = 200'


**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 47 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

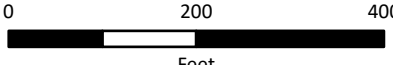


- Moderate Probability Stream
- Low Probability Wetland
- Moderate Probability Wetland
- Component 2 Rebuild Route
- Proposed Right-of-Way (100')
- x-x Existing Transmission Line to be Retired
- Road
- Wetland (NWI)
- Stream (NHD)
- Index Contour (25')
- Intermediate Contour (5')
- Map Tile



**Patrick & Floyd Counties,  
Virginia**


Date: 3/17/2023; Author: ckunde; Project: 159298



0                      200                      400  
Feet

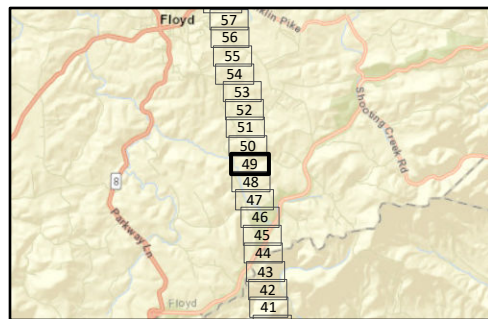
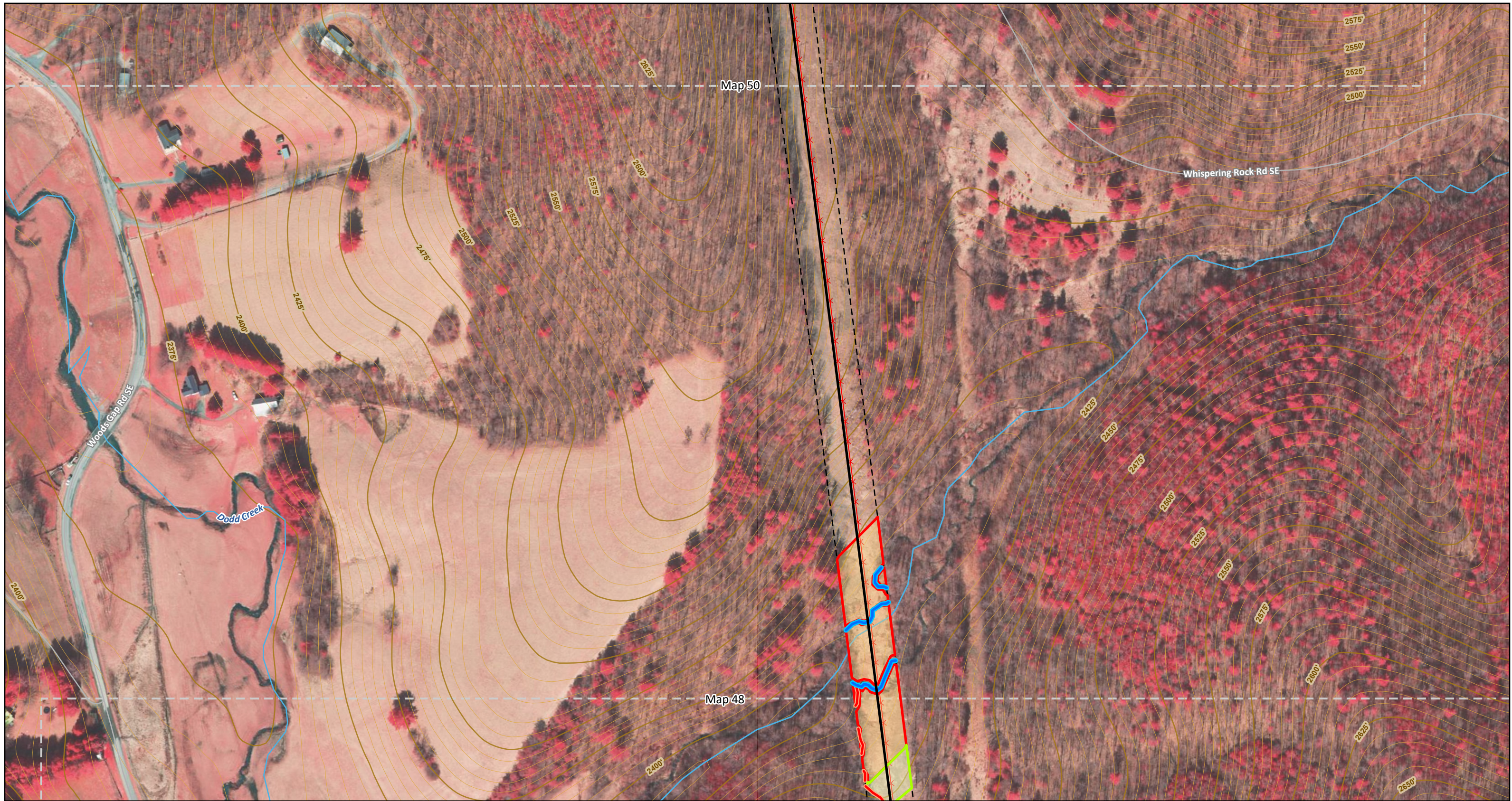
1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 48 of 60**



An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Component 2 Rebuild Route	Stream (NHD)
Moderate Probability Stream	Proposed Right-of-Way (100')	Index Contour (25')
Low Probability Wetland	Existing Transmission Line to be Retired	Intermediate Contour (5')
Moderate Probability Wetland	Road	Map Tile

Patrick & Floyd Counties,  
Virginia

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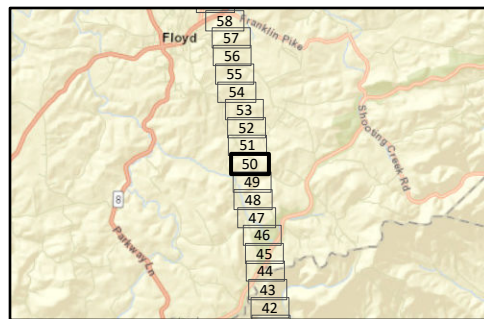
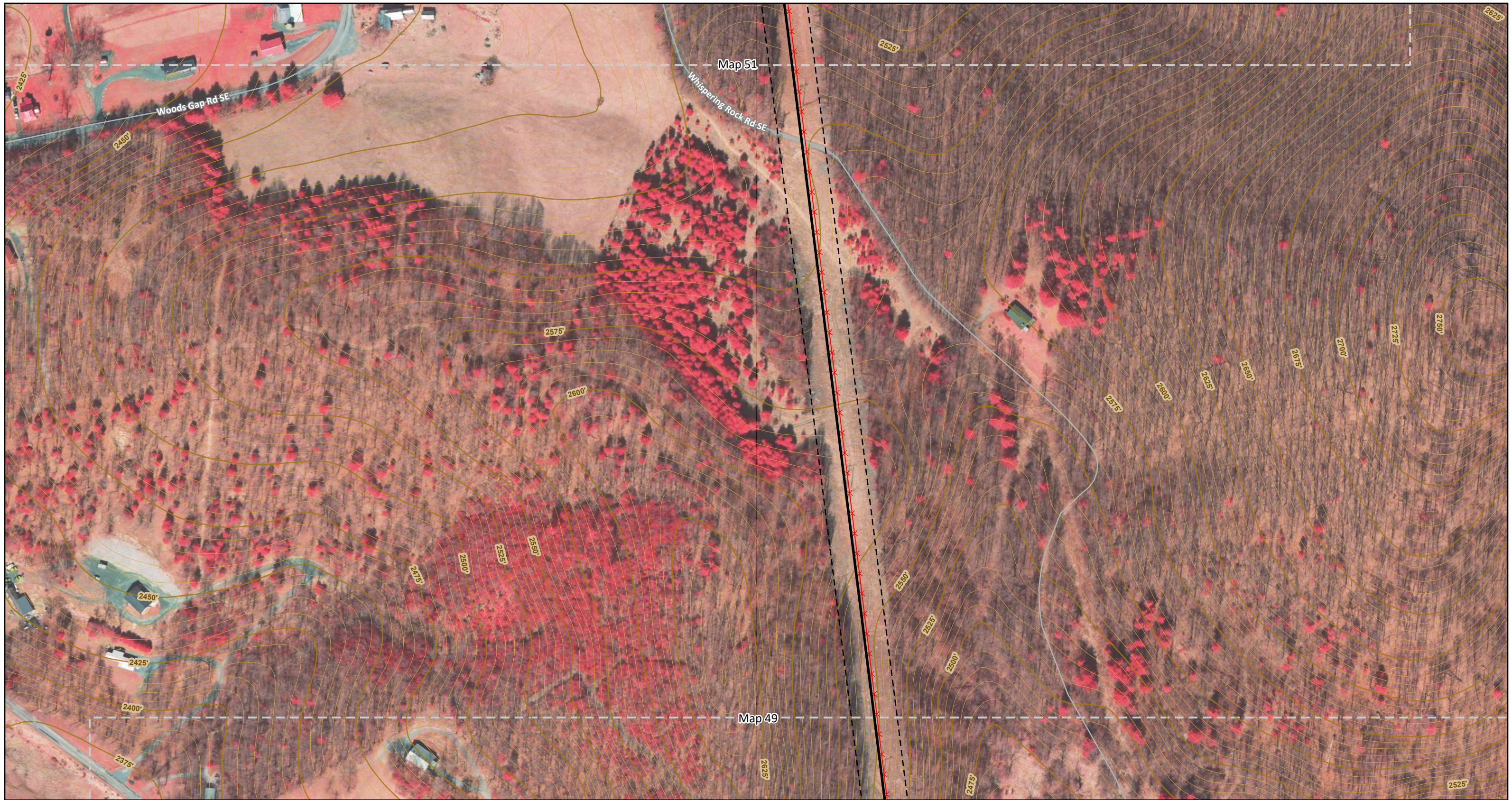
0                      200                      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 49 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

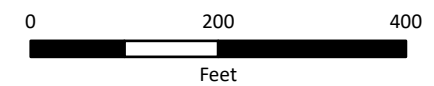


- Component 2 Rebuild Route
- Proposed Right-of-Way (100')
- Existing Transmission Line to be Retired
- Road
- Index Contour (25')
- Intermediate Contour (5')
- Map Tile



Patrick & Floyd Counties,  
Virginia

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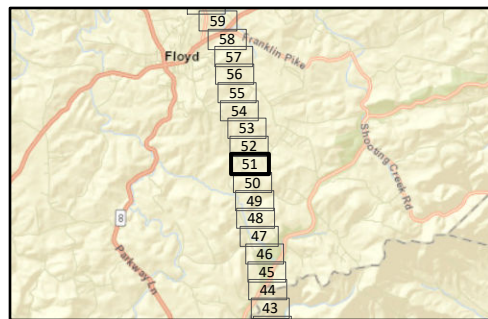
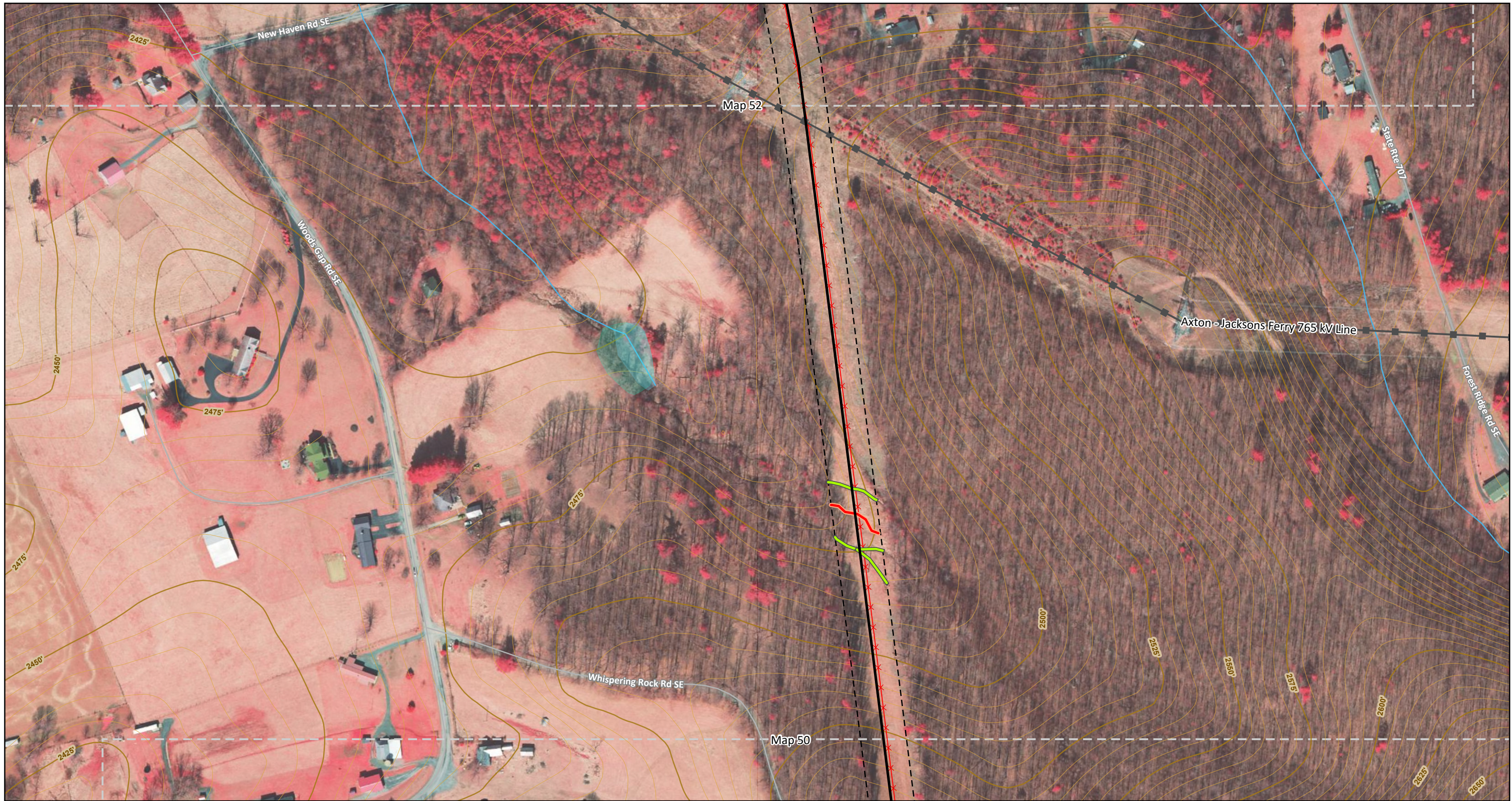


1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 50 of 60**



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

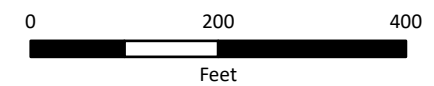


- |                              |  |                           |
|------------------------------|--|---------------------------|
| Low Probability Stream       | Existing APCo Transmission Line (345 kV +) | Wetland (NWI)             |
| Moderate Probability Stream  | Existing Transmission Line to be Retired   | Stream (NHD)              |
| Component 2 Rebuild Route    | Road                                       | Index Contour (25')       |
| Proposed Right-of-Way (100') | Waterbody (NHD)                            | Intermediate Contour (5') |
|                              | Map Tile                                   |                           |



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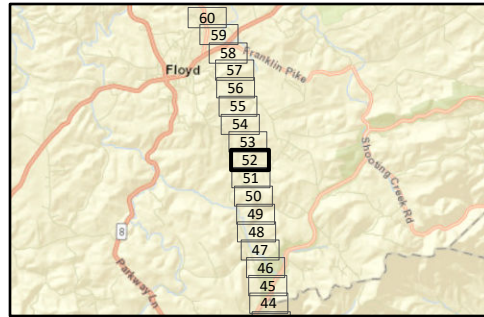


1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 51 of 60**



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Existing APCo Transmission Line (345 kV +)	Stream (NHD)
Low Probability Wetland	Existing Transmission Line to be Retired	Index Contour (25')
Moderate Probability Wetland	Road	Intermediate Contour (5')
Component 2 Rebuild Route	Wetland (NWI)	Map Tile
Proposed Right-of-Way (100')		

Patrick & Floyd Counties,  
Virginia

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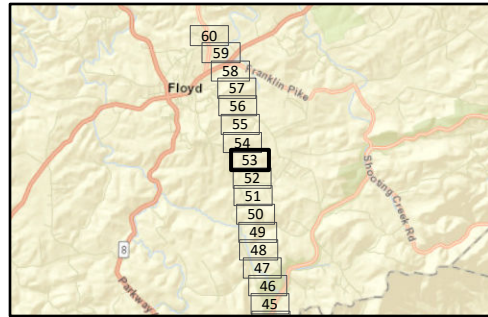
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 52 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Existing Transmission Line to be Retired	Index Contour (25')
Low Probability Wetland	Road	Intermediate Contour (5')
Component 2 Rebuild Route	Stream (NHD)	Map Tile
Proposed Right-of-Way (100')		

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

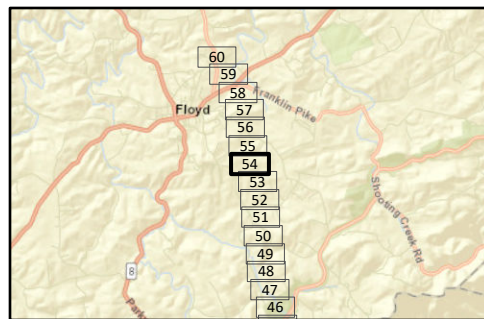
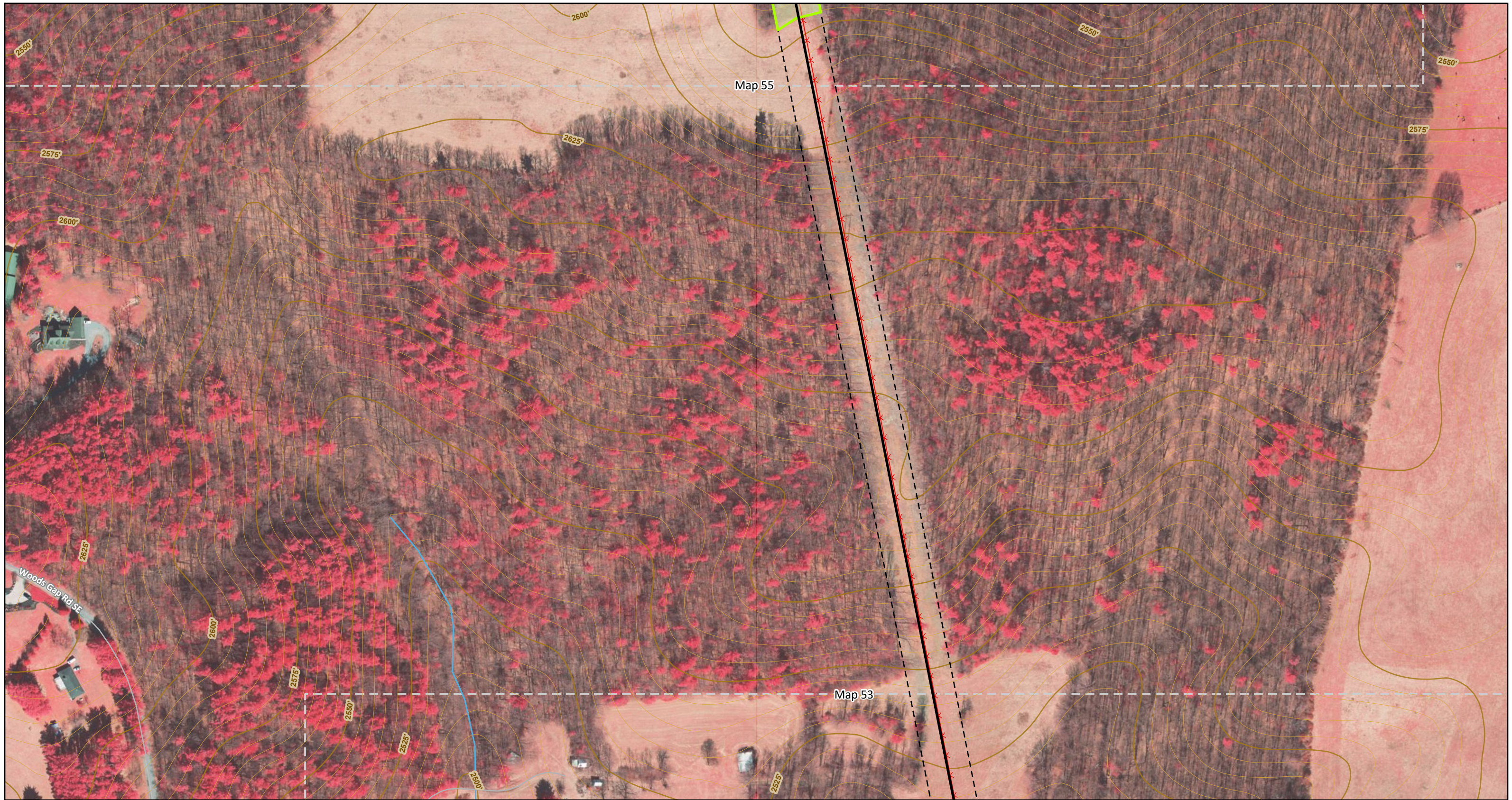
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 53 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



Low Probability Wetland	Existing Transmission Line to be Retired	Index Contour (25')
Component 2 Rebuild Route	Road	Intermediate Contour (5')
Proposed Right-of-Way (100')	Stream (NHD)	Map Tile

Patrick & Floyd Counties, Virginia  
 Date: 3/17/2023; Author: ckunde; Project: 159298

0                      200                      400  
  
 Feet

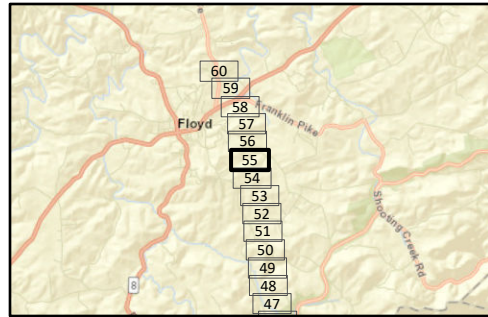
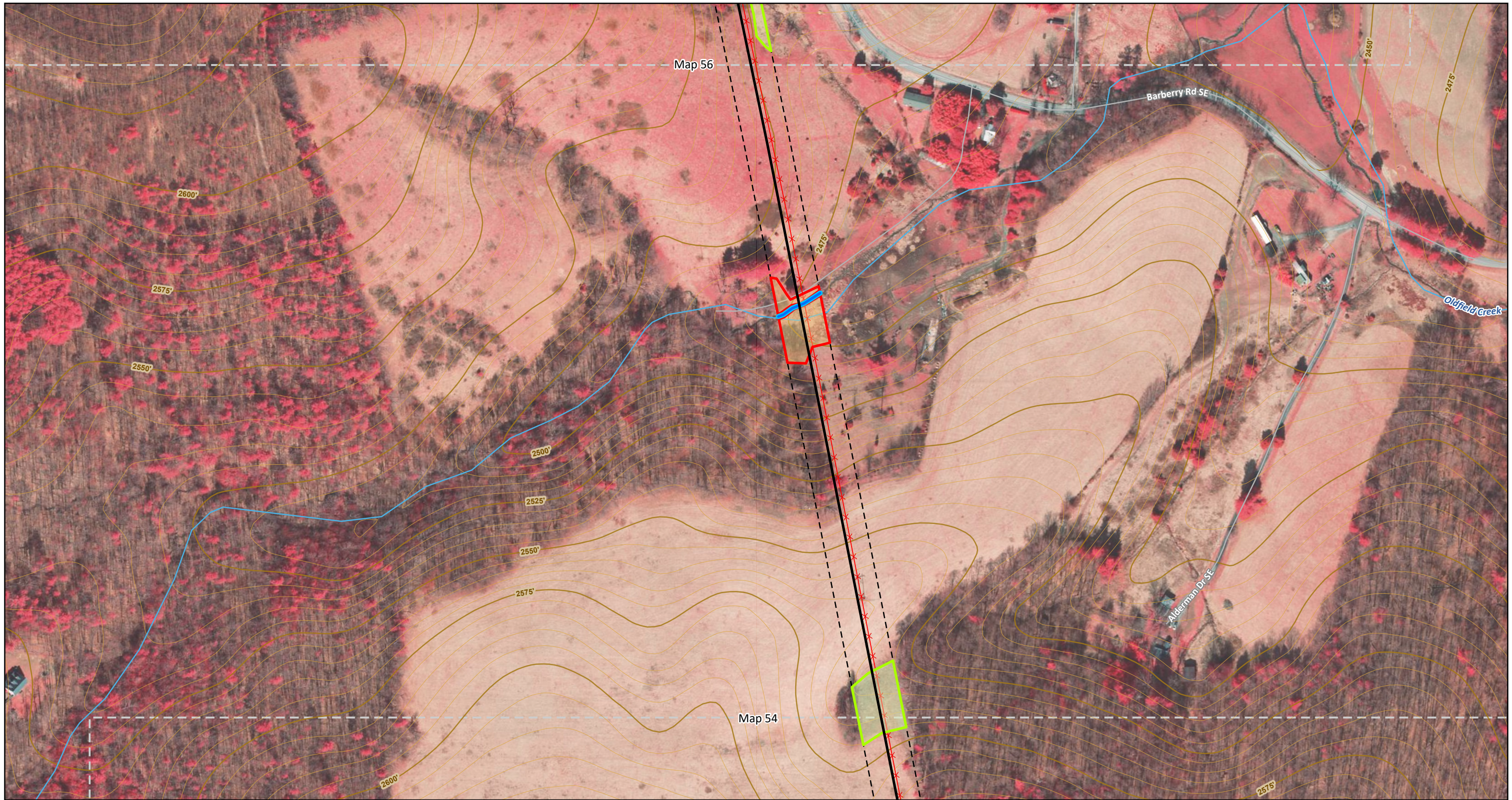
1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
 Map 54 of 60

Stuart Area Transmission  
 Improvements Project:  
 Component 2:  
 Mayo River (Stuart) to Floyd  
 Rebuild Route

An AEP Company






- High Probability Stream
- Low Probability Wetland
- Moderate Probability Wetland
- Component 2 Rebuild Route

- Proposed Right-of-Way (100')
- X Existing Transmission Line to be Retired
- Road

- Stream (NHD)
- Index Contour (25')
- Intermediate Contour (5')
- Map Tile



Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

0


200

400

Feet

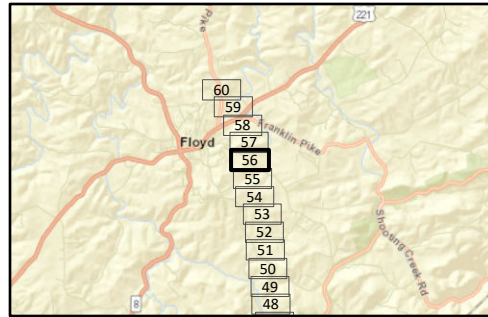
1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 55 of 60**



An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



- Low Probability Stream
- Low Probability Wetland
- Component 2 Rebuild Route
- Proposed Right-of-Way (100')
- x x Existing Transmission Line to be Retired
- Road
- Waterbody (NHD)
- Wetland (NWI)
- Stream (NHD)
- Index Contour (25')
- Intermediate Contour (5')
- Map Tile

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

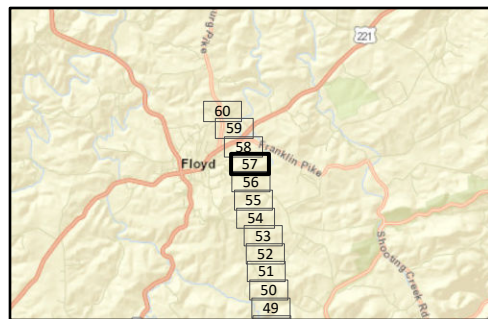
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 56 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

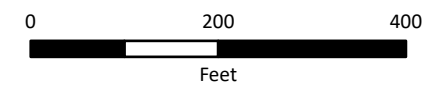


- Component 2 Rebuild Route
- Proposed Right-of-Way (100')
- Existing Transmission Line to be Retired
- Road
- Stream (NHD)
- Index Contour (25')
- Intermediate Contour (5')
- Map Tile



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Virginia

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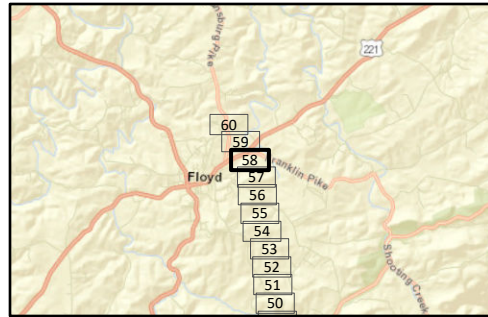


1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 57 of 60**



Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Existing Transmission Line to be Retired	Wetland (NWI)
Low Probability Wetland	Highway	Stream (NHD)
Moderate Probability Wetland	Road	Index Contour (25')
Component 2 Rebuild Route	Waterbody (NHD)	Intermediate Contour (5')
Proposed Right-of-Way (100')		Map Tile

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

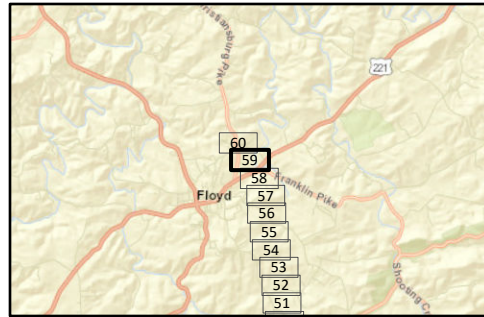
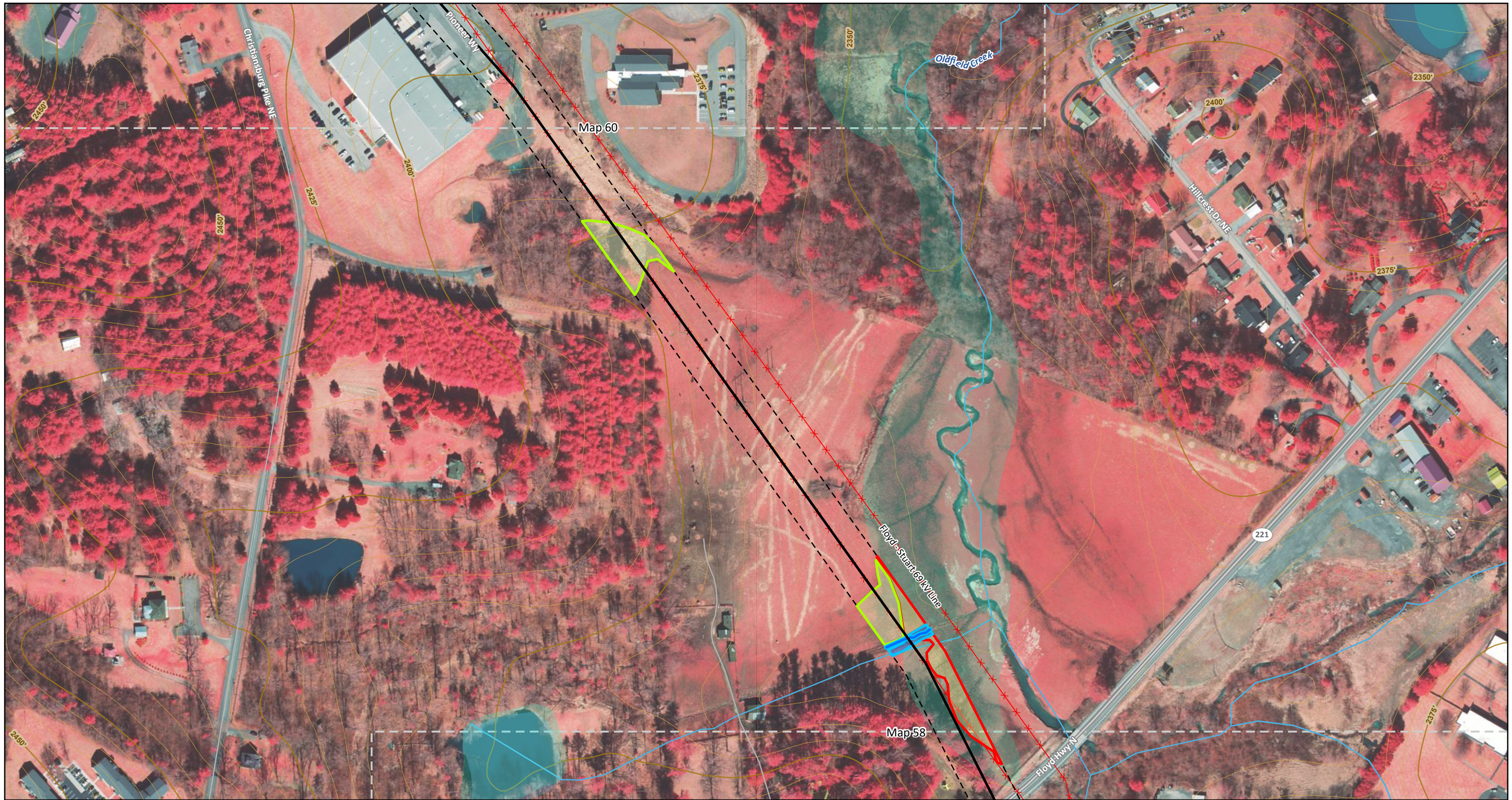
0                      200                      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 58 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



High Probability Stream	Proposed Right-of-Way (100')	Wetland (NWI)
High Probability Wetland	Existing Transmission Line to be Retired	Stream (NHD)
Low Probability Wetland	Highway	Index Contour (25')
Moderate Probability Wetland	Road	Intermediate Contour (5')
Component 2 Rebuild Route	Waterbody (NHD)	Map Tile

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

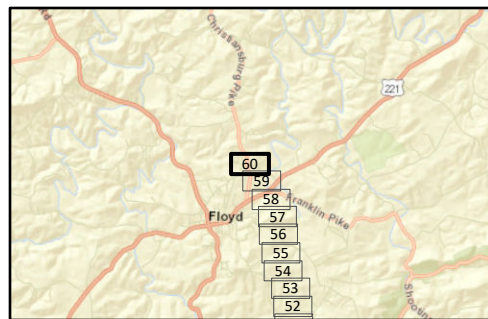
0      200      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 59 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route



▲ Existing APCo Substation	✂ Existing Transmission Line to be Retired	— Index Contour (25')
— Component 2 Rebuild Route	— Road	— Intermediate Contour (5')
- - - Proposed Right-of-Way (100')	■ Wetland (NWI)	- - - Map Tile
● Existing APCo Transmission Line (115 kV - 230 kV)	— Stream (NHD)	

Patrick & Floyd Counties,  
Virginia

Date: 3/17/2023; Author: ckunde; Project: 159298

0                      200                      400  
Feet

1" = 200'

**Attachment B:**  
**Desktop Stream and Wetland Delineation**  
**Map 60 of 60**

An AEP Company

Stuart Area Transmission  
Improvements Project:  
Component 2:  
Mayo River (Stuart) to Floyd  
Rebuild Route

## **ATTACHMENT 2.F.1: USFWS IPAC REPORT**

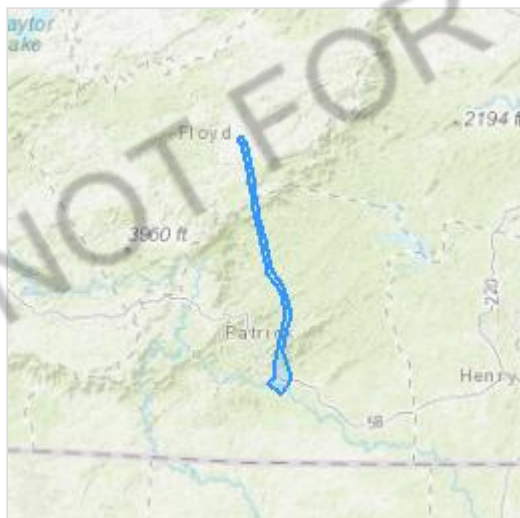
# IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

## Location

Floyd and Patrick counties, Virginia



## Local office

Virginia Ecological Services Field Office

☎ (804) 693-6694

📠 (804) 693-9032

6669 Short Lane



0000 0101 0000  
Gloucester, VA 23061-4410

NOT FOR CONSULTATION

# Endangered species

**This resource list is for informational purposes only and does not constitute an analysis of project level impacts.**

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species<sup>1</sup> and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries<sup>2</sup>).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact [NOAA Fisheries](#) for [species under their jurisdiction](#).

- 
1. Species listed under the [Endangered Species Act](#) are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the [listing status page](#) for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. [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.

The following species are potentially affected by activities in this location:

## Mammals

NAME	STATUS
<p><b>Indiana Bat</b> <i>Myotis sodalis</i> Wherever found There is <b>final</b> critical habitat for this species. Your location does not overlap the critical habitat. <a href="https://ecos.fws.gov/ecp/species/5949">https://ecos.fws.gov/ecp/species/5949</a></p>	Endangered
<p><b>Northern Long-eared Bat</b> <i>Myotis septentrionalis</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a></p>	Endangered
<p><b>Tricolored Bat</b> <i>Perimyotis subflavus</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/10515">https://ecos.fws.gov/ecp/species/10515</a></p>	Proposed Endangered

## Fishes

NAME	STATUS
<p><b>Roanoke Logperch</b> <i>Percina rex</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/1134">https://ecos.fws.gov/ecp/species/1134</a></p>	Endangered

## Clams

NAME	STATUS
<p><b>James Spiny mussel</b> <i>Parvaspina collina</i> Wherever found No critical habitat has been designated for this species. <a href="https://ecos.fws.gov/ecp/species/2212">https://ecos.fws.gov/ecp/species/2212</a></p>	Endangered

## Insects

NAME	STATUS
------	--------

Mitchell's Satyr Butterfly *Neonympha mitchellii mitchellii* Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/8062>

Monarch Butterfly *Danaus plexippus* Candidate

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/9743>

## Flowering Plants

NAME

STATUS

Small-anthered Bittercress *Cardamine micranthera* Endangered

Wherever found

No critical habitat has been designated for this species.

<https://ecos.fws.gov/ecp/species/3462>

## Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

## Migratory birds

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

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats 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.

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>

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
<b>Bald Eagle</b> <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.	Breeds Sep 1 to Aug 31
<b>Black-billed Cuckoo</b> <i>Coccyzus erythrophthalmus</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. <a href="https://ecos.fws.gov/ecp/species/9399">https://ecos.fws.gov/ecp/species/9399</a>	Breeds May 15 to Oct 10
<b>Black-capped Chickadee</b> <i>Poecile atricapillus praticus</i> This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 10 to Jul 31
<b>Canada Warbler</b> <i>Cardellina canadensis</i> This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds May 20 to Aug 10

<p><b>Cerulean Warbler</b> <i>Dendroica cerulea</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p> <p><a href="https://ecos.fws.gov/ecp/species/2974">https://ecos.fws.gov/ecp/species/2974</a></p>	Breeds Apr 27 to Jul 20
<p><b>Chimney Swift</b> <i>Chaetura pelagica</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Mar 15 to Aug 25
<p><b>Eastern Whip-poor-will</b> <i>Antrostomus vociferus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 1 to Aug 20
<p><b>Kentucky Warbler</b> <i>Oporornis formosus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds Apr 20 to Aug 20
<p><b>Prairie Warbler</b> <i>Dendroica discolor</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 1 to Jul 31
<p><b>Red-headed Woodpecker</b> <i>Melanerpes erythrocephalus</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	Breeds May 10 to Sep 10
<p><b>Wood Thrush</b> <i>Hylocichla mustelina</i></p> <p>This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.</p>	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.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

### 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.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

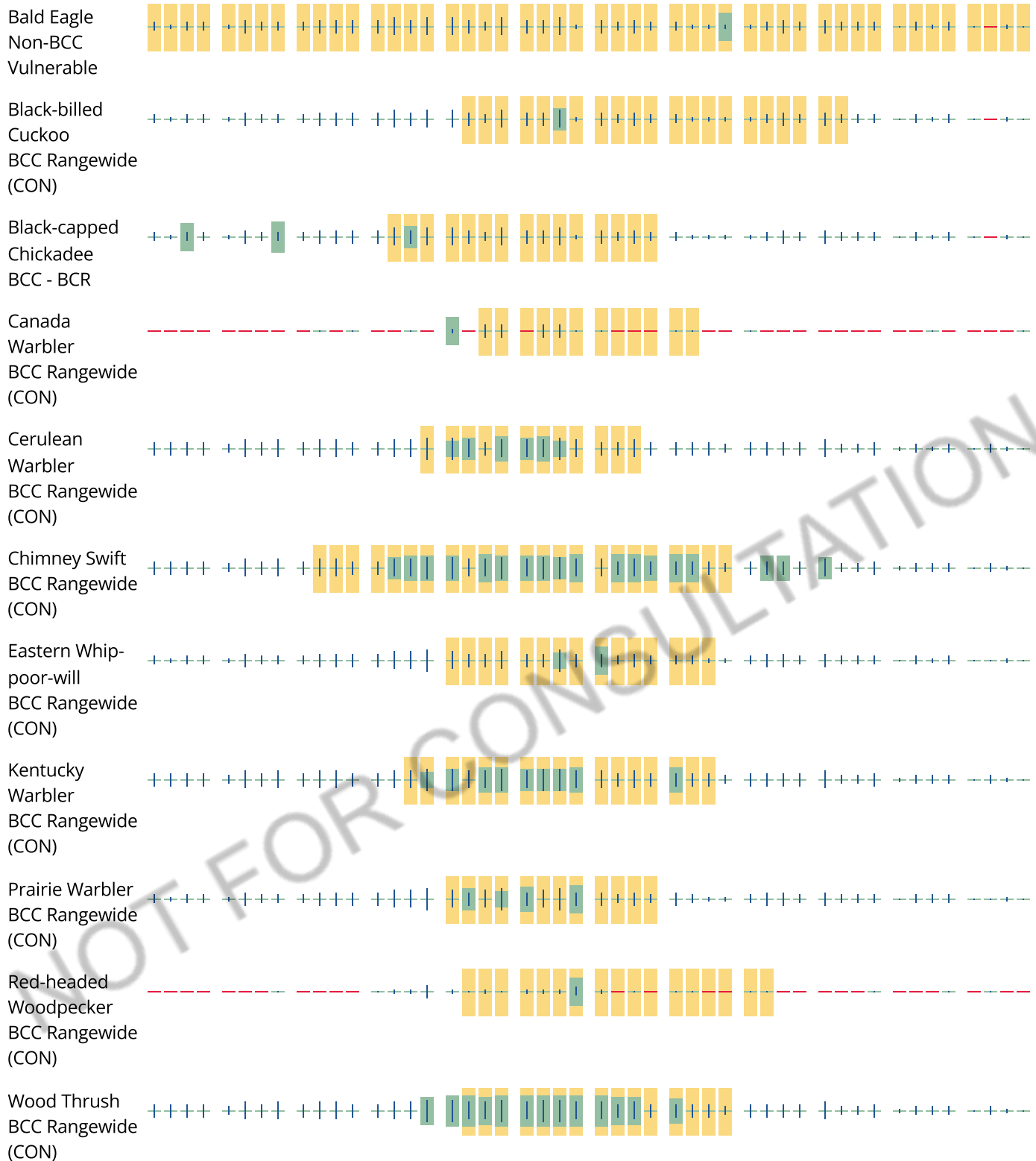
### No Data (—)

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.





**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 list of migratory birds that potentially occur 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 [Rapid Avian Information Locator \(RAIL\) 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 or migrating in my 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 query your location using the [RAIL Tool](#) and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. 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.

# Facilities

## National Wildlife Refuge lands

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 at this location.

## Fish hatcheries

There are no fish hatcheries at this location.

## Wetlands in the National Wetlands Inventory (NWI)

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the [NWI map](#) to view wetlands at this location.

### Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

### **Data exclusions**

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tubercid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

### **Data precautions**

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.