



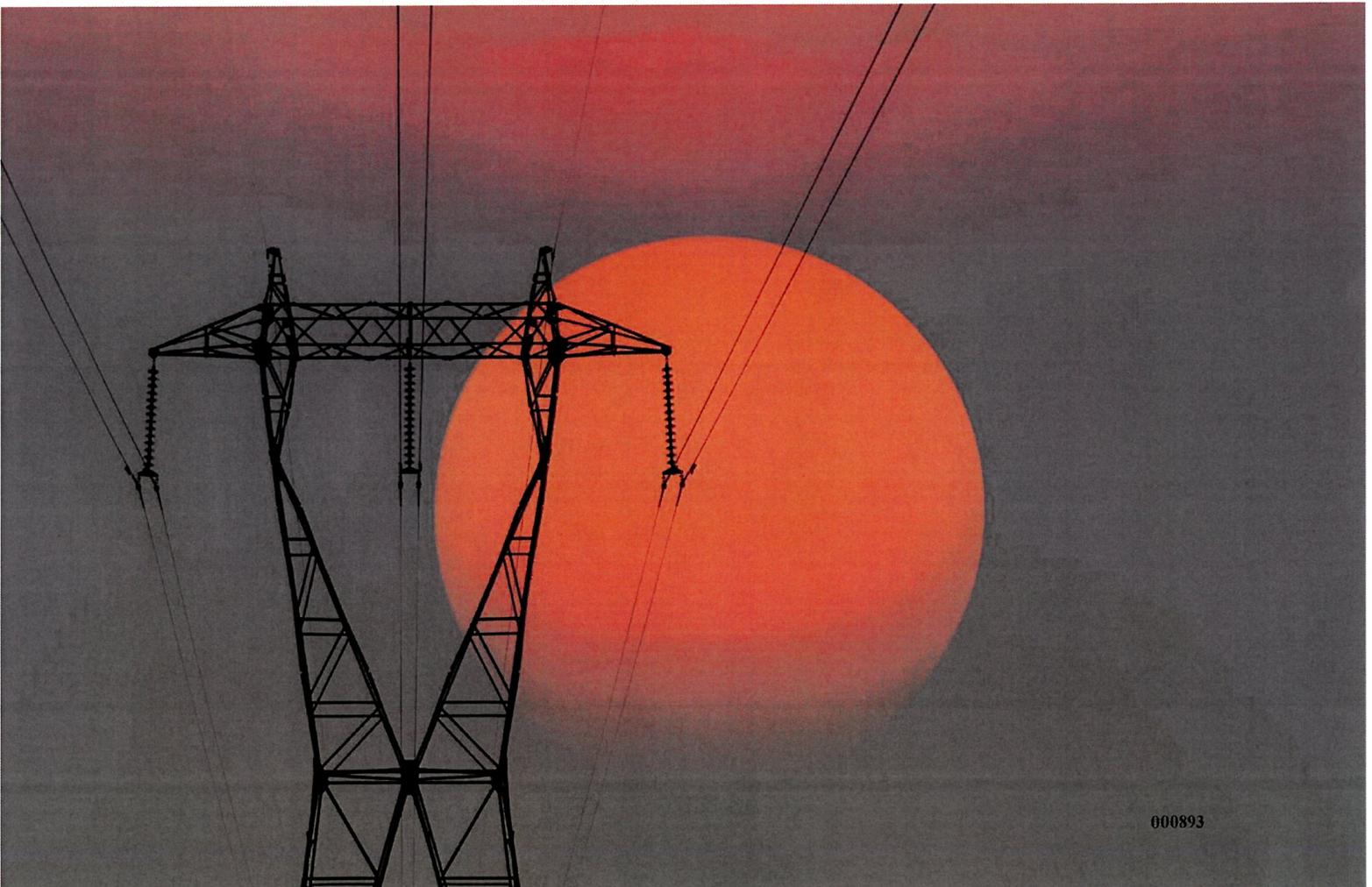
# Appendix B: West Virginia Environmental Review Document

MidAtlantic Resiliency Link Project

**PREPARED FOR**  
NextEra Energy Transmission  
MidAtlantic, Inc. and NextEra Energy  
Transmission Virginia, Inc.

**DATE**  
January 2026

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0718854



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# Appendix B: West Virginia Environmental Review Document

MidAtlantic Resiliency Link Project  
0718854



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CLIENT: NextEra Energy Transmission MidAtlantic, Inc. and NextEra Energy Transmission Virginia, Inc.  
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- ATTACHMENT 1A, TOPOGRAPHY MAPBOOK
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- ATTACHMENT 1C, WATER RESOURCES MAPBOOK
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## ACRONYMS AND ABBREVIATIONS

Acronym	Description
amsl	above mean sea level
BMP	best management practice
BCC	bird of conservation concern
CFR	Code of Federal Regulations
CLRLT	Cacapon & Lost Rivers Land Trust
CO	County Road
CPCN	Certificate of Public Convenience and Necessity
CWA	Clean Water Act
DoD	U.S. Department of Defense
Dominion Energy	Virginia Electric and Power Company d/b/a Dominion Energy Virginia
ERD	Environmental Review Document
ERM	Environmental Resources Management, Inc.
ESA	Endangered Species Act
ESC	erosion and sediment control
FE	Federally Endangered
FPE	Federally Proposed for Endangered
GIS	Geographic Information System
HUC	Hydrologic Unit Code
I-	Interstate
IPaC	Information for Planning and Consultation System
kV	kilovolt
LiDAR	Light Detection and Ranging
LIII	Level III Ecoregion
LIV	Level IV Ecoregion
LoD	limit of disturbance
MARL Project	MidAtlantic Resiliency Link Project
MBTA	Migratory Bird Treaty Act
MD	Maryland
MHPW	modeled high probability wetland
MP	milepost
NA	not applicable
NEET MA	NextEra Energy Transmission MidAtlantic, Inc.
NEET VA	NextEra Energy Transmission Virginia, Inc.
NHD	National Hydrography Dataset
NRHP	National Register of Historic Places

<b>Acronym</b>	<b>Description</b>
NRI	Nationwide Rivers Inventory
NWI	National Wetlands Inventory
PA	Pennsylvania
PEM	Palustrine Emergent
PFO	Palustrine Forested
PJM	PJM Interconnection LLC
PSC	Public Service Commission (of West Virginia)
PSS	Palustrine Scrub-Shrub
PUB	Palustrine Unconsolidated Bottom
ROW	right-of-way
RTE	rare, threatened, and endangered
SBVR	South Branch Valley Railroad
SPCC	Spill Prevention, Control, and Countermeasures
SWPPP	Stormwater Pollution Prevention Plan
T&E	threatened and endangered
TCP	Traffic Control Plan
TMDL	Total Maximum Daily Load
US	U.S. Route
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VA	Virginia
W. Va. Code R.	West Virginia Code of State Rules
WSR	Wild and Scenic Rivers
WHPA	well head protection area
WIM	Wetland Identification Model
WMA	Wildlife Management Area
WOTUS	Waters of the United States
WV	West Virginia
WV	West Virginia State Route
WV SHPO	West Virginia State Historic Preservation Office
WVDEP	West Virginia Department of Environmental Protection
WVDHHR	West Virginia Department of Health and Human Resources
WVDNR	West Virginia Division of Natural Resources

## 1. INTRODUCTION AND BACKGROUND

This report includes the environmental findings of the Proposed Route and five Alternative Routes that were identified in the Routing Study conducted by Environmental Resources Management, Inc. (ERM) on behalf of NextEra Energy Transmission MidAtlantic, Inc. (NEET MA) and NextEra Energy Transmission Virginia, Inc. (NEET VA). The Routing Study (Application Attachment E) presented for the MidAtlantic Resiliency Link (MARL) Project included the following: 1) introduction and background; 2) methodology used for the routing and siting for the MARL Project; 3) Study Area and major constraints and opportunities within the Study Area; 4) route identification, including routes carried forward and dismissed for consideration; 5) comparison of routes carried forward; and 6) identification of the Proposed Route. The Routing Study evaluated the natural environment, built environment, cultural resources, social resources, and engineering constructability for the MARL Project for NEET MA's and NEET VA's proposed new 107.5-mile, 500 kilovolt (kV) transmission line that will traverse portions of Pennsylvania, West Virginia, Maryland, and Virginia, as well as the new 500/138 kV Woodside Substation to be located in Frederick County, Virginia.<sup>1</sup>

NEET MA and NEET VA will be filing four state siting applications with the relative state public utility commissions.<sup>2</sup> The West Virginia siting application will be filed pursuant to the provisions of West Virginia Code of State Rules (W. Va. Code R.) § 150-3-9 (Transmission Line Construction—Electric Rule 9); and W. Va. Code R. § 24-2-11a, which requires any public utility desiring to construct a high voltage transmission line of 200,000 volts or higher to obtain a Certificate of Public Convenience and Necessity (CPCN) from the Public Service Commission (PSC) of West Virginia. The West Virginia portions of the MARL Project will be located in four counties (Hampshire, Mineral, Monongalia, and Preston). This Environmental Review Document (ERD) provides the environmental information required by West Virginia Code, and Table 1-1 summarizes these CPCN filing requirements and the ERD sections in which the specific information may be found.

---

<sup>1</sup> NEET MA is responsible for constructing the portions of the MARL Project in Pennsylvania, West Virginia, and Maryland. NEET VA is responsible for constructing the portions of the MARL Project in Virginia, as well as a new 500/138 kV Woodside Substation in Frederick County, Virginia. The permitting of the substation is subject to the siting authority of Frederick County, and information in this Routing Study related to the Woodside Substation is provided for overall context of the full MARL Project.

<sup>2</sup> NEET MA is filing a CPCN application with the following state utility commissions: Maryland Public Service Commission and PSC of West Virginia. NEET MA is also filing a Certificate of Public Convenience and a Siting application with the Pennsylvania Public Utilities Commission. NEET VA is filing a CPCN application with the Virginia State Corporation Commission.

**TABLE 1-1 WEST VIRGINIA ELECTRIC RULE 9 REQUIREMENTS**

Filing Requirements	Application / ERD Section(s)
<b>W. Va. Code R. § 150-3-9 - Transmission Line Construction (Electric Rule 9)</b>	
9.2.1.a A map or plat showing in detail the proposed location of the line, including location of incorporated communities; public or private recreational areas, parks, forests, hunting or fishing areas, or similar facilities; historic scenic areas or places; rivers, lakes, streams, reservoirs and similar bodies of water, located within five (5) miles of either side of the center line of the proposed right-of-way.	See Application.
9.2.1.b The type of line to be constructed, including the height of the line and number and type of poles or towers to be placed thereon; the number of wires to be used; the proposed voltage to be carried along said line; all safety features to be used in connection therewith.	See Application.
9.2.1.c A description of the width of the proposed right-of-way; the degree of slope in excess of twenty (20) degrees; the type of method proposed to be used to clear said right-of-way together with a statement of what, if any, disturbance or displacement will be made of the earth along said right-of-way, and of trees, crops, and other growing things thereon, as well as the disposition to be made of any such material or thing so disturbed or removed, and what will be done to upgrade, seed or otherwise restore the area which may be disturbed or displaced, to control erosion and also siltation of streams.	See Application.
9.2.1.d A statement of the method to be used to keep said right-of-way clean and free of brush and trees, and if chemical spray or other chemical means are used for such control, the chemical contents thereof, evidence that the same will not be injurious to animals, humans, or vegetation beyond said right-of-way.	See Application.
9.2.1.e A statement showing, insofar as is possible and applicable, the habitat and type of wildlife, both land and aquatic, which may be in the right-of-way or adjoining thereto, and any known effect said line may have upon the same, including feeding and breeding habits.	See Section 2.2.6, Vegetation, and Section 2.2.7, Wildlife.
9.2.1.f A statement showing what, if any, known effect upon human and domestic animal life located along said right-of-way will result from the construction thereof.	See Section 2.3, Human Environment.
9.2.1.g A statement as to whether alternate routes for said right-of-way have been investigated, if the applicant has made preliminary or detailed investigations of all alternate locations for said high voltage transmission line, the applicant shall file sufficient information with regard to these alternate investigations. The information filed should clearly show the justifications for selecting the proposed route over the alternate routes studied.	See Application and this ERD.
9.2.1.h A statement of any other pertinent facts showing what, if any environmental impact said proposed line will have upon the area on and adjacent to said proposed line.	See Section 2, Environmental Setting and Impacts for the Proposed Route and Alternative Routes.

ERD = Environmental Review Document; W. Va. Code R. = West Virginia Code of State Rules

## 1.1 MARL PROJECT DESCRIPTION

PJM Interconnection LLC (PJM) has directed NEET MA and NEET VA to develop, construct, own, operate, and maintain the MARL Project to resolve significant and widespread reliability criteria violations on the Bulk Electric System that serves the PJM Region, due to load growth and anticipated resource retirements in the PJM Region. To meet this purpose and need, the MARL Project will have the following facilities:

- A new single-circuit 500 kV transmission line on lattice structures from the FirstEnergy Corp. (FirstEnergy)-owned 502 Junction Substation to the existing FirstEnergy-owned Black Oak 500/138 kV Substation to an interconnection with new 500 kV transmission lines to be constructed by FirstEnergy and Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion Energy).<sup>3</sup>
- A new Woodside 500/138 kV substation in Frederick County, Virginia, which will connect to existing Dominion Energy and FirstEnergy infrastructure.<sup>4</sup>

The proposed transmission line will generally encompass the geographic area between the endpoints of the 502 Junction Substation in Greene County, Pennsylvania, and the handoff point (a new 500 kV transmission line to be constructed by FirstEnergy) in Frederick County, Virginia. The proposed Woodside Substation site is also in Frederick County, Virginia, but approximately 11 miles to the east of the eastern terminus of the proposed transmission line handoff point. These facilities are collectively referred to as "the MARL Project." Figure 1.1-1 depicts the MARL Project Proposed Route and the Alternative Routes.

All mileposts (MPs) and distances associated with the MARL Project facilities listed above are rounded to the nearest 0.1 mile, and all land areas are rounded to the nearest 0.1 acre (unless otherwise specified). All references to MPs, distances, and acreages in this document are assumed to be approximate (e.g., a reference to "MP 1.2" or "124.3 acres" means "approximately at MP 1.2" or "approximately 124.3 acres," respectively).

NEET MA and NEET VA identified six end-to-end route alternatives (the Proposed Route and Alternative Routes B through F) for the overall MARL Project between the 502 Junction Substation and the handoff point (Application Attachment E, Routing Study). As identified in the Routing Study, the Routing Team has selected Alternative Route A as the Proposed Route. Figure 1.1-2 and Figure 1.1-3 provide an overview of the Proposed Route and Alternative Routes within Monongalia and Preston Counties, West Virginia, and Mineral and Hampshire Counties, West Virginia, respectively. Table 1.1-1 summarizes the MARL Project features of the Proposed Route and Alternative Routes in West Virginia.

---

<sup>3</sup> The MARL Project does not include the FirstEnergy and Dominion Energy portions of the PJM-approved West Cluster solutions.

<sup>4</sup> Specifically, the Woodside Substation will connect to Dominion Energy's existing 500 kV Bismark-Doubs transmission line, FirstEnergy's existing Stonewall 138 kV Substation via the Hampshire to Stonewall 138 kV line, and to FirstEnergy's upgraded Gore-Stonewall-Doubs 500 kV transmission line.

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TABLE 1.1-1 MARL PROJECT FEATURES WITHIN THE PROPOSED ROUTE AND ALTERNATIVE ROUTES

MARL Project Feature	Proposed Route		Alternative Route B		Alternative Route C		Alternative Route D		Alternative Route E		Alternative Route F	
	WV Counties	Total	WV Counties	Total	WV Counties	Total	WV Counties	Total	WV Counties	Total	WV Counties	Total
Centerline length (miles)	58.9	107.5	60.9	107.3	40.5	113.3	58.9	115.2	57.8	105.3	38.3	119.1
Siting Corridor (acres)	3,437.4	6,208.6	3,545.5	6,197.5	2,370.9	6,598.5	3,437.4	6,798.1	3,410.3	6,181.6	2,294.1	7,112.0
ROW Corridor (acres)	1,444.7	2,669.0	1,496.0	2,671.4	991.8	2,835.5	1,444.7	2,839.0	1,427.3	2,651.5	951.2	2,964.3
ROW Corridor maintaining riparian habitat (acres)	1,439.2	2,642.4	NA	NA								
Riparian habitat to be maintained (acres)	5.5	26.8	NA	NA								
Riparian habitat to be maintained <sup>a</sup> (count)	5	20	NA	NA								
Aerial easement blowout area <sup>b,c</sup> (count)	9.5	24	14	31	7.5	28	7.5	24	13.5	28	11.5	32
Paralleling existing transmission line ROW (miles)	27.7	56.4	31.7	59.7	18.5	64.5	27.7	43.1	22.1	50.8	10.9	43.2
Paralleling existing transmission line ROW (%)	47.1	52.5	52.1	55.6	45.7	56.8	47.1	37.4	38.2	47.7	28.4	36.3
Structures (count)	248	452	258	452	171	478	243	493	242	446	164	519
Minimum structure height (feet)	85	85	85	85	85	85	85	85	85	85	85	85
Maximum structure height (feet)	190	190	190	190	190	190	190	190	190	190	190	190
Average structure height (feet)	145	145	145	145	145	145	145	145	145	145	140	140
Average span length (feet)	1,247	1,258	1,245	1,256	1,221	1,240	1,222	1,222	1,248	1,259	1,237	1,213
Maximum span length (feet)	2,739	2,927	2,520	2,927	2,433	2,955	2,739	2,739	2,739	2,927	2,641	2,955
Spans greater than 1,600 feet (count)	14	33	22	42	6	31	14	34	20	39	13	38

NA = not applicable; ROW = right-of-way; WV = West Virginia  
<sup>a</sup> The riparian habitat to be maintained in West Virginia includes five locations; however, one location is located partially in Allegany County, Maryland and in Mineral County, West Virginia where the Proposed Route crosses the North Branch Potomac River.

<sup>b</sup> The aerial easement blowout area is a designated section within the ROW Corridor that requires additional transmission line easement area to accommodate engineering considerations (e.g., increased span lengths), which can result in greater line sway. These areas are necessary due to constraints, such as uneven terrain, steep slopes, or natural obstructions that make the standard ROW Corridor width impractical or unsafe.

<sup>c</sup> An aerial easement blowout area that are listed as "+0.5" under the "WV Counties" heading indicates that a portion of the aerial easement blowout area spans between two states. For example, the Proposed Route indicates 9.5 aerial easement blowout areas, and one of those areas spans across the Maryland-West Virginia border.



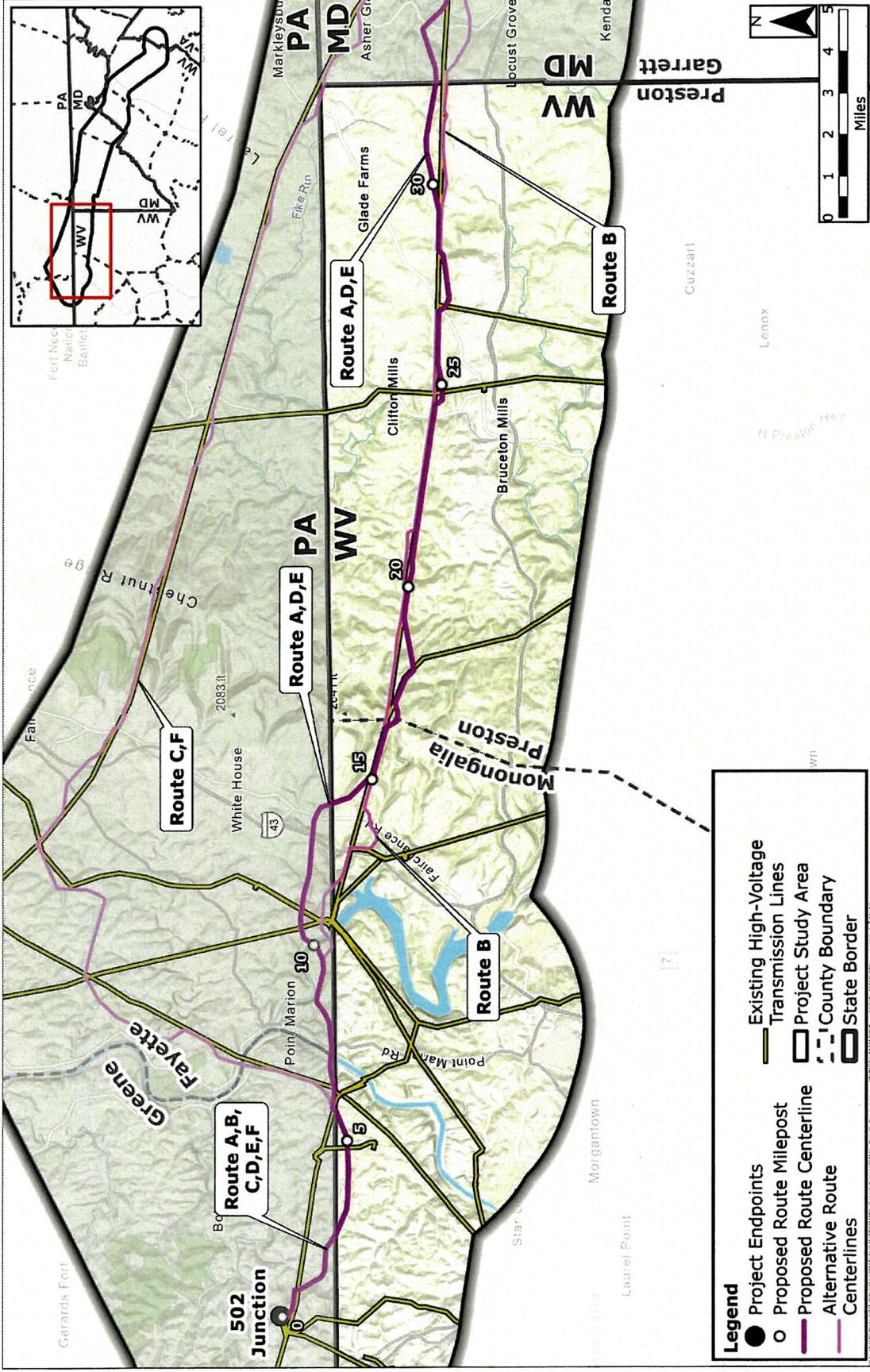
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CLIENT: NextEra Energy Transmission MidAtlantic, Inc. and NextEra Energy Transmission Virginia, Inc.  
PROJECT NO: 0718854 DATE: January 2026



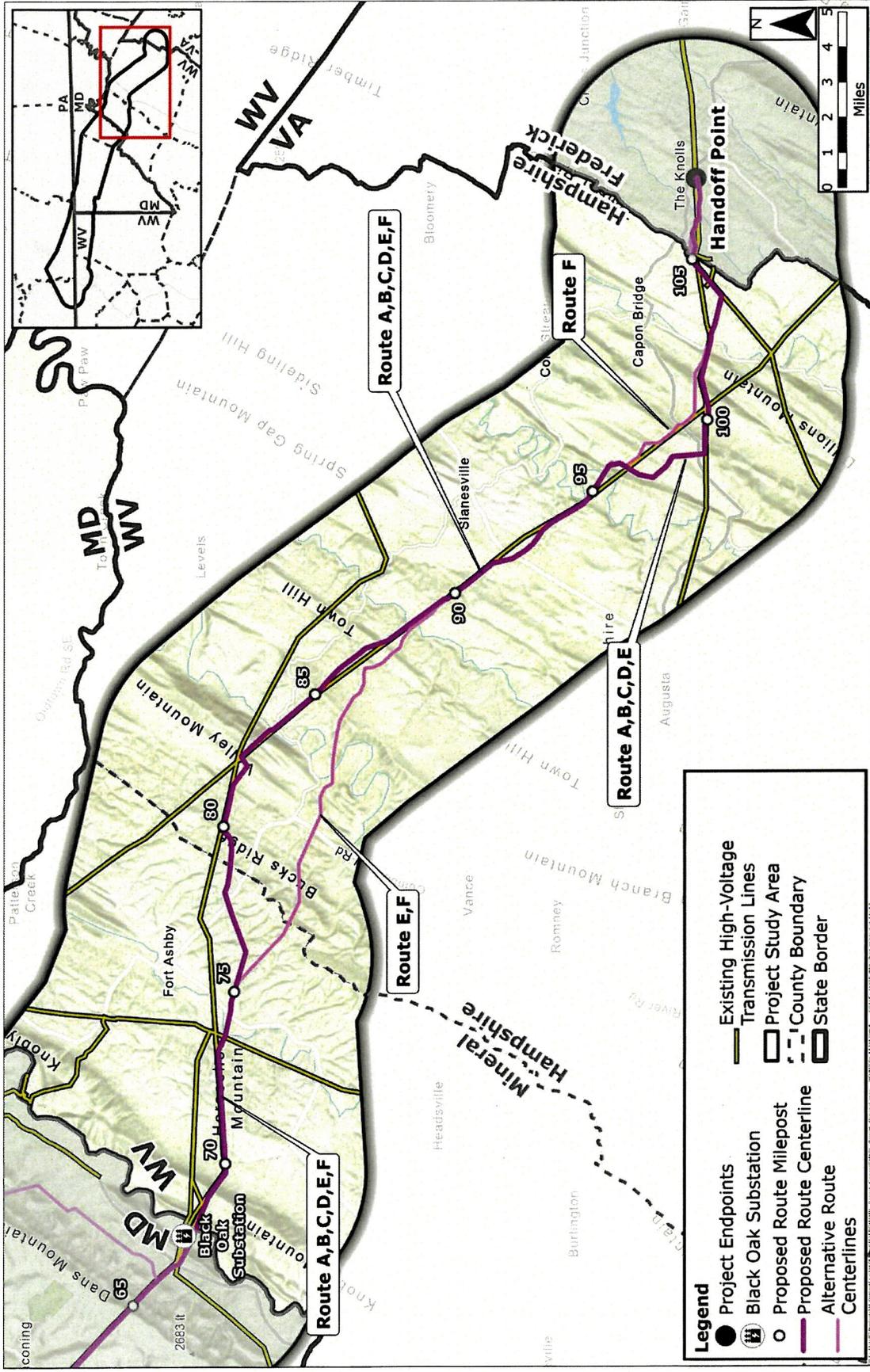
FIGURE 1.1-2 MARL PROJECT IN MONONGALIA AND PRESTON COUNTIES, WEST VIRGINIA



MD = Maryland; PA = Pennsylvania; VA = Virginia; WV = West Virginia



FIGURE 1.1-3 MARL PROJECT IN MINERAL AND HAMPSHIRE COUNTIES, WEST VIRGINIA



MD = Maryland; PA = Pennsylvania; VA = Virginia; WV = West Virginia



## 1.2 OBJECTIVES OF THE ENVIRONMENTAL RESOURCE DOCUMENT

The Routing Study (Application Attachment E) presented ERM's overall approach to developing route alternatives that have an endpoint in Pennsylvania and another endpoint in Virginia. In developing the end-to-end route alternatives, ERM considered state-specific requirements and data, while also recognizing that the state-specific environmental data are different in each of the four states; therefore, ERM has developed state-specific appendices to present the different information that each of the state authorities expect to see. The objective of this ERD is to detail the environmental, cultural, and social existing conditions and potential impacts associated with the MARL Project Proposed Route and Alternative Routes for the specific state of West Virginia requirements. Regardless of the state, specific information that is associated with the overall MARL Project may be found in the Routing Study and is not repeated herein.

## 2. ENVIRONMENTAL SETTING AND IMPACTS FOR THE PROPOSED ROUTE AND ALTERNATIVE ROUTES

The following section of the ERD describes the existing environmental, cultural, and social conditions, as well as the potential impacts associated with the Proposed Route and Alternative Routes for the MARL Project within Monongalia, Preston, Mineral, and Hampshire Counties, West Virginia. This information was developed using publicly available data sources and includes data obtained from relevant agencies. The information presented herein was developed by ERM based on best practices and extensive experience in transmission line routing and siting projects. While there are no published studies or formal industry standards, the approach reflects methodologies that have been applied to other greenfield projects and, in some cases, accepted by state commissions. The approach was considered and applied to the MARL Project, incorporating natural environment and built environment resources as well as land and engineering considerations. Where appropriate for a resource area, ERM provides in that resource discussion the regulatory driver that may be applicable to the MARL Project once permits are determined upon completion of the CPCN application. In addition to the publicly available data sources that are used for the ERD, a number of enhanced desktop assessments have been completed in combination with extensive agency outreach and coordination to provide a robust analysis of resource impacts in support of this CPCN application. Additional enhanced desktop assessments, in combination with select field surveys, will be conducted and submitted to the PSC as a supplemental amendment to this ERD. Full field surveys will be conducted following approval of a final route to facilitate state and federal permitting. Attachment 1, West Virginia ERD Resource Mapbooks, provides detailed resource information, pursuant to the requirements in Electric Rule 9.

Each resource area includes a discussion of existing conditions, an assessment of potential impacts, and the identification of potential mitigation measures. Where feasible, Geographic Information System (GIS) analysis was used to quantify both existing conditions and projected impacts. In cases where quantitative data was unavailable or insufficient, qualitative information was provided to characterize certain resource areas.

### 2.1 PROJECT COMPONENTS AND SITE DESCRIPTION

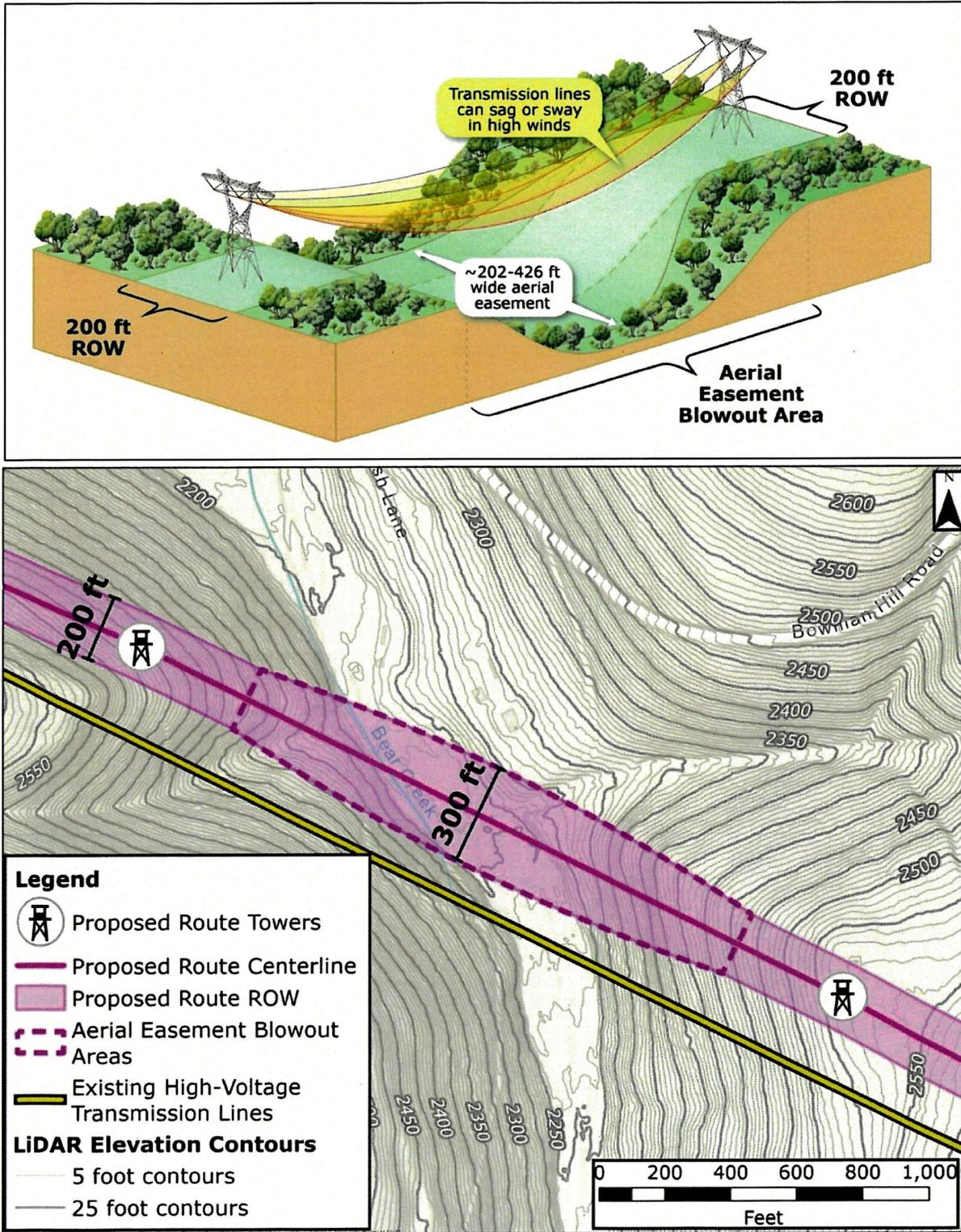
#### 2.1.1 CORRIDOR WIDTHS

The MARL Project will be constructed in a new Right-of-Way (ROW) Corridor measuring, on average, 200 feet wide. The MARL Project will require a wider ROW Corridor in some areas where additional aerial easement rights are necessary to comply with electrical standards and requirements<sup>5</sup> (Figure 2.1-1). The full area of required MARL Project-specific ROW Corridor at any given point along the route is hereafter referred to as the "ROW Corridor." The number of aerial easement blowout areas for the Proposed Route and Alternative Routes is shown in Table 1.1-1, and the ROW Corridor for these areas ranges from 202 feet to 426 feet, averaging 289 feet wide (Figure 2.1-1). Attachment 1 also identifies where the MARL Project will require a wider ROW Corridor in some areas where additional aerial easement rights are necessary to comply with electrical standards and requirements.

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<sup>5</sup> The aerial easement blowout area is a designated section within the ROW Corridor that requires additional transmission line easement area to accommodate engineering considerations (e.g., increased span lengths), which can result in greater line sway. These areas are necessary due to constraints like uneven terrain, steep slopes, or natural obstructions that make the standard ROW Corridor width impractical or unsafe.

FIGURE 2.1-1 GRAPHICAL DEPICTION OF ADDITIONAL AERIAL EASEMENT BLOWOUT AREAS



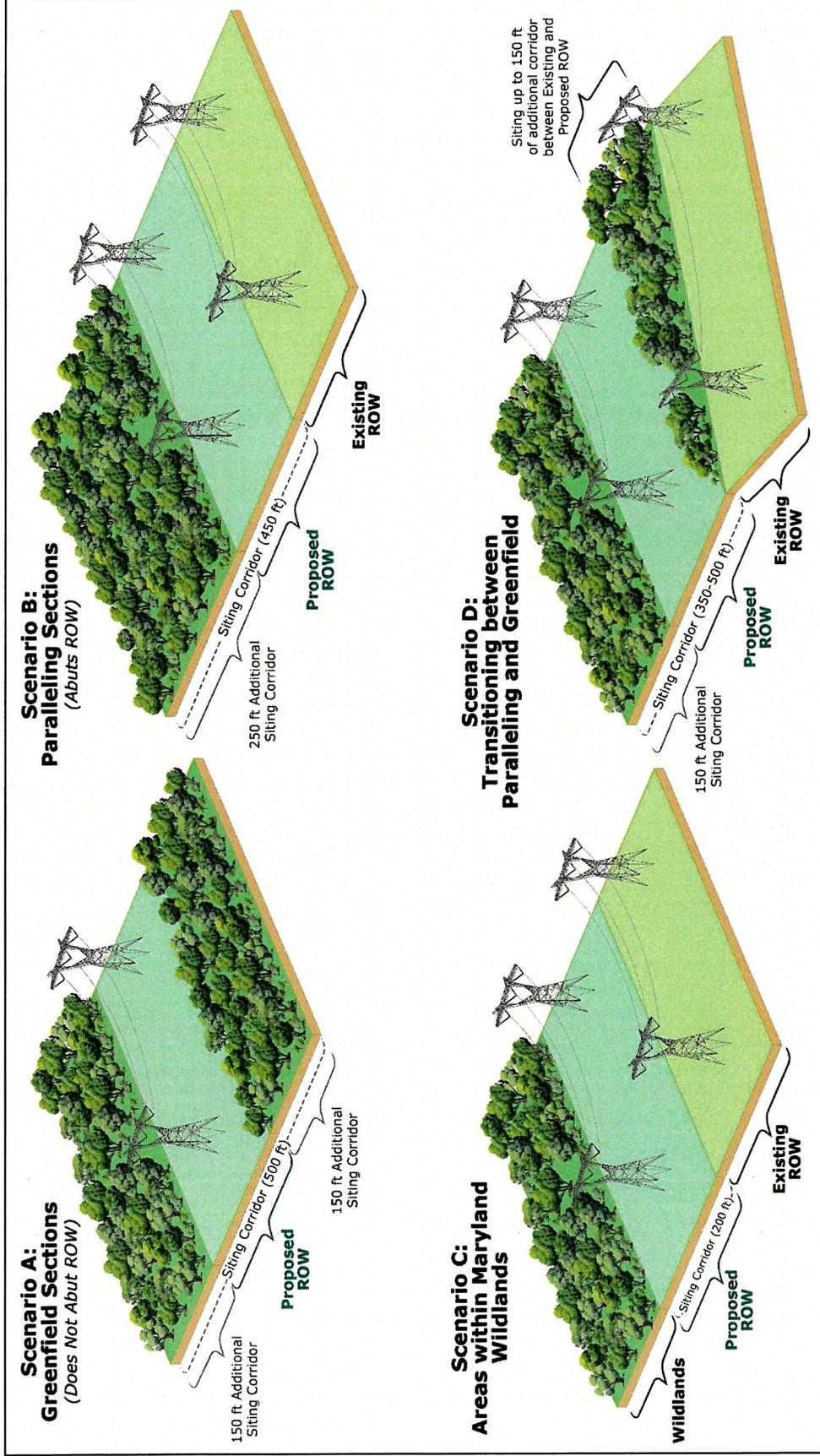
ft = feet; LiDAR = Light Detection and Ranging; ROW = right-of-way

The MARL Project developed a predefined, Project-specific Siting Corridor, hereafter referred to as the "Siting Corridor," in which existing conditions were assessed to allow for reasonable flexibility to adjust the centerline on either side of the Alternative Routes, if necessary. The Siting Corridor was designed to abut and not overlap the ROW of any existing transmission lines when paralleling. The Siting Corridor width will range from 200 to 500 feet; however, in those areas that require aerial easement blowout, the maximum width for the Siting Corridor will be 715 feet. The Siting Corridor is inclusive of the MARL Project's ROW Corridor. The width of the Siting Corridor varies based on the MARL Project's ROW Corridor width and proximity to existing transmission lines (Figure 2.1-2).

The Routing Team aimed to parallel existing transmission line corridors to the extent practicable, as this allows for minimizing visual, environmental, and access impacts. Figure 2.1-3 provides an illustration of MARL Project paralleling. Benefits to paralleling existing transmission line corridors include the following:

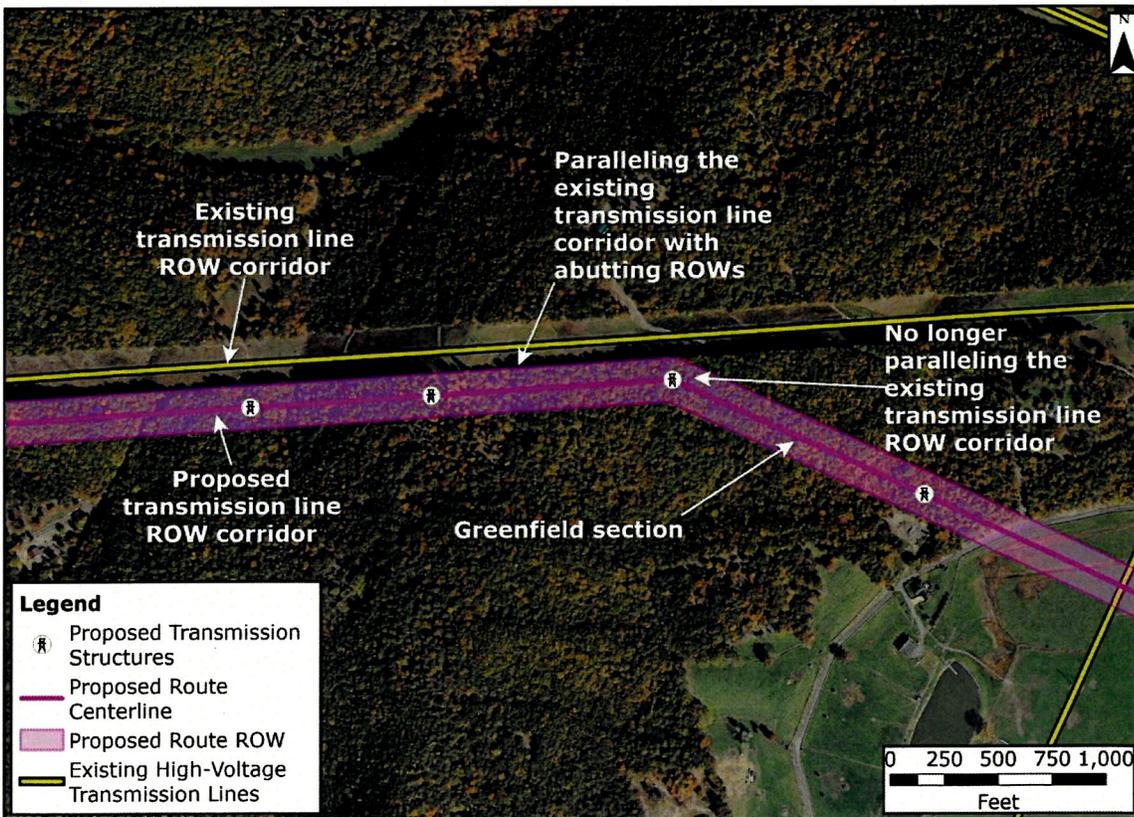
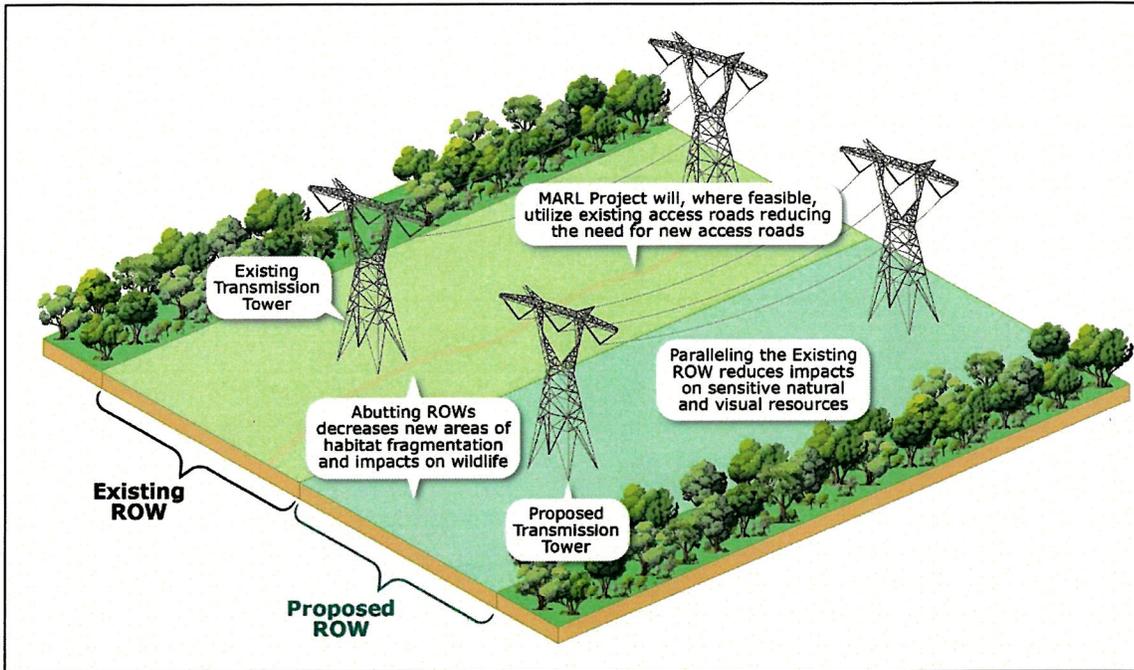
- Limits impacts on the local community;
- Provides easier construction access;
- Reduces the need for new access roads;
- Reduces impacts on sensitive natural and visual resources; and
- Decreases new areas of habitat fragmentation and impacts on wildlife.

FIGURE 2.1-2 SITING CORRIDOR SCHEMATIC



ft = feet; ROW = right-of-way

FIGURE 2.1-3 ILLUSTRATION OF MARL PROJECT PARALLELING



MARL Project = MidAtlantic Resiliency Link Project; ROW = right-of-way

### 2.1.2 RIPARIAN HABITAT EXCLUSION ZONES

The MARL Project, in addition and where feasible, identified initial locations of riparian habitat associated with streams that could be maintained to minimize impacts where the topographic and engineering constraints allowed for such considerations along the Proposed Route (Attachment 1a, Topography Mapbook). As part of this effort, the MARL Project has identified five locations in West Virginia where forested riparian buffers will be preserved to protect sensitive waterbodies (Table 2.1-1). At these locations—referred to as riparian habitat exclusion zones—engineering solutions were developed to retain existing riparian vegetation within 100 feet on either side of the stream. No vegetation clearing or ground disturbance will occur within these zones. These general mitigation measures reflect additional refinements made during preliminary engineering design to further avoid and minimize impacts, where feasible. As detailed MARL Project engineering continues to progress, additional areas that might be able to be maintained could be identified. If such a scenario arises, the impacts on resource areas could be reduced (Figure 2.1-4 for a schematic of protecting riparian habitat). Refer to Section 3, Proposed Route Mitigation, for additional details on the riparian habitat exclusion zones.

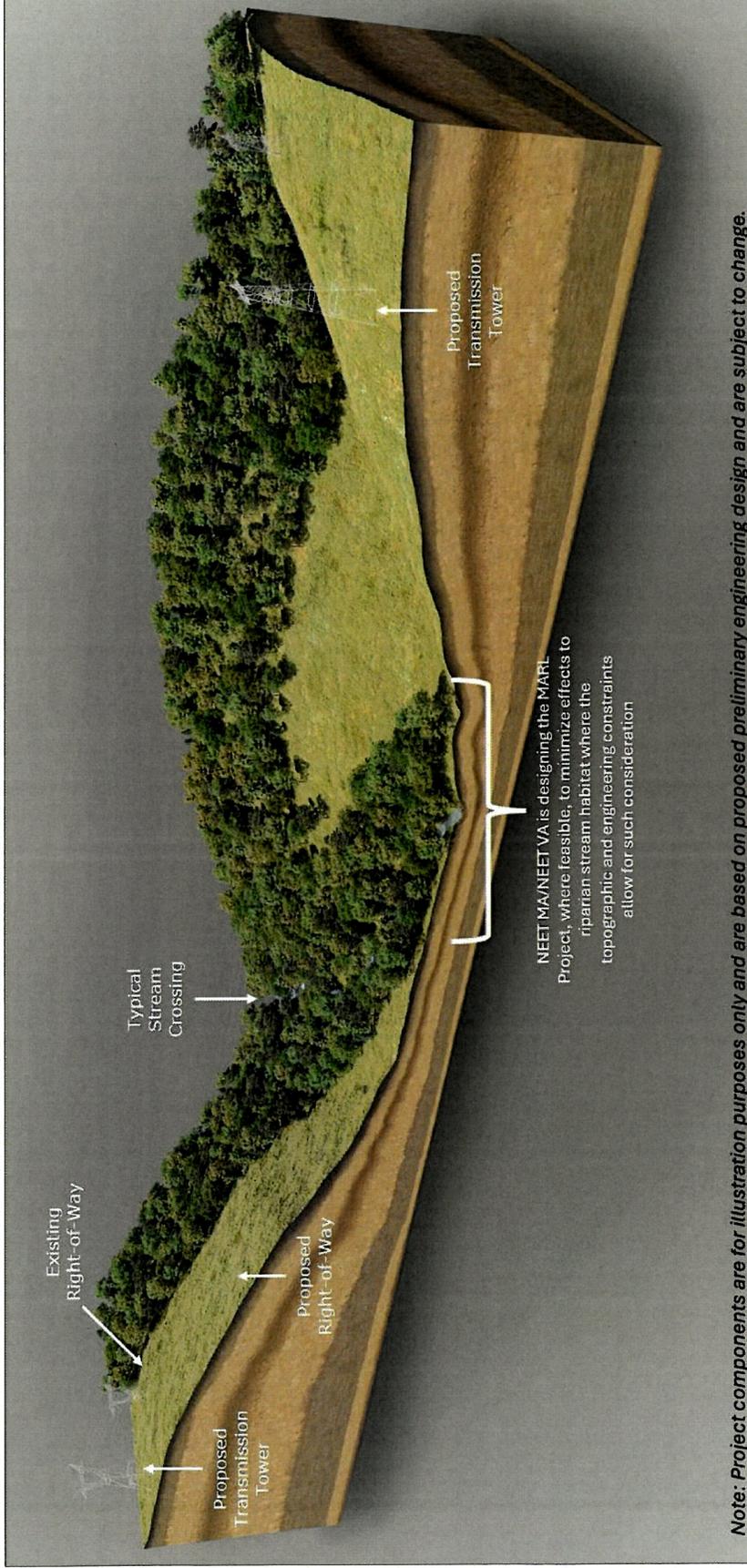
**TABLE 2.1-1 WEST VIRGINIA RIPARIAN HABITAT EXCLUSION ZONES**

<b>Stream Name</b>	<b>Nearest MP</b>	<b>Riparian Habitat Exclusion Zone (acres)</b>
<b>Preston County</b>		
Patterson Run	18.5	1.8
Laurel Run/Big Sandy Creek	19.1	1.4
Big Sandy Creek	24.1	0.9
<b>Mineral County</b>		
North Branch Potomac River <sup>a</sup>	67.9	1.2
<b>Hampshire County</b>		
North River	95.5	1.2

MP = milepost

<sup>a</sup> The North Branch Potomac River is located within both Maryland and West Virginia.

FIGURE 2.1-4 PROTECTING RIPARIAN HABITAT



MARL Project = MidAtlantic Resiliency Link Project; NEET MA = Next Era Energy Transmission MidAtlantic, Inc.; NEET VA = Next Era Energy Transmission Virginia, Inc.



### 2.1.3 AERIAL EASEMENT LOCATIONS

There are 25 unique locations along the Proposed Route and the five Alternative Routes within West Virginia that require a wider ROW Corridor, where additional aerial easement rights are necessary to comply with electrical standards and requirements (Figure 2.1-1). These locations are shown in Table 2.1-2.

**TABLE 2.1-2 AERIAL EASEMENT LOCATIONS WITHIN WEST VIRGINIA**

County	Proposed Route/ Alternative Routes (B-F)	Pole Span Length (feet) <sup>a</sup>	Aerial Easement Beginning (MP)	Aerial Easement Ending (MP)	Maximum Width (feet) <sup>a</sup>	Length of Aerial Easement (feet) <sup>a</sup>	Stream Crossing
Monongalia <sup>b</sup>	B	1,905.1	11.5	11.7	234.0	955.0	Cheat Lake
Monongalia	B	2,138.9	11.9	12.2	283.0	1,499.0	Unnamed
Monongalia	B	1,582	13.9	13.9	202.0	256.0	No stream
Preston	Proposed Route, D, E	2,739.1	18.3	18.7	372.0	2,129.0	Patterson Run
Preston	Proposed Route, D, E	2,425.5	18.8	19.2	316.0	1,752.0	Laurel Run
Preston	B	1,815.9	16.7	16.8	221.0	719.0	Unnamed
Preston	B	2,407.6	18.1	18.4	342.0	1,893.0	Patterson Run
Preston	B	2,520.4	18.5	18.9	362.0	2,005.0	Laurel Run
Preston	B	1,726.3	19.1	19.2	213.0	561.0	No stream
Mineral <sup>c</sup>	Proposed Route, E	2,227.9	67.9	68.2	313.0	1,627.0	North Branch Potomac River
	B		67.7	68.0			
	C		74.0	74.3			
	D		75.6	75.9			
	F		81.7	82.0			
Mineral	Proposed Route, E	1,960.8	68.3	68.5	256.0	1,175.0	Ashcabin Run
	B		68.1	68.4			
	C		74.4	74.7			
	D		76.1	76.3			
	F		82.2	82.4			
Hampshire	Proposed Route	2,433.1	82.3	82.6	354.0	1,903.0	Swisher Hollow
	B		82.1	82.5			
	C		88.4	88.8			
	D		90.0	90.4			
Hampshire	Proposed Route	1,468.9	83.2	83.2	211.0	492.0	No stream
	B		83.0	83.1			
	C		89.3	89.4			
	D		90.9	91.0			

County	Proposed Route/ Alternative Routes (B-F)	Pole Span Length (feet) <sup>a</sup>	Aerial Easement Beginning (MP)	Aerial Easement Ending (MP)	Maximum Width (feet) <sup>a</sup>	Length of Aerial Easement (feet) <sup>a</sup>	Stream Crossing
Hampshire	Proposed Route		94.7	94.7	202.0	213.0	No stream
	B		94.5	94.5			
	C		100.8	100.8			
	D		102.4	102.4			
	E		93.6	93.6			
	F		107.4	107.4			
Hampshire	Proposed Route	2,017.9	95.4	95.6	257.0	1,168.0	North River
	B		95.2	95.5			
	C		101.5	101.8			
	D		103.2	103.4			
	E		94.3	94.5			
	F		108.2	108.4			
Hampshire	E	2,389.3	77.7	78.0	301.0	1,644.0	Unnamed
	F		91.5	91.9			
Hampshire	E	1,628.9	81.4	81.5	213.0	656.0	No stream
	F		95.3	95.4			
Hampshire	E	2,462.6	82.0	82.3	343.0	1,919	South Branch Potomac River
	F		95.8	96.2			
Hampshire	E	2,049.9	83.0	83.3	257.0	1,191.0	No stream
	F		96.9	97.1			
Hampshire	E	1,930.7	83.4	83.6	253.0	1,145.0	No stream
	F		97.3	97.5			
Hampshire	Proposed Route	1,469.7	101.6	101.6	204.0	295.0	No stream
	B		101.4	101.4			
	C		107.7	107.7			
	D		109.3	109.3			
	E		100.4	100.4			
Hampshire	Proposed Route	1,548.4	102.2	102.2	204.0	328.0	No stream
	B		102.0	102.0			
	C		108.3	108.3			
	D		109.9	109.9			
	E		101.0	101.0			
Hampshire	E	2,641.0	87.3	87.7	366.0	2,064.0	Little Cacapon River
	F		101.1	101.5			
Hampshire	F	2,295.3	113.0	113.3	319.0	1,722.0	Dillons Run
Hampshire	F	1,555.3	113.8	113.9	209.0	476.0	No stream

MP = milepost

<sup>a</sup> All widths and lengths are presented as approximate measures.

<sup>b</sup> This aerial easement blowout area has a portion of the area within Fayette County, Pennsylvania, and a portion within Monongalia County, West Virginia.

<sup>c</sup> This aerial easement blowout area has a portion of the area within Allegany County, Maryland, and a portion within Mineral County, West Virginia.



### 2.1.4 ANCILLARY FACILITY WORKSPACES OUTSIDE ROW CORRIDOR

In addition to the transmission line, the MARL Project includes ancillary facility workspaces required for both construction and long-term operation and maintenance. These ancillary facility workspaces consist of the following (Figure 2.1-5):

- Access roads;
- Structure pads at each tower location; and
- Wire work areas for conductor stringing operation.

The limit of disturbance (LoD) associated with ancillary facility workspaces is addressed exclusively within the impact sections of the ERD for the Proposed Route only. These LoD areas vary in size due to topographic constraints and ground conditions. Because the ancillary facility workspaces are located within or immediately adjacent to the Siting Corridor, the existing conditions of the Siting Corridor are considered representative of those at the ancillary facility locations. For the purposes of impact analysis, the entire extent of the LoD outside of the ROW Corridor is treated as affected.

Access roads will include both improvements to existing roads and the construction of new roads. They may be located within the ROW Corridor or extend beyond it, depending on site-specific access needs. Access roads are designated as either:

- Temporary—used solely during construction and treated as temporary impacts. Restoration is planned following construction.
- Permanent—required for ongoing operation and maintenance. These are reported in the ERD as permanent impacts.

Structure pads are constructed at each tower location to provide stable surfaces for equipment during installation and will have the appropriate dimensions to meet the terrain constraints. All structure pads are considered temporary construction impacts. The LoD associated with structure pads is variable and influenced by topography and ground conditions. These areas are treated as temporary impacts, with restoration planned post-construction.

Wire work areas are temporary work areas used for staging specialized equipment to string conductor wires between transmission structures. These sites are placed at strategic points, particularly where the transmission line changes direction. These areas are treated as temporary impacts, with restoration planned post-construction.

Table 2.1-3 shows the ancillary facility workspaces and associated LoD in West Virginia.

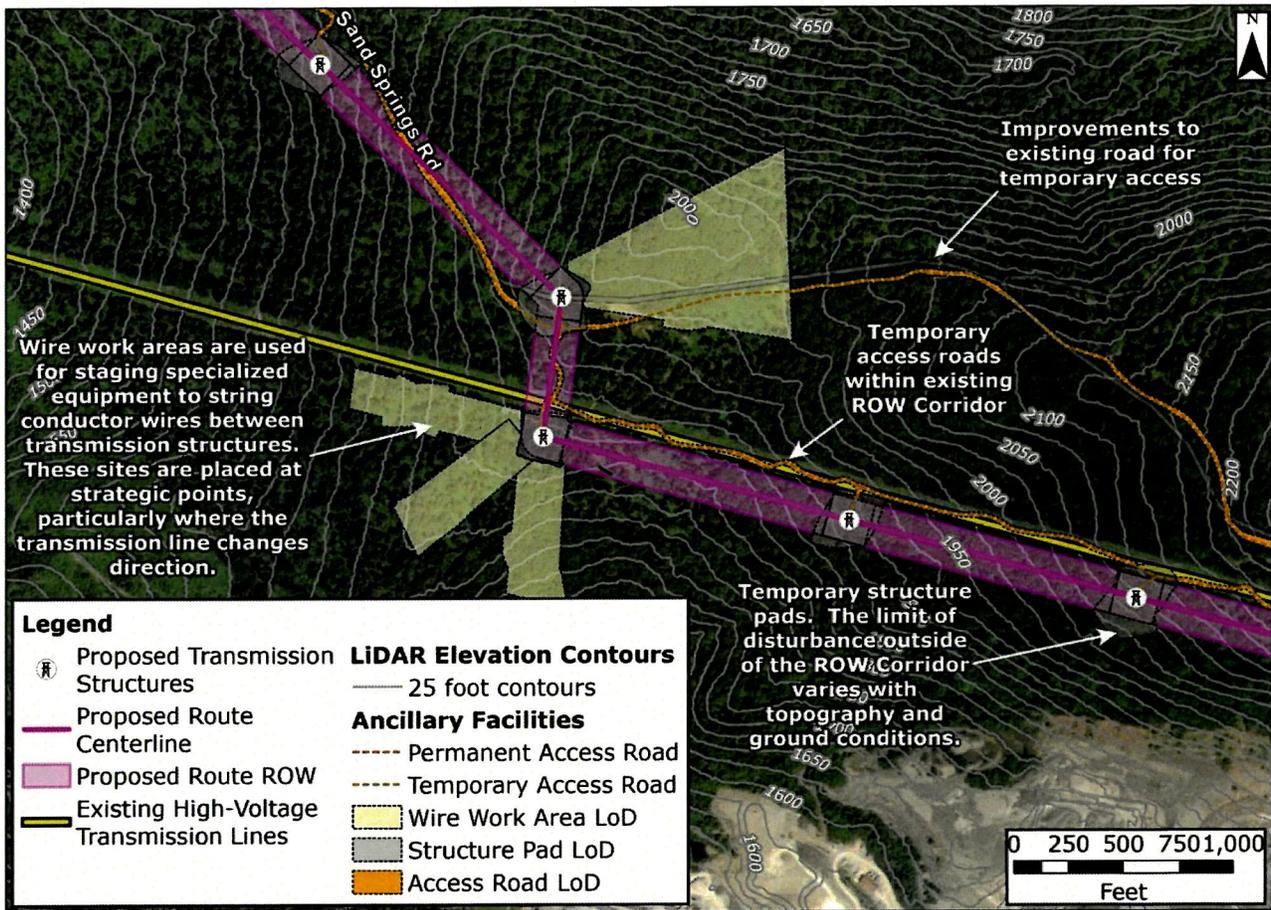
**TABLE 2.1-3 ANCILLARY FACILITY WORKSPACES FOR THE PROPOSED ROUTE**

Measure	Permanent Access Roads		Temporary Access Roads		Structure Pads		Wire Work Areas	
	WV Counties	Total Proposed Route	WV Counties	Total Proposed Route	WV Counties	Total Proposed Route	WV Counties	Total Proposed Route
Workspace Facility (count)	NA	NA	NA	NA	248	452	51	108
LoD Outside ROW Corridor (acres)	4.3	7.1	140.5	231.4	62.7	123.3	116.8	233.9
Within ROW Corridor (miles)	2.2	2.7	37.9	70.7	NA	NA	NA	NA
Outside ROW Corridor (miles)	1.5	2.6	47.9	77.4	NA	NA	NA	NA

LoD = limit of disturbance; WV = West Virginia; NA = not applicable; ROW = right-of-way



FIGURE 2.1-5 EXAMPLE MAP OF ANCILLARY FACILITY WORKSPACES



LIDAR = Light Detection and Ranging; LoD = limit of disturbance; ROW = right-of-way

### 2.1.5 WEST VIRGINIA SITE DESCRIPTION

The Proposed Route and the five Alternative Routes all vary in length (Table 1.1-1) through the four counties in West Virginia, as shown on Figure 1.1-2 and Figure 1.1-3. The Proposed Route and each Alternative Route within West Virginia is described below in detail; however, all six routes follow the same alignment from the 502 Junction Substation origin point in Pennsylvania to approximately MP 5.8, including an approximate 3.1-mile segment (from approximately MP 2.7 to MP 5.8) within Monongalia County, West Virginia. At approximately MP 5.8, the Proposed Route and Alternative Routes reenter Pennsylvania. From that point, Alternative Routes C and F continue further north within Pennsylvania, while the Proposed Route and Alternative Routes B, D, and E travel east within Pennsylvania before reentering West Virginia. A high-level summary is provided below; however, each individual route is described in detail for those portions within West Virginia.

#### 2.1.5.1 MONONGALIA AND PRESTON COUNTIES

- The shared alignment of the Proposed Route and Alternative Routes D and E reenters West Virginia at MP 13.8 (as measured on the Proposed Route) and follows the same alignment for 18.6 miles (from MP 13.8 to MP 32.4) to the Maryland border.

- The alignment of Alternative Route B reenters West Virginia at MP 11.6 (as measured on Alternative Route B) and travels east for 3.3 miles before rejoining the shared alignment of the Proposed Route and Alternative Routes D and E at MP 14.9 (as measured on Alternative Route B). From that point, the Proposed Route and Alternative Routes B, D, and E follow a shared alignment for 1.3 miles through Monongalia County. Alternative Route B then deviates north of the shared alignment of the Proposed Route and Alternative Routes D and E at MP 16.2 (as measured on Alternative Route B) and travels 10.3 miles (0.2 mile in Monongalia County and 10.1 miles in Preston County) to the Maryland border.
- The shared alignment of Alternative Routes C and F crosses 0.3 mile of the extreme northeastern corner of Preston County (where the three state borders meet) between MP 37.3 and MP 37.7 (as measured on Alternative Route F).

The Proposed Route and Alternative Routes continue through Maryland for 35.4 to 44.1 miles (depending on the alignment followed) before reentering West Virginia along a common alignment at the North Branch Potomac River crossing.

#### 2.1.5.2 MINERAL AND HAMPSHIRE COUNTIES

- The shared alignment of the Proposed Route and Alternative Routes B through F crosses 7.3 miles in Mineral County (up to MP 75.2, as measured on the Proposed Route).
- East of MP 75.2, the shared alignment of the Proposed Route and Alternative Routes B through D continues east for 29.5 miles—including 3.6 miles in Mineral County and 25.9 miles in Hampshire County—to the Virginia border.
- The shared alignment of Alternative Routes E and F turns southeast from the above Proposed Route and Alternative Routes at MP 89.1 (as measured on Alternative Route F, equivalent to MP 75.2 on the Proposed Route) for 13.4 miles—2.3 miles in Mineral County and 11.1 miles in Hampshire County—before rejoining the shared alignment of the Proposed Route and Alternative Routes B through D at MP 102.5 (as measured on Alternative Route F, equivalent to approximate MP 89.7 on the Proposed Route).
- The shared alignment of the Proposed Route and Alternative Routes B through F crosses 6.2 miles of Hampshire County between MP 89.7 and MP 95.9 (as measured on the Proposed Route).
- At MP 108.6 (as measured on Alternative Route F, equivalent to MP 95.9 on the Proposed Route), Alternative Route F diverges from the shared alignment of the Proposed Route and Alternative Routes B, C, D, and E for 5.4 miles between MP 108.6 and MP 114.0.
- At MP 114.0 (as measured on Alternative Route F), the routes realign to a shared alignment of the Proposed Route and Alternative Routes B through F for 2.6 miles.
- At MP 116.6 (as measured on Alternative Route F, equivalent to MP 104.9 on the Proposed Route) Alternative Routes B and F diverge north of the shared alignment of the Proposed Route and Alternative Routes C, D, and E for less than 0.1 mile to the Virginia border.

Due to nature of the Proposed Route and five Alternative Routes within the four West Virginia Counties, the ERD discusses the Proposed Route and each Alternative Route separately.

### 2.1.5.3 PROPOSED ROUTE

The Proposed Route begins at the Pennsylvania-West Virginia border north of Madsville, West Virginia, and west of Old Taylortown Road (MP 2.7), then heads in an easterly direction for 3.1 miles within Monongalia County before crossing at MP 5.8 back into Pennsylvania. The Proposed Route reenters West Virginia in Monongalia County at MP 13.8, heading in a southeasterly direction.

At MP 15, the Proposed Route begins to parallel an existing 138 kV transmission line corridor for 2.8 miles, then deviates from the existing 138 kV transmission line corridor to avoid residential dwellings before crossing into Preston County near MP 16.6. The Proposed Route then enters Coopers Rock State Forest for 0.3 mile of greenfield development before paralleling the existing 138 kV transmission line corridor again 1.0 mile. At MP 18.0, the Proposed Route heads in a northeasterly direction, crossing over the existing 138 kV transmission line corridor and Patterson Run and Laural Run streams before paralleling another existing 138 kV transmission line corridor. Due to challenging terrain, both of the stream crossings will require longer span lengths between structures, resulting in additional engineering requirements for aerial easement blowout. From MP 19.3 to MP 24.4, the Proposed Route continues to parallel the existing 138 kV transmission line corridor, deviating between MP 20.3 to MP 20.5 to avoid a residential structure. At MP 24.4, the Proposed Route heads in a southeasterly direction for 0.2 mile before heading in an easterly direction for 0.8 mile, where it deviates around some structures near MP 24.8 before paralleling the existing 138 kV transmission line corridor at MP 25.5. From MP 25.5 to MP 26.8, the Proposed Route parallels the existing 138 kV transmission line corridor before turning in a southeasterly direction to avoid residential dwellings located between MP 26.8 to MP 28.3. At MP 28.3, the Proposed Route crosses to the northern side of the existing 138 kV transmission line corridor and heads in an easterly direction for 0.9 mile before deviating from paralleling due to residential dwellings located along the existing corridor between MP 29.3 and MP 32.4. At MP 32.4, the Proposed Route exits the state of West Virginia and enters the state of Maryland.

At MP 67.9, the Proposed Route exits the state of Maryland and reenters West Virginia after crossing the North Branch of the Potomac River in Mineral County. From MP 67.9 to MP 73.2, the Proposed Route parallels in a general easterly direction the existing 500 KV transmission line corridor before heading in southeasterly direction across Patterson Creek near MP 73.7 within proximity to Potomac State College Farms. From MP 73.3 to MP 79.9, the Proposed Route heads in an easterly direction across private properties, non-paralleling the existing corridor due to the built-up landscape of homes, the college, and Dam Site #21 and crossing into Hampshire County near MP 78.8 before heading in northerly direction to parallel the existing 115 kV transmission line corridor near MP 79.9. From MP 79.9 to MP 81.2, the Proposed Route parallels before deviating and turning in a southeasterly to northeasterly direction (MP 81.3 to MP 82.2) and then heading in a southeasterly direction along an existing 138 kV transmission line corridor. Near MP 82.5, the Proposed Route crosses the White Horse Mountain Wildlife Management Area (WMA) and remains there for 0.6 mile. The Proposed Route continues in a southerly direction and crosses the South Branch of the Potomac River, paralleling the existing 115 kV transmission line corridor from MP 83.5 to MP 85.1. At MP 85.1, the Proposed Route deviates from the existing transmission line corridor to avoid residential dwellings and other structures before paralleling the existing

115 kV transmission line corridor again at MP 87.6. The Proposed Route follows the existing transmission line corridor for 3.8 miles in a southeasterly direction before deviating to avoid areas that have been built-up along the existing transmission line corridor. At MP 93.5, the Proposed Route continues to parallel the existing 115 kV transmission line corridor in a southeasterly direction for 1.1 miles before deviating from the existing transmission line corridor to avoid the Cacapon & Lost Rivers Land Trust (CLRLT) easement near MP 95.5. From MP 95.5 to MP 99.0, the Proposed Route heads in a southeasterly to southwesterly and then a southeasterly to southern direction where it meets up with an existing 138 kV transmission line corridor. At MP 99.0, the Proposed Route heads in an easterly direction along the northern side of the existing corridor before crossing to the southern side of the existing transmission line corridor around MP 99.8. The Proposed Route deviates 0.6 mile from the existing transmission line corridor due to the convergence point of two existing transmission line corridors just north of MP 100.4, at which point it continues to parallel the existing 138 kV transmission line corridor, crossing the Cacapon River at MP 102.2 and deviating from the existing transmission line corridor at MP 102.5. At MP 102.5, the Proposed Route heads in a southeasterly direction for a greenfield portion, where it meets up with an existing 500 kV transmission line corridor at MP 103.6, heading in a northeasterly direction from MP 103.7 to MP 105.0. At MP 105.0, the Proposed Route exits the state of West Virginia and enters the state of Virginia.

#### 2.1.5.4 ALTERNATIVE ROUTE B

Alternative Route B begins at the Pennsylvania-West Virginia border north of Madsville, West Virginia, and west of Old Taylortown Road (MP 2.7), then heads in easterly direction for 3.1 miles within Monongalia County before crossing at MP 5.8 back into Pennsylvania. Alternative Route B reenters West Virginia in Monongalia County at MP 11.6, heading in a southeasterly direction across Cheat Lake (where aerial easement blowout is required).

At MP 11.9, Alternative Route B begins to parallel an existing 138 kV transmission line corridor for 0.7 mile, which includes an aerial easement blowout between MP 12.0 and MP 12.2 and then deviates from the existing 138 kV transmission line corridor to avoid residential dwellings before continuing in an easterly direction along the existing transmission line corridor at MP 14.3.

Alternative Route B traverses through a small portion of Coopers Rock State Forest from MP 14.3 to MP 14.4, then through private properties along the southern side of the existing transmission line corridor (MP 14.4 to MP 16.3). At MP 16.3, Alternative Route B continues to parallel the existing 138 kV transmission line corridor on the northern side, crossing Sand Springs Road and into Preston County near MP 16.5, then paralleling an existing 138 kV transmission line corridor through another segment of Coopers Rock State Forest for about 1 mile (MP 16.7 to MP 17.7). Alternative Route B continues to parallel the north side of the existing 138 kV transmission line in an easterly direction from MP 17.7 to MP 19.7, crossing over Patterson Run and Laural Run streams, where challenging terrain will require longer span lengths between structures and result in additional engineering requirements for aerial easement blowout, then deviating away from the corridor between MP 19.7 and MP 21.2 to avoid residential properties. Alternative Route B then continues to parallel the existing 138 kV transmission line corridor in a southeasterly direction, crossing Big Sandy Creek (MP 23.9) and another existing 138 kV transmission line (MP 24.5), before taking a more easterly direction near MP 24.6.

Alternative Route B continues to parallel the existing transmission line corridor, crossing Glade Run stream (MP 25.7) and then continuing westerly until MP 26.5, heading south and crossing the existing 138 kV transmission line corridor, then heading in a southeasterly direction to avoid residential dwellings located between MP 26.6 and MP 28.1. At MP 28.1, Alternative Route B continues to parallel the southern side of the existing 138 kV transmission line corridor, heading in an easterly direction for 1.1 miles before deviating southward away from paralleling due to residential dwellings located along the existing corridor near MP 29.7. Alternative Route B continues to parallel the southern side of the existing 138 kV transmission line corridor again near MP 30.5 until MP 31.2, where Alternative Route B deviates to avoid residential dwellings near MP 31.4. At MP 32.2, Alternative Route B exits the state of West Virginia and enters the state of Maryland.

At MP 67.7, Alternative Route B exits the state of Maryland and reenters West Virginia after crossing the North Branch of the Potomac River in Mineral County. From MP 67.7 to MP 73.0, Alternative Route B parallels in a general easterly direction the existing 500 kV transmission line corridor before heading in southeasterly direction across Patterson Creek near MP 73.6 within proximity to Potomac State College Farms. From MP 73.1 to MP 79.7, Alternative Route B heads in an easterly direction across private properties, non-paralleling the existing corridor due to the built-up landscape of homes, the college, and Dam Site #21 and crossing into Hampshire County near MP 78.6 before heading in northerly direction to parallel the existing 115 kV transmission line corridor near MP 79.7. From MP 79.7 to MP 81.0, Alternative Route B parallels before deviating and turning in a southeasterly to northeasterly direction (MP 81.1 to MP 82.0), heading in a southeasterly direction along an existing 138 kV transmission line corridor. Near MP 82.3, Alternative Route B crosses the White Horse Mountain WMA and remains there for 0.6 mile. Alternative Route B continues in a southerly direction, crossing the South Branch of the Potomac River and paralleling the existing 115 kV transmission line corridor from MP 83.3 to MP 84.9. At MP 84.9, Alternative Route B deviates from the existing transmission line corridor to avoid residential dwellings and other structures before paralleling the existing 115 kV transmission line corridor again at MP 87.4. Alternative Route B follows the existing transmission line corridor for 3.8 miles in a southeasterly direction before deviating to avoid areas that have been built-up along the existing transmission line corridor. At MP 93.3, Alternative Route B continues, paralleling the existing 115 kV transmission line corridor in a southeasterly direction for 1.1 miles before deviating from the existing transmission line corridor to avoid the CLRLT easement near MP 95.3. From MP 95.3 to MP 98.8, Alternative Route B heads in a southeasterly to southwesterly and then a southeasterly to southern direction, where Alternative Route B meets up with an existing 138 kV transmission line corridor. At MP 98.8, Alternative Route B heads in an easterly direction along the northern side of the existing corridor before crossing to the southern side of the existing transmission line corridor around MP 99.6. Alternative Route B deviates 0.6 mile from the existing transmission line corridor due to the convergence point of two existing transmission line corridors just north of MP 100.2, at which point it continues to parallel the existing 138 kV transmission line corridor, crossing the Cacapon River at MP 102.0 and deviating from the existing transmission line corridor at MP 102.3. At MP 102.3, Alternative Route B heads in a southeasterly direction for a greenfield portion, where it meets up with an existing 500 kV transmission line corridor at

MP 103.4, heading in a northeasterly direction from MP 103.5 to MP 104.8. At MP 104.8, Alternative Route B exits the state of West Virginia and enters the state of Virginia.

#### 2.1.5.5 ALTERNATIVE ROUTE C

Alternative Route C begins at the Pennsylvania-West Virginia border north of Madsville, West Virginia, and west of Old Taylortown Road (MP 2.7), then heads in easterly direction for 3.1 miles within Monongalia County before crossing at MP 5.8 back into Pennsylvania. Alternative Route C reenters West Virginia in Monongalia County at MP 37.3, heading in a southeasterly direction for 0.4 mile before leaving the state of West Virginia and entering Garrett County, Maryland, near MP 37.7.

At MP 74, Alternative Route C exits the state of Maryland and reenters West Virginia after crossing the North Branch of the Potomac River in Mineral County. From MP 74 to MP 79.3, Alternative Route C parallels the existing 500 kV transmission line corridor in a general easterly direction before heading in southeasterly direction across Patterson Creek near MP 79.9 and within proximity to Potomac State College Farms. From MP 79.4 to MP 86.0, Alternative Route C heads in an easterly direction across private properties, non-paralleling the existing corridor due to the built-up landscape of homes, the college, and Dam Site #21 and crossing into Hampshire County near MP 84.9 before heading in northerly direction to parallel the existing 115 kV transmission line corridor near MP 86.0. From MP 86.0 to 87.3, Alternative Route C parallels before deviating and turning in a southeasterly to northeasterly direction (MP 87.4 to MP 88.3), heading in a southeasterly direction along an existing 138 kV transmission line corridor. Near MP 88.6, Alternative Route C crosses the White Horse Mountain WMA and remains there for 0.6 mile. Alternative Route C continues in a southerly direction, crossing the South Branch of the Potomac River and paralleling the existing 115 kV transmission line corridor from MP 89.6 to MP 91.2. At MP 91.2, Alternative Route C deviates from the existing transmission line corridor to avoid residential dwellings and other structures before paralleling the existing 115 kV transmission line corridor again at MP 93.7. Alternative Route C follows the existing transmission line corridor for 3.8 miles in a southeasterly direction before deviating to avoid areas that have been built-up along the existing transmission line corridor. At MP 99.6, Alternative Route C continues, paralleling the existing 115 kV transmission line corridor in a southeasterly direction for 1.1 miles before deviating from the existing transmission line corridor to avoid the CLRLT easement near MP 101.6. From MP 101.6 to MP 105.1, Alternative Route C heads in a southeasterly to southwesterly and then a southeasterly to southern direction, where Alternative Route C meets up with an existing 138 kV transmission line corridor. At MP 105.1, Alternative Route C heads in an easterly direction along the northern side of the existing corridor before crossing to the southern side of the existing transmission line corridor around MP 105.9. Alternative Route C deviates 0.6 mile from the existing transmission line corridor due to the convergence point of two existing transmission line corridors just north of MP 106.6, at which point Alternative Route C continues to parallel the existing 138 kV transmission line corridor, crossing the Cacapon River at MP 108.3 and deviating from the existing transmission line corridor at MP 108.6. At MP 108.6, Alternative Route C heads in a southeasterly direction for a greenfield portion, where it meets up with an existing 500 kV transmission line corridor at MP 109.7, heading in a northeasterly direction from MP 109.8 to MP 111.1. At MP 111.1, Alternative Route C exits the state of West Virginia and enters the state of Virginia.

### 2.1.5.6 ALTERNATIVE ROUTE D

Alternative Route D begins at the Pennsylvania-West Virginia border north of Madsville, West Virginia, and west of Old Taylortown Road (MP 2.7), then heads in easterly direction for 3.1 miles within Monongalia County before crossing at MP 5.8 back into Pennsylvania.

Alternative Route D reenters West Virginia in Monongalia County at MP 13.8, heading in a southeasterly direction.

At MP 15.0, Alternative Route D begins to parallel an existing 138 kV transmission line corridor for 2.8 miles, then deviates from the existing 138 kV transmission line corridor to avoid residential dwellings before crossing into Preston County near MP 16.6. Alternative Route D then enters Coopers Rock State Forest for 0.3 mile of greenfield development before paralleling the existing 138 kV transmission line corridor again at 1.0 mile. At MP 18.0, Alternative Route D heads in a northeasterly direction, crossing over the existing 138 kV transmission line corridor and Patterson Run and Laural Run streams before paralleling another existing 138 kV transmission line corridor. Due to challenging terrain, both of the stream crossings will require longer span lengths between structures, resulting in additional engineering requirements for aerial easement blowout. From MP 19.3 to MP 24.4, Alternative Route D continues to parallel the existing 138 kV transmission line corridor, deviating between MP 20.3 to MP 20.5 to avoid a residential structure. At MP 24.4, Alternative Route D heads in a southeasterly direction for 0.2 mile before heading in an easterly direction for 0.8 mile, where it deviates around some structures near MP 24.8 before paralleling the existing 138 kV transmission line corridor at MP 25.5. From MP 25.5 to MP 26.8, Alternative Route D parallels the existing 138 kV transmission line corridor before turning in a southeasterly direction to avoid residential dwellings located between MP 26.8 and MP 28.3. At MP 28.3, Alternative Route D crosses to the northern side of the existing 138 kV transmission line corridor and heads in an easterly direction for 0.9 mile before deviating from paralleling due to residential dwellings located along the existing corridor between MP 29.3 and MP 32.4. At MP 32.4, Alternative Route D exits the state of West Virginia and enters the state of Maryland.

At MP 75.6, Alternative Route D exits the state of Maryland and reenters West Virginia after crossing the North Branch of the Potomac River in Mineral County. From MP 75.6 to MP 80.9, Alternative Route D parallels in a general easterly direction the existing 500 kV transmission line corridor before heading in southeasterly direction across Patterson Creek near MP 81.5 within proximity to Potomac State College Farms. From MP 81.0 to MP 87.6, Alternative Route D heads in an easterly direction across private properties, non-paralleling the existing corridor due to the built-up landscape of homes, the college, and Dam Site #21 and crossing into Hampshire County near MP 86.5 before heading in northerly direction to parallel the existing 115 kV transmission line corridor near MP 87.6. From MP 87.6 to MP 89.0, Alternative Route D parallels before deviating and turning in a southeasterly to northeasterly direction (MP 89.0 to MP 89.9) and then heading in a southeasterly direction along an existing 138 kV transmission line corridor. Near MP 90.2, Alternative Route D crosses the White Horse Mountain WMA and remains there for 0.6 mile. Alternative Route D continues in a southerly direction and crosses the South Branch of the Potomac River, paralleling the existing 115 kV transmission line corridor from MP 91.2 to MP 92.8. At MP 92.8, Alternative Route D deviates from the existing transmission line corridor to avoid residential dwellings and other structures before paralleling the existing 115 kV transmission line

corridor again at MP 95.4. Alternative Route D follows the existing transmission line corridor for 3.8 miles in a southeasterly direction before deviating to avoid areas that have been built-up along the existing transmission line corridor. At MP 101.3, Alternative Route D continues to parallel the existing 115 kV transmission line corridor in a southeasterly direction for 1.1 miles before deviating from the existing transmission line corridor to avoid the CLRLT easement near MP 103.3. From MP 103.3 to MP 106.7, Alternative Route D heads in a southeasterly to southwesterly and then a southeasterly to southern direction, where it meets up with an existing 138 kV transmission line corridor. At MP 106.7, Alternative Route D heads in an easterly direction along the northern side of the existing corridor before crossing to the southern side of the existing transmission line corridor around MP 107.5. Alternative Route D deviates 0.6 mile from the existing transmission line corridor due to the convergence point of two existing transmission line corridors just north of MP 108.1, at which point it continues to parallel the existing 138 kV transmission line corridor, crossing the Cacapon River at MP 110.0 and deviating from the existing transmission line corridor at MP 110.2. At MP 110.2, Alternative Route D heads in a southeasterly direction for a greenfield portion, where it meets up with an existing 500 kV transmission line corridor at MP 111.4, heading in a northeasterly direction from MP 111.4 to MP 112.7. At MP 112.7, Alternative Route D exits the state of West Virginia and enters the state of Virginia.

#### 2.1.5.7 ALTERNATIVE ROUTE E

Alternative Route E begins at the Pennsylvania-West Virginia border north of Maudsville, West Virginia, and west of Old Taylortown Road (MP 2.7), then heads in easterly direction for 3.1 miles within Monongalia County before crossing at MP 5.8 back into Pennsylvania. Alternative Route E reenters West Virginia in Monongalia County at MP 13.8, heading in a southeasterly direction.

At MP 15.0, Alternative Route E begins to parallel an existing 138 kV transmission line corridor for 2.8 miles. Alternative Route E then deviates from the existing 138 kV transmission line corridor to avoid residential dwellings before crossing into Preston County near MP 16.6. Alternative Route E then enters Coopers Rock State Forest for 0.3 mile of greenfield development before paralleling the existing 138 kV transmission line corridor again at 1.0 mile. At MP 18.0, Alternative Route E heads in a northeasterly direction, crossing over the existing 138 kV transmission line corridor and Patterson Run and Laural Run streams before paralleling another existing 138 kV transmission line corridor. Due to challenging terrain, both of the stream crossings will require longer span lengths between structures, resulting in additional engineering requirements for aerial easement blowout. From MP 19.3 to MP 24.4, Alternative Route E continues to parallel the existing 138 kV transmission line corridor, deviating between MP 20.3 to MP 20.5 to avoid a residential structure. At MP 24.4, Alternative Route E heads in a southeasterly direction for 0.2 mile before heading in an easterly direction for 0.8 mile, where Alternative Route E deviates around some structures near MP 24.8 before paralleling the existing 138 kV transmission line corridor at MP 25.5. From MP 25.5 to MP 26.8, Alternative Route E parallels the existing 138 kV transmission line corridor before turning in a southeasterly direction to avoid residential dwellings located between MP 26.8 to MP 28.3. At MP 28.3, Alternative Route E crosses to the northern side of the existing 138 kV transmission line corridor and heads in an easterly direction for 0.9 mile before deviating from paralleling due to residential dwellings located along the existing corridor between

MP 29.3 and MP 32.4. At MP 32.4, Alternative Route E exits the state of West Virginia and enters the state of Maryland.

At MP 67.9, Alternative Route E exits the state of Maryland and reenters West Virginia after crossing the North Branch of the Potomac River in Mineral County. From MP 67.9 to MP 73.2, Alternative Route E parallels the existing 500 KV transmission line corridor in a general easterly direction before heading in southeasterly direction across Patterson Creek near MP 73.7 within proximity to Potomac State College Farms. At MP 75.2, Alternative Route E takes a more southeasterly direction, entering Hampshire County near MP 77.5. Due to challenging terrain, an aerial easement blowout is necessary between MP 77.7 and MP 78.0. At MP 78.3, Alternative Route E turns due east for 1.0 mile before returning to a southeasterly direction once again, crossing a rail line between MP 80.0 and MP 80.1. Alternative Route E continues in the same general direction through Milleson's Mill just north of Potomac Conservancy Easement 49. Alternative Route E crosses the South Branch of the Potomac River at MP 82.2 and continues easterly and then due south to meet up with the existing 115 kV transmission line near MP 88.2. Alternative Route E follows the existing transmission line corridor for 1.6 miles in a southeasterly direction before deviating to avoid areas that have been built-up along the existing transmission line corridor. At MP 92.4, Alternative Route E continues to parallel the existing 115 kV transmission line corridor in a southeasterly direction for 1.1 miles before deviating from the existing transmission line corridor to avoid the CLRLT easement near MP 94.4. From MP 94.4 to MP 97.9, Alternative Route E heads in a southeasterly to southwesterly and then a southeasterly to southern direction, where Alternative Route E meets up with an existing 138 kV transmission line corridor. At MP 97.9, Alternative Route E heads in an easterly direction along the northern side of the existing corridor before crossing to the southern side of the existing transmission line corridor around MP 98.7. Alternative Route E deviates 0.6 mile from the existing transmission line corridor due to the convergence point of two existing transmission line corridors just north of MP 99.3, at which point Alternative Route E continues to parallel the existing 138 kV transmission line corridor, crossing the Cacapon River at MP 101.1 and deviating from the existing transmission line corridor at MP 101.4. At MP 101.4, Alternative Route E heads in a southeasterly direction for a greenfield portion, where it meets up with an existing 500 kV transmission line corridor at MP 102.5, heading in a northeasterly direction from MP 102.6 to MP 103.9. At MP 103.9, Alternative Route E exits the state of West Virginia and enters the state of Virginia.

#### 2.1.5.8 ALTERNATIVE ROUTE F

Alternative Route F begins at the Pennsylvania-West Virginia border north of Madsville, West Virginia, and west of Old Taylortown Road (MP 2.7), then heads in easterly direction for 3.1 miles within Monongalia County before crossing at MP 5.8 back into Pennsylvania. Alternative Route F reenters West Virginia in Monongalia County at MP 37.3, heading in a southeasterly direction for 0.4 mile before leaving the state of West Virginia and entering Garrett County, Maryland, near MP 37.7.

At MP 81.7, Alternative Route F exits the state of Maryland and reenters West Virginia after crossing the North Branch of the Potomac River in Mineral County. From MP 81.7 to MP 87.1, Alternative Route F parallels the existing 500 KV transmission line corridor in a general easterly

direction before heading in southeasterly direction across Patterson Creek near MP 87.6 within proximity to Potomac State College Farms.

At MP 89.1, Alternative Route F takes a more southeasterly direction, entering Hampshire County near MP 91.4. Due to challenging terrain, an aerial easement blowout is necessary between MP 91.5 and MP 91.9. At MP 92.1, Alternative Route F turns due east for 1.0 mile before returning to a southeasterly direction once again, crossing a rail line at MP 93.9. Alternative Route F continues in the same general direction through Milleson's Mill just north of Potomac Conservancy Easement 49. Alternative Route F crosses the South Branch of the Potomac River at MP 96.0 and continues easterly and then due south to meet up with the existing 115 kV transmission line near MP 102.1. Alternative Route F follows the existing transmission line corridor for 1.6 miles in a southeasterly direction before deviating to avoid areas that have been built-up along the existing transmission line corridor. At MP 106.3, Alternative Route F continues to then parallel the existing 115 kV transmission line corridor in a southeasterly direction for 1.1 miles before deviating from the existing transmission line corridor to avoid the CLRLT easement near MP 108.3. Near MP 108.7, Alternative Route F turns southerly, heading generally in a southeasterly direction for 1.2 miles before paralleling an existing 138 kV transmission line corridor near MP 110.5. At MP 110.9, Alternative Route F deviates from the existing corridor to avoid a residential dwelling and parallels the existing corridor again for 0.2 mile. At MP 111.6, Alternative Route F heads eastward for a greenfield portion, where it parallels the existing 138 kV transmission line corridor for 0.3 mile at MP 113.4, crossing the Cacapon River at MP 113.9 and deviating from the existing transmission line corridor at MP 114.2. At MP 114.2, Alternative Route F heads in a southeasterly direction for a greenfield portion, where it meets up with an existing 500 kV transmission line corridor at MP 115.3, heading in a northeasterly direction from MP 115.3 to MP 116.7. At MP 116.7, Alternative Route F exits the state of West Virginia and enters the state of Virginia.

## 2.2 NATURAL ENVIRONMENT

### 2.2.1 PHYSIOGRAPHIC SETTING, GEOLOGY, AND GROUNDWATER

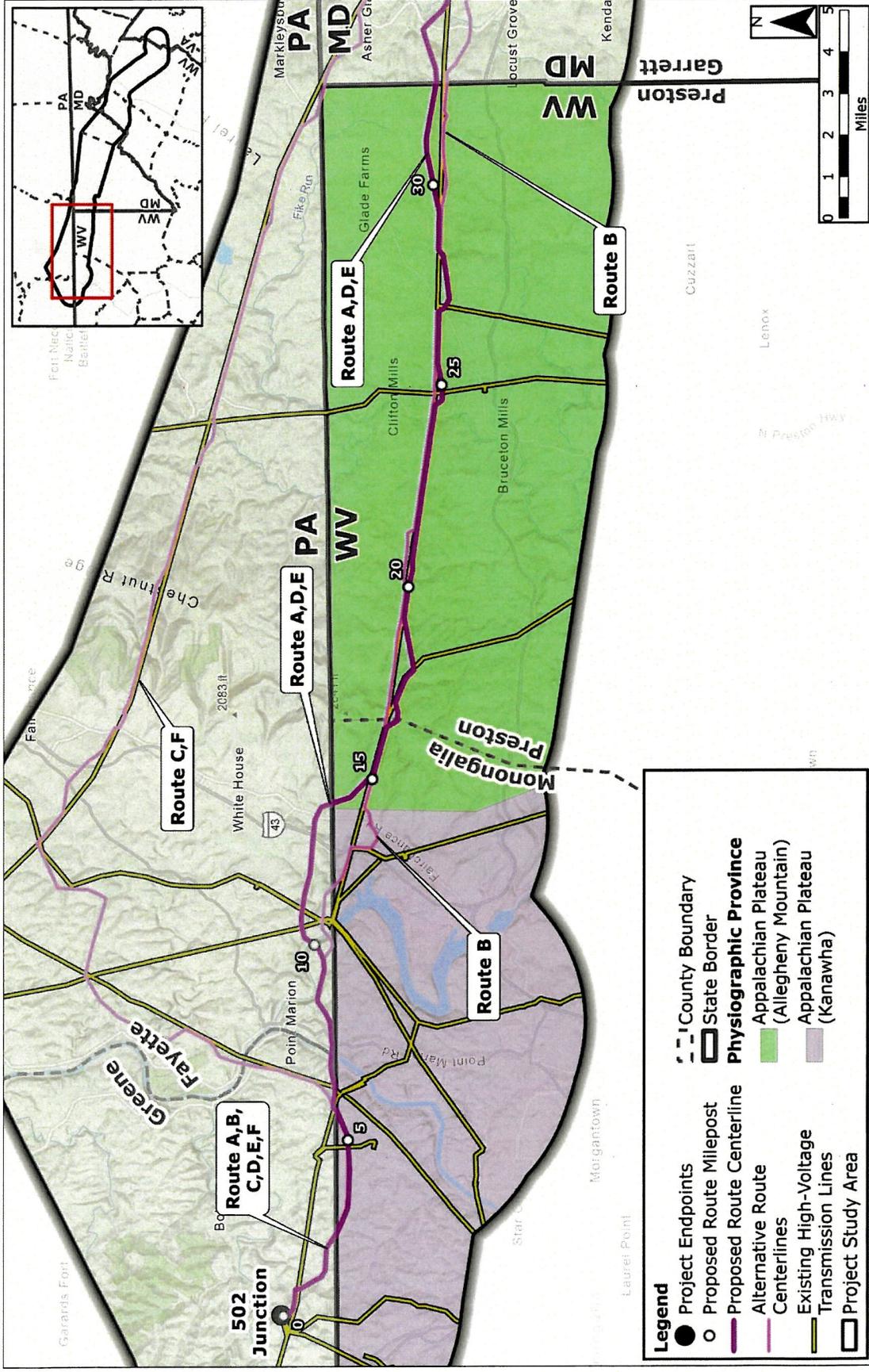
The physiographic setting of northeastern West Virginia and the Appalachian region has been shaped by several periods of deposition, mountain building, and erosion. Between approximately 325 and 260 million years ago, the Appalachian Orogeny produced the folded rock layers of the Appalachian Mountains known today (WVGES 2011).

The Proposed Route and all five Alternative Routes (B through F) cross Monongalia and Preston Counties within the Appalachian Plateau physiographic province (NPS 2017; WVGES 2020) (Figure 2.2-1). Through much of western Monongalia County, the Proposed Route is within the Kanawha section of the Appalachian Plateau, which is characterized by rugged dissected plateaus with narrow, flat valleys and local ridges created by gently folded strata. The average elevation is approximately 1,200 feet above mean sea level (amsl). Eastern Monongalia and Preston Counties (approximately MP 13.8 of the Proposed Route) are within the Allegheny Mountains section of the Appalachian Plateau, which is characterized by generally higher elevations with well-defined ridges. Near the boundary of Monongalia and Preston Counties (approximately MP 16.6 along the Proposed Route), Chestnut Ridge rises to approximately 2,500 feet amsl. The elevation in Preston

County remains relatively high but decreases slightly in the central portion of the county before rising again somewhat at the Maryland border (approximately MP 32.5 along the Proposed Route).

Additionally, the Proposed Route and five Alternative Routes cross Mineral and Hampshire Counties, within the middle section of the Valley and Ridge physiographic province (NPS 2017; WVGES 2020) (Figure 2.2-2). This region has highly folded rock layers forming northeast-to-southwest trending narrow ridges and valleys. The ridges can reach as high as approximately 1,700 feet amsl elevation with the valleys as low as approximately 600 feet amsl.

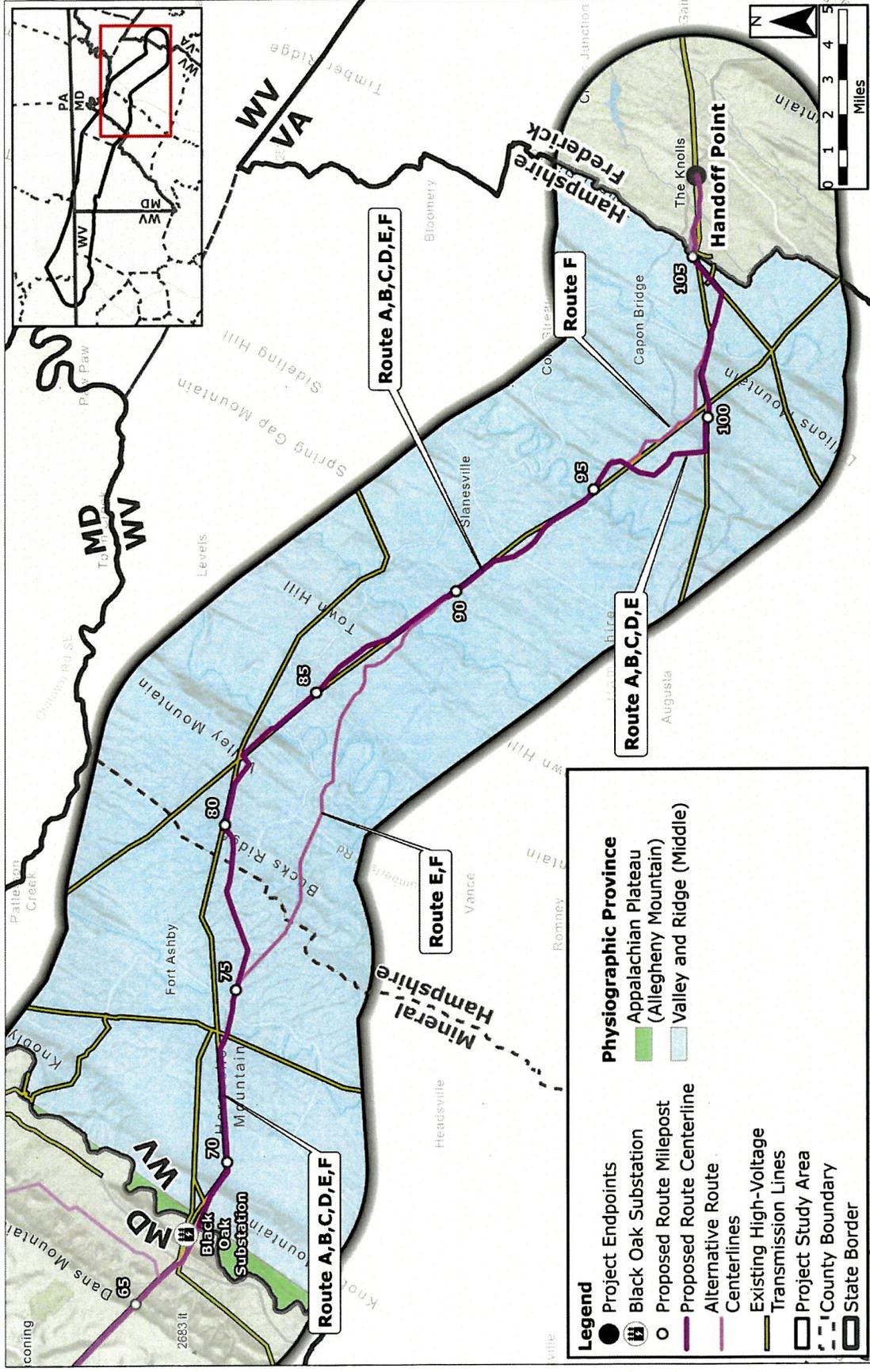
FIGURE 2.2-1 PHYSIOGRAPHIC PROVINCES IN MONONGALIA AND PRESTON COUNTIES



MD = Maryland; PA = Pennsylvania; VA = Virginia; WV = West Virginia



FIGURE 2.2-2 PHYSIOGRAPHIC PROVINCES IN MINERAL AND HAMPSHIRE COUNTIES



MD = Maryland; PA = Pennsylvania; VA = Virginia; WV = West Virginia



### 2.2.1.1 EXISTING CONDITIONS

The Proposed Route Siting Corridor and the five Alternative Route Siting Corridors cross similar geological and groundwater resources. Given the similarities, existing conditions within the Siting Corridors (Proposed Route and Alternative Routes) are described below by county, and any differences between the Alternative Routes are noted where applicable.

#### **Monongalia and Preston Counties**

##### ***Geology***

Geology within the Siting Corridors in Monongalia and Preston Counties can be generalized as repeating sections of sedimentary sandstones, mudstones, and limestones, with coal present in the older formations. The strata are gently folded throughout the Siting Corridors and generally exist as repeating sections in reverse order. The oldest rocks (Mississippian) are exposed on Chestnut Ridge, with younger rocks in the synclinal valleys on either side of the ridge.

Based on the geologic map of West Virginia (WVGES 1968), from youngest to oldest, the Siting Corridors are primarily underlain by the Dunkard Group (Pd), Monongahela Group (PAm), Conemaugh Group (PAc), Allegheny Formation (PAa), Pottsville Group (PApv), and Mauch Chunk Group (Mmc). The following is a summary of the geologic formations:

- Dunkard Group (Pd): This group is mostly sandstone and non-marine cyclic sequences of sandstone, siltstone, red and gray shale, limestone, and coal. It contains the Greene, Washington, and Waynesburg Formations. The group extends from the top of the exposed bed rock section to the top of the Waynesburg coal and includes the Washington coals and limestones.
- Monongahela Group (PAm): This group is mostly sandstone and non-marine cyclic sequences of sandstone, siltstone, red and gray shale, limestone, and coal. It contains the Uniontown and Pittsburgh Formations. The group extends from the top of the Waynesburg coal to the base of the Pittsburgh coal and includes the Waynesburg, Uniontown, Sewickley, Red-stone, and Pittsburgh coals.
- Conemaugh Group (PAc): This group is mostly mudstone and cyclic sequences of red and gray shale, siltstone, and sandstone, with thin limestones and coals. It is mostly non-marine and includes the Elk Lick, Bakerstown and Mahoning coals, and the Ames and Brush Creek limestones.
- Allegheny Formation (PAa): This formation is mostly sandstone and cyclic sequences of sandstone, siltstone, shale, limestone, and coal. It includes the Freeport, Kittanning, and Clarion coals, as well as the Princess coals of Kentucky. The formation extends from the top of the Upper Freeport coal to the top of the Homewood sandstone.
- Pottsville Group (PApv): This group is predominantly sandstone, some of which is conglomeratic, with thin shales and coals. It is undivided in northern West Virginia.
- Mauch Chunk Group (Mmc): This group is mostly sandstone, some of which is red, green, and medium-gray shale and sandstone, with a few thin limestones.

The Proposed Route Siting Corridor and five Alternative Route Siting Corridors (B through F) follow the same course within Monongalia County (between approximately MPs 2.7 and 5.8 of the Proposed Route). The geology of this portion of the Siting Corridors, west of the Monongahela River, consists of sandstones and mudstones of the Dunkard Group, Monongahela Group, and Conemaugh Group. West of the river, the Siting Corridors turn northward into Pennsylvania. The Proposed Route and Alternative Routes B, D, and E return to West Virginia on the east side of Cheat Lake.

East of Cheat Lake, the Proposed Route and Alternative Routes D and E follow along the same line, with Alternative Route B slightly different from the others. However, all routes encounter very similar geology. The surface geology is primarily sandstones and mudstones of the Conemaugh Group and Allegheny Formation. However, at Chestnut Ridge (between approximately MPs 14.5 and 19.5 of the Proposed Route), the older and predominately sandstone Pottsville Group and Mauch Chunk Group are exposed at the surface. East of Chestnut Ridge, in Preston County, the surface geology is again sandstones and mudstones of the Monongahela and Conemaugh Groups.

A short portion of Alternative Routes C and F cross through the northeast corner of Preston County (approximately between MPs 37.4 and 37.7 of Alternative Route C). The surface geology is mudstones and sandstones of the Conemaugh Group.

### *Mining*

Areas immediately west of the Monongahela River have been used extensively for surface and subsurface coal mining. Numerous abandoned mine areas are mapped within this portion of the Siting Corridors (WVDEP n.d.-a). Many of the surface mined areas have been closed, restored, or reclaimed and are "completely released" except for two areas within the Siting Corridors (WVDEP n.d.-a), as follows:

- Between approximately MPs 4.0 and 4.5 (along all six Alternative Routes), one abandoned mine feature has been mapped and labeled as Wade School Refuse (status unabated).
- In Preston County, 3.75 miles east of the county line (approximately MP 20.4 along Alternative Route B) is an abandoned mine feature labeled as Bruceton Mills (Collins) acid mine drainage, containing both "dangerous highwalls" and water areas.

Two special reclamation areas are also included in the Siting Corridors for the Proposed Route and Alternative Routes B, D, and E within Preston County; these are two separate areas mined by Jones Coal Inc. 1.9 miles northeast of Brandonville (approximately between MPs 26.0 and 26.5 along the Proposed Route).

### *Karst*

There are no known karst features within any of the Siting Corridors in Monongalia or Preston Counties. The potential for karst is present west of the Monongahela River (approximately between MPs 2.5 and 4.5 of all six Alternative Routes), due to the presence of interbedded carbonate and non-carbonate rocks of the Monongahela Group being at or near the surface (Weary 2008; WVDEP n.d.-b).

### *Landslides*

Steep slopes are present throughout the Siting Corridors, which increases the susceptibility of landslides. Numerous small landslides have been mapped in western Monongalia County, primarily west of the Monongahela River (USGS n.d.-a). Documented landslides decrease in number east of Cheat Lake and into Preston County.

### **Groundwater**

West Virginia's groundwater system is shaped by its complex geological framework and diverse environmental conditions. These differing physiographic regions exhibit distinct lithologic and structural characteristics that influence groundwater flow, recharge, and vulnerability to contamination. Variable precipitation, vegetative cover, seasonal changes, land use, and groundwater demand further complicate the hydrologic behavior across the state (WVDEP 2014).

Groundwater movement in West Virginia is highly localized and varies significantly across geomorphic provinces. Within Monongalia and Preston Counties, groundwater is typically found in the fractured bedrock. Data for groundwater levels are limited; however, the U.S. Geological Survey (USGS) maintains water level records for several wells within Monongalia and Preston Counties (USGS n.d.-b). Depth to water varies depending on which geologic unit the well is installed in and the water-bearing fractures encountered. Groundwater is generally of good quality and is used for drinking water supply in some areas of Monongalia and Preston Counties (USEPA n.d.).

Water well records are limited in availability. Water well and spring records maintained by the USGS indicate that there is only one well (Mng-0500) within any of the Siting Corridors in Monongalia and Preston Counties, located along Alternative Route B at approximately MP 13.8 and installed to 61 feet deep (USGS n.d.-b). Within the vicinity of the Siting Corridors, known wells are installed between 25 and 800 feet, with average depth to water approximately 28 feet below ground surface (USGS n.d.-b). No springs are reported within the Siting Corridors. Based on the West Virginia Department of Health and Human Resources (WVDHHR), there are no public water supply wells within the Siting Corridors (WVDHHR n.d.). However, the Proposed Route and Alternative Routes D and E cross a wellhead protection area (WHPA) between MPs 24.0 to 24.4 and 24.9 to 25.1 along all three routes at the crossing of County Road (CO) 8 and Big Sandy Creek. The Alternative Route B Siting Corridor crosses the same WHPA at MPs 23.7 and 24.3. The use and location of private water wells is not known.

### **Mineral and Hampshire Counties**

#### ***Geology***

Geology within the Siting Corridors in Mineral and Hampshire Counties can be generalized as repeating sections of sedimentary sandstones, mudstones, and limestones. The strata are intensely folded throughout the Siting Corridors and generally exist as repeating sections in reverse order. The oldest rocks are exposed on the ridges, with younger rocks in the valleys. Recent sediments deposited by Patterson Creek and the South Branch Potomac River are not included.

Based on the geologic map of West Virginia (WVGES 1968), from youngest to oldest, the Siting Corridors are primarily underlain by the Hampshire Formation (Dhs), Greenland Gap Group (Dgg), Brallier Formation (Db), Harrell Shale (Dh), Mahantango Formation (Dmt), Marcellus Formation and Needmore Shale (Dmn), Oriskany Sandstone (Do), Helderberg Group (Dhl), Tonoloway, Wills Creek, and Williamsport Formations (Stw), and the McKenzie Formation and Clinton Group (Smc). The following is a summary of the geologic formations:

- Hampshire Formation (Dhs): This formation is sandstone and mudstone and non-marine shales and fine micaceous sandstones, mostly red to brownish-gray, including siltstone, sandstone, and conglomerate. It is generally distinguishable from the underlying Chemung by non-marine character and red color.
- Greenland Gap Group (Dgg): This group is sandstone and mudstone and gray to brown siltstone and sandstone with shale and conglomeratic interbeds. It is mainly marine and sparingly fossiliferous with gradational boundaries. The group is Parkhead Sandstone Member near base and previously Chemung Group (Dch).
- Brallier Formation (Db): This formation is mostly mudstone and predominantly olive-gray to dark, thickly laminated marine shale, with considerable siltstone and thin sandstone lenses. It is mainly non-fossiliferous. Some areas are indistinguishable from the Harrell Shale (Dh).
- Harrell Shale (Dh): This unit is mudstone and dark gray to black, thinly laminated to fissile shale. It is calcareous shale and has limestone lenses near the base. Some areas are indistinguishable from the Brallier Formation (Dbh).
- Mahantango Formation (Dmt): This formation is mostly mudstone and thickly laminated marine shale, siltstone, very fine sandstone, and some limestone, with an occasional coral reef or biostrome.
- Marcellus Formation and Needmore Shale (Dmn): This unit is mostly mudstone and predominantly gray-black to black thinly laminated non-calcareous pyritic shale. It contains one or more thin-bedded limestones, including the Purcell Member of Pennsylvania. Needmore Shale is predominantly dark gray or green, calcitic, and mostly non-fissile shale. It is Tioga Bentonite near the top. It includes the black Beaver Dam Shale Member and grades westward into the Huntersville Chert.
- Oriskany Sandstone (Do): This unit is mostly sandstone and white to brown, coarse- to fine-grained, partly calcareous sandstone, locally pebbly or conglomeratic, and ridge-forming. It may be white, nearly pure silica, and a source of glass sand.
- Helderberg Group (Dhl): This group is carbonate rock and mostly cherty limestone, interbedded with some sandstone and shale. It contains several named stratigraphic units, including the Keyser Formation, which is partly Silurian and includes the Clifton Forge Sandstone and Big Mountain Shale Members.
- McKenzie Formation and Clinton Group (Smc): This unit is sandstone and mudstone and includes the McKenzie Formation, consisting of shale with thin limestone lenses. It also includes the dark Rochester Shale, the white Keefer Sandstone, and the Rose Hill predominantly red shale, with thin sandstone interbeds, some of which are called "iron sandstones" from their reddish-brown color and hematite content.

- **Tonoloway, Wills Creek, and Williamsport Formations (Stw):** These formations are limestone and include the thin-bedded platy argillaceous limestones of the Tonoloway, the thin-bedded shale with fossiliferous limestones of the Wills Creek, the Bloomsburg red clastic facies, and the greenish-brown to white Williamsport Sandstone. The Wills Creek contains anhydrite and rock salt.

*Mining*

There are no known mining features or areas within the Siting Corridors in Mineral and Hampshire Counties (WVDEP n.d.-a).

*Karst*

There are no known karst features within the Siting Corridors in Mineral and Hampshire Counties. The potential for karst to be present is associated with carbonate rocks of the Tonoloway, Wills Creek, and Williamsport Formations and the Helderberg Group (WVDEP n.d.-b; Weary 2008). The Proposed Route Siting Corridor and all five Alternative Route Siting Corridors cross the Tonoloway, Wills Creek, and Williamsport Formations and the Helderberg Group immediately east of the Maryland border, along the eastern bank of the North Branch Potomac River. Approximate MPs where potential karst formations are crossed by the Siting Corridors are shown in Table 2.2-1.

**TABLE 2.2-1 POTENTIAL KARST FORMATIONS WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES**

Route	Tonoloway, Wills Creek, and Williamsport Formations	Helderberg Group	Tonoloway, Wills Creek, and Williamsport Formations	Helderberg Group
	Mineral County		Hampshire County	
Proposed Route	MPs 67.9–68.2	MPs 68.2–68.3 MPs 68.9–69.3	MPs 95.9–97.6 MPs 98.0–98.9	MPs 95.7–95.9 MPs 98.9–99.1
Alternative Route B	MPs 67.7–68.0	MPs 68.0–68.1 MPs 68.7–69.1	MPs 95.7–97.4 MPs 97.9–98.7	MPs 95.5–95.7 MPs 98.7–99.0
Alternative Route C	MPs 74.0–74.3	MPs 74.3–74.4 MPs 75.0–75.4	MPs 102.0–103.7 MPs 104.2–105.0	MPs 101.8–102.0 MPs 105.0–105.3
Alternative Route D	MPs 75.7–79.9	MPs 75.9–76.0 MPs 76.6–77.0	MPs 103.6–105.3 MPs 105.8–106.6	MPs 103.5–103.6 MPs 106.6–106.9
Alternative Route E	MPs 67.9–68.2	MPs 68.2–68.3 MPs 68.9–69.3	MPs 94.8–96.5 MPs 96.9–98.0	MPs 94.6–94.8 MPs 97.8–98.0
Alternative Route F	MPs 81.8–82.1	MPs 82.1–82.2 MPs 82.8–83.1	MPs 108.6–109.5 MPs 110.1–110.8	MPs 108.5–108.6 MPs 110.8–111.0

MP = milepost

Note: Proposed Route and Alternate Routes B, C, D, and E follow the same line through potential karst areas Mineral and Hampshire Counties but have different MP references.

### *Landslides*

A few landslides have been documented in Mineral County along the eastern slope the ridge immediately east of the Maryland state line (USGS n.d.-a) at approximately MP 68.3 along the Proposed Route. No other landslide features have been documented within the Siting Corridors of Mineral and Hampshire Counties.

### **Groundwater**

Within Mineral and Hampshire Counties, groundwater is typically found in the fractured bedrock. Data for groundwater levels are limited; however, the USGS maintains water level records for several wells within Mineral and Hampshire Counties. Depth to water ranges from 12 to 110 feet below ground surface, depending on which geologic unit the well is installed in and the water-bearing fractures encountered (USGS n.d.-b). Groundwater is generally of good quality and used for drinking water supply in some areas of Mineral and Hampshire Counties (USEPA n.d.).

Water well records are limited. Water well and spring records maintained by the USGS indicate there are no monitored water wells or springs within the Siting Corridors in Mineral and Hampshire Counties (USGS n.d.-b). Based on the WVDHHR, there are also no public water supply wells within the Siting Corridors (WVDHHR n.d.). However, the Siting Corridors for the Proposed Route and Alternative Routes B through D cross through a WHPA associated with Central Hampshire Public Service District Green Spring. The crossing occurs between MPs 81.3 to 82.2 along the Proposed Route, MPs 81.1 to 82.0 along Alternative Route B, MPs 87.4 to 88.3 along Alternative Route C, and MPs 89.0 to 90.0 along Alternative Route D. The use and location of private water wells is not known.

### **2.2.1.2 IMPACTS**

#### **Geology**

Impacts on geology within the ROW Corridors include temporary impacts from construction activities and permanent impacts from installation of transmission structures. The number of structures varies by route and ranges from 164 for Alternate Route F to 258 for Alternative Route B in West Virginia. Structure foundations and footers will be embedded into the ground surface. The footprint of the permanent structures is limited to a small area of the tower foundations and footers and does not extend the entire length of the ROW Corridor. The average span length between towers is approximately 1,258 feet.

Structure foundation types are subject to final engineering design, geophysical surveys, and geotechnical investigations. Typical installations will be drilled piers with reinforced concrete; however, micropiles could be used in certain circumstances and other foundation types will be considered on an as-needed basis. The need for blasting is not anticipated for the MARL Project. If blasting is needed pending future engineering design and construction planning, NEET MA will prepare a Blasting Plan. If a Blasting Plan is determined to be needed, NEET MA will obtain the necessary state and/or local permits. Drilling, if used, may have a localized impact at structure foundation locations, particularly if karst is present. Best management practices (BMPs) will be implemented if karst features are identified during construction.

## Groundwater

Impacts on groundwater are not anticipated, as permanent structures will be located within the shallow subsurface, above anticipated groundwater levels. No new groundwater withdrawal wells will be installed for use during construction activities; however, NEET MA may, where necessary, use existing groundwater wells with approval from municipalities and/or landowners.

A Groundwater Protection Plan will be submitted and approved for sensitive areas, such as WHPAs and potential karst areas, prior to construction activities per W. Va. Code R. § 47-58. BMPs for protecting groundwater could include containment for leachable materials and/or chemicals, low permeability liners for liquids retention/detention, restricting discharge, and stormwater runoff control. A Karst Mitigation Plan will be included in the Groundwater Protection Plan, if necessary. While sinkholes are not expected to be encountered, any work conducted within 100 feet of a sinkhole will follow the West Virginia Department of Environmental Protection (WVDEP) Sinkhole Mitigation Guidance (WVDEP 2005).

Drilling or other earthwork required for installation of the structural foundations will be limited to the footprint of the transmission structures and will not cover the entire length of the ROW Corridors. Groundwater extracted from within the ROW Corridors is not anticipated to be used during construction activities. Temporary construction activities are not expected to interfere with groundwater recharge, usage, or quality. No shallow unconfined groundwater or artesian conditions are known within the ROW Corridors that would be encountered during construction activities, including drilling. If groundwater is encountered during drilling, dewatering may be required during construction as a temporary measure. Dewatering is expected to be localized to the immediate construction area. BMPs for water discharge, such as water diversion and the use of liners, will be implemented, as appropriate, to minimize surface erosion. Due to the anticipated limited extent of dewatering, subsidence is not expected to affect the MARL Project or surrounding overburden.

Construction activities are not expected to affect existing water wells. If water wells are encountered during preconstruction or construction activities, the surface completion and any other aboveground appurtenances will be protected using fencing or guarding. If wells are damaged during construction, NEET MA will notify the property owner along with the WVDHHR and county health department.

### 2.2.2 SOILS

This section describes existing soils within the Siting Corridor and soil-related impacts within the ROW Corridor for the Proposed Route and five Alternative Routes in West Virginia.

#### 2.2.2.1 EXISTING CONDITIONS

ERM reviewed data available from the U.S. Department of Agriculture National Resources Conservation Service Web Soil Survey (USDA NRCS 2025) for soil map units (soil types), prime farmland, corrosiveness of concrete and steel, drainage class, and hydric rating. Attachment 1b, Soils Mapbook, shows soil types in detail.

There are 343 different soil types in the MARL Project Study Area in West Virginia, and the most abundant soil types include the following:

- Weikert-Berks channery silt loams—35 to 65 percent slopes (WkF);
- Weikert-Berks channery silt loams—25 to 35 percent slopes (WkE);
- Gilpin silt loam—3 to 8 percent slopes (GnB);
- Lehew-Berks complex—8 to 15 percent slopes, severely eroded (LkC3);
- Gilpin silt loam—8 to 15 percent slopes (GnC); and
- Ernest silt loam—8 to 15 percent slopes, very stony (EsC).

All the other soil types individually account for less than 2 percent of the MARL Project Study Area in West Virginia. Several of these soil types are also most abundant in the Siting Corridor, including WkE, GnB, LkC3, GnC, and EsC.

Soils can be listed as prime farmland, unique farmland, or farmland of state or local importance. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops that is available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. Farmland of statewide or local importance does not meet all the criteria of prime farmland but is still recognized as valuable for agriculture. Table 2.2-2 and Table 2.2-3 summarize farmland class within the Siting Corridors in Monongalia and Preston Counties and Mineral and Hampshire Counties, respectively, for the Proposed Route and the five Alternative Routes. While there are areas of prime farmland in the Siting Corridor, the MARL Project is not subject to the Farmland Protection Policy Act because its permitting, development, and operation does not involve federal funding. Per guidance from the National Resources Conservation Service, projects without federal funding, management, or technical assistance are not subject to the Farmland Protection Policy Act.

**TABLE 2.2-2 FARMLAND SOIL CLASSES WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Farmland Class <sup>a</sup>	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
All areas are prime farmland	14.9	17.4	1.8	14.9	1.8
Farmland of statewide importance	474.4	501.1	106.5	474.4	106.5
Farmland of local importance	0.0	0.0	0.0	0.0	0.0
Not prime farmland	785.1	863.8	99.5	785.1	99.5
<b>Total <sup>b</sup></b>	<b>1,274.3</b>	<b>1,382.3</b>	<b>207.8</b>	<b>1,274.3</b>	<b>207.8</b>

Source: USDA NRCS 2025

<sup>a</sup> Prime farmland includes the following farmland class categories: all areas are prime farmlands, farmland of statewide importance, and farmland of local importance.

<sup>b</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-3 FARMLAND SOIL CLASSES WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Farmland Class <sup>a</sup>	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
All areas are prime farmland	112.8	112.8	112.8	131.0	131.5
Farmland of statewide importance	148.8	148.8	148.8	133.7	103.8
Farmland of local importance	968.2	968.4	968.2	932.3	892.9
Not prime farmland	933.3	933.3	933.3	939.0	958.0
<b>Total <sup>b</sup></b>	<b>2,163.1</b>	<b>2,163.3</b>	<b>2,163.1</b>	<b>2,136.0</b>	<b>2,086.2</b>

Source: USDA NRCS 2025

<sup>a</sup> Prime farmland includes the following farmland class categories: all areas are prime farmlands, farmland of statewide importance, and farmland of local importance.

<sup>b</sup> Totals may not match the sum of addends due to rounding.



Ratings are also given for the risk of corrosion to steel and concrete, which indicates the potential for a soil to corrode steel or concrete. The rate of corrosion of steel is related to such factors as soil moisture, particle-size distribution, acidity, and electrical conductivity of the soil. The rate of corrosion of concrete is based primarily on the sulfate and sodium content, texture, moisture content, and acidity of the soil. Ratings for corrosion of steel and concrete are given in qualitative terms, including "high," "moderate," "low," and "NA". Table 2.2-4 and Table 2.2-5 summarize corrosion to steel within the Siting Corridors in Monongalia and Preston Counties and Mineral and Hampshire Counties, respectively, for the Proposed Route and the five Alternative Routes. Table 2.2-6 and Table 2.2-7 summarize corrosion to concrete within the Siting Corridors in Monongalia and Preston Counties and Mineral and Hampshire Counties, respectively, for the Proposed Route and the five Alternative Routes.

Hydric soils are defined by the National Technical Committee for Hydric Soils as soils that are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Changes in Hydric Soils of the United States, 59 *Federal Register* 133, July 13, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation. Table 2.2-8 and Table 2.2-9 summarize the presence/absence of hydric soils in the Siting Corridors in Monongalia and Preston Counties and Mineral and Hampshire Counties, respectively, of the Proposed Route and five Alternative Routes.

Drainage class refers to the frequency and duration of wet periods with conditions similar to those under which the soil formed. The drainage class of a soil helps determine its suitability for different types of use (e.g., agriculture, forestry, development). Table 2.2-10 and Table 2.2-11 summarize drainage classification for the Siting Corridors in Monongalia and Preston Counties and Mineral and Hampshire Counties, respectively, of the Proposed Route and five Alternative Routes.

TABLE 2.2-4 RISK RATINGS FOR CORROSION TO STEEL FROM SOIL CONTACT WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Risk Rating	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
High	640.2	668.6	56.7	640.2	56.7
Moderate	544.1	619.8	69.2	544.1	69.2
Low	82.5	81.8	81.1	82.5	81.1
NA	7.5	12.2	0.9	7.5	0.9
<b>Total <sup>a</sup></b>	<b>1,274.3</b>	<b>1,382.3</b>	<b>207.8</b>	<b>1,274.3</b>	<b>207.8</b>

Source: USDA RCS 2025

NA = not applicable

<sup>a</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.2-5 RISK RATINGS FOR CORROSION TO STEEL FROM SOIL CONTACT WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Risk Rating	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
High	360.3	360.3	360.3	356.2	350.0
Moderate	1,459.7	1,459.7	1,459.7	1,435.4	1,420.1
Low	307.3	307.6	307.3	316.3	289.4
NA	35.7	35.7	35.7	28.1	26.7
<b>Total <sup>a</sup></b>	<b>2,163.1</b>	<b>2,163.3</b>	<b>2,163.1</b>	<b>2,163.0</b>	<b>2,086.2</b>

Source: USDA NRCS 2025

NA = not applicable

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-6 RISK RATINGS FOR CORROSION TO CONCRETE FROM SOIL CONTACT WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Risk Rating	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
High	974.1	1,080.7	25.5	974.1	25.5
Moderate	222.8	220.9	113.0	222.8	113.0
Low	69.9	68.5	68.5	69.9	68.5
NA	7.5	12.2	0.9	7.5	0.9
<b>Total <sup>a</sup></b>	<b>1,274.3</b>	<b>1,382.3</b>	<b>207.8</b>	<b>1,274.3</b>	<b>207.8</b>

Source: USDA NRCS 2025

NA = not applicable

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-7 RISK RATINGS FOR CORROSION TO CONCRETE FROM SOIL CONTACT WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Risk Rating	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
High	972.5	972.5	972.5	870.3	882.6
Moderate	1,106.9	1,107.2	1,106.9	1,166.3	1,099.7
Low	47.9	47.9	47.9	71.3	77.2
NA	35.7	35.7	35.7	28.1	26.7
<b>Total <sup>a</sup></b>	<b>2,163.1</b>	<b>2,163.3</b>	<b>2,163.1</b>	<b>2,136.0</b>	<b>2,086.2</b>

Source: USDA NRCS 2025

NA = not applicable

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-8 PRESENCE OF HYDRIC SOILS WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Hydric Soil	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Yes	74.4	53.4	2.6	74.4	2.6
No	1,199.9	1,328.8	205.2	1,199.9	205.2
NA	0.0	0.0	0.0	0.0	0.0
<b>Total <sup>a</sup></b>	<b>1,274.3</b>	<b>1,382.3</b>	<b>207.8</b>	<b>1,274.3</b>	<b>207.8</b>

Source: USDA NRCS 2025

NA = not applicable

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-9 PRESENCE OF HYDRIC SOILS WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Hydric Soil	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Yes	42.4	42.4	42.4	45.0	41.9
No	2,059.2	2,059.4	2,059.2	2,035.3	1,986.0
NA	61.4	61.4	61.4	55.7	58.3
<b>Total <sup>a</sup></b>	<b>2,163.1</b>	<b>2,163.3</b>	<b>2,163.1</b>	<b>2,163.0</b>	<b>2,086.2</b>

Source: USDA NRCS 2025

NA = not applicable

<sup>a</sup> Totals may not match the sum of addends due to rounding.



**TABLE 2.2-10 SOIL DRAINAGE CLASSIFICATIONS WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Drainage Class	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Well-drained	926.6	1,034.3	155.8	926.6	155.8
Moderately well-drained	248.3	273.7	48.5	248.3	48.5
Somewhat excessively drained	0.0	<0.1	0.0	0.0	0.0
Somewhat poorly drained	17.5	8.6	0.0	17.5	0.0
Poorly drained	74.4	49.0	0.8	74.4	0.8
Very poorly drained	0.0	4.5	1.8	0.0	1.8
NA	7.5	12.2	0.9	7.5	0.9
<b>Total<sup>a</sup></b>	<b>1,274.3</b>	<b>1,382.3</b>	<b>207.8</b>	<b>1,274.3</b>	<b>207.8</b>

Source: USDA NRCS 2025

NA = not applicable

<sup>a</sup> Totals may not match the sum of addends due to rounding.**TABLE 2.2-11 SOIL DRAINAGE CLASSIFICATIONS WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Drainage Class	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Well-drained	1,932.2	1,932.5	1,932.2	1,917.8	1,893.6
Moderately well-drained	109.7	109.7	109.7	112.5	92.9
Somewhat excessively drained	16.5	16.5	16.5	13.5	12.0
Somewhat poorly drained	26.5	26.5	26.5	19.1	19.1
Poorly drained	42.4	42.4	42.4	45.0	41.9
Very poorly drained	0.0	0.0	0.0	0.0	0.0
NA	35.7	35.7	35.7	28.1	26.7
<b>Total<sup>a</sup></b>	<b>2,163.1</b>	<b>2,163.3</b>	<b>2,163.1</b>	<b>2,163.0</b>	<b>2,086.2</b>

Source: USDA NRCS 2025

NA = not applicable

<sup>a</sup> Totals may not match the sum of addends due to rounding.

### **Proposed Route and Alternative Route D**

The number of unique soil types in the Proposed Route and Alternative Route D Siting Corridor varies by county. There are 29, 32, 35, and 82 different soil types in the Siting Corridor in Monongalia, Preston, Mineral, and Hampshire County, respectively.

The Proposed Route/Alternative D in Monongalia and Preston Counties is largely categorized in total acreage as not prime farmland; the second-largest total acreage is farmland of statewide importance. These counties have no farmland of local importance within the Siting Corridor (Table 2.2-2). Within Mineral and Hampshire Counties, the Siting Corridor is largely categorized in total acreage as farmland of local importance and then as not prime farmland (Table 2.2-3).

Within Monongalia and Preston Counties, the Siting Corridor is largely comprised of soils that pose either a high or moderate risk of corrosion to steel (Table 2.2-4) and a high risk of corrosion to concrete (Table 2.2-6). Within Mineral and Hampshire Counties, the Siting Corridor is largely comprised of soils that pose a moderate risk of corrosion to steel (Table 2.2-5) and a moderate and high risk of corrosion to concrete (Table 2.2-7).

Within Monongalia and Preston Counties, the Siting Corridor is limited in the total acreage of soils that are hydric (Table 2.2-8). Similarly, Mineral and Hampshire Counties are limited in total acreage of soils that are hydric (Table 2.2-9). Most of the soils within the four counties largely have well-drained classifications followed by moderately well-drained (Table 2.2-10 and Table 2.2-11).

### **Alternative Route B**

The number of unique soil types in the Alternative Route B Siting Corridor varies by county. There are 38, 42, 35, and 82 different soil types in the Siting Corridor in Monongalia, Preston, Mineral, and Hampshire County, respectively.

Alternative B in Monongalia and Preston Counties is largely categorized in total acreage as not prime farmland; the second-largest total acreage is farmland of statewide importance. These counties have no farmland of local importance within the Siting Corridor. Similar to the Proposed Route/Alternative D, Mineral and Hampshire Counties are largely categorized as farmland of local importance and not prime farmland.

Within Monongalia and Preston Counties, the Siting Corridor is largely comprised of soils that pose either a high or moderate risk of corrosion to steel and a high risk of corrosion to concrete. Within Mineral and Hampshire Counties, the Siting Corridor is largely comprised of soils that pose a moderate risk of corrosion to steel and a moderate and high risk of corrosion to concrete.

Within Monongalia and Preston Counties, the Siting Corridor is limited in the total acreage of soils that are hydric. Similarly, Mineral and Hampshire Counties are limited in total acreage of soils that are hydric. Most of the soils within the four counties largely have well-drained classifications.

### **Alternative Route C**

The number of unique soil types in the Alternative Route C Siting Corridor varies by county. There are 19, 9, 35, and 82 different soil types in the Siting Corridor in Monongalia, Preston, Mineral, and Hampshire Counties, respectively.

Alternative C in Monongalia and Preston Counties is largely categorized in total acreage as farmland of statewide importance; the second-largest total acreage is not prime farmland. These counties have no farmland of local importance within the Siting Corridor. Similar to the Proposed Route/Alternative D, Mineral and Hampshire Counties are largely categorized as farmland of local importance and not prime farmland.

Within Monongalia and Preston Counties, the Siting Corridor is comprised of soils that pose either low to high risk of corrosion to steel and a moderate risk of corrosion to concrete. Within Mineral and Hampshire Counties, the Siting Corridor is largely comprised of soils that pose a moderate risk of corrosion to steel and a moderate and high risk of corrosion to concrete.

Within Monongalia and Preston Counties, the Siting Corridor is limited in the total acreage of soils that are hydric. Similarly, Mineral and Hampshire Counties are limited in total acreage of soils that are hydric. Most of the soils within the four counties largely have well-drained classifications.

### **Alternative Route E**

The number of unique soil types in the Alternative Route E Siting Corridor varies by county. There are 29, 32, 33, and 79 different soil types in the Siting Corridor in Monongalia, Preston, Mineral, and Hampshire Counties, respectively.

Alternative E in Monongalia and Preston Counties is largely categorized in total acreage as not prime farmland; the second-largest total acreage is farmland of statewide importance. These counties have no farmland of local importance within the Siting Corridor. Similar to the Proposed Route/Alternative D, Mineral and Hampshire Counties are largely categorized as farmland of local importance and not prime farmland.

Within Monongalia and Preston Counties, the Siting Corridor is comprised of soils that pose either high or moderate risk of corrosion to steel and a high risk of corrosion to concrete. Within Mineral and Hampshire Counties, the Siting Corridor is largely comprised of soils that pose a moderate risk of corrosion to steel and a moderate to high risk of corrosion to concrete.

Within Monongalia and Preston Counties, the Siting Corridor is limited in the total acreage of soils that are hydric. Similarly, Mineral and Hampshire Counties are limited in total acreage of soils that are hydric. Most of the soils within the four counties largely have well-drained classifications.

### **Alternative Route F**

The number of unique soil types in the Alternative Route F Siting Corridor varies by county. There are 19, 9, 33, and 76 different soil types in the Siting Corridor in Monongalia, Preston, Mineral, and Hampshire Counties, respectively.

Alternative F in Monongalia and Preston Counties is largely categorized in total acreage as farmland of statewide importance; the second-largest total acreage is not prime farmland. These

counties have no farmland of local importance within the Siting Corridor. Similar to the Proposed Route/Alternative D, Mineral and Hampshire Counties are largely categorized as farmland of local importance and not prime farmland.

Within Monongalia and Preston Counties, the Siting Corridor is comprised of soils that pose either low to high risk of corrosion to steel and a moderate risk of corrosion to concrete. Within Mineral and Hampshire Counties, the Siting Corridor is largely comprised of soils that pose a moderate risk of corrosion to steel and a moderate and high risk of corrosion to concrete.

Within Monongalia and Preston Counties, the Siting Corridor is limited in the total acreage of soils that are hydric. Similarly, Mineral and Hampshire Counties are limited in total acreage of soils that are hydric. Most of the soils within the four counties largely have well-drained classifications.

### 2.2.2.2 IMPACTS

A summary of soil impacts in the ROW Corridors for the Proposed Route and Alternative Routes is presented below. Of the 114.6 to 145.8 acres of prime farmland within the Siting Corridors, 48.4 to 63.4 acres are within the ROW Corridors and would potentially be affected by the MARL Project. An additional 86.2 to 272.2 acres of farmland of statewide importance could also be affected within the ROW Corridors (Table 2.2-12 and Table 2.2-13). Temporary ancillary facility workspaces outside of the Proposed Route ROW Corridor would affect 8.5 acres of prime farmland and 72.9 acres of farmland of statewide importance (Table 2.2-14). Permanent access roads would not affect prime farmland and would affect 1.1 acres of farmland of statewide importance (Table 2.2-14).

The Proposed Route/Alternative Route D, Alternative Route B, and Alternative Route E in Monongalia and Preston Counties would pose a high risk of corrosion to steel in these ROW Corridors; however, Alternative Route C and Alternative Route F pose a low risk (Table 2.2-15). In Mineral and Hampshire Counties, each Alternative Route poses a moderate risk of corrosion to steel in these ROW Corridors (Table 2.2-16). Soils within the temporary ancillary facility workspaces outside of the Proposed Route ROW Corridor generally pose a moderate risk of corrosion to steel (Table 2.2-17), if any steel is used in the temporary workspaces. Permanent access roads would also generally pose a moderate risk of corrosion to steel (Table 2.2-17).

The Proposed Route/Alternative Route D, Alternative Route B, and Alternative Route E in Monongalia and Preston Counties would pose a high risk of corrosion to concrete in these ROW Corridors; however, Alternative Route C and Alternative Route F pose a moderate risk (Table 2.2-18). In Mineral and Hampshire Counties, each Alternative Route poses a moderate to high risk of corrosion to concrete in these ROW Corridors (Table 2.2-19). Soils within the temporary ancillary facility workspaces outside of the Proposed Route ROW Corridor would generally pose a high risk of corrosion to concrete (Table 2.2-20), if any concrete is used in the temporary workspaces. Permanent access roads would generally pose a moderate risk of corrosion to concrete (Table 2.2-20). Most of the soils in each of the Alternative Route ROW Corridors are not hydric and generally well-drained (Table 2.2-21, Table 2.2-22, Table 2.2-24, and Table 2.2-25). In addition, the ancillary facility workspaces outside of the Proposed Route ROW Corridor are mostly not hydric and generally well-drained, though there are limited areas with hydric and poorly draining soils (Table 2.2-23 and Table 2.2-26).

In the short-term, the MARL Project would result in ground-disturbing activities from vegetation clearing in the ROW Corridor; grading, excavation, and construction of the transmission line structures; and equipment and vehicle use in the ROW Corridor. These activities would result in direct disturbance of soils, loss of prime farmland and increase the risk of immediate and long-term erosion, loss of topsoil, and compaction. The magnitude of soil impacts would depend on many factors, including existing vegetative cover, slope, and soil types. To help minimize impacts on soil resources in the ROW Corridor, NEET MA will follow BMPs for the protection of topsoil and avoidance of degradation of farmland, including minimization of soil disturbance where possible, salvage of topsoil removed during grading activities for redistribution during the final reclamation of a site to facilitate the re-establishment of desirable vegetation, and stabilization of post-construction soil (i.e., re-vegetation).

A MARL Project-specific Erosion and Sediment Control (ESC) Plan and Stormwater Pollution Prevention Plan (SWPPP) will be prepared as part of the permit application. NEET MA will coordinate with state and local agencies during the development of the ESC Plan and SWPPP to incorporate and implement applicable state and local requirements. Appropriate BMPs will be used to manage stormwater runoff, including silt sock, silt fence, construction entrances, temporary matting and bridges, and erosion matting. Once construction is complete, any exposed soils would be stabilized with vegetation to prevent erosion. Additional ESC permitting and BMPs related to water quality standards are addressed in Section 2.2.4, Wetlands.

Approximately 22 percent of the Proposed Route / Alternative Route D ROW Corridor would impact prime farmland or farmland of statewide importance. The percentage of the other Alternative Route ROW Corridors that would impact prime farmland or farmland of statewide importance ranges from 10 percent for Alternative Route F to 23 percent for Alternative Route B. BMPs for the protection of topsoil (see above paragraph) and avoidance of degradation of farmland that should be followed in these areas include minimization of soil disturbance where possible, salvage of topsoil removed during grading activities for redistribution during the final reclamation of a site to facilitate the re-establishment of desirable vegetation, and post-construction soil stabilization.

Exposure to soils that corrode steel and/or concrete may pose a risk to MARL Project infrastructure, in particular the transmission towers (steel) and footings (concrete). More than 90 percent of soils within the ROW Corridors have a moderate to high risk of corrosion to steel and concrete. In areas where concrete and steel are planned for installation, NEET MA will test soils for corrosivity prior to construction. For tower locations with identified corrosivity based on soil tests, NEET MA will use industry best practices during construction and design for soil conditions, including concrete design (e.g., type, strength, admixtures), physical barriers (e.g., sleeves, jackets, geomembranes, vaults), coatings (e.g., epoxy), sacrificial steel, and engineered soil (e.g., excavation of native soil and backfill with non-corrosive soil), among others.

During operation and maintenance of the MARL Project, impacts on soils would be minimal (assuming any construction-related impacts have been adequately addressed). There would be a limited amount of permanent reduction in prime farmland in the ROW Corridor, but soil erosion or other soil-related issues caused by operation and maintenance of the transmission line would be limited. NEET MA will periodically monitor the ROW Corridor for soil concerns and address with appropriate remedies, as needed, during the operational lifespan of the MARL Project.

TABLE 2.2-12 FARMLAND SOIL CLASSES WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS WITHIN MONONGALIA AND PRESTON COUNTIES (ACRES)

Farmland Class <sup>a</sup>	Proposed Route/ Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
All areas are prime farmland	14.9	6.3	17.4	8.9	1.8	1.1	14.9	6.3	1.8	1.1
Farmland of statewide importance	474.4	192.9	501.1	205.3	106.5	41.8	474.4	192.9	106.5	41.8
Farmland of local importance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not prime farmland	785.1	336.9	863.8	372.8	99.5	40.4	785.1	336.9	99.5	40.4
<b>Total<sup>b</sup></b>	<b>1,274.3</b>	<b>536.1</b>	<b>1,382.3</b>	<b>587.0</b>	<b>207.8</b>	<b>83.2</b>	<b>1,274.3</b>	<b>536.1</b>	<b>207.8</b>	<b>83.2</b>

Source: USDA NRCS 2025

ROW = right-of-way

<sup>a</sup> Prime farmland includes the following farmland class categories: all areas are prime farmlands, farmland of statewide importance, and farmland of local importance.  
<sup>b</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.2-13 FARMLAND SOIL CLASSES WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Farmland Class <sup>a</sup>	Proposed Route/ Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
All areas are prime farmland	112.8	47.3	112.8	47.3	112.8	47.3	131.0	57.1	131.5	58.7
Farmland of statewide importance	148.8	66.9	148.8	66.9	148.8	66.9	133.7	56.9	103.8	44.4
Farmland of local importance	968.2	399.0	968.4	399.4	968.2	399.0	932.3	388.9	892.9	368.9
Not prime farmland	933.3	395.3	933.3	395.3	933.3	395.3	939.0	388.2	958.0	396.0
<b>Total<sup>b</sup></b>	<b>2,163.1</b>	<b>908.6</b>	<b>2,163.3</b>	<b>909.0</b>	<b>2,163.1</b>	<b>908.6</b>	<b>2,136.0</b>	<b>891.2</b>	<b>2,086.2</b>	<b>868.0</b>

Source: USDA NRCS 2025

ROW = right-of-way

<sup>a</sup> Prime farmland includes the following farmland class categories: all areas are prime farmlands, farmland of statewide importance, and farmland of local importance.  
<sup>b</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.2-14 FARMLAND SOIL CLASSES WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR (ACRES)

Farmland Class <sup>a</sup>	Monongalia and Preston Counties			Mineral and Hampshire Counties			Total West Virginia		
	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
All areas are prime farmland	0.0	0.4	1.3	0.0	6.5	0.4	0.0	6.8	1.7
Farmland of statewide importance	0.3	14.8	11.5	0.0	5.1	15.4	1.1	27.5	45.4
Farmland of local importance	0.0	0.0	0.0	1.1	27.5	45.4	0.3	19.9	26.9
Not prime farmland	0.3	29.9	46.4	2.6	56.5	59.1	3.0	86.4	105.5
<b>Total<sup>b</sup></b>	<b>0.6</b>	<b>45.0</b>	<b>59.1</b>	<b>3.7</b>	<b>95.5</b>	<b>120.3</b>	<b>4.3</b>	<b>140.5</b>	<b>179.4</b>

Source: USDA NRCS 2025

<sup>a</sup> Prime farmland includes the following farmland class categories: all areas are prime farmlands, farmland of statewide importance, and farmland of local importance.  
<sup>b</sup> Totals may not match the sum of addends due to rounding.



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TABLE 2.2-15 RISK RATINGS FOR CORROSION TO STEEL FROM SOIL CONTACT WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Risk Rating	Proposed Route/ Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
High	640.2	276.1	668.6	277.4	56.7	21.9	640.2	276.1	56.7	21.9
Moderate	544.1	222.9	619.8	269.5	69.2	26.1	544.1	222.9	69.2	26.1
Low	82.5	35.6	81.8	35.2	81.1	35.2	82.5	35.6	81.1	35.2
NA	7.5	1.5	12.2	4.8	0.9	<0.1	7.5	1.5	0.9	<0.1
<b>Total<sup>a</sup></b>	<b>1,274.3</b>	<b>536.1</b>	<b>1,382.3</b>	<b>587.0</b>	<b>207.8</b>	<b>83.2</b>	<b>1,274.3</b>	<b>536.1</b>	<b>207.8</b>	<b>83.2</b>

Source: USDA NRCS 2025

NA = not applicable; ROW = right-of-way

<sup>a</sup>Totals may not match the sum of addends due to rounding.

TABLE 2.2-16 RISK RATINGS FOR CORROSION TO STEEL FROM SOIL CONTACT WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Risk Rating	Proposed Route/ Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
High	360.3	153.9	360.3	153.9	360.3	153.9	356.2	146.4	350.0	142.5
Moderate	1,459.7	604.0	1,459.7	604.0	1,459.7	604.0	1,435.4	594.8	1,420.1	588.4
Low	307.3	134.0	307.6	134.4	307.3	134.0	316.3	137.2	289.4	125.1
NA	35.7	16.7	35.7	16.7	35.7	16.7	28.1	12.8	26.7	12.0
<b>Total<sup>a</sup></b>	<b>2,163.1</b>	<b>908.6</b>	<b>2,163.3</b>	<b>909.0</b>	<b>2,163.1</b>	<b>908.6</b>	<b>2,163.0</b>	<b>891.2</b>	<b>2,086.2</b>	<b>868.0</b>

Source: USDA NRCS 2025

NA = not applicable; ROW = right-of-way

<sup>a</sup>Totals may not match the sum of addends due to rounding.

TABLE 2.2-17 RISK RATINGS FOR CORROSION TO STEEL FROM SOIL CONTACT WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR (ACRES)

Risk Rating	Monongalia and Preston Counties				Mineral and Hampshire Counties				Total West Virginia			
	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	ROW Corridor	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	ROW Corridor	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	ROW Corridor
High	0.3	13.3	16.7	16.7	0.3	20.1	12.1	12.1	0.6	33.4	33.4	28.8
Moderate	0.2	28.2	40.7	40.7	3.3	55.4	89.7	89.7	3.5	83.6	83.6	130.4
Low	0.2	1.6	1.8	1.8	<0.0	14.8	17.5	17.5	0.2	16.4	16.4	19.2
NA	0.0	1.9	0.0	0.0	0.0	5.3	1.1	1.1	0.0	7.1	7.1	1.1
<b>Total<sup>a</sup></b>	<b>0.6</b>	<b>45.0</b>	<b>59.1</b>	<b>59.1</b>	<b>3.7</b>	<b>95.5</b>	<b>120.3</b>	<b>120.3</b>	<b>4.3</b>	<b>140.5</b>	<b>140.5</b>	<b>179.4</b>

Source: USDA NRCS 2025

NA = not applicable

<sup>a</sup>Totals may not match the sum of addends due to rounding.



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TABLE 2.2-18 RISK RATINGS FOR CORROSION TO CONCRETE FROM SOIL CONTACT WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Risk Rating	Proposed Route/ Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
High	974.1	415.1	1,080.7	461	25.5	10.6	974.1	415.1	25.5	10.6
Moderate	222.8	89.7	220.9	91.7	113.0	43.1	222.8	89.7	113.0	43.1
Low	69.9	29.8	68.5	29.5	69.9	29.5	69.9	29.8	68.5	29.5
NA	7.5	1.5	12.2	4.8	0.9	<0.1	7.5	1.5	0.9	<0.1
<b>Total *</b>	<b>1,274.3</b>	<b>536.1</b>	<b>1,382.3</b>	<b>587.0</b>	<b>207.8</b>	<b>83.2</b>	<b>1,274.3</b>	<b>536.1</b>	<b>207.8</b>	<b>83.2</b>

Source: USDA NRCS 2025

NA = not applicable

\* Totals may not match the sum of addends due to rounding.

TABLE 2.2-19 RISK RATINGS FOR CORROSION TO CONCRETE FROM SOIL CONTACT WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Risk Rating	Proposed Route/ Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
High	972.5	407.6	972.5	407.6	972.5	407.6	870.3	362.1	882.6	365.9
Moderate	1,106.9	464.8	1,107.2	465.2	1,106.9	464.8	1,166.3	486.2	1,099.7	458.9
Low	47.9	19.5	47.9	19.5	47.9	19.5	71.3	30.0	77.2	31.3
NA	35.7	16.7	35.7	16.7	35.7	16.7	28.1	12.8	26.7	12.0
<b>Total *</b>	<b>2,163.1</b>	<b>908.6</b>	<b>2,163.1</b>	<b>909.0</b>	<b>2,163.1</b>	<b>908.6</b>	<b>2,136.0</b>	<b>891.2</b>	<b>2,086.2</b>	<b>868.0</b>

Source: USDA NRCS 2025

NA = not applicable; ROW = right-of-way

\* Totals may not match the sum of addends due to rounding.

TABLE 2.2-20 RISK RATINGS FOR CORROSION TO CONCRETE FROM SOIL CONTACT WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR (ACRES)

Risk Rating	Monongalia and Preston Counties				Mineral and Hampshire Counties				Total West Virginia			
	Permanent Access Roads	Temporary Access Roads	Other Ancillary Facilities	ROW Corridor	Permanent Access Roads	Temporary Access Roads	Other Ancillary Facilities	ROW Corridor	Permanent Access Roads	Temporary Access Roads	Other Ancillary Facilities	ROW Corridor
High	0.2	36.1	53.9	36.1	0.0	47.6	60.7	0.2	0.2	83.7	114.6	
Moderate	0.4	5.9	3.8	3.8	3.7	38.3	57.1	4.1	4.1	44.1	60.9	
Low	0.0	1.1	1.5	1.5	0.0	4.4	1.4	0.0	0.0	5.6	2.9	
NA	0.0	1.9	0.0	0.0	0.0	5.3	1.1	0.0	0.0	7.1	1.1	
<b>Total *</b>	<b>0.6</b>	<b>45.0</b>	<b>59.1</b>	<b>59.1</b>	<b>3.7</b>	<b>95.5</b>	<b>120.3</b>	<b>4.3</b>	<b>4.3</b>	<b>140.5</b>	<b>179.4</b>	

Source: USDA NRCS 2025

NA = not applicable

\* Totals may not match the sum of addends due to rounding.



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TABLE 2.2-21 PRESENCE OF HYDRIC SOILS WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Hydric Soil	Proposed Route/ Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Yes	74.4	32.1	53.4	20.8	2.6	0.3	74.4	32.1	2.6	0.3
No	1,199.9	504.1	1,328.8	566.2	205.2	82.9	1,199.9	504.1	205.2	82.9
NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total*</b>	<b>1,274.3</b>	<b>536.1</b>	<b>1,382.3</b>	<b>587.0</b>	<b>207.8</b>	<b>83.2</b>	<b>1,274.3</b>	<b>536.1</b>	<b>207.8</b>	<b>83.2</b>

Source: USDA NRCS 2025

NA = not applicable; ROW = right-of-way

\* Totals may not match the sum of addends due to rounding.

TABLE 2.2-22 PRESENCE OF HYDRIC SOILS WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Hydric Soil	Proposed Route/ Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Yes	42.4	16.3	42.4	16.3	42.4	16.3	45.0	17.7	41.9	15.2
No	2,059.2	865.3	2,059.4	865.7	2,059.2	865.3	2,035.3	849.3	1,986.0	827.1
NA	61.4	27.0	61.4	27.0	61.4	27.0	55.7	24.1	58.3	25.7
<b>Total*</b>	<b>2,163.1</b>	<b>908.6</b>	<b>2,163.3</b>	<b>909.0</b>	<b>2,163.1</b>	<b>908.6</b>	<b>2,136.0</b>	<b>891.2</b>	<b>2,086.2</b>	<b>868.0</b>

Source: USDA NRCS 2025

NA = not applicable; ROW = right-of-way

\* Totals may not match the sum of addends due to rounding.

TABLE 2.2-23 PRESENCE OF HYDRIC SOILS WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR (ACRES)

Hydric Soil	Monongalia and Preston Counties			Mineral and Hampshire Counties			Total West Virginia		
	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Yes	0.0	2.2	0.5	0.2	2.2	0.7	0.2	4.4	1.2
No	0.6	42.8	58.6	3.5	85.4	118.1	4.1	128.2	176.7
NA	0.0	0.0	0.0	0.0	7.9	1.5	0.0	7.9	1.5
<b>Total*</b>	<b>0.6</b>	<b>45.0</b>	<b>59.1</b>	<b>3.7</b>	<b>95.5</b>	<b>120.3</b>	<b>4.3</b>	<b>140.5</b>	<b>179.4</b>

Source: USDA NRCS 2025

NA = not applicable

\* Totals may not match the sum of addends due to rounding.



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TABLE 2.2-24 SOIL DRAINAGE CLASSIFICATIONS WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Drainage Class	Proposed Route/ Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Well-drained	926.6	392.9	1,034.3	446.6	155.8	62.9	926.6	392.9	155.8	62.9
Moderately well-drained	248.3	101.2	273.7	111.1	48.5	20.0	248.3	101.2	48.5	20.0
Somewhat excessively drained	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Somewhat poorly drained	17.5	8.4	8.6	3.7	0.0	0.0	17.5	8.4	0.0	0.0
Poorly drained	74.4	32.1	49.0	19.2	0.8	0.0	74.4	32.1	0.8	0.0
Very poorly drained	0.0	0.0	4.5	1.6	1.8	0.3	0.0	0.0	1.8	0.3
NA	7.5	1.5	12.2	4.8	0.9	<0.1	7.5	1.5	0.9	<0.1
<b>Total*</b>	<b>1,274.3</b>	<b>536.1</b>	<b>1,382.3</b>	<b>587.0</b>	<b>207.8</b>	<b>83.2</b>	<b>1,274.3</b>	<b>536.1</b>	<b>207.8</b>	<b>83.2</b>

Source: USDA NRCS 2025

NA = not applicable; ROW = right-of-way

\* Totals may not match the sum of addends due to rounding.

TABLE 2.2-25 SOIL DRAINAGE CLASSIFICATIONS WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Drainage Class	Proposed Route/ Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Well-drained	1,932.2	813.3	1,932.5	813.7	1,932.2	813.3	1,917.8	800.7	1,893.6	786.8
Moderately well-drained	109.7	45.2	109.7	45.2	109.7	45.2	112.5	46.7	92.9	41.0
Somewhat excessively drained	16.5	5.3	16.5	5.3	16.5	5.3	13.5	4.4	12.0	4.2
Somewhat poorly drained	26.5	11.8	26.5	11.8	26.5	11.8	19.1	8.8	19.1	8.8
Poorly drained	42.4	16.3	42.4	16.3	42.4	16.3	45.0	17.7	41.9	15.2
Very poorly drained	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NA	35.7	16.7	35.7	16.7	35.7	16.7	28.1	12.8	26.7	12.0
<b>Total*</b>	<b>2,163.1</b>	<b>908.6</b>	<b>2,163.3</b>	<b>909.0</b>	<b>2,163.1</b>	<b>908.6</b>	<b>2,136.0</b>	<b>891.2</b>	<b>2,086.2</b>	<b>868.0</b>

Source: USDA NRCS 2025

NA = not applicable; ROW = right-of-way

\* Totals may not match the sum of addends due to rounding.

TABLE 2.2-26 SOIL DRAINAGE CLASSIFICATIONS WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR (ACRES)

Drainage Class	Monongalia and Preston Counties			Mineral and Hampshire Counties			Total West Virginia		
	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Well-drained	0.3	35.2	52.0	3.3	80.6	107.3	3.7	115.8	159.4
Moderately well-drained	0.3	5.5	6.6	0.0	5.1	9.4	0.3	10.7	16.0
Somewhat excessively drained	0.0	0.0	0.0	0.1	1.6	1.8	0.1	1.6	1.8
Somewhat poorly drained	0.0	0.2	<0.1	0.0	0.7	<0.1	0.0	1.0	<0.1
Poorly drained	0.0	1.6	0.5	0.2	2.2	0.7	0.2	3.8	1.2
Very poorly drained	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.6	0.0
NA	0.0	1.9	0.0	0.0	5.3	1.1	0.0	7.1	1.1
<b>Total*</b>	<b>0.6</b>	<b>45.0</b>	<b>59.1</b>	<b>3.7</b>	<b>95.5</b>	<b>120.3</b>	<b>4.3</b>	<b>140.5</b>	<b>179.4</b>

Source: USDA NRCS 2025

NA = not applicable

\* Totals may not match the sum of addends due to rounding.



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### 2.2.3 SURFACE WATER RESOURCES AND AQUATIC SPECIES/HABITAT

This section describes existing surface water resources and aquatic species/habitat within the Siting Corridors and ROW Corridors for the Proposed Route and Alternative Routes B through F, as well as impacts associated with the ROW Corridors and ancillary facility workspaces outside of the ROW Corridors. The Proposed Route and Alternative Route D are completely collocated in West Virginia and, therefore, described together. Data from the USGS National Hydrography Dataset Plus High Resolution (NHDPlus HR), USGS topographic maps, and National Wetlands Inventory (NWI) mapping, and the West Virginia Department of Environmental Protection (WVDEP) were reviewed to identify potential waterbodies within the Siting Corridors for the Proposed Route and Alternative Routes.

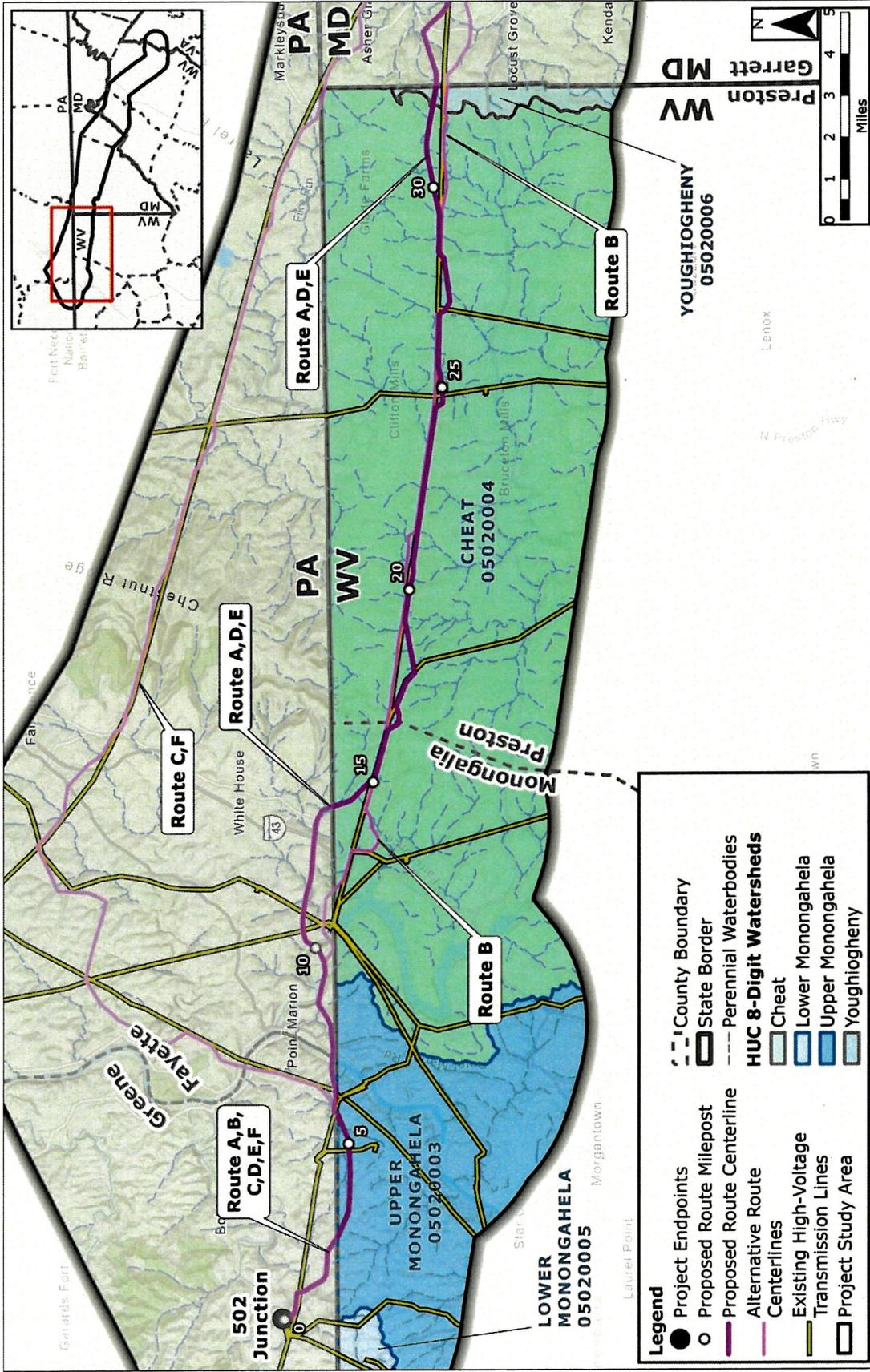
The U.S. Army Corps of Engineers (USACE) has jurisdiction over wetlands and waterbodies under Section 404 of the Clean Water Act (CWA), which regulates the discharge of dredged or fill material into Waters of the United States (WOTUS), including wetlands; and under Section 10 of the Rivers and Harbors Act of 1899, which regulates work in, over, and under navigable WOTUS. The WVDEP Division of Water and Waste Management has jurisdiction over wetlands and waterbodies under Section 401 of the CWA. On July 21, 2022, ephemeral features that flow only in direct response to precipitation, including ephemeral streams, swales, gullies, rills, and pools, were excluded under the Navigable Waters Protection Rule but are considered Waters of the State and are, therefore, regulated by the WVDEP Division of Water and Waste Management. In addition, WVDEP's Division of Water and Waste Management has authority under the West Virginia Water Pollution Control Act to regulate discharges to isolated wetlands that are considered Waters of the State. Existing wetland resources within the Siting Corridor are discussed further in Section 2.2.4, along with a description of potential impacts associated with the Proposed Route and Alternative Routes.

Within West Virginia, the MARL Project is located within the USACE Pittsburgh District Regulatory boundary. Monongalia and Preston Counties fall within the USACE Pittsburgh District Civil Works boundary, whereas Mineral and Hampshire Counties are located within the USACE Baltimore District Civil Works boundary.

#### 2.2.3.1 EXISTING CONDITIONS

Watersheds are used to define the geographic area within the boundaries of drainage divides throughout the country. For purposes of classifying watersheds, the United States is divided into four levels of hydrologic units—regions, subregions, accounting units, and cataloging units—which may contain all or part of a watershed. Each level is identified by a Hydrologic Unit Code (HUC). The MARL Project in West Virginia is within the Upper Monongahela (USGS HUC 8-digit [HUC 8] 05020003), Cheat (USGS HUC 8 05020004), Youghiogheny (USGS HUC 8 05020006), North Branch Potomac (USGS HUC 8 02070002), South Branch Potomac (USGS HUC 8 02070001), and Cacapon-Town (USGS HUC 8 02070003) Watersheds (Figure 2.2-3 and Figure 2.2-4).

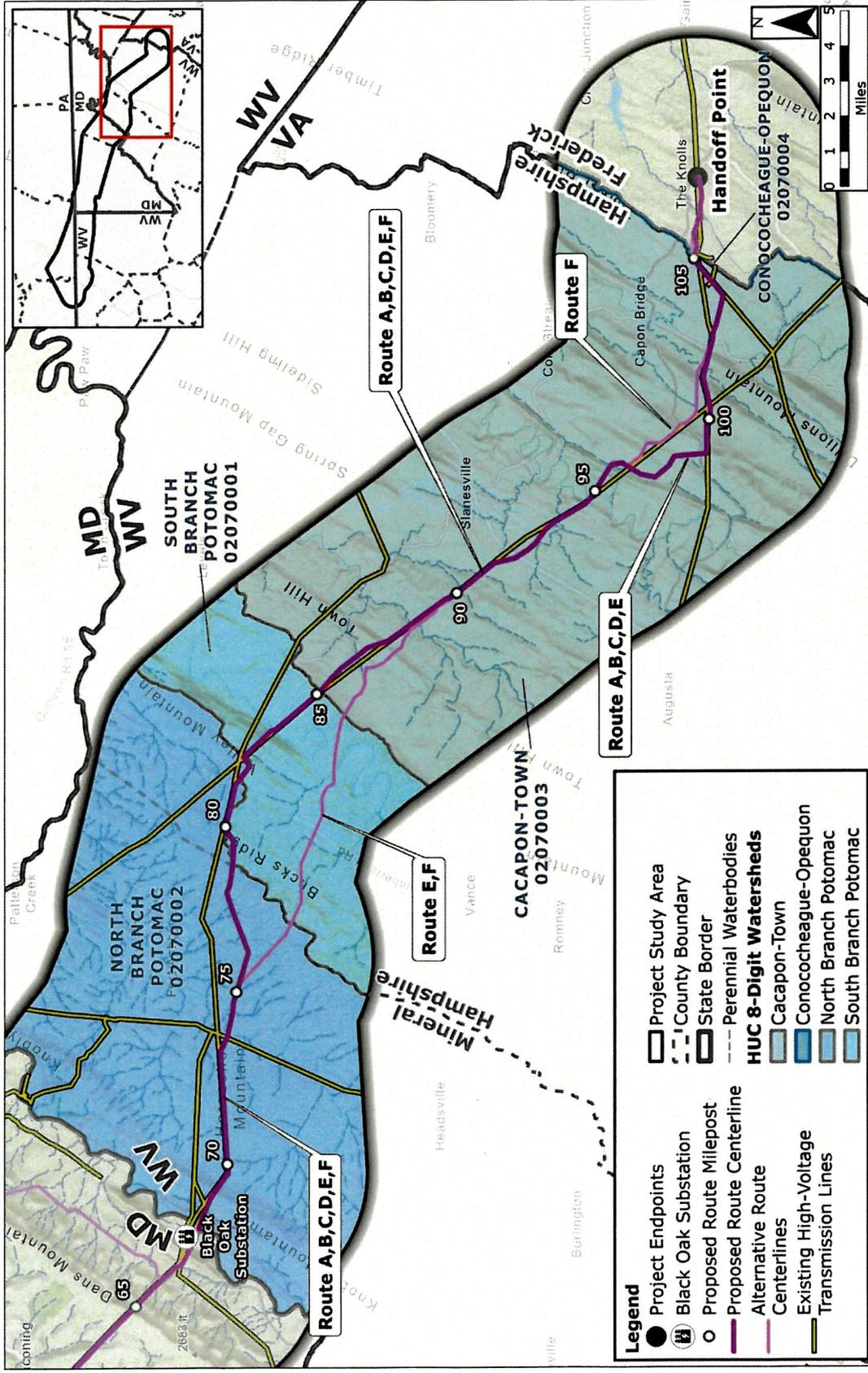
FIGURE 2.2-3 WATERSHEDS—MONONGALIA AND PRESTON COUNTIES



HUC = Hydrologic Unit Code; MD = Maryland; PA= Pennsylvania; WV = West Virginia



FIGURE 2.2-4 WATERSHEDS—MINERAL AND HAMPSHIRE COUNTIES



HUC = Hydrologic Unit Code; MD = Maryland; PA= Pennsylvania; VA = Virginia; WV = West Virginia



Table 2.2-27 and Table 2.2-28 include a summary of the length of National Hydrography Dataset (NHD) linear waterbodies within the Proposed Route and Alternative Route Siting Corridors. No intermittent linear waterbodies (streams/streams) are located in Monongalia and Preston Counties within the Proposed Route and Alternative Route Siting Corridors. Attachment 2, Waterbody Crossing Table, provides a comprehensive table for both linear and open waterbody crossings. Attachment 1c, Water Resources Mapbook, provides detailed waterbody mapping.

**TABLE 2.2-27 NATIONAL HYDROGRAPHY DATASET LINEAR WATERBODIES WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (LINEAR FEET)**

Waterbody Features	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Stream/River—Perennial	15,652.3	19,604.6	2,307.7	15,652.3	2,307.7
<b>Total <sup>a</sup></b>	<b>15,652.3</b>	<b>19,604.6</b>	<b>2,307.7</b>	<b>15,652.3</b>	<b>2,307.7</b>

Source: USGS 2025

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-28 NATIONAL HYDROGRAPHY DATASET LINEAR WATERBODIES WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (LINEAR FEET)**

Waterbody Features	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Stream/River—Intermittent	21,753.8	21,752.8	21,753.8	23,682.7	20,513.3
Stream/River—Perennial	11,277.8	11,276.9	11,277.8	11,786.1	12,131.9
<b>Total <sup>a</sup></b>	<b>33,031.6</b>	<b>33,029.7</b>	<b>33,031.6</b>	<b>35,468.8</b>	<b>32,645.2</b>

Source: USGS 2025

<sup>a</sup> Totals may not match the sum of addends due to rounding.

Table 2.2-29 and Table 2.2-30 include a summary of the acreage of NHD open waterbodies (ponds, lakes, etc.) within the Proposed Route and Alternative Route Siting Corridors. Attachment 2 provides a comprehensive table for open waterbody crossings.

**TABLE 2.2-29 NATIONAL HYDROGRAPHY DATASET OPEN WATERBODIES WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

<b>Waterbody Features</b>	<b>Proposed Route / Alternative Route D</b>	<b>Alternative Route B</b>	<b>Alternative Route C</b>	<b>Alternative Route E</b>	<b>Alternative Route F</b>
Lake/Pond—Perennial	2.5	4.2	1.6	2.5	1.6
<b>Total <sup>a</sup></b>	<b>2.5</b>	<b>4.2</b>	<b>1.6</b>	<b>2.5</b>	<b>1.6</b>

Source: USGS 2025

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-30 NATIONAL HYDROGRAPHY DATASET OPEN WATERBODIES WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

<b>Waterbody Features</b>	<b>Proposed Route / Alternative Route D</b>	<b>Alternative Route B</b>	<b>Alternative Route C</b>	<b>Alternative Route E</b>	<b>Alternative Route F</b>
Lake/Pond—Perennial	1.7	1.7	1.7	1.4	1.1
<b>Total <sup>a</sup></b>	<b>1.7</b>	<b>1.7</b>	<b>1.7</b>	<b>1.4</b>	<b>1.1</b>

Source: USGS 2025

<sup>a</sup> Totals may not match the sum of addends due to rounding.

Table 2.2-31 and Table 2.2-32 provide a summary of NWI- and WVDEP-mapped waterbodies within the Proposed Route and Alternative Route Siting Corridors based on the Cowardin classification, including Palustrine Unconsolidated Bottom (PUB), Riverine, and Lacustrine features. The NWI and WVDEP datasets provide these features as polygons. As a result, acreages are provided in Table 2.2-31 and Table 2.2-32 rather than measurements in linear feet.

PUB features are open waterbodies with unconsolidated bottom substrates. Riverine features are wetlands directly connected to a river or stream, characterized by flowing water. Lacustrine features are wetlands directly associated with lakes and other bodies of standing water, like ponds or reservoirs.

There are no Unconsolidated Bottom, Upper Perennial, Riverine (R3UB) or Unconsolidated Bottom, Intermittent, Riverine (R4UB) features crossed by the Proposed Route and Alternative Route Siting Corridors in Monongalia and Preston Counties. There are no Unconsolidated Bottom, Limnetic, Lacustrine (L1UB), Streambed, Intermittent, Riverine (R4SB), R4UB, Unconsolidated Bottom, Unknown Perennial, Riverine (R5UB), or WVDEP-mapped lakes crossed by the Proposed Route and Alternative Route Siting Corridors in Mineral and Hampshire Counties.

**TABLE 2.2-31 NATIONAL WETLANDS INVENTORY AND WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OPEN WATERBODY FEATURES WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Waterbody Features	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
<b>NWI</b>					
L1UB	0.0	3.0	0.0	0.0	0.0
PUB	4.7	9.1	2.7	4.7	2.7
R2UB	1.9	1.6	0.0	1.9	0.0
R4SB	0.0	0.2	0.0	0.0	0.0
R5UB	<0.1	0.0	<0.1	<0.1	<0.1
<b>Total NWI <sup>a</sup></b>	<b>6.7</b>	<b>13.9</b>	<b>2.7</b>	<b>6.7</b>	<b>2.7</b>
<b>WVDEP</b>					
Freshwater Pond	2.0	2.3	1.3	2.0	1.3
Lake	0.0	2.7	0.0	0.0	0.0
Riverine	0.9	1.2	0.0	0.9	0.0
<b>Total WVDEP <sup>a</sup></b>	<b>2.9</b>	<b>6.2</b>	<b>1.3</b>	<b>2.9</b>	<b>1.3</b>

Source: USFWS n.d.; WVDEP 2019

NWI = National Wetlands Inventory; PUB = Palustrine Unconsolidated Bottom; WVDEP = West Virginia Department of Environmental Protection

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-32 NATIONAL WETLANDS INVENTORY AND WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OPEN WATERBODY FEATURES WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Waterbody Features	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
<b>NWI</b>					
PUB	5.0	5.0	5.0	3.4	2.9
R2UB	4.8	4.8	4.8	5.1	5.6
R3UB	2.5	2.5	2.5	6.4	6.4
<b>Total NWI <sup>a</sup></b>	<b>12.3</b>	<b>12.3</b>	<b>12.3</b>	<b>14.9</b>	<b>14.9</b>
<b>WVDEP</b>					
Freshwater Pond	2.4	2.4	2.4	2.2	1.6
Riverine	5.8	5.8	5.8	10.5	10.8
<b>Total WVDEP <sup>a</sup></b>	<b>8.2</b>	<b>8.2</b>	<b>8.2</b>	<b>12.7</b>	<b>12.4</b>

Source: USFWS n.d.; WVDEP 2019

NWI = National Wetlands Inventory; PUB = Palustrine Unconsolidated Bottom; WVDEP = West Virginia Department of Environmental Protection

<sup>a</sup> Totals may not match the sum of addends due to rounding.

## Sensitive Waterbodies

Waterbodies can be considered sensitive for several reasons, including the presence of critical aquatic habitat; special status species; and high-quality recreational, scenic, or historic value. Each state maintains a list of Tier 3 streams, which are designated as outstanding national resource waters that receive special status to protect water quality, discussed further below. Federal organizations maintain Section 10 waters and both Nationwide Rivers Inventory (NRI) listed rivers and designated Wild and Scenic Rivers (WSRs).

Under Section 10 of the Rivers and Harbors Act of 1899, navigable waters are defined as waters subject to the ebb and flow of the tide and/or are presently used, have been used in the past, or could be susceptible for use to transport interstate or foreign commerce. None of the Siting Corridors in West Virginia for the Proposed Route and Alternative Routes cross Section 10 waters. Additionally, there are no designated federal WSRs in the MARL Project Study Area in West Virginia; however, the South Branch of the Potomac River and the North River are crossed by the Proposed Route and Alternative Routes in Hampshire County and are listed in the NRI (NPS 2024). NRI-listed rivers have characteristics that make them potentially eligible for WSR designation. Federal agencies must seek to avoid or mitigate actions that will affect NRI segments.

## West Virginia Water Quality Standards

Section 401 of the CWA authorizes states to establish and enforce water quality standards to protect surface waters from degradation (United States Code, Title 33, Section 1341 [33 U.S.C. § 1341]). Under this provision, each state must define water quality goals for its waterbodies by designating their intended uses, setting specific water quality criteria, and implementing policies to maintain and enhance water quality.

According to the W. Va. Code R. § 47-2, waterbodies are assigned a designated use, which is a foundational component of the state's water quality standards, as mandated by the CWA. These uses define the intended purpose of a waterbody and guide the development of water quality criteria to ensure that water remains suitable for those purposes. Table 2.2-33 identifies the main designated use categories and subcategories for waters in West Virginia.

**TABLE 2.2-33 DESIGNATED USE CATEGORIES FOR WATERS OF WEST VIRGINIA**

Category	Subcategory	Use Category	Description
A	Public Water	Human Health	Waters used for human consumption after conventional treatment
B1	Warm Water Fishery	Aquatic Life	Supports warm water aquatic life
B2	Trout Waters		Supports year-round trout populations
B4	Wetlands		Supports aquatic life in wetlands such as swamps and marshes
C	Contact Water Recreation	Human Health	Activities like swimming, fishing, and boating
D1-D3	Irrigation, Livestock Watering, Wildlife	All Other	Used for irrigation, agriculture, and wildlife support

Category	Subcategory	Use Category	Description
E1-E4	Water Transport, Cooling Water, Power Production, Industrial		Used for water transport and having permanently maintained navigation aids; industrial cooling; extending from a point 500 feet upstream from the intake to a point 0.5 mile below the wastewater discharge point; and one or more industrial users, not including water for cooling

Each waterbody or segment is assigned one or more of these uses, regardless of whether the use is currently being attained. The WVDEP uses these designations to establish quantitative and qualitative criteria that limit pollutants and protect water quality (WVDEP 2025a).

In accordance with Sections 305(b) and 303(d) of the CWA, West Virginia is mandated to perform annual evaluations of its surface water resources and publish a list of waters that fail to meet the established water quality standards. The WVDEP publishes a 303(d) list in a report every 2 years, known as the *West Virginia Integrated Water Quality Monitoring and Assessment Report*, containing all streams and lakes that are not meeting water quality standards. The report fulfills the reporting requirements of the West Virginia Water Pollution Control Act (W. Va. Code R. § 22- 11-28) and Sections 303(d) and 305(b) of the CWA. Under the CWA, each water that is impaired by a pollutant requires development of a Total Maximum Daily Load (TMDL) for that water. The intention of the TMDL is to restore the designated use of the stream or lake and meet water quality standards, including physical, chemical, and biological criteria such as dissolved oxygen, temperature, turbidity, metals, organic compounds, and bacteria. Waters that fail to meet one or more of these criteria are designated as impaired. Table 2.2-34 identifies the main water quality categories and subcategories for waters in West Virginia.

**TABLE 2.2-34 WATER QUALITY CATEGORIES FOR WATERS OF WEST VIRGINIA**

Category	Description
Category 1	Waters fully supporting all designated uses
Category 2	Waters fully supporting some designated uses, but no or insufficient information exists to assess the other designated uses
Category 3	Water where insufficient or no information exists to determine if any of the uses are being met
Category 4	Waters that are impaired or threatened but do not need a TMDL
Category 4a	Waters that already have an approved TMDL but are still not meeting standards
Category 4b	Waters that have other control mechanisms in place which are reasonably expected to return the water to meeting designated uses
Category 4c	Waters that have been determined to be impaired, but not by a pollutant (e.g., low flow alteration)
Category 5	Waters that have been assessed as impaired and are expected to need a TMDL

Source: WVDEP 2025b

TMDL = Total Maximum Daily Load

W. Va. Code R. § 47-2-4 outlines an anti-degradation policy that establishes three classes for all Waters of the State. The classes are assigned to waters to maintain quality and/or existing uses. The three tiers of protection are defined as follows:

- Tier 1 Protection: Existing water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. Existing uses are those uses attained in a water on or after November 28, 1975, whether or not they are included as designated uses within the state code, water quality standards. A waterbody listed as impaired on the states 303(d) list is considered a Tier 1 water as it pertains to the specific pollutant listed. Tier 1 protection applies to all Waters of the State.
- Tier 2 Protection: These are existing high-quality Waters of the State where the level of water quality exceeds levels necessary to support recreation and wildlife and the propagation and maintenance of fish and other aquatic life. High-quality waters are defined in the state code as those waters whose quality is equal or better than the minimum levels necessary to achieve the national water quality goal uses. Tier 2 is the default assignment for a waterbody not listed as impaired on the states 303(d) list or a Tier 3 stream.
- Tier 3 Protection: These are outstanding national resource waters that have been placed on the highest tier of the state classification to provide greater protection. These include waters that are in federally designated wilderness areas and waters with naturally reproducing trout (*Salmonidae* family) in state parks, national parks, and national forests. No new or expanded regulated activities that would result in a lowering of water quality, other than temporary lowering of the water quality, are allowed on Tier 3 waterbodies.

Table 2.2-35 and Table 2.2-36 include the linear feet of Tier 1 and Tier 2 streams within the Proposed Route and Alternative Route Siting Corridors. No Tier 1 streams are within the Siting Corridors in Monongalia and Preston Counties, and there are no Tier 3 streams within any of the Siting Corridors.

**TABLE 2.2-35 TIER 1 AND TIER 2 STREAMS WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (LINEAR FEET)**

Designated Use Classification	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Tier 2	16,741.2	20,339.1	2,607.3	16,741.2	2,607.3

**TABLE 2.2-36 TIER 1 AND TIER 2 STREAMS WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (LINEAR FEET)**

Designated Use Classification	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Tier 1	1,219.4	1,219.3	1,219.4	1,266.1	1,405.0
Tier 2	32,185.8	32,183.7	32,185.8	34,643.0	31,492.1

## Aquatic Species and Habitat

West Virginia assigns distinct categorical breakdowns to streams for fisheries classifications. Streams and rivers assigned to Water Use Category B support the propagation and maintenance of fish and other aquatic life. Within Category B, West Virginia further classifies streams and rivers as either Warm Water Fishery (B1) or Trout Waters (B2) (W. Va. Code R. § 47-2-6).

Generally, the habitats crossed by the Proposed Route and Alternative Routes contain perennial waterbodies and their tributaries. High-gradient, small rocky waterbodies may provide habitat for native brook trout (*Salvelinus fontinalis*), which often flow into larger streams stocked annually with trout. Stocked trout waters typically have a lesser gradient than native brook trout waters. Perennial waterbodies crossed by the Proposed Route and Alternative Routes may vary in composition, ranging from slower flowing mud/sand bottomed streams to higher flowing rocky, white-water streams (WVDNR 2025a).

The Proposed Route and Alternative Route Siting Corridors cross the South Branch Potomac River, Little Cacapon River, North River, and Cacapon River. Alternative Route B also crosses one unnamed tributary to Cheat Lake. These rivers fall within the Monongahela Central Appalachian and Ridge-Valley biomonitoring region, which is characterized by wadable warm water streams, moderate to high forest cover, and warmwater and coldwater fish communities (WVDEP 2015). The North River is seasonally stocked with rock bass (*Ambloplites rupestris*), smallmouth bass (*Micropterus dolomieu*), panfish (*Centrarchidae* family), and trout. Additionally, the Cacapon and Little Cacapon Rivers have a generally good quality of biological integrity and support healthy and diverse benthic macroinvertebrate communities (WVDEP 2025a). Cheat Lake supports many gamefish species, including channel catfish (*Ictalurus punctatus*), crappie (*Pomoxis* spp.), largemouth bass (*Micropterus salmoides*), smallmouth bass, white bass (*Morone chrysops*), and walleye (*Sander vitreus*) (WVDNR TAGIS n.d.). Fisheries of special concern may include waterbodies that provide habitat for fish species listed for protection at the federal, state, or local level; contain fisheries of exceptional recreational value (designated as Tier 2 or Tier 3 streams in West Virginia); or support commercial fishing. Fisheries of special concern or commercial fisheries are discussed in Section 2.2.8, Rare, Threatened, and Endangered Species. The Proposed Route and Alternative Routes Siting Corridors cross fisheries of exceptional recreational value, including trout streams, as depicted in Table 2.2-35, Table 2.2-36, Table 2.2-37, and Table 2.2-38.

In addition to fisheries, mussel stream designations play an important role in protecting freshwater mussel populations in West Virginia. Mussel streams can include both state-protected species and federally listed threatened and endangered (T&E) species. These designations are guided by W. Va. Code R. § 20-2-4 and W. Va. Code R. § 58-60-5.15, as well as the federal Endangered Species Act (ESA). To help prevent harm to sensitive mussel habitats during development and other stream-related activities, mussel streams in West Virginia are grouped into the following four categories:

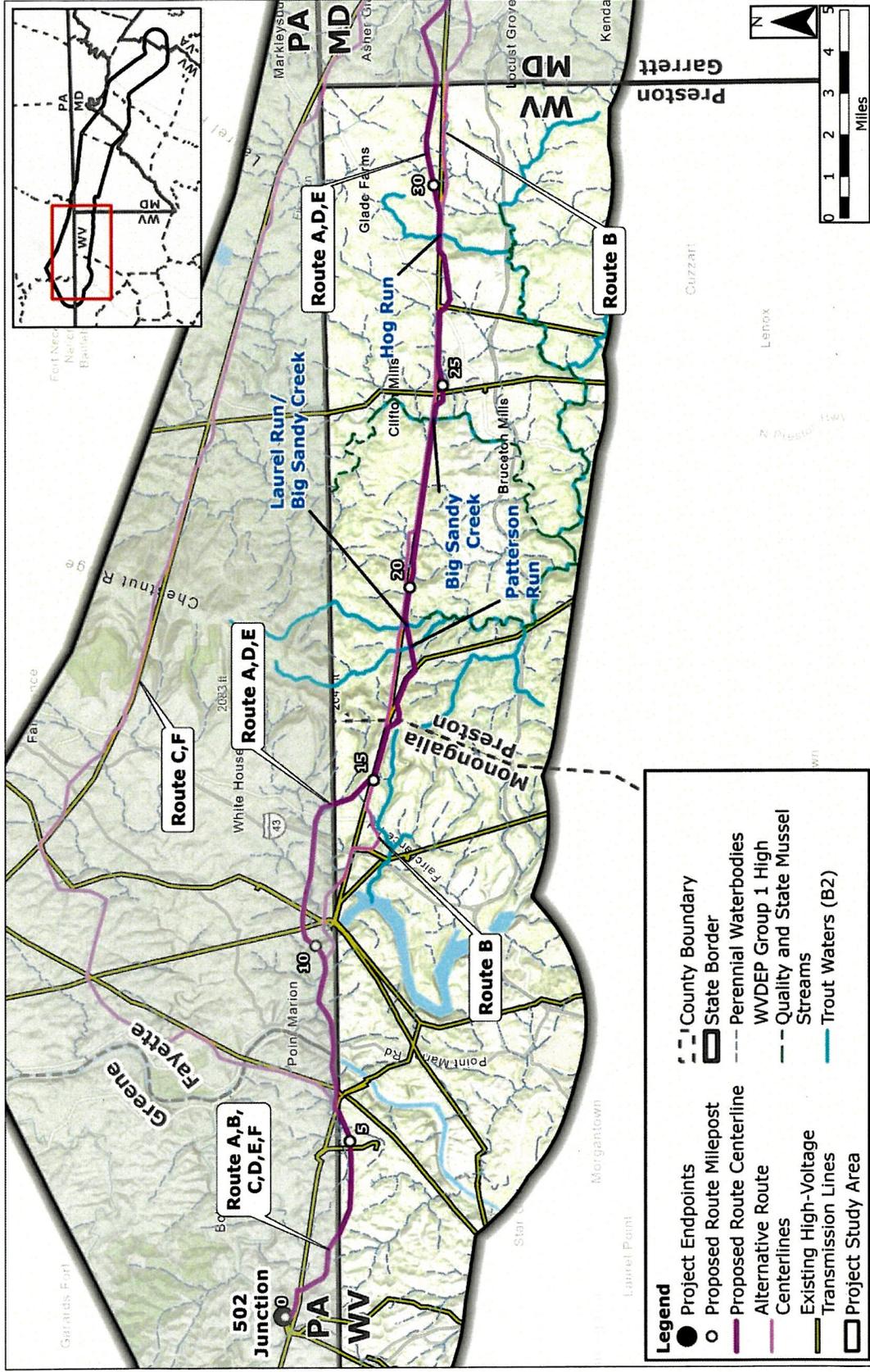
- Group 1: High-quality, state-listed mussel streams; federally listed species not expected

- Group 2: Small- to mid-sized streams with federally listed species expected
  - Group 2.5: These typically are smaller streams that join either a Group 2 or Group 4 stream potentially containing federally listed species. In these instances, the lower 0.5 mile of the stream is classified as Group 2.
- Group 3: Large rivers where federally listed species are not expected
- Group 4: Large rivers where federally listed species are expected (WVDNR 2022)

Group 1 mussel streams were identified within the Proposed Route and Alternative Route Siting Corridors. No Group 3 mussel streams are crossed by the Proposed Route or Alternative Routes based on NHD data received from the West Virginia Division of Natural Resources (WVDNR). Species of concern, rare species, and threatened species are discussed in Section 2.2.8.

Figure 2.2-5 and Figure 2.2-6 display the locations of designated trout streams and Group 1 high-quality and state mussel streams within Monongalia/Preston and Mineral/Hampshire Counties, respectively.

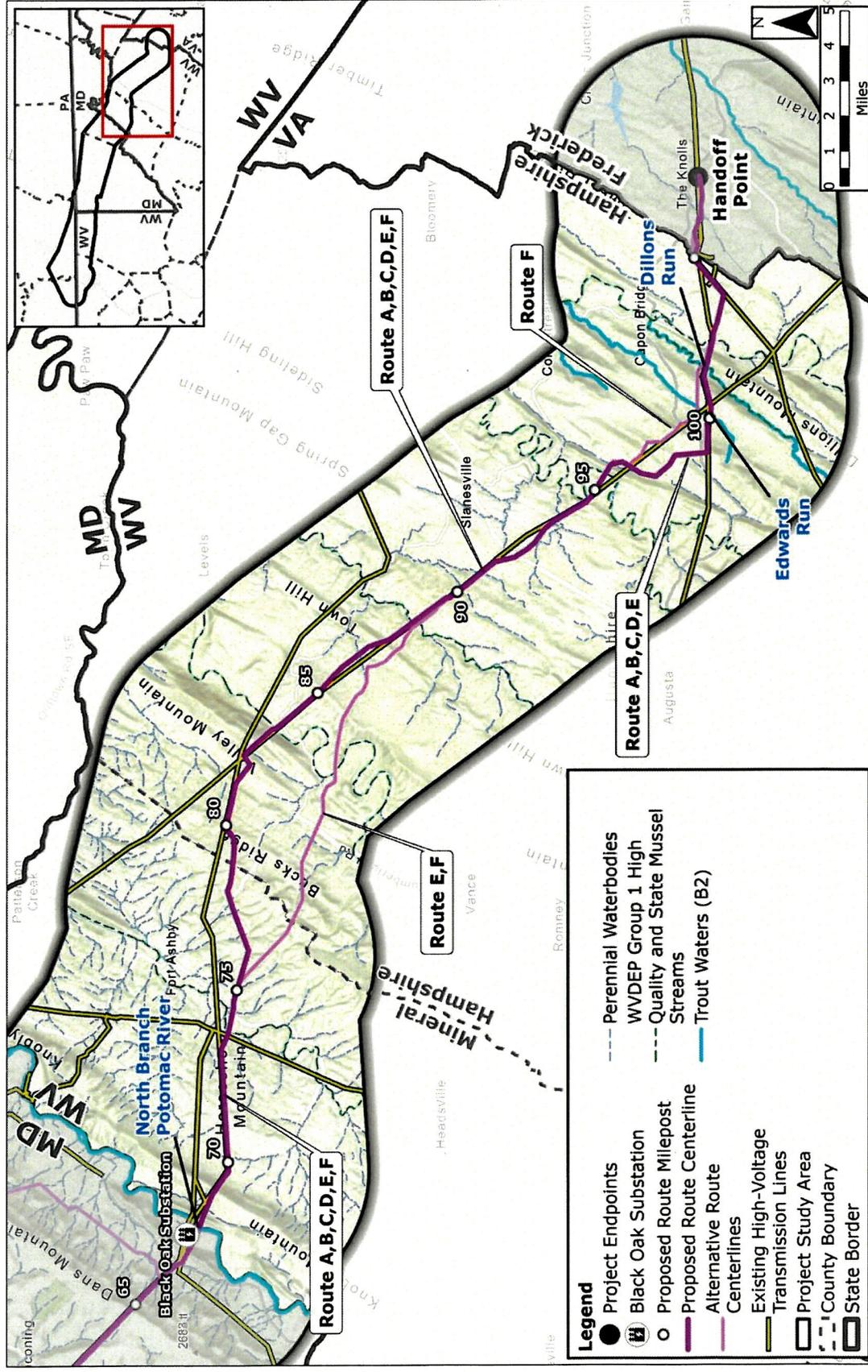
**FIGURE 2.2-5 TROUT WATERS (B2) AND GROUP 1 HIGH-QUALITY AND STATE MUSSEL STREAMS IN MONONGALIA AND PRESTON COUNTIES**



MD = Maryland; PA= Pennsylvania; WV = West Virginia; WVDEP = West Virginia Department of Environmental Protection



**FIGURE 2.2-6 TROUT WATERS (B2) AND GROUP 1 HIGH-QUALITY AND STATE MUSSEL STREAMS IN MINERAL AND HAMPSHIRE COUNTIES**



MD = Maryland; PA= Pennsylvania; VA = Virginia; WV = West Virginia; WVDEP = West Virginia Department of Environmental Protection



Table 2.2-37 and Table 2.2-38 include the linear feet of designated trout and Group 1 high-quality and state mussel streams within the Proposed Route and Alternative Route Siting Corridors.

**TABLE 2.2-37 DESIGNATED TROUT AND GROUP 1 HIGH-QUALITY AND STATE MUSSEL STREAMS WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (LINEAR FEET)**

Designated Stream Type	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Trout stream	1,819.5	1,760.6	0.0	1,819.5	0.0
Mussel stream	469.6	452.5	0.0	469.6	0.0

Source: WVDNR 2024

**TABLE 2.2-38 DESIGNATED TROUT AND GROUP 1 HIGH-QUALITY AND STATE MUSSEL STREAMS WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (LINEAR FEET)**

Designated Stream Type	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Trout stream	1,453.7	1,454.0	1,453.7	1,453.5	2,145.0
Mussel stream	3,359.9	3,359.4	3,359.9	3,824.7	4,183.6

Source: WVDNR 2024

**2.2.3.2 IMPACTS**

This section details the waterbody and aquatic habitat impacts associated with the Proposed Route and Alternative Route ROW Corridors and ancillary facilities. Waterbodies will be aerially spanned by the transmission line conductors, and transmission structures will not be placed in waterbodies to avoid direct impacts on waterbodies and aquatic habitats associated with construction and transmission line operation. In some areas, forested riparian buffers adjacent to waterbodies would be cut and permanently converted to maintained scrub/shrub or herbaceous cover within the ROW Corridor during operation. Removal of forested riparian vegetation would result in indirect impacts on waterbodies, including localized increases in water temperature and decreased dissolved oxygen levels. In addition, vegetation clearing, grading, or other earth-disturbing activities associated with construction in proximity to waterbodies would temporarily result in an increased potential for erosion and stormwater runoff impacts, including increased nutrient loading, turbidity, and sedimentation in waterbodies. Impacts on waterbodies as a result of access road construction and/or culvert placement in waterbodies, if required, could include increased sedimentation, flow disruption, and aquatic habitat alteration during construction and/or operation.



Table 2.2-39 and Table 2.2-40 summarize the length of NHD linear waterbodies within the Proposed Route and Alternative Route Siting and ROW Corridors. No intermittent linear waterbodies are crossed by Proposed Route and Alternative Route ROW Corridors in Monongalia and Preston Counties. The NHD linear waterbody impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.3 percent to 0.4 percent of the 5,295,360.4 linear feet of NHD linear waterbodies present within the MARL Project Study Area in West Virginia.

Impacts on waterbodies and aquatic species/habitat would also occur associated with access roads and other ancillary facilities outside of the ROW Corridor, as shown in Table 2.2-41. Impacts associated with the permanent access roads, temporary access roads, and other temporary ancillary facilities each represent less than 0.1 percent of the 5,295,360.4 feet of NHD linear waterbodies in the MARL Project Study Area in West Virginia.

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TABLE 2.2-39 NATIONAL HYDROGRAPHY DATASET LINEAR WATERBODIES WITHIN THE SITING CORRIDORS AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (LINEAR FEET)

Waterbody Features	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Stream/River—Perennial	15,652.3	6,998.9	19,604.6	8,085.2	2,307.7	898.6	15,652.3	6,998.9	2,307.7	898.6
<b>Total<sup>a</sup></b>	<b>15,652.3</b>	<b>6,998.9</b>	<b>19,604.6</b>	<b>8,085.2</b>	<b>2,307.7</b>	<b>898.6</b>	<b>15,652.3</b>	<b>6,998.9</b>	<b>2,307.7</b>	<b>898.6</b>

Source: USGS 2025

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.2-40 NATIONAL HYDROGRAPHY DATASET LINEAR WATERBODIES WITHIN THE SITING CORRIDORS AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (LINEAR FEET)

Waterbody Features	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Stream/River—Intermittent	21,753.8	8,301.9	21,752.8	8,301.9	21,753.8	8,301.9	23,682.7	8,053.4	20,513.3	7,338.5
Stream/River—Perennial	11,277.8	4,992.3	11,276.9	4,992.3	11,277.8	4,992.3	11,786.1	5,161.9	12,131.9	5,372.9
<b>Total<sup>a</sup></b>	<b>33,031.6</b>	<b>13,294.2</b>	<b>33,029.7</b>	<b>13,294.2</b>	<b>33,031.6</b>	<b>13,294.2</b>	<b>35,468.8</b>	<b>13,215.3</b>	<b>32,645.2</b>	<b>12,711.4</b>

Source: USGS 2025

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.2-41 NATIONAL HYDROGRAPHY DATASET LINEAR WATERBODIES WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE ROW CORRIDOR (LINEAR FEET)

Waterbody Features	Preston and Monongalia Counties				Mineral and Hampshire Counties				Total West Virginia <sup>a</sup>			
	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	ROW Corridor	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	ROW Corridor	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	ROW Corridor
Stream/River—Intermittent	0.0	0.0	0.0	0.0	171.0	614.7	641.0	171.0	171.0	614.7	641.0	171.0
Stream/River—Perennial	0.0	323.9	167.2	167.2	0.0	190.4	30.2	0.0	0.0	514.3	197.3	0.0
<b>Total<sup>a</sup></b>	<b>0.0</b>	<b>323.9</b>	<b>167.2</b>	<b>167.2</b>	<b>171.0</b>	<b>805.1</b>	<b>671.2</b>	<b>171.0</b>	<b>171.0</b>	<b>1,129.0</b>	<b>838.4</b>	<b>171.0</b>

Source: USGS 2025

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.



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Table 2.2-42 and Table 2.2-43 summarize the acreage of NHD open waterbodies within the Proposed Route and Alternative Route Siting and ROW Corridors. The NHD open waterbody impacts associated with the Proposed Route and Alternative Route ROW Corridors are each 0.1 percent of the 2,023.6 acres of NHD waterbodies present within the MARL Project Study Area in West Virginia.

Table 2.2-44 summarizes the acreage of NHD open waterbodies within other temporary ancillary facilities outside of the ROW Corridor. There are no permanent access road impacts on NHD open waterbodies associated with the Proposed Route and Alternative Routes. Impacts associated with the temporary access roads and other temporary ancillary facilities each represent less than 0.1 percent of the 2,023.6 acres of NHD open waterbodies in the MARL Project Study Area in West Virginia.

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TABLE 2.2-42 NATIONAL HYDROGRAPHY DATASET OPEN WATERBODIES WITHIN THE SITING CORRIDORS AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Waterbody Features	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Lake/Pond—Perennial	2.5	0.4	4.2	1.8	1.6	0.4	2.5	0.4	1.6	0.4
<b>Total<sup>a</sup></b>	<b>2.5</b>	<b>0.4</b>	<b>4.2</b>	<b>1.8</b>	<b>1.6</b>	<b>0.4</b>	<b>2.5</b>	<b>0.4</b>	<b>1.6</b>	<b>0.4</b>

Source: USGS 2025

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.2-43 NATIONAL HYDROGRAPHY DATASET OPEN WATERBODIES WITHIN THE SITING CORRIDORS AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Waterbody Features	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Lake/Pond—Perennial	1.7	1.0	1.7	1.0	1.7	1.0	1.4	0.8	1.1	0.6
<b>Total<sup>a</sup></b>	<b>1.7</b>	<b>1.0</b>	<b>1.7</b>	<b>1.0</b>	<b>1.7</b>	<b>1.0</b>	<b>1.4</b>	<b>0.8</b>	<b>1.1</b>	<b>0.6</b>

Source: USGS 2025

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.2-44 NATIONAL HYDROGRAPHY DATASET OPEN WATERBODIES WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE ROW CORRIDOR (ACRES)

Waterbody Features	Preston and Monongalia Counties				Mineral and Hampshire Counties				Total West Virginia <sup>a</sup>			
	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	ROW Corridor	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	ROW Corridor	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	ROW Corridor
Lake/Pond—Perennial <sup>b</sup>	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total<sup>a</sup></b>	<b>0.0</b>	<b>0.1</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

Source: USGS 2025

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.

<sup>b</sup> One unnamed open waterbody is crossed by a temporary access road in Monongalia County.



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Table 2.2-45 and Table 2.2-46 summarize the acreage of NWI- and WVDEP-mapped waterbodies within the Proposed Route and Alternative Route Siting and ROW Corridors. The NWI-mapped waterbody impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.1 percent to 0.3 percent of the 4,235.6 acres of NWI-mapped waterbodies present within the MARL Project Study Area in West Virginia. In addition, WVDEP-mapped waterbody impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.5 percent to 0.9 percent of the 716.3 acres of WVDEP-mapped waterbodies present within the MARL Project Study Area in West Virginia.

Table 2.2-47 summarizes the acreage of NWI- and WVDEP-mapped waterbodies within other temporary ancillary facilities outside of the ROW Corridor. There are no permanent access road impacts on NWI- and WVDEP-mapped waterbodies associated with the Proposed Route and Alternative Routes. Impacts associated with the temporary access roads and other temporary ancillary facilities each represent less than 0.1 percent of the 4,235.6 acres of NWI waterbodies and less than 0.1 percent of the 716.3 acres of WVDEP waterbodies in the MARL Project Study Area in West Virginia.

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TABLE 2.2-45 NATIONAL WETLANDS INVENTORY AND WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OPEN WATERBODY FEATURES WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Waterbody Features	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
<b>NWI</b>										
L1UB	0.0	0.0	3.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0
PUB <sup>a</sup>	4.7	0.7	9.1	3.4	2.7	0.2	4.7	0.7	2.7	0.2
R2UB	1.9	0.9	1.6	0.8	0.0	0.0	1.9	0.9	0.0	0.0
R4SB	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0
RSUB	<0.1	0.0	0.0	0.0	<0.1	0.0	<0.1	0.0	<0.1	0.0
<b>Total NWI<sup>b</sup></b>	<b>6.7</b>	<b>1.5</b>	<b>13.9</b>	<b>5.9</b>	<b>2.7</b>	<b>0.2</b>	<b>6.7</b>	<b>1.5</b>	<b>2.7</b>	<b>0.2</b>
<b>WVDEP</b>										
Freshwater Pond	2.0	0.2	2.3	0.2	1.3	0.1	2.0	0.2	1.3	0.1
Lake	0.0	0.0	2.7	1.5	0.0	0.0	0.0	0.0	0.0	0.0
Riverline	0.9	0.5	1.2	0.6	0.0	0.0	0.9	0.5	0.0	0.0
<b>Total WVDEP<sup>b</sup></b>	<b>2.9</b>	<b>0.7</b>	<b>6.2</b>	<b>2.2</b>	<b>1.3</b>	<b>0.1</b>	<b>2.9</b>	<b>0.7</b>	<b>1.3</b>	<b>0.1</b>

Source: USFWS n.d.; WVDEP 2019

NWI = National Wetlands Inventory; PUB = Palustrine Unconsolidated Bottom; ROW = right-of-way; WVDEP = West Virginia Department of Environmental Protection

<sup>a</sup> Includes Semi-Permanently Flooded, Beaver Modifier; Permanently Flooded, Diked/Impounded; and Permanently Flooded, Excavated

<sup>b</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.2-46 NATIONAL WETLANDS INVENTORY AND WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OPEN WATERBODY FEATURES WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Waterbody Features	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
<b>NWI</b>										
PUB <sup>a</sup>	5.0	2.1	5.0	2.1	5.0	2.1	3.4	1.3	2.9	1.2
R2UB	4.8	2.3	4.8	2.3	4.8	2.3	5.1	2.4	5.6	2.4
R3UB	2.5	1.2	2.5	1.2	2.5	1.2	6.4	3.5	6.4	3.5
<b>Total NWI<sup>b</sup></b>	<b>12.3</b>	<b>5.6</b>	<b>12.3</b>	<b>5.6</b>	<b>12.3</b>	<b>5.6</b>	<b>14.9</b>	<b>7.1</b>	<b>14.9</b>	<b>7.1</b>
<b>WVDEP</b>										
Freshwater Pond	2.4	0.9	2.4	0.9	2.4	0.9	2.2	0.7	1.6	0.5
Riverline	5.8	2.7	5.8	2.7	5.8	2.7	10.5	5.3	10.8	5.3
<b>Total WVDEP<sup>b</sup></b>	<b>8.2</b>	<b>3.6</b>	<b>8.2</b>	<b>3.6</b>	<b>8.2</b>	<b>3.6</b>	<b>12.7</b>	<b>6.0</b>	<b>12.4</b>	<b>5.8</b>

Source: USFWS n.d.; WVDEP 2019

NWI = National Wetlands Inventory; PUB = Palustrine Unconsolidated Bottom; ROW = right-of-way; WVDEP = West Virginia Department of Environmental Protection

<sup>a</sup> Includes Semi-Permanently Flooded, Beaver Modifier; Permanently Flooded, Diked/Impounded; and Permanently Flooded, Excavated

<sup>b</sup> Totals may not match the sum of addends due to rounding.



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TABLE 2.2-47 NATIONAL WETLANDS INVENTORY AND WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OPEN WATERBODIES WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE ROW CORRIDOR (ACRES)

Waterbody Features	Preston and Monongalia Counties			Mineral and Hampshire Counties			Total West Virginia <sup>a</sup>		
	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
<b>NWI</b>									
PUB <sup>b</sup>	0.0	0.0	0.1	0.0	<0.1	<0.1	0.0	<0.1	0.1
R2UB	0.0	<0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0
R3UB	0.0	0.0	0.0	0.0	<0.1	<0.1	0.0	<0.1	<0.1
<b>WVDEP</b>									
Freshwater Pond	0.0	<0.1	0.1	0.0	<0.1	0.0	0.0	<0.1	0.1
Riverine	0.0	0.0	0.0	0.0	0.1	<0.1	0.0	0.1	<0.1
<b>Total <sup>a</sup></b>	<b>0.0</b>	<b>0.0</b>	<b>0.2</b>	<b>0.0</b>	<b>0.2</b>	<b>0.0</b>	<b>0.0</b>	<b>0.2</b>	<b>0.2</b>

Source: USFWS n.d.; WVDEP 2019

NWI = National Wetlands Inventory; PUB = Palustrine Unconsolidated Bottom; ROW = right-of-way; WVDEP = West Virginia Department of Environmental Protection

<sup>a</sup> Totals may not match the sum of addends due to rounding.

<sup>b</sup> This includes Semi-Permanently Flooded, Beaver Modifier; Permanently Flooded; Permanently Flooded, Diked/Impounded; and Permanently Flooded, Excavated.



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Table 2.2-48 and Table 2.2-49 summarize the linear feet of Tier 1 and Tier 2 waterbodies within the Proposed Route and Alternative Route Siting and ROW Corridors. The Tier 1 stream impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.1 percent to 0.2 percent of the 458,597.6 linear feet of Tier 1 streams present within the MARL Project Study Area in West Virginia. In addition, Tier 2 stream impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.3 percent to 0.4 percent of the 4,836,324.1 linear feet of Tier 2 streams present within the MARL Project Study Area in West Virginia.

Table 2.2-50 summarizes the linear feet of Tier 1 and Tier 2 waterbodies within other temporary ancillary facilities outside of the ROW Corridor. Impacts associated with the permanent access roads, temporary access roads, and other temporary ancillary facilities each represent less than 0.1 percent of the 458,597.6 linear feet of Tier 1 waterbodies and less than 0.1 percent of the 4,836,324.1 linear feet of Tier 2 waterbodies in the MARL Project Study Area in West Virginia.

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TABLE 2.2-48 TIER 1 AND TIER 2 STREAMS WITHIN THE SITING CORRIDORS AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (LINEAR FEET)

Designated Use Classification	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Tier 2	16,741.2	7,494.8	20,339.1	8,525.8	2,607.3	1,083.5	16,741.2	7,494.8	2,607.3	1,083.5

ROW = right-of-way

TABLE 2.2-49 TIER 1 AND TIER 2 STREAMS WITHIN THE SITING CORRIDORS AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (LINEAR FEET)

Designated Use Classification	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Tier 1	1,219.4	691.9	1,219.3	691.9	1,219.4	691.9	1,266.1	599.1	1,405.0	611.9
Tier 2	32,185.8	12,717.2	32,183.7	12,717.2	32,185.8	12,717.2	34,643.0	12,789.3	31,492.1	12,213.9

ROW = right-of-way

TABLE 2.2-50 TIER 1 AND 2 STREAMS WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE ROW CORRIDOR (LINEAR FEET)

Designated Use Classification	Preston and Monongalia Counties				Mineral and Hampshire Counties				Total West Virginia <sup>a</sup>			
	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	ROW Corridor	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	ROW Corridor	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	ROW Corridor
Tier 1	0.0	113.3	0.0	0.0	0.0	45.0	0.0	0.0	0.0	0.0	0.0	0.0
Tier 2	0.0	204.4	191.9	674.9	135.1	674.9	683.1	879.3	135.1	879.3	875.0	875.0
<b>Total <sup>a</sup></b>	<b>0.0</b>	<b>317.7</b>	<b>191.9</b>	<b>720.0</b>	<b>135.1</b>	<b>720.0</b>	<b>683.1</b>	<b>1,037.7</b>	<b>135.1</b>	<b>1,037.7</b>	<b>875.0</b>	<b>875.0</b>

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.



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Table 2.2-51 and Table 2.2-52 summarize the linear feet of designated trout and Group 1 high-quality and state mussel streams within the Proposed Route and Alternative Route Siting and ROW Corridors. The designated trout stream impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.2 percent to 0.4 percent of the 418,910.7 linear feet of designated trout streams present within the MARL Project Study Area in West Virginia. In addition, Group 1 high-quality and state mussel stream impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.5 percent to 0.6 percent of the 325,041.8 linear feet of Group 1 high-quality and state mussel streams present within the MARL Project Study Area in West Virginia.

There are no trout streams located within ancillary facilities outside of the ROW Corridor. A total of 45.0 linear feet of one high-quality state mussel stream (Little Cacapon River) is crossed by one temporary access road in Hampshire County. Impacts associated with the temporary access road represent less than 0.1 percent of the 325,041.8 linear feet of high-quality state mussel streams in the MARL Project Study Area in West Virginia.

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TABLE 2.2-51 DESIGNATED TROUT AND MUSSEL STREAMS WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MONINGALIA AND PRESTON COUNTIES (LINEAR FEET)

Designated Stream Type	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
Trout Stream	1,819.5	909.6	1,760.6	963.7	0.0	0.0	1,819.5	909.6	0.0	0.0
Mussel Stream	469.6	204.5	452.5	201.5	0.0	0.0	469.6	204.5	0.0	0.0

Source: WVDNR 2024

ROW = right-of-way

TABLE 2.2-52 DESIGNATED TROUT AND MUSSEL STREAMS WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (LINEAR FEET)

Designated Stream Type	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
Trout Stream	1,453.7	641.6	1,454.0	641.6	1,453.7	641.6	1,453.5	641.6	2,145.0	898.0
Mussel Stream	3,359.9	1,614.7	3,359.4	1,614.7	3,359.9	1,614.7	3,824.7	1,786.8	4,183.6	1,996.5

Source: WVDNR 2024

ROW = right-of-way



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During construction, NEET MA will adhere to in-stream timing restrictions and requirements contained within applicable federal, state, and local permits for construction within waterbodies, as needed. NEET MA will coordinate with the appropriate agencies if it cannot adhere to designated time-of-year restrictions. Additionally, where stream crossings are required for access, temporary span bridges will be used where possible to minimize impacts. If permanent stream crossings are required, NEET MA will install bridges with in-stream support and/or culverts of appropriate size, as needed, to maintain flow and comply with the West Virginia ESC BMP manual. NEET MA will obtain right-of-entry permits from the WVDNR, as applicable for waterbody crossings. NEET MA has also identified five locations in West Virginia along the Proposed Route where forested riparian buffers would be preserved to avoid and minimize impacts on sensitive waterbodies. Further discussion of these riparian exclusion zones and associated mitigation of impacts is provided in Section 3.

To comply with state stormwater requirements, NEET MA will obtain coverage under the WVDEP Construction Stormwater General Permit (WV0115924), as described in Section 2.2.2.2. A MARL Project-specific ESC Plan and SWPPP will be developed in coordination with state and local agencies to meet applicable requirements and implement BMPs. Appropriate BMPs will be used to manage stormwater runoff including silt sock, silt fence, construction entrances, temporary matting and bridges, and erosion matting as needed. Enhanced BMPs will be used, if necessary, for areas that may discharge stormwater to Tier 2 streams and/or sediment-related TMDL waters. In addition, a Spill Prevention, Control, and Countermeasures (SPCC) Plan will be developed, if required, to avoid or minimize impacts on waterbodies due to inadvertent releases of fuel or mechanical fluids in accordance with the U.S. Environmental Protection Agency (USEPA) regulations (Code of Federal Regulations, Title 40, Part 112 [40 CFR Part 112]). Waterbodies temporarily affected by the construction of the ROW Corridor, temporary access roads, or other temporary ancillary facilities will be restored to preconstruction conditions to the maximum extent practicable. NEET MA will comply with the mitigation requirements of permits to compensate for unavoidable permanent impacts on waterbodies. Final mitigation requirements will be determined by the USACE and WVDEP.

#### 2.2.4 WETLANDS

WOTUS, including wetlands, are federally protected under Section 404 of the CWA. The definition of a wetland is "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. Wetlands generally include swamps, marshes, bogs and similar areas" (40 CFR § 230.3(t)).

On December 30, 2022, the USEPA and USACE announced the final "Revised Definition of WOTUS" rule. On January 18, 2023, the rule was published in the *Federal Register*, and the rule took effect on March 20, 2023. On May 25, 2023, the Supreme Court overruled the new WOTUS ruling and defined a wetland as having a direct and continuous surface water connection to a WOTUS regardless of significant nexus. A WOTUS was defined as a permanent geographical feature excluding ephemeral streams. ERM used this guidance to determine potential jurisdictional status. The conforming rule, "Revised Definition of 'Waters of the United States'; Conforming," was

published in the *Federal Register* and became effective on September 8, 2023. On March 24, 2025, the USEPA and USACE published a notice seeking public comment on clarifying the scope of "relatively permanent waters," defining "continuous surface connection" for wetlands, and determining when ditches should be considered jurisdictional (USEPA 2025). Isolated wetlands are considered Waters of the State and are subject to state regulation under Section 401 of the CWA and regulated by the WVDEP Division of Water and Waste Management.

The following presents the wetland desktop assessment for the Proposed Route and Alternative Routes. This assessment is comprised of a review of publicly available data and the results of a deep-learning Wetland Identification Model (WIM) to provide a comprehensive desktop characterization of wetland resources and assessment of impacts.

#### 2.2.4.1 EXISTING CONDITIONS

ERM reviewed publicly available data from the U.S. Fish and Wildlife Service (USFWS) NWI and WVDEP wetland inventory to assess the extent of wetland features within the Proposed Route and Alternative Route Siting Corridors. The USFWS NWI and WVDEP characterize wetlands based on the Cowardin classification system, which is a system for categorizing wetlands and deepwater habitats. It classifies wetlands into five major "systems" that include Palustrine, Riverine, Lacustrine, Marine, and Estuarine. Palustrine wetlands are inland, nontidal wetlands characterized by the presence of trees, shrubs, and emergent vegetation that are often found in areas with standing water or saturated soil. Palustrine wetlands are further classified as Palustrine Emergent (PEM), Palustrine Scrub-Shrub (PSS), and Palustrine Forested (PFO) wetlands. Riverine and Lacustrine wetlands were discussed previously in Section 2.2.3, Surface Water Resources and Aquatic Species/Habitat, and the Siting Corridor does not cross Marine and Estuarine wetlands.

PEM wetlands are characterized by erect, rooted, herbaceous hydrophytes (excluding mosses and lichens) that provide at least 30 percent aerial cover. PSS wetlands are dominated by woody vegetation less than 20 feet tall that provide at least 30 percent areal coverage. PFO wetlands are dominated by woody vegetation 20 feet tall or taller with trunk diameter at breast height of 3 or more inches that provide at least 30 percent areal coverage.

Table 2.2-53 and Table 2.2-54 provide a summary of NWI-, NHD-, and WVDEP-mapped wetland acreages within the Proposed Route and Alternative Route Siting Corridors. Attachment 2 provides a comprehensive table for wetland crossings. Attachment 1c provides detailed wetland mapping. There are no NWI PSS wetlands or NHD swamp/marsh features within any of the Siting Corridors in Mineral and Hampshire Counties, West Virginia.

**TABLE 2.2-53 MAPPED WETLANDS WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Wetland Features <sup>a</sup>	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
<b>NWI</b>					
PEM	4.9	2.1	0.6	4.9	0.6
PSS	7.9	0.3	0.3	7.9	0.3
PFO	0.0	8.6	<0.1	0.0	<0.1
<b>Total NWI <sup>b</sup></b>	<b>12.8</b>	<b>11.0</b>	<b>1.0</b>	<b>12.8</b>	<b>1.0</b>
<b>NHD</b>					
Swamp/Marsh <sup>c</sup>	2.5	1.1	0.0	2.5	0.0
<b>Total NHD <sup>b</sup></b>	<b>2.5</b>	<b>1.1</b>	<b>0.0</b>	<b>2.5</b>	<b>0.0</b>
<b>WVDEP</b>					
Freshwater Emergent Wetland	1.1	2.4	0.0	1.1	0.0
Freshwater Forested / Shrub Wetland	4.7	0.0	0.0	4.7	0.0
<b>Total WVDEP <sup>b</sup></b>	<b>5.8</b>	<b>2.4</b>	<b>0.0</b>	<b>5.8</b>	<b>0.0</b>

Source: USFWS n.d.; WVDEP 2019

NHD = National Hydrography Dataset; NWI = National Wetlands Inventory; PEM = Palustrine Emergent; PFO = Palustrine Forested; PSS = Palustrine Scrub-Shrub; PUB = Palustrine Unconsolidated Bottom; WVDEP = West Virginia Department of Environmental Protection

<sup>a</sup> PUB, Riverine, and Unconsolidated Bottom, Limnetic, Lacustrine features are discussed in Section 2.2.3.

<sup>b</sup> Totals may not match the sum of addends due to rounding.

<sup>c</sup> The Cowardin classification is not applicable for NHD features. NHD feature classification is listed.

**TABLE 2.2-54 MAPPED WETLANDS WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Wetland Features <sup>a</sup>	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
<b>NWI</b>					
PEM	1.8	1.8	1.8	1.5	3.3
PFO	12.9	12.9	12.9	13.6	15.4
<b>Total NWI <sup>b</sup></b>	<b>14.7</b>	<b>14.7</b>	<b>14.7</b>	<b>15.1</b>	<b>18.7</b>

Wetland Features <sup>a</sup>	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
<b>WVDEP</b>					
Freshwater Emergent Wetland	0.5	0.5	0.5	0.5	0.5
Freshwater Forested / Shrub Wetland	2.7	2.7	2.7	2.5	3.2
<b>Total WVDEP <sup>b</sup></b>	<b>3.2</b>	<b>3.2</b>	<b>3.2</b>	<b>3.0</b>	<b>3.7</b>

Source: USFWS n.d.; WVDEP 2019

NWI = National Wetlands Inventory; PEM = Palustrine Emergent; PFO = Palustrine Forested; PSS = Palustrine Scrub-Shrub; PUB = Palustrine Unconsolidated Bottom; WVDEP = West Virginia Department of Environmental Protection

<sup>a</sup> PUB, Riverine, and Unconsolidated Bottom, Limnetic, Lacustrine features are discussed in Section 2.2.3.

<sup>b</sup> Totals may not match the sum of addends due to rounding.

In addition to the review of publicly available data discussed above, a deep-learning WIM was used to further evaluate wetland resources within each Siting Corridor and provide a more robust and enhanced desktop analysis. The WIM was trained on and predicts all wetland types collectively and does not differentiate between Cowardin classifications (e.g., Palustrine, Riverine, Lacustrine).

The following resources were used to facilitate the WIM assessment for the Proposed Route and Alternative Route Siting Corridors:

- Maryland Department of Natural Resources wetlands / NWI wetlands;
- Light Detection and Ranging (LiDAR) Digital Elevation Models;
- Land cover data;
- NHD streams/waterbodies; and
- National Agriculture Imagery Program multi-spectral imagery and derivative products.

Using the base datasets above, eight predictor variables were created to help the deep-learning model identify potential wetlands by recognizing complex patterns that correspond to wetland characteristics. These predictor variables consider characteristics in the Siting Corridors such as hydrology, topography, and geomorphology. The Maryland Department of Natural Resources wetland data was used to facilitate model training across the MARL Project Study Area in Pennsylvania, West Virginia, Maryland, and Virginia, as this dataset has greater accuracy than the NWI data and covers a substantial portion of the Study Area. A more detailed discussion of the modeling assessment is presented in Appendix H, Wetland Identification Model Report, of the Routing Study. Table 2.2-55 and Table 2.2-56 provide summaries of the acreage of modeled high probability wetlands (MHPW) within the Proposed Route and Alternative Route Siting Corridors. MHPW were predicted using seven of the eight variables discussed above, excluding a soil moisture index that historically overpredicts wetlands based on nearby surface water.

**TABLE 2.2-55 WETLAND IDENTIFICATION MODEL HIGH PROBABILITY WETLANDS WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Wetland Features	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
MHPW <sup>a</sup>	5.7	12.0	1.3	5.7	1.3

MHPW = modeled high probability wetland; WIM = Wetland Identification Model

<sup>a</sup> The WIM was trained on all wetland types, including PUB, Riverine, and Lacustrine waterbodies discussed in Section 2.2.3. See Appendix Hof the Routing Study for additional details.

**TABLE 2.2-56 WETLAND IDENTIFICATION MODEL HIGH PROBABILITY WETLANDS WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Wetland Features	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
MHPW <sup>a</sup>	23.6	23.6	23.6	27.1	28.4

MHPW = modeled high probability wetland; WIM = Wetland Identification Model

<sup>a</sup> The WIM was trained on all wetland types, including PUB, Riverine, and Lacustrine waterbodies discussed in Section 2.2.3. See Appendix H of the Routing Study for additional details.

**2.2.4.2 IMPACTS**

This section describes the wetland impacts associated with the ROW Corridors and associated ancillary facilities. Impacts on wetlands within the ROW Corridors and ancillary facilities include temporary impacts on PEM and PSS wetlands from construction activities, including vegetative clearing, matting, and equipment access, as well as permanent wetland impacts associated with operation of the MARL Project. Wetland areas will be aerially spanned by transmission line conductors; however, there would be permanent conversion of some PFO wetlands to PEM and/or PSS wetlands within the maintained ROW Corridor. Additionally, due to engineering design constraints, one permanent structure is located in an NWI-mapped PSS wetland associated with the Proposed Route / Alternative Route D and Alternative Route E ROW Corridors. In addition, one permanent structure is located in an NWI-mapped PFO wetland associated with the Alternative Route B ROW Corridor. Structure placement in wetlands would result in permanent fill within the affected wetland area for tower foundations.

Table 2.2-57 and Table 2.2-58 summarize the acreage of NWI-, NHD-, and WVDEP-mapped wetlands within the Proposed Route and Alternative Route Siting and ROW Corridors. The NWI wetland impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.3 percent to 0.5 percent of the 2,485.5 acres of NWI wetlands present within the MARL Project Study Area in West Virginia. The NHD wetland impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.0 percent to 0.1 percent of the 2,023.6 acres of NHD wetlands present within the MARL Project Study Area in West Virginia. The WVDEP wetland impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.2 percent to 0.4 percent of the 716.3 acres of WVDEP wetlands present within the MARL Project Study Area in West Virginia.



Table 2.2-59 and Table 2.2-60 summarize the WIM MHPW acreages within the Proposed Route and Alternative Route Siting and ROW Corridors. The MHPW impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.2 percent to 0.3 percent of the 5,778.0 acres of MHPW present within the MARL Project Study Area in West Virginia.



TABLE 2.2-57 MAPPED WETLANDS WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Wetland Features <sup>a</sup>	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
<b>NWI</b>										
PEM	4.9	1.3	2.1	1.0	0.6	0.0	4.9	1.3	0.6	0.0
PSS	7.9	3.5	0.3	<0.1	0.3	<0.1	7.9	3.5	0.3	<0.1
PFO	0.0	0.0	8.6	2.9	<0.1	0.0	0.0	0.0	<0.1	0.0
<b>Total NWI<sup>b</sup></b>	<b>12.8</b>	<b>4.8</b>	<b>11.0</b>	<b>3.9</b>	<b>1.0</b>	<b>&lt;0.1</b>	<b>12.8</b>	<b>4.8</b>	<b>1.0</b>	<b>&lt;0.1</b>
<b>NHD</b>										
Swamp/ Marsh <sup>c</sup>	2.5	1.2	1.1	0.8	0.0	0.0	2.5	1.2	0.0	0.0
<b>Total NHD<sup>b</sup></b>	<b>2.5</b>	<b>1.2</b>	<b>1.1</b>	<b>0.8</b>	<b>0.0</b>	<b>0.0</b>	<b>2.5</b>	<b>1.2</b>	<b>0.0</b>	<b>0.0</b>
<b>WVDEP</b>										
Freshwater Emergent Wetland	1.1	0.2	2.4	1.6	0.0	0.0	1.1	0.2	0.0	0.0
Freshwater Forested / Shrub Wetland	4.7	1.6	0.0	0.0	0.0	0.0	4.7	1.6	0.0	0.0
<b>Total WVDEP<sup>b</sup></b>	<b>5.8</b>	<b>1.8</b>	<b>2.4</b>	<b>1.6</b>	<b>0.0</b>	<b>0.0</b>	<b>5.8</b>	<b>1.8</b>	<b>0.0</b>	<b>0.0</b>

Source: USFWS n.d.; WVDEP 2019

NHD = National Hydrography Dataset; NWI = National Wetlands Inventory; PEM = Palustrine Emergent; PFO = Palustrine Forested; PSS = Palustrine Scrub-Shrub; PUB = Palustrine Unconsolidated Bottom; WVDEP = West Virginia Department of Environmental Protection

<sup>a</sup> PUB, Riverine, and Unconsolidated Bottom, Lentic, Lacustrine features are discussed in Section 2.2.3.

<sup>b</sup> Totals may not match the sum of addends due to rounding.

<sup>c</sup> The Cowardin classification is not applicable for NHD features. NHD feature classification is listed.

TABLE 2.2-58 MAPPED WETLANDS CROSSED IN MINERAL AND HAMPSHIRE COUNTIES WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS (ACRES)

Wetland Features <sup>a</sup>	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
<b>NWI</b>										
PEM	1.8	1.0	1.8	1.0	1.8	1.0	1.5	0.7	3.3	1.1
PFO	12.9	5.6	12.9	5.6	12.9	5.6	13.6	5.7	15.4	6.8
<b>Total NWI<sup>b</sup></b>	<b>14.7</b>	<b>6.6</b>	<b>14.7</b>	<b>6.6</b>	<b>14.7</b>	<b>6.6</b>	<b>15.1</b>	<b>6.4</b>	<b>18.7</b>	<b>7.9</b>
<b>WVDEP</b>										
Freshwater Emergent Wetland	0.5	0.1	0.5	0.1	0.5	0.1	0.5	0.1	0.5	0.1
Freshwater Forested / Shrub Wetland	2.7	1.2	2.7	1.2	2.7	1.2	2.5	1.2	3.2	1.2
<b>Total WVDEP<sup>b</sup></b>	<b>3.2</b>	<b>1.3</b>	<b>3.2</b>	<b>1.3</b>	<b>3.2</b>	<b>1.3</b>	<b>3.0</b>	<b>1.3</b>	<b>3.7</b>	<b>1.3</b>

Source: USFWS n.d.; USGS 2025; WVDEP 2019

NWI = National Wetlands Inventory; PEM = Palustrine Emergent; PFO = Palustrine Forested; PSS = Palustrine Scrub-Shrub; PUB = Palustrine Unconsolidated Bottom; WVDEP = West Virginia Department of Environmental Protection

<sup>a</sup> PUB, Riverine, and Unconsolidated Bottom, Lentic, Lacustrine features are discussed in Section 2.2.3.

<sup>b</sup> Totals may not match the sum of addends due to rounding.



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TABLE 2.2-59 WETLAND IDENTIFICATION MODEL HIGH PROBABILITY WETLANDS WITHIN THE SITING CORRIDORS AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Wetland Features	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
MHPW <sup>a</sup>	5.7	1.7	12.0	5.4	1.3	0.1	5.7	1.7	1.3	0.1

MHPW = modeled high probability wetland; PUB = Palustrine Unconsolidated Bottom; WIM = Wetland Identification Model  
<sup>a</sup> The WIM was trained on all wetland types, including PUB, Riverine, and Lacustrine features. See Appendix H of the Routing Study for additional details.

TABLE 2.2-60 WETLAND IDENTIFICATION MODEL HIGH PROBABILITY WETLANDS WITHIN THE SITING CORRIDORS AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Wetland Features	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
MHPW <sup>a</sup>	23.6	10.5	23.6	10.5	23.6	10.5	27.1	12.7	28.4	13.4

MHPW = modeled high probability wetland; PUB = Palustrine Unconsolidated Bottom; WIM = Wetland Identification Model  
<sup>a</sup> The WIM was trained on all wetland types, including PUB, Riverine, and Lacustrine features. See Appendix H of the Routing Study for additional details.



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CLIENT: NextEra Energy Transmission MidAtlantic, Inc. and NextEra Energy Transmission Virginia, Inc.  
PROJECT NO: 0718654 DATE: January 2026

Impacts on wetlands would also occur associated with access roads and other ancillary facilities outside of the ROW Corridor, as shown in Table 2.2-61. There are no permanent access road impacts on NWI, NHD, and WVDEP wetlands associated with the Proposed Route and Alternative Routes. Impacts associated with temporary access roads and other temporary ancillary facilities each represent less than 0.1 percent of the 2,485.5 acres of NWI wetlands and the 2,023.6 acres of NHD waterbodies in the MARL Project Study Area in West Virginia. Similarly, impacts associated with temporary access roads and other temporary ancillary facilities each represent less than 0.1 percent of the 716.3 acres of WVDEP wetlands in the MARL Project Study Area in West Virginia.

Table 2.2-62 summarizes the WIM MHPW wetland acreages associated with other temporary ancillary facility workspaces outside of the ROW Corridor. There are no WIM MHPW impacts associated with permanent access roads associated with the Proposed Route and Alternative Routes. Impacts associated with temporary access roads and other temporary ancillary facility workspaces each represent less than 0.1 percent of the 5,778.0 acres of WIM MHPW wetlands in the MARL Project Study Area in West Virginia.

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TABLE 2.2-61 MAPPED WETLANDS WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE ROW CORRIDOR (ACRES)

Wetland Features	Preston and Monongalia Counties			Mineral and Hampshire Counties			Total West Virginia <sup>a</sup>		
	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
NWI									
PEM	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0
PFO	0.0	<0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.1
PSS	0.0	0.2	<0.1	0.0	0.0	0.0	0.0	0.2	<0.1
NHD									
Swamp/Marsh	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	<0.1
<b>WVDEP</b>									
Freshwater Emergent Wetland	0.0	0.0	<0.1	0.0	0.0	0.0	0.0	0.0	<0.1
Freshwater Forested / Shrub Wetland	0.0	0.0	0.0	0.0	0.1	0.0	0.0	<0.1	0.0
<b>Total <sup>a</sup></b>	<b>0.0</b>	<b>0.2</b>	<b>&lt;0.1</b>	<b>0.0</b>	<b>0.3</b>	<b>0.1</b>	<b>0.0</b>	<b>0.4</b>	<b>0.1</b>

Source: USFWS n.d.; USGS 2025; WVDEP 2019

NHD = National Hydrography Dataset; NWI = National Wetlands Inventory; PEM = Palustrine Emergent; PFO = Palustrine Forested; PSS = Palustrine Scrub-Shrub; WVDEP = West Virginia Department of Environmental Protection  
<sup>a</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.2-62 WETLAND IDENTIFICATION MODEL HIGH PROBABILITY WETLANDS WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE ROW CORRIDOR (ACRES)

Wetland Features	Preston and Monongalia Counties			Mineral and Hampshire Counties			Total West Virginia <sup>a</sup>		
	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
MHPW <sup>b</sup>	0.0	0.1	0.1	0.0	0.4	0.2	0.0	0.4	0.3
<b>Total <sup>a</sup></b>	<b>0.0</b>	<b>0.1</b>	<b>0.1</b>	<b>0.0</b>	<b>0.4</b>	<b>0.2</b>	<b>0.0</b>	<b>0.4</b>	<b>0.3</b>

MHPW = modeled high probability wetland; PUB = Palustrine Unconsolidated Bottom; WTM = Wetland Identification Model

<sup>a</sup> Totals may not match the sum of addends due to rounding.

<sup>b</sup> The WTM was trained on all wetland types, including PUB, Riverline, and Lacustrine features. See Appendix H of the Routing Study for additional details.

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CLIENT: NextEra Energy Transmission MidAtlantic, Inc. and NextEra Energy Transmission Virginia, Inc.  
PROJECT NO: 071.6854 DATE: January 2026

The ROW Corridor and ancillary facilities have been designed to minimize impacts on wetlands, including siting structures and access roads outside of wetland areas, to the maximum extent practicable. Existing roads will be used, when feasible, to minimize new disturbance. Where equipment crossing is necessary in wetlands, construction matting will be used to minimize impacts on wetlands. Prior to construction, applicable permits will be obtained through the USACE and WVDEP for authorization under Section 404 and Section 401 of the CWA.

While PFO wetlands within the ROW Corridor will be permanently converted to PEM or PSS wetlands during operation due to long-term vegetation management requirements, PEM and PSS wetlands temporarily affected by construction will be allowed to reestablish within the ROW Corridor to the maximum extent practicable. In addition, PFO wetlands will be allowed to reestablish within ancillary facility workspaces; however, this will typically occur over a longer period of time. NEET MA will comply with the mitigation requirements and ratios of permits to compensate for unavoidable permanent impacts on wetlands, including conversion impacts and structure placement. Mitigation ratios for wetlands are shown in Table 2.2-63, as per 33 CFR Part 332. Mitigation requirements will be determined by the USACE and WVDEP.

**TABLE 2.2-63 WETLAND MITIGATION RATIOS**

Habitat Type	Mitigation Ratio (Impact Area: Mitigation Area)
PEM	1:1
PSS	1:1.5
PFO	1:2

PEM = Palustrine Emergent; PFO = Palustrine Forested; PSS = Palustrine Scrub-Shrub

To comply with state stormwater requirements, NEET MA will obtain coverage under the WVDEP Construction Stormwater General Permit (WV0115924), as described in Section 2.2.3.2. A MARL Project-specific ESC Plan and SWPPP will be developed in coordination with state and local agencies to meet applicable requirements and implement BMPs. Appropriate BMPs will be used to manage stormwater runoff including silt sock, silt fence, construction entrances, temporary matting and bridges, and erosion matting as needed. Dewatering, if necessary, will be discharged in accordance with the practices described in the West Virginia BMP manual and comply with applicable permit requirements. If other devices are proposed, NEET MA will obtain approval from the WVDEP prior to use. Implementation of these plans will further minimize impacts on wetlands within the ROW Corridor.

An SPCC Plan will be developed, if required, to avoid or minimize impacts on wetlands due to inadvertent releases of fuel or mechanical fluids in accordance with the USEPA regulations (40 CFR Part 112).

**2.2.5 FLOODPLAINS**

ERM reviewed the Federal Emergency Management Agency maps to determine whether mapped floodplains are present within the Alternative Routes (FEMA n.d.). Flood hazard areas identified on the Flood Insurance Rate Map are identified as a Special Flood Hazard Area. Special Flood Hazard Areas are defined as the area that will be inundated by the flood event having a 1 percent chance of being equaled or exceeded in any given year. The 1 percent annual chance of flood is also



referred to as the base flood or 100-year flood. High risk flood zones are labeled Zone A (with a floodplain present) or Zone AE (with a floodplain and floodway present). Moderate risk flood zones are labeled Zone X and represent the 500-year flood. Attachment 1c provides detailed Federal Emergency Management Agency floodplain mapping.

**2.2.5.1 EXISTING CONDITIONS**

West Virginia participates in the National Flood Insurance Program, and all counties have adopted local floodplain ordinances to regulate development in flood prone areas. Requirements for development within a floodplain are outlined in county-specific ordinances (Monongalia County Commission 2019; Preston County Commission 2012; Mineral County Commission 2016; Hampshire County Commission 2008). Table 2.2-64 and Table 2.2-65 include the acreage of floodplains within the Proposed Route and Alternative Route Siting Corridors.

**TABLE 2.2-64 FLOODPLAINS WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Flood Zone	Flood Zone Definition	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
A	1% annual chance of flood	3.4	6.9	3.4	3.4	3.4
AE	1% annual chance of flood	19.8	20.9	0.0	19.8	0.0
	Regulatory floodway	0.0	0.0	0.0	0.0	0.0
X	0.2% annual chance of flood	0.0	0.0	0.0	0.0	0.0
<b>Total <sup>a</sup></b>		<b>23.2</b>	<b>27.8</b>	<b>3.4</b>	<b>23.2</b>	<b>3.4</b>

Source: FEMA n.d.

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-65 FLOODPLAINS WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Flood Zone	Flood Zone Definition	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
A	1% annual chance of flood	46.4	46.4	46.4	44.5	54.6
AE	1% annual chance of flood	42.2	42.2	42.2	45.5	45.6
	Regulatory floodway	16.5	16.5	16.5	25.7	25.7
X	0.2% annual chance of flood	7.1	7.1	7.1	10.2	10.2
<b>Total <sup>a</sup></b>		<b>112.2</b>	<b>112.2</b>	<b>112.2</b>	<b>125.9</b>	<b>136.1</b>

Source: FEMA n.d.

<sup>a</sup> Totals may not match the sum of addends due to rounding.



### 2.2.5.2 IMPACTS

This section describes the floodplain impacts associated with the ROW Corridor and ancillary facilities. Floodplains will be aerially spanned by the transmission line conductors, and transmission structures will not be placed in floodplains to avoid direct impacts on floodplains during operation of the MARL Project to the maximum extent practicable. However, due to engineering design constraints, each of the ROW Corridors would have a limited number of structures within mapped floodplains. Within the ROW Corridors, transmission structures would be located within the mapped 100-year floodplains in five locations along the Proposed Route and Alternative Route D, five locations along Alternative Route B, four locations along Alternative Route C, four locations along Alternative Route E, and three locations along Alternative Route F.

While temporary impacts on floodplains may result from vegetative clearing and ground disturbance associated with construction activities, these areas will be restored as close to preconstruction conditions as practicable, and only minimal direct impacts on floodplains are expected during operation. Permanent impacts on floodplains as a result of structure placement may minimally affect flood storage capacity. Activities within floodplains will be conducted in compliance with the local floodplain ordinances, state requirements, and National Flood Insurance Program standards. Avoidance and mitigation strategies would be implemented where possible. Table 2.2-66 and Table 2.2-67 summarize the acreage of floodplains within the Proposed Route and Alternative Route Siting Corridors and ROW Corridors. The floodplain impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.4 percent to 0.6 percent of the 17,205.5 acres of floodplains present within the MARL Project Study Area in West Virginia.

Table 2.2-68 summarizes the acreage of floodplains within other temporary ancillary facilities outside of the ROW Corridor. There are no permanent access road impacts on floodplains associated with the Proposed Route and Alternative Routes. Impacts associated with the temporary access roads and other temporary ancillary facilities each represent less than 0.1 percent of the 17,205.5 acres of floodplains in the MARL Project Study Area in West Virginia.

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TABLE 2.2-66 FLOODPLAINS WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Flood Zone	Flood Zone Definition	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
		Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
A	1% annual chance of flood	3.4	0.8	6.9	2.6	3.4	0.8	3.4	0.8	3.4	0.8
AE	1% annual chance of flood	19.8	9.5	20.9	10.4	0.0	0.0	19.8	9.5	0.0	0.0
X	Regulatory floodway	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	0.2% annual chance of flood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total *</b>		<b>23.2</b>	<b>10.3</b>	<b>27.8</b>	<b>13.0</b>	<b>3.4</b>	<b>0.8</b>	<b>23.2</b>	<b>10.3</b>	<b>3.4</b>	<b>0.8</b>

Source: FEMA n.d.

\* Totals may not match the sum of addends due to rounding.

TABLE 2.2-67 FLOODPLAINS WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Flood Zone	Flood Zone Definition	Proposed Route / Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
		Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
A	1% annual chance of flood	46.4	20.4	46.4	20.4	46.4	20.4	44.5	19.8	54.6	22.2
AE	1% annual chance of flood	42.2	17.8	42.2	17.8	42.1	17.8	45.5	18.0	45.6	18.0
X	Regulatory floodway	16.5	6.8	16.5	6.8	16.5	6.8	25.7	12.1	25.7	12.1
	0.2% annual chance of flood	7.1	2.1	7.1	2.1	7.1	2.1	10.2	3.6	10.2	3.6
<b>Total *</b>		<b>112.2</b>	<b>47.1</b>	<b>112.2</b>	<b>47.1</b>	<b>112.2</b>	<b>47.1</b>	<b>125.9</b>	<b>53.5</b>	<b>136.1</b>	<b>55.9</b>

Source: FEMA n.d.

\* Totals may not match the sum of addends due to rounding.

TABLE 2.2-68 FLOODPLAINS WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE ROW CORRIDOR (ACRES)

Flood Zone	Flood Zone Definition	Preston and Monongalia Counties			Mineral and Hampshire Counties			Total West Virginia *		
		Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
A	1% annual chance of flood	0.0	0.2	<0.1	0.0	1.0	0.3	0.0	1.2	0.3
AE	1% annual chance of flood	0.0	0.5	0.1	0.0	3.0	0.2	0.0	3.4	0.2
X	Regulatory floodway	0.0	0.0	0.0	0.0	2.0	0.2	0.0	2.0	0.2
	0.2% annual chance of flood	0.0	0.1	0.0	0.0	0.1	<0.1	0.0	0.2	<0.1
<b>Total *</b>		<b>0.0</b>	<b>0.8</b>	<b>0.1</b>	<b>0.0</b>	<b>6.0</b>	<b>0.7</b>	<b>0.0</b>	<b>6.8</b>	<b>0.7</b>

Source: FEMA n.d.

\* Totals may not match the sum of addends due to rounding.



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To comply with state stormwater requirements, NEET MA will obtain coverage under the WVDEP Construction Stormwater General Permit (WV0115924), as described in Section 2.2.2.2. A MARL Project-specific ESC Plan and SWPPP will be developed in coordination with state and local agencies to meet applicable requirements and implement BMPs. Appropriate BMPs will be used to manage stormwater runoff, including silt sock, silt fence, construction entrances, temporary matting and bridges, and erosion matting as needed. In addition, an SPCC Plan will be developed, if required, to avoid or minimize impacts on floodplains due to inadvertent releases of fuel or mechanical fluids in accordance with the USEPA regulations (40 CFR Part 112). Implementation of these plans will further minimize impacts on floodplains within the ROW Corridor.

### 2.2.6 VEGETATION

This section describes existing vegetation resources within the Siting Corridors and ROW Corridors for the Proposed Route and Alternative Routes B through F, as well as impacts associated with the ROW Corridors and ancillary facility workspaces outside of the Proposed Route ROW Corridor. The Siting Corridors for the Proposed Route and Alternative Routes B through F include three Level III and seven Level IV Ecoregions (Woods et al. 1999) in West Virginia. The ecoregions described here are defined by the following criteria:

- Climate
- Elevation
- Land form
- Potential natural vegetation
- Soil
- Structural/bedrock geology
- Surficial/quaternary geology (Woods et al. 1999)

The Siting Corridors cross three Level III Ecoregions—Western Allegheny Plateau (70), Central Appalachians (69), and Ridge and Valley (97)—and seven Level IV Ecoregions, as follows:

- Western Allegheny Plateau (70)
  - Monongahela Transition Zone (70b)
  - Pittsburgh Low Plateau (70c)
- Central Appalachians (69)
  - Forested Hills and Mountains (69a)
  - Uplands and Valleys of Mixed Land Use (69b)
- Ridge and Valley (67)
  - Northern Shale Valleys (67b)
  - Northern Sandstone Ridges (67c)
  - Northern Dissected Ridges (67d)

The following describes each of the Level III Ecoregions, incorporating additional information describing Level IV Ecoregions as applicable. Figure 2.2-7 and Figure 2.2-8 depict the extent of Level IV Ecoregions within each county.

The Western Allegheny Plateau Level III Ecoregion (70) is found in Monongalia County. The natural vegetation communities in the Western Allegheny Plateau Ecoregion were historically dominated by Appalachian oak forest dominated by red oak (*Quercus rubra*) and white oak (*Quercus alba*) and mixed mesophytic forest dominated by American beech (*Fagus grandifolia*), basswood (*Tilia americana*), black cherry (*Prunus serotina*), black walnut (*Juglans nigra*), northern red oak, shagbark hickory (*Carya ovata*), sugar maple (*Acer saccharum*), and tuliptree (*Liriodendron tulipifera*) (PNHP 2019; Woods et al. 1999; Cuff et al. 1989). Today, forested habitats remain common and extensive, with scattered agricultural production in some portions of the ecoregion. Bituminous coal mining is also widespread, and associated environmental impacts have degraded water quality in the region.





The Central Appalachians Level III Ecoregion (69) is found in Monongalia/Preston Counties. The natural vegetation communities in the Central Appalachians Ecoregion are dominated by forested habitats. Historically, Appalachian oak forest habitats were most prevalent, with areas of northern hardwoods (dominated by sugar maple, yellow birch [*Betula alleghaniensis*], beech, and hemlock [*Tsuga canadensis*]), mixed mesophytic forest, oak-hickory forest (dominated by red oak, white oak, red hickory [*Caray ovails*], and shagbark hickory), and sporadic areas of northern spruce-fir forest (dominated by red spruce [*Picea rubens*] and balsam fir [*Abies balsamea*]) at higher elevations. Stands of red oak, white oak, and sugar maple occurred on steeper slopes with limestone soils (Woods et al. 1999; Cuff et al. 1989; Wiegman 1985; Williams and Fridley 1938). Today, extensive areas of birch, black cherry, hard maple (*Acer nigrum*), and red oak dominate many areas and are used as commercial woodlands. Conifer belts dominated by red spruce and hemlock are found in higher, cooler locations (Woods et al. 1999). Additionally, many areas that were cleared in the late 18th century remain productive agricultural areas.

The Ridge and Valley Level III Ecoregion (67) is found in Monongalia/Preston and Mineral/Hampshire Counties. The natural vegetation communities in the northern portion of the Ridge and Valley Ecoregion were historically Appalachian oak forest, while the southern portion was characterized by oak-hickory-pine forest (dominated by hickory). Beech, hemlock, and white pine (*Pinus strobus*), as well as other hardwoods, also occurred locally (Woods et al. 1999; Brenner 1985). Today, farming predominates in lower lying valley areas with scattered woodlands occurring in steeper terrain. The highland ridge areas of the Ridge and Valley Ecoregion are still dominated by the historical natural vegetation, with scattered pastures.

### 2.2.6.1 EXISTING CONDITIONS

The National Land Cover Database (USGS 2024) was used to identify the land cover types within each of the Siting Corridors for the Proposed Route and Alternative Routes B through F. Table 2.2-69 and Table 2.2-70 summarize the land cover types within the Proposed Route and Alternative Route Siting Corridors in Monongalia/Preston Counties and Mineral/Hampshire Counties, respectively. In addition, Figure 2.2-9 and Figure 2.2-10 illustrate the land cover type existing conditions within Monongalia/Preston Counties and Mineral/Hampshire Counties, respectively. See Attachment 1d, Land Cover Mapbook, for additional land cover mapping.

**TABLE 2.2-69 LAND COVER TYPES WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Land Cover Type	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Barren Land (Rock/Sand/Clay)	10.3	20.2	5.6	10.3	5.6
Cultivated Crops	53.0	57.6	8.2	53.0	8.2
Deciduous Forest	810.8	911.5	66.5	810.8	66.5
Developed, High Intensity	0.0	0.0	0.0	0.0	0.0
Developed, Low Intensity	7.8	9.2	1.6	7.8	1.6

Land Cover Type	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Developed, Medium Intensity	0.2	0.7	0.0	0.2	0.0
Developed, Open Space	28.7	33.7	5.7	28.7	5.7
Emergent Herbaceous Wetlands	0.4	0.0	0.0	0.4	0.0
Evergreen Forest	1.0	4.5	0.0	1.0	0.0
Grassland/Herbaceous	30.4	40.4	0.0	30.4	0.0
Mixed Forest	34.4	27.4	2.7	34.4	2.7
Open Water	0.2	2.6	0.0	0.2	0.0
Pasture/Hay	270.0	247.9	116.2	270.0	116.2
Shrub/Scrub	26.7	26.4	1.3	26.7	1.3
Woody Wetlands	0.3	0.0	0.0	0.3	0.0
<b>Total <sup>a</sup></b>	<b>1,274.3</b>	<b>1,382.3</b>	<b>207.8</b>	<b>1,274.3</b>	<b>207.8</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-70 LAND COVER TYPES WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Land Cover Type	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Barren Land (Rock/Sand/Clay)	0.2	0.2	0.2	0.2	0.0
Cultivated Crops	15.0	15.0	15.0	14.9	14.9
Deciduous Forest	1,456.5	1,456.8	1,456.5	1,436.4	1,397.3
Developed, High Intensity	0.0	0.0	0.0	0.0	0.0
Developed, Low Intensity	9.8	9.8	9.8	7.0	6.2
Developed, Medium Intensity	1.5	1.5	1.5	1.5	1.5
Developed, Open Space	69.1	69.1	69.1	68.1	76.5
Emergent Herbaceous Wetlands	0.0	0.0	0.0	0.0	0.0
Evergreen Forest	53.7	53.7	53.7	32.1	26.0
Grassland/Herbaceous	16.7	16.7	16.7	21.7	24.0
Mixed Forest	161.6	161.7	161.6	150.6	146.9
Open Water	4.1	4.1	4.1	5.8	6.1
Pasture/Hay	372.5	372.5	372.5	395.6	384.2
Shrub/Scrub	0.9	0.9	0.9	0.7	1.5
Woody Wetlands	1.3	1.3	1.3	1.3	1.3
<b>Total <sup>a</sup></b>	<b>2,163.1</b>	<b>2,163.3</b>	<b>2,163.1</b>	<b>2,136.0</b>	<b>2,086.2</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.



FIGURE 2.2-9 LAND COVER TYPES—MONONGALIA AND PRESTON COUNTIES

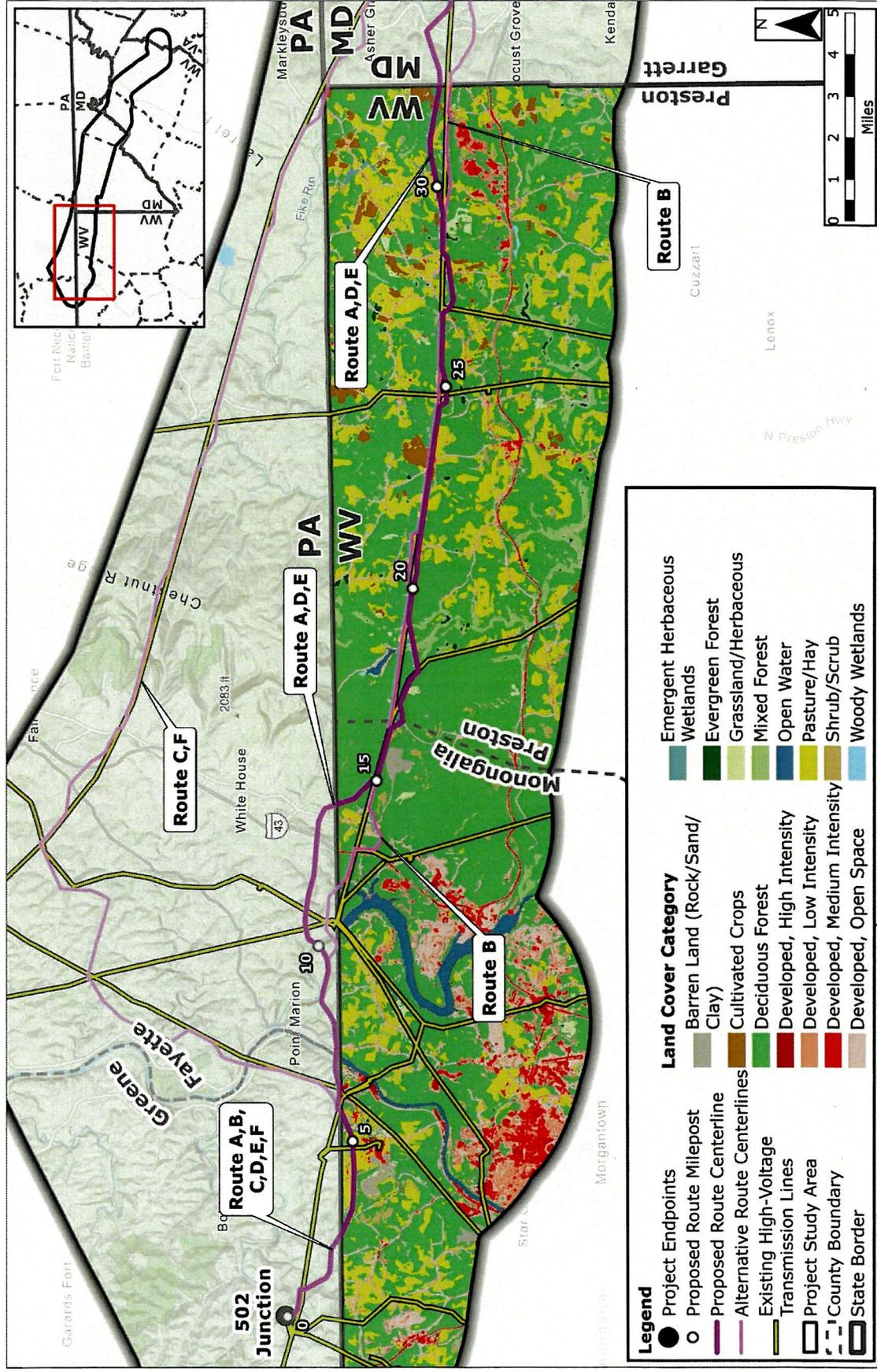
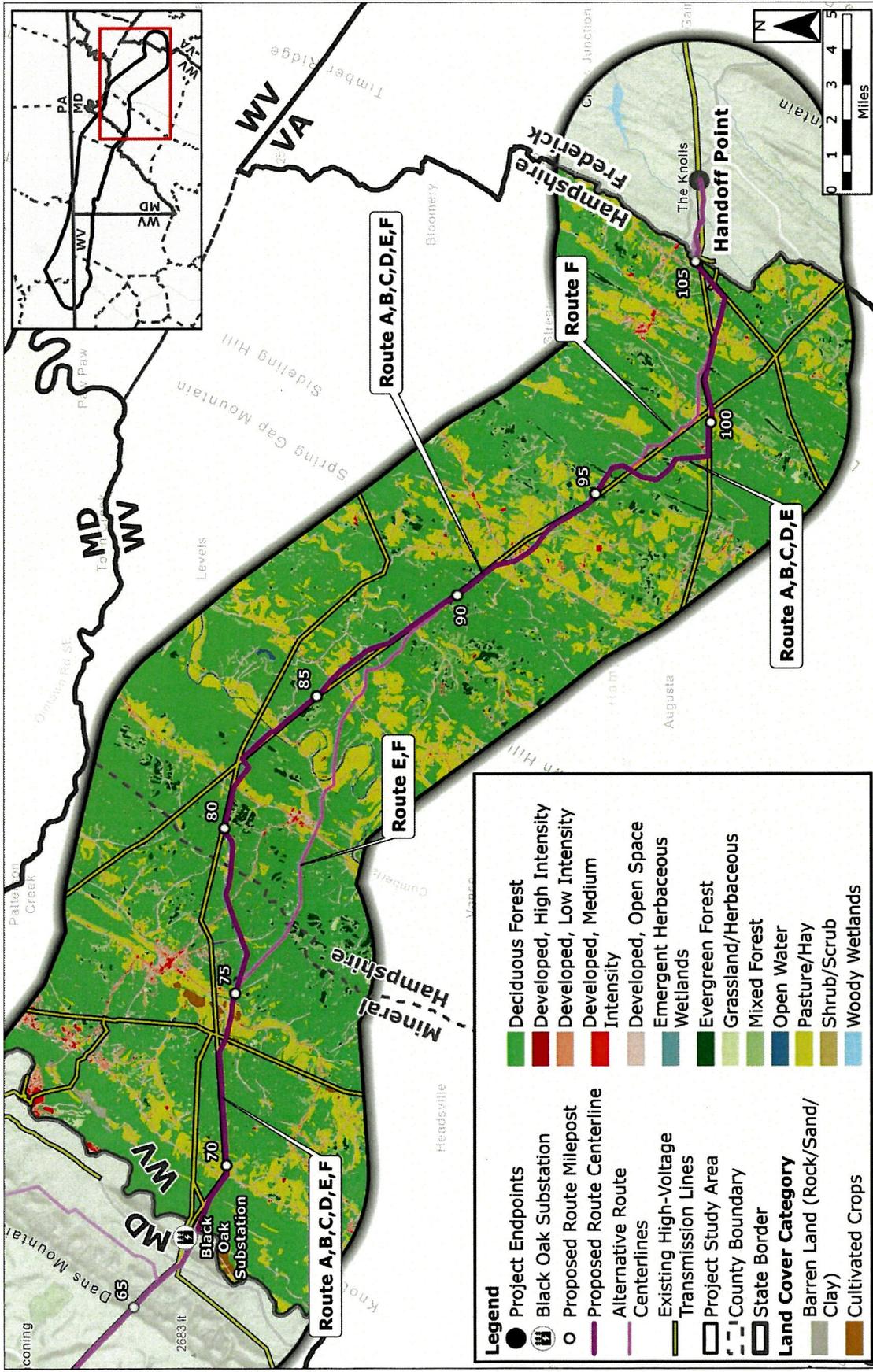


FIGURE 2.2-10 LAND COVER TYPES—MINERAL AND HAMPSHIRE COUNTIES



MD = Maryland; PA = Pennsylvania; VA = Virginia; WV = West Virginia



Existing natural vegetation within the Siting Corridors for the Proposed Route and Alternative Routes includes the following land cover types:

- Deciduous Forest
- Developed, Open Space
- Emergent Herbaceous Wetlands
- Evergreen Forest
- Grassland/Herbaceous
- Mixed Forest
- Pasture/Hay
- Shrub/Scrub
- Woody Wetlands

The total acreage of natural vegetation within the Siting Corridors ranges from 192.4 to 1,291.8 acres in Monongalia/Preston Counties (Table 2.2-71; Figure 2.2-9) and from 2,057.6 to 2,132.6 acres in Mineral/Hampshire Counties (Table 2.2-72; Figure 2.2-10).

**TABLE 2.2-71 NATURAL VEGETATION WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Natural Vegetation	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Non-forested vegetation	356.2	348.4	123.2	356.2	123.2
Forested vegetation	846.5	943.4	69.2	846.5	69.2
<b>Total <sup>a</sup></b>	<b>1,202.7</b>	<b>1,291.8</b>	<b>192.4</b>	<b>1,202.7</b>	<b>192.4</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-72 NATURAL VEGETATION WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Natural Vegetation	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Non-forested vegetation	459.2	459.1	459.2	486.0	486.2
Forested vegetation	1,673.1	1,673.5	1,673.1	1,620.4	1,571.4
<b>Total <sup>a</sup></b>	<b>2,132.4</b>	<b>2,132.6</b>	<b>2,132.4</b>	<b>2,106.5</b>	<b>2,057.6</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**2.2.6.2 IMPACTS**

Construction and operation would result in various temporary and permanent impacts on existing land cover types, including natural vegetation, within the ROW Corridor for the Proposed Route and Alternative Route ROW Corridors, as well as the ancillary facility workspaces outside of the Proposed Route ROW Corridor (Attachment 1d). Impacts on all land cover types in Monongalia/Preston Counties and Mineral/Hampshire Counties are summarized in Table 2.2-73 and Table 2.2-74 and shown on Figure 2.2-9 and Figure 2.2-10, respectively.



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TABLE 2.2-73 LAND COVER TYPES WITHIN THE SITTING AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Land Cover Types	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Barren Land (Rock/Sand/Clay)	10.3	4.2	20.2	9.2	5.6	1.9	10.3	4.2	5.6	1.9
Cultivated Crops	53.0	23.7	57.6	27.0	8.2	3.0	53.0	23.7	8.2	3.0
Deciduous Forest	810.8	346.6	911.5	383.9	66.5	25.1	810.8	346.6	66.5	25.1
Developed, High Intensity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Developed, Low Intensity	7.8	2.6	9.2	3.6	1.6	0.6	7.8	2.6	1.6	0.6
Developed, Medium Intensity	0.2	0.0	0.7	0.1	0.0	0.0	0.2	0.0	0.0	0.0
Developed, Open Space	28.7	11.1	33.7	14.3	5.7	2.5	28.7	11.1	5.7	2.5
Emergent Herbaceous Wetlands	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0
Evergreen Forest	1.0	0.0	4.5	0.3	0.0	0.0	1.0	<0.1	0.0	0.0
Grassland/Herbaceous	30.4	13.8	40.4	19.0	0.0	0.0	30.4	13.8	0.0	0.0
Mixed Forest	34.4	14.9	27.4	12.2	2.7	1.3	34.4	14.9	2.7	1.3
Open Water	0.2	<0.1	2.6	1.1	0.0	0.0	0.2	<0.1	0.0	0.0
Pasture/Hay	270.0	106.5	247.9	105.7	116.2	48.3	270.0	106.4	116.2	48.3
Shrub/Scrub	26.7	12.8	26.4	10.5	1.3	0.7	26.7	12.8	1.3	0.7
Woody Wetlands	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0
<b>Total<sup>a</sup></b>	<b>1,274.3</b>	<b>536.1</b>	<b>1,382.3</b>	<b>587.0</b>	<b>207.8</b>	<b>83.2</b>	<b>1,274.3</b>	<b>536.1</b>	<b>207.8</b>	<b>83.2</b>

Source: USGS 2024

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.



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TABLE 2.2-74 LAND COVER TYPES WITHIN THE SITING AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Land Cover Type	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Barren Land (Rock/Sand/Clay)	0.2	0.0	0.2	0.0	0.2	0.0	0.2	0.0	0.0	0.0
Cultivated Crops	15.0	5.6	15.0	5.6	15.0	5.6	14.9	5.6	14.9	5.6
Deciduous Forest	1,456.5	611.4	1,456.8	611.9	1,456.5	611.4	1,436.4	595.9	1,397.3	577.3
Developed, High Intensity	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Developed, Low Intensity	9.8	3.3	9.8	3.3	9.8	3.3	7.0	2.5	6.2	2.1
Developed, Medium Intensity	1.5	0.5	1.5	0.5	1.5	0.5	1.5	0.5	1.5	0.5
Developed, Open Space	69.1	31.6	69.1	31.6	69.1	31.6	68.1	29.8	76.5	33.9
Emergent Herbaceous Wetlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evergreen Forest	53.7	20.8	53.7	20.8	53.7	20.8	32.1	12.1	26.0	10.4
Grassland/Herbaceous	16.7	7.0	16.7	7.0	16.7	7.0	21.7	8.8	24.0	9.8
Mixed Forest	161.6	63.0	161.7	63.0	161.6	63.0	150.6	58.6	146.9	57.4
Open Water	4.1	2.1	4.1	2.1	4.1	2.1	5.8	3.4	6.1	3.6
Pasture/Hay	372.5	161.4	372.5	161.3	372.5	161.4	395.6	172.4	384.2	165.7
Shrub/Scrub	0.9	0.8	0.9	0.8	0.9	0.8	0.7	0.6	1.5	0.6
Woody Wetlands	1.3	1.1	1.3	1.1	1.3	1.1	1.3	1.1	1.3	1.1
<b>Total<sup>a</sup></b>	<b>2,163.1</b>	<b>908.6</b>	<b>2,163.3</b>	<b>909.0</b>	<b>2,163.1</b>	<b>908.6</b>	<b>2,136.0</b>	<b>891.2</b>	<b>2,086.2</b>	<b>868.0</b>

Source: USGS 2024

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.



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Impacts on natural vegetation within the Siting Corridors and ROW Corridors in Monongalia/Preston Counties and Mineral/Hampshire Counties are summarized in Table 2.2-75 and Table 2.2-76, respectively. Impacts on natural vegetation would generally be temporary where existing land cover type is:

- Developed, Open Space
- Emergent Herbaceous Wetlands
- Grassland/Herbaceous
- Pasture/Hay
- Shrub/Scrub

The above habitats will be restored or allowed to regenerate with select vegetation management as required by site conditions.

Permanent impacts on forested habitats would result from construction, mainly from the conversion of forested habitats to maintained ROW. Impacts on natural vegetation would be generally permanent if the existing land cover is:

- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Woody Wetlands

Impacts on natural vegetation associated with the Proposed Route and Alternative Route ROW Corridors range from 77.8 acres to 546.0 acres in Monongalia/Preston Counties and from 856.2 acres to 897.6 acres in Mineral/Hampshire Counties. Total temporary impacts on non-forested vegetation associated with the ROW Corridors range from 0.3 percent to 0.5 percent of the 75,462.1 acres of non-forested vegetation within the MARL Project Study Area in West Virginia. Similarly, total permanent impacts on forested vegetation associated with habitat conversion within the ROW Corridors range from 0.3 percent to 0.5 percent of the 207,706.1 acres of forested vegetation within the MARL Project Study Area in West Virginia.

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TABLE 2.2-75 NATURAL VEGETATION WITHIN THE SITING AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Natural Vegetation	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Non-forested vegetation	356.2	144.1	348.4	149.5	123.2	51.4	356.2	144.1	123.2	51.4
Forested vegetation	846.5	361.6	943.4	396.5	69.2	26.3	846.5	361.6	69.2	26.3
<b>Total<sup>a</sup></b>	<b>1,202.7</b>	<b>505.7</b>	<b>1,291.8</b>	<b>546.0</b>	<b>192.4</b>	<b>77.8</b>	<b>1,202.7</b>	<b>505.7</b>	<b>192.4</b>	<b>77.8</b>

Source: USGS 2024

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.2-76 NATURAL VEGETATION WITHIN THE SITING AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Natural Vegetation	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Non-forested vegetation	459.2	200.8	459.1	200.7	459.2	200.8	486.0	211.5	486.2	210.0
Forested vegetation	1,673.1	696.4	1,673.5	696.8	1,673.1	696.4	1,620.4	667.7	1,571.4	646.2
<b>Total<sup>a</sup></b>	<b>2,132.4</b>	<b>897.2</b>	<b>2,132.6</b>	<b>897.6</b>	<b>2,132.4</b>	<b>897.2</b>	<b>2,106.5</b>	<b>879.2</b>	<b>2,057.6</b>	<b>856.2</b>

Source: USGS 2024

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.



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Impacts on land cover (Table 2.2-77 and Table 2.2-78) and natural vegetation (Table 2.2-79 and Table 2.2-80) would also occur associated with access roads and other temporary ancillary facilities outside of the Proposed Route ROW Corridor. Impacts on existing land cover types, including natural vegetation, associated with ancillary facility workspaces are shown on Figure 2.2-9, Figure 2.2-10, and in detail on Attachment 1d. Impacts on non-forested vegetation associated with temporary access roads and other temporary ancillary facilities each represent less than 0.1 percent of the 75,462.1 acres of non-forested vegetation within the MARL Project Study Area in West Virginia. Similarly, impacts on forested vegetation associated with temporary access roads and other temporary ancillary facilities each represent less than 0.1 percent of the 207,706.1 acres of forested vegetation within the MARL Project Study Area in West Virginia. Impacts associated with permanent access roads represent less than 0.1 percent of the 289,292.0 acres of the natural vegetation within the MARL Project Study Area in West Virginia.

**TABLE 2.2-77 LAND COVER TYPES WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Land Cover Type	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Barren Land (Rock/Sand/Clay)	0.0	0.7	0.6
Cultivated Crops	0.0	0.2	0.2
Deciduous Forest	0.5	24.6	48.1
Developed, High Intensity	0.0	0.0	0.0
Developed, Low Intensity	0.0	1.8	0.0
Developed, Medium Intensity	0.0	0.2	0.0
Developed, Open Space	<0.1	14.2	0.4
Emergent Herbaceous Wetlands	0.0	0.0	0.0
Evergreen Forest	0.0	0.0	0.0
Grassland/Herbaceous	0.0	0.1	1.2
Mixed Forest	0.0	<0.1	0.1
Open Water	0.0	<0.1	0.0
Pasture/Hay	0.0	2.6	7.2
Shrub/Scrub	<0.1	0.5	1.3
Woody Wetlands	0.0	0.0	0.0
<b>Total <sup>a</sup></b>	<b>0.6</b>	<b>45.0</b>	<b>59.3</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-78 LAND COVER TYPES WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Land Cover Type	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Barren Land (Rock/Sand/Clay)	0.0	0.0	0.0
Cultivated Crops	0.0	0.0	<0.1
Deciduous Forest	3.3	63.0	96.3
Developed, High Intensity	0.0	0.0	0.0
Developed, Low Intensity	0.0	1.8	<0.1
Developed, Medium Intensity	0.0	0.1	0.0
Developed, Open Space	0.0	12.9	1.3
Emergent Herbaceous Wetlands	0.0	0.0	0.0
Evergreen Forest	<0.1	1.4	0.9
Grassland/Herbaceous	<0.1	1.3	0.3
Mixed Forest	<0.1	5.6	7.3
Open Water	0.0	<0.1	<0.1
Pasture/Hay	0.3	9.4	14.1
Shrub/Scrub	0.0	<0.1	0.0
Woody Wetlands	0.0	0.0	0.0
<b>Total <sup>a</sup></b>	<b>3.7</b>	<b>95.5</b>	<b>120.3</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-79 NATURAL VEGETATION WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Natural Vegetation	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Non-forested	0.1	17.4	10.2
Forested	0.5	24.6	48.3
<b>Total <sup>a</sup></b>	<b>0.6</b>	<b>42.1</b>	<b>58.4</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-80 NATURAL VEGETATION WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Natural Vegetation	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Non-forested	0.3	23.6	15.7
Forested	3.4	70.0	104.5
<b>Total <sup>a</sup></b>	<b>3.7</b>	<b>93.6</b>	<b>120.3</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.



The MARL Project has been designed to minimize tree clearing, wetland impacts, and other vegetation impacts to the greatest extent practicable. Additionally, the MARL Project was designed to parallel existing ROWs to avoid and minimize impacts from new forested habitat fragmentation to the extent practicable. The total length where the MARL Project will parallel existing ROWs varies by Alternative Route (Table 2.2-81).

**TABLE 2.2-81 TOTAL LENGTH AND PERCENTAGE OF THE MARL PROJECT THAT PARALLELS EXISTING LINES IN WEST VIRGINIA**

County	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Miles	%	Miles	%	Miles	%	Miles	%	Miles	%
Monongalia	1.4	23.3	3.4	42.5	0.0	0.0	1.4	23.1	0.0	0.0
Preston	7.8	49.4	9.9	62.7	0.0	0.0	7.8	49.4	0.0	0.0
Mineral	5.0	46.1	5.0	46.1	5.0	46.1	5.0	52.2	5.0	52.2
Hampshire	13.5	51.5	13.4	51.2	13.5	51.5	7.8	29.7	5.9	23.3
<b>Total <sup>a</sup></b>	<b>27.7</b>	<b>47.1</b>	<b>31.7</b>	<b>52.1</b>	<b>18.5</b>	<b>45.7</b>	<b>22.1</b>	<b>38.2</b>	<b>10.9</b>	<b>28.4</b>

<sup>a</sup> Totals may not match the sum of addends due to rounding.

NEET MA will coordinate with applicable federal and state agencies and other stakeholders to determine avoidance and minimization measures, as appropriate, to minimize and prevent impacts and loss of natural vegetation and the proliferation of non-native invasive species within the ROW Corridor and ancillary facility workspaces. Construction and routine maintenance activities will comply with all MARL Project-specific permit requirements and conditions and will be conducted under MARL Project-specific plans and procedures to avoid impacts on natural vegetation during construction and throughout operation. Following construction, the MARL Project will result in the establishment and maintenance of natural vegetation within the ROW Corridor and other temporary ancillary facility workspaces in accordance with applicable federal, state, and local requirements.

### 2.2.7 WILDLIFE

This section describes existing wildlife species that may potentially be present within the Siting Corridors and ROW Corridors for the Proposed Route and Alternative Routes B through F, as well as impacts associated with the ROW Corridors and ancillary facility workspaces outside of the Proposed Route ROW Corridor. The following discussion of potentially suitable habitat for wildlife species likely overstates the potential for wildlife occurrences within the Siting and ROW Corridors and ancillary facility workspaces, as not all habitats provide potentially suitable habitat for all species. Further, not all potentially suitable habitat is actively, recently, or historically occupied by any particular species.

### 2.2.7.1 EXISTING CONDITIONS

The vegetation present within the Siting Corridors for the Proposed Route and Alternative Routes B through F provides potentially suitable habitat for a variety of mammals, birds, and herpetofauna. A desktop review of publicly available data was conducted to identify potential wildlife use within and in the vicinity of the Siting Corridors. The total number of each species group identified is provided in Table 2.2-82.

**TABLE 2.2-82 MAMMALS, BIRDS, AND HERPETOFAUNA THAT OCCUR IN COUNTIES  
CROSSED BY THE SITING CORRIDORS**

Species Group	Monongalia County	Preston County	Mineral County	Hampshire County
Mammals	57	61	57	61
Birds	258	279	238	208
Herpetofauna	56	54	58	64
<b>Total <sup>a</sup></b>	<b>371</b>	<b>394</b>	<b>353</b>	<b>333</b>

Source: eBird 2025; iNaturalist n.d.

<sup>a</sup> Totals may not match the sum of addends due to rounding.

Common mammalian species that are expected to occur include mice and other small rodents, squirrels, bats, racoon (*Procyon lotor*), and rabbits, as well as large mammals such as white-tailed deer (*Odocoileus virginiana*), American black bear (*Ursus americanus*), and coyote (*Canus latrans*) (iNaturalist n.d.).

Common avian species that are expected to occur include redwing blackbird (*Agelaius phoeniceus*), American crow (*Corvus brachyrhynchos*), turkey (*Meleagris gallopavo*), sparrows, mourning dove (*Zenaida macroura*), owls, hawks, and woodpeckers (eBird 2025). Additional information regarding birds and protections provided under the Migratory Bird Treaty Act (MBTA) is provided in Section 2.2.8.

Common herpetofauna species that are expected to occur include northern dusky salamander (*Desmognathus fuscus*), northern two-lined salamander (*Eurycea bislineata*), eastern red-backed salamander (*Plethodon cinereus*), American toad (*Anaxyrus americanus*), spring peeper (*Pseudacris crucifer*), green frog (*Lithobates clamitans*), snapping turtle (*Chelydra serpentina*), eastern box turtle (*Terrapene carolina*), northern water snake (*Nerodia sipedon*), eastern rat snake (*Lampropeltis triangulum*), and eastern garter snake (*Thamnophis sirtalis*) (iNaturalist n.d.). Additional information regarding herpetofauna species with state and federal protections is provided in Section 2.2.8.

The total acreage of potentially suitable wildlife habitat within the Siting Corridors may be used to describe the potential for wildlife use. A complete discussion of vegetation (i.e., habitat) within the Siting Corridors is provided in Section 2.2.6, Vegetation.

Potentially suitable habitats for terrestrial wildlife include:

- Barren Land (Rock/Sand/Clay)
- Deciduous Forest
- Developed, Open Space
- Emergent Herbaceous Wetlands
- Evergreen Forest
- Grassland/Herbaceous
- Mixed Forest
- Open Water
- Pasture/Hay
- Shrub/Scrub
- Woody Wetlands

The total acreage of potentially suitable wildlife habitat within the Proposed Route and Alternative Route Siting Corridors ranges from 206.2 acres to 1,372.3 acres in Monongalia/Preston Counties (Table 2.2-83) and 2,078.6 acres to 2,152.0 acres in Mineral/Hampshire Counties (Table 2.2-84; Figure 2.2-9 and Figure 2.2-10; Attachment 1d). Of this, the extent of forested habitats within the Siting Corridors ranges from 69.2 acres to 943.4 acres in Monongalia/Preston Counties and 1,571.4 acres to 1,673.5 acres in Mineral/Hampshire Counties.

**TABLE 2.2-83 POTENTIALLY SUITABLE WILDLIFE HABITAT WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Potentially Suitable Habitat	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Non-forested habitat	419.7	428.9	137.1	419.7	137.1
Forested habitat	846.5	943.4	69.2	846.5	69.2
<b>Total <sup>a</sup></b>	<b>1,266.3</b>	<b>1,372.3</b>	<b>206.2</b>	<b>1,266.3</b>	<b>206.2</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-84 POTENTIALLY SUITABLE WILDLIFE HABITAT WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Potentially Suitable Habitat	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Non-forested habitat	478.6	478.5	478.6	478.6	507.2
Forested habitat	1,673.1	1,673.5	1,673.1	1,673.1	1,571.4
<b>Total <sup>a</sup></b>	<b>2,151.7</b>	<b>2,152.0</b>	<b>2,151.7</b>	<b>2,151.7</b>	<b>2,078.6</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.



Several areas containing high-quality and/or sensitive habitats that could be used by wildlife species have been identified within the Siting Corridors for the Proposed Route and Alternative Routes, including Coopers Rock State Forest in Monongalia/Preston Counties and Whitehorse Mountain WMA in Hampshire County. These areas are further discussed below. Additional information regarding protected lands is provided in Section 2.3.2, Recreation Lands and Designated Natural Resources. Additional information regarding rare, threatened, and endangered (RTE) wildlife is provided in Section 2.2.8.

Coopers Rock State Forest is the largest West Virginia State Forest, totaling approximately 12,747 acres. The mission of the West Virginia Department of Forestry is to manage and protect State Forest Resources for aesthetic preservation; demonstration of state-of-the-art forestry management; developed and undeveloped outdoor recreation; hunting and fishing; propagation of forest trees, fish, and wildlife; silviculture and scientific research; timber production; and wildlife and fisheries management (WVDOP n.d.). The total acreage of Coopers Rock State Forest crossed by the Proposed Route and Alternatives Routes B, D, and E ranges from 67.6 acres to 73.4 acres (Table 2.2-85). Alternative Routes C and F do not cross Coopers Rock State Forest.

Whitehorse Mountain WMA encompasses a variety of native habitats between Valley Mountain and River Mountain, as well as Swisher Hollow (the drainage between them), totaling approximately 1,725 acres (WVDNR 2025). The West Virginia Wildlife Management Program conserves and manages high-quality habitats for a variety of wildlife species and improves public access to these resources. The total acreage of Whitehorse Mountain WMA crossed by the Proposed Route and Alternative Routes B, C, and D, which completely overlap in this area, is 34.2 acres (Table 2.2-85). Alternative Routes E and F do not cross Whitehorse Mountain WMA.

**TABLE 2.2-85 POTENTIALLY SUITABLE WILDLIFE HABITAT WITHIN THE SITING CORRIDORS IN COOPERS ROCK STATE FOREST AND WHITEHORSE MOUNTAIN WILDLIFE MANAGEMENT AREA (ACRES)**

Area	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Coopers Rock State Forest	73.5	67.5	NA	73.5	NA
Whitehorse Mountain WMA	34.2	34.2	34.2	NA	NA
<b>Total <sup>a</sup></b>	<b>107.7</b>	<b>101.7</b>	<b>34.2</b>	<b>73.5</b>	<b>NA</b>

Source: WVDNR 2025

NA = not applicable; WMA = Wildlife Management Area

<sup>a</sup> Totals may not match the sum of addends due to rounding.

### 2.2.7.2 IMPACTS

Construction and operation would result in both temporary and permanent impacts on potentially suitable wildlife habitat within the ROW Corridor for the Proposed Route and Alternative Routes B through F, as well as the ancillary facility workspaces outside of the Proposed Route ROW Corridor (Table 2.2-86 and Table 2.2-87; Figure 2.2-9 and Figure 2.2-10; Attachment 1d). Seasonal presence and use of the existing habitat will vary by season and species. The following discussion likely overstates the potential for impacts on wildlife, as not all habitat provides potentially suitable habitat for all species. Further, not all potentially suitable habitat is actively, recently, or historically occupied by any particular species.

Impacts on wildlife habitat associated with the Proposed Route and Alternative Route ROW Corridors range from 82.7 acres to 583.3 acres in Monongalia/Preston Counties and from 888.2 acres to 905.2 acres in Mineral/Hampshire Counties. Total temporary impacts on non-forested wildlife habitat associated with the ROW Corridors range from 0.3 percent to 0.5 percent of the 81,585.8 acres of non-forested habitat present within the MARL Project Study Area in West Virginia. Similarly, total permanent impacts on forested wildlife habitat associated with habitat conversion within the ROW Corridors range from 0.3 percent to 0.5 percent of the 207,706.1 acres of forested habitat within the MARL Project Study Area in West Virginia.

In addition, the total acreage of Coopers Rock State Forest and Whitehorse Mountain WMA crossed by the Proposed Route and Alternative Route Siting and ROW Corridors is provided in Table 2.2-88. The ROW Corridor impacts for the Proposed Route and Alternative Routes B and E each represent 0.2 percent of the 12,747 acres of Coopers Rock State Forest. There are no impacts on Coopers Rock State Forest associated with Alternative Routes C and F. The ROW Corridor impacts associated with the Proposed Route and Alternative Routes B and C each represent 0.9 percent of the 1,725 acres of Whitehorse Mountain WMA. There are no impacts associated with Alternative Routes E and F.

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TABLE 2.2-86 POTENTIALLY SUITABLE WILDLIFE HABITAT WITHIN THE SITTING AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Potentially Suitable Habitat	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
Non-forested habitat	419.7	172.0	428.9	186.8	137.1	56.3	419.7	172.0	137.1	56.3
Forested habitat	846.5	361.6	943.4	396.5	69.2	26.3	846.5	361.6	69.2	26.3
<b>Total *</b>	<b>1,266.3</b>	<b>533.6</b>	<b>1,372.3</b>	<b>583.3</b>	<b>206.2</b>	<b>82.7</b>	<b>1,266.3</b>	<b>533.6</b>	<b>206.2</b>	<b>82.7</b>

Source: USGS 2024

ROW = right-of-way

\* Totals may not match the sum of addends due to rounding.

TABLE 2.2-87 POTENTIALLY SUITABLE WILDLIFE HABITAT WITHIN THE SITTING AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Potentially Suitable Habitat	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
Non-forested habitat	478.6	208.5	478.5	208.4	478.6	208.5	478.6	220.5	507.2	219.2
Forested habitat	1,673.1	696.4	1,673.5	696.8	1,673.1	696.4	1,673.1	667.7	1,571.4	646.2
<b>Total *</b>	<b>2,151.7</b>	<b>904.9</b>	<b>2,152.0</b>	<b>905.2</b>	<b>2,151.7</b>	<b>904.8</b>	<b>2,151.7</b>	<b>888.2</b>	<b>2,078.6</b>	<b>865.4</b>

Source: USGS 2024

ROW = right-of-way

\* Totals may not match the sum of addends due to rounding.

TABLE 2.2-88 POTENTIALLY SUITABLE WILDLIFE HABITAT WITHIN THE SITTING CORRIDORS WITHIN COOPERS ROCK STATE FOREST AND WHITEHORSE MOUNTAIN WILDLIFE MANAGEMENT AREA (ACRES)

Area	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
Coopers Rock State Forest	73.5	31.3	67.5	29.1	NA	NA	73.5	31.3	NA	NA
Whitehorse Mountain WMA	34.2	14.9	34.2	14.9	34.2	14.9	NA	NA	NA	NA
<b>Total *</b>	<b>107.7</b>	<b>46.2</b>	<b>101.7</b>	<b>44</b>	<b>34.2</b>	<b>14.9</b>	<b>73.5</b>	<b>31.3</b>	<b>NA</b>	<b>NA</b>

Source: Propson 2024, pers. comm.

ROW = right-of-way, WMA = Wildlife Management Area

\* Totals may not match the sum of addends due to rounding.



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Impacts on potentially suitable wildlife habitat would also occur associated with access roads and other temporary ancillary facility workspaces outside of the Proposed Route ROW Corridor, as shown in Table 2.2-89 and Table 2.2-90. Impacts on existing land cover types associated with ancillary facility workspaces are shown on Figure 2.2-9, Figure 2.2-10, and in detail on Attachment 1d. Impacts on non-forested wildlife habitat associated with temporary access roads and other temporary ancillary facilities each represent less than 0.1 percent of the 81,585.8 acres of non-forested habitat within the MARL Project Study Area in West Virginia. Similarly, impacts on forested wildlife habitat associated with temporary access roads and other temporary ancillary facilities each represent less than 0.1 percent of the 207,706.1 acres of forested habitat within the MARL Project Study Area in West Virginia. Impacts associated with permanent access roads represent less than 0.1 percent of the 289,292.0 acres of wildlife habitat within the MARL Project Study Area in West Virginia.

**TABLE 2.2-89 POTENTIALLY SUITABLE WILDLIFE HABITAT WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Habitat Type	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Non-forested	0.1	18.3	11.0
Forested	0.5	24.6	48.3
<b>Total <sup>a</sup></b>	<b>0.6</b>	<b>42.9</b>	<b>59.3</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-90 POTENTIALLY SUITABLE WILDLIFE HABITAT WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Habitat Type	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Non-forested	0.3	23.6	15.8
Forested	3.4	70.0	104.5
<b>Total <sup>a</sup></b>	<b>3.7</b>	<b>93.6</b>	<b>120.3</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.

Construction and operation would result in both temporary and permanent impacts on wildlife species and/or their habitats. Impacts on potentially suitable wildlife habitat would be temporary if the existing land cover type is:

- Barren Land (Rock/Sand/Clay)
- Developed, Open Space
- Emergent Herbaceous Wetlands
- Grassland/Herbaceous



- Open Water
- Pasture/Hay
- Shrub/Scrub

These habitats will be restored or allowed to regenerate with select vegetation management as required by site conditions. Impacts from construction activities (e.g., noise, vibration) could cause temporary displacement of more mobile species such as mammals, birds, and some insects to areas outside of construction zones. Loss of potentially suitable habitat within the ROW Corridor will occur during construction of the MARL Project. Most displaced wildlife is expected to return to the area following construction and would be expected to use the newly established and revegetated herbaceous and shrub/scrub habitat during operation. Loss of less mobile species, such as reptiles, amphibians, and plants, could occur because of ground disturbances associated with construction and routine maintenance activities.

Impacts on forested habitats and associated wildlife would result from construction, mainly from the conversion of forested habitats to maintained ROW Corridor. In addition, cutting of forested vegetation could also potentially increase forest fragmentation in some areas. The MARL Project has been designed to minimize the total amount of tree clearing to the greatest extent practicable to minimize impacts on forested habitats and associated wildlife species. The MARL Project was also designed to parallel existing ROWs to avoid and minimize impacts from new forested habitat fragmentation to the greatest extent practicable. The total length where the MARL Project will parallel existing ROWs varies by Alternative Route (Table 2.2-81). In addition, NEET MA has identified five locations in West Virginia along the Proposed Route where forested riparian buffers would be preserved to avoid and minimize impacts on sensitive forested habitats. Further discussion of these riparian exclusion zones and associated mitigation of impacts is provided in Section 3.

NEET MA will coordinate with applicable federal and state agencies and other stakeholders to determine avoidance and minimization measures, as appropriate, to minimize and prevent impacts on wildlife and loss of wildlife habitat within the MARL Project ROW Corridor. Construction and routine maintenance activities will comply with all MARL Project-specific permit requirements and conditions and will be conducted under MARL Project-specific plans and procedures to avoid impacts on wildlife and wildlife habitat throughout operation. Following construction, the MARL Project will result in the establishment and maintenance of natural vegetation and habitats in accordance with applicable federal, state, and local requirements that would be expected to be used by wildlife species during the MARL Project's operational life.

### 2.2.8 RARE, THREATENED, AND ENDANGERED SPECIES

This section describes existing RTE species that may potentially be present within the Siting Corridors and ROW Corridors for the Proposed Route and Alternative Routes B through F, as well as impacts associated with the ROW Corridors and ancillary facility workspaces outside of the Proposed Route ROW Corridor.

Species are generally defined as animal and plant species that are protected to varying degrees under state or federal law. ERM reviewed protected species according to the following regulations:

- Federally listed T&E species protected under the federal ESA enacted in 1973 and administered by the USFWS and the National Oceanic and Atmospheric Administration, in cooperation with the WVDNR;
- Migratory birds protected under the MBTA enacted in 1918 and administered by the USFWS; and
- Bald eagles (*Haliaeetus leucocephalus*) protected under the federal Bald and Golden Eagle Protection Act enacted in 1940 and administered by the USFWS.

The following sources were used to identify RTE species along and near the Siting Corridors:

- USFWS Information for Planning and Consultation System (IPaC) online system (USFWS n.d.); and
- Species occurrence records obtained through coordination with the WVDNR.

The following discussion likely overstates the potential for RTE species' use of the Siting and ROW Corridors and the resulting impacts associated with construction and routine maintenance activities, as not all habitats within the Siting and ROW Corridors provide potentially suitable habitat for all species. Further, not all potentially suitable habitat is actively, recently, or historically occupied by any particular species.

### 2.2.8.1 EXISTING CONDITIONS

#### **Federally Listed Threatened and Endangered Species**

To protect and recover imperiled species and the ecosystems they depend on, Congress passed the ESA in 1973, which states that T&E plant and animal species are of "[a]esthetic, ecological, educational, historical, recreational, and scientific value to the Nation and its people" and that protection of these species and their habitats is required. The ESA is administered by both the National Oceanic and Atmospheric Administration and the USFWS, and it protects fish, wildlife, plants, and invertebrates that are federally listed as endangered or threatened by prohibiting the "take" of these species and the interstate or international trade of the species, including their parts and products, unless permitted by federal law.

Take is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct" (16 U.S.C. § 1532(19)). A federally endangered species is any species that is in danger of extinction throughout all or a significant portion of its range, with exceptions for certain insect pests (33 U.S.C. § 1532). A federally threatened species is any species that is likely to become endangered in the near future throughout all or a significant portion of its range (33 U.S.C. § 1532).

Review of publicly available databases identified multiple federally listed T&E species within and adjacent to the Proposed Route and Alternative Route Siting Corridors that include Indiana bat (*Myotis sodalis*), northern long-eared bat (*Myotis septentrionalis*), tricolored bat (*Perimyotis subflavus*), and monarch butterfly (*Danaus plexippus*). The Virginia big-eared bat is noted on the IPaC report; however, subsequent coordination with applicable resource agencies has

determined that the record in proximity to the Siting Corridors for the Proposed Route and Alternative Routes is historic, and the species is not expected to be present within the Siting Corridors for the Proposed Route and Alternative Routes. Therefore, the species is not discussed further in the following analysis. Table 2.2-91 provides information on the identified species.

**TABLE 2.2-91 FEDERALLY LISTED, FEDERALLY PROPOSED THREATENED OR ENDANGERED SPECIES THAT COULD OCCUR WITHIN THE SITING CORRIDORS**

Common Name	Scientific Name	Protection Status	Preferred Habitat
Indiana bat	<i>Myotis sodalis</i>	FE	Old-growth or late-successional interior forests; partially dead or decaying trees are used for summer roosting and foraging; hibernation occurs primarily in caves, mines, and tunnels
Monarch butterfly	<i>Danaus plexippus</i>	FPE	Migratory; in fields, roadside areas, and open fields that contain milkweed
Northern long-eared bat	<i>Myotis septentrionalis</i>	FE	Old-growth or late-successional interior forests; partially dead or decaying trees are used for summer roosting and foraging; hibernation occurs primarily in caves, mines, and tunnels
Tricolored bat	<i>Perimyotis subflavus</i>	FPE	Partly open landscapes with large trees and plentiful woodland edge
Virginia big-eared bat <sup>a</sup>	<i>Corynorhinus townsendii virginiana</i>	FE	Cave obligate; in caves, mine portals, or rock crevices year-round; forested to open habitats for foraging

Source: USFWS n.d.

FE = Federally Endangered; FPE = Federally Proposed for Endangered

<sup>a</sup> The Virginia big-eared bat is noted on the IPaC report but is not expected to occur within the Siting Corridors for the Proposed Route and Alternative Routes.

The total acreage of potentially suitable habitat for listed species within the Siting Corridors may be used to describe the potential for listed species use. Existing vegetation and wildlife habitats present within the Siting Corridors provide potentially suitable habitat for the federally listed species to varying degrees based upon species-specific life history and/or Alternative Route. Further detail regarding the existing conditions and impacts on natural vegetation and wildlife habitats is provided in Section 2.2.6 and Section 2.2.7, Wildlife, respectively. See Attachment 1e, Ecological and Sensitive Species Mapbook, and Attachment 1d, for supporting mapping.

### **Bats**

Indiana, northern long-eared, and tri-color bats (listed bats) require forested habitat for roosting from April 1 to October 15. Potentially suitable roosting habitats include:

- Deciduous Forest
- Evergreen Forest
- Mixed Forest
- Woody Wetlands

Based on current land cover data, the total acreage of potentially suitable habitat for roosting bats within the Siting Corridors for the Proposed Route and Alternative Routes ranges from 69.2 to 943.4 acres in Monongalia/Preston Counties and from 1,571.4 to 1,673.5 acres in Mineral/Hampshire Counties (Table 2.2-92 and Table 2.2-93; Figure 2.2-9 and Figure 2.2-10).

**TABLE 2.2-92 POTENTIALLY SUITABLE BAT HABITAT WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Habitat Type	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Potential roosting habitat	846.5	943.4	69.2	846.5	69.2
Foraging habitat	1,266.3	1,372.3	206.2	1,266.3	206.2
Hibernation / staging / swarming habitat	528.3	675.4	112.9	528.0	112.9
Known summer occurrence	0.0	0.0	0.0	0.0	0.0

Source: USGS 2024; USFWS n.d.

**TABLE 2.2-93 POTENTIALLY SUITABLE BAT HABITAT WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Habitat Type	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Potential roosting habitat	1,673.1	1,673.5	1,673.1	1,620.4	1,571.4
Foraging habitat	2,151.7	2,152.0	2,151.7	2,127.5	2,078.6
Hibernation / staging / swarming habitat	0.0	0.0	0.0	0.0	0.0
Known summer occurrence	0.0	0.0	0.0	0.0	0.0

Source: USGS 2024; USFWS n.d.

During the active seasons (staging, maternity, swarming), listed bats use additional land cover types for foraging, including:

- Barren Land (Rock/Sand/Clay)
- Cultivated Crops
- Developed, Open Space
- Emergent Herbaceous Wetlands
- Grassland/Herbaceous
- Open Water
- Pasture/Hay
- Shrub/Scrub

The total acreage of habitat potentially suitable for use by foraging bats within the Siting Corridors for the Proposed Route and Alternative Routes ranges from 206.2 to 1,372.3 acres in Monongalia/Preston Counties and 2,078.6 to 2,152.0 acres in Mineral/Hampshire Counties (Table 2.2-92 and Table 2.2-93; Figure 2.2-9 and Figure 2.2-10).

Listed bats require subterranean habitat for hibernation from November 16 to March 31. ERM coordinated with the USFWS West Virginia Ecological Services Field Office to obtain available data for listed bats’ habitat buffers within the Siting Corridor. The Siting Corridors for the Proposed Route and Alternative Routes intersect two known occupied hibernacula buffers for listed bats in Monongalia/Preston Counties. These buffers represent a 5-mile radius around known occupied hibernacula for listed bat species where additional protections are applied to habitats that are used during active periods, as well as protections for the subterranean habitat during hibernation. The total acreage of habitat potentially suitable for use by swarming and staging bats within the Siting Corridors ranges from 112.9 to 675.4 acres in Monongalia/Preston Counties. No potentially suitable swarming and staging bat habitat was identified in Mineral/Hampshire Counties (Table 2.2-92; Figure 2.2-9 and Figure 2.2-10). Species are considered present for some or all the date ranges listed above.

**Monarch Butterfly**

The monarch butterfly relies on open grassland and herbaceous habitats that meet the species’ habitat requirements. The species is typically found in open situations where milkweed is present. Potentially suitable habitats could include the following land cover types:

- Developed, Open Space
- Emergent Herbaceous Wetlands
- Grassland/Herbaceous
- Pasture/Hay
- Shrub/Scrub

Potentially suitable habitat for monarch butterfly within the Proposed Route and Alternative Route Siting Corridors ranges from 123.2 to 356.2 acres in Monongalia/Preston Counties and 459.1 to 486.2 acres in Mineral/Hampshire Counties (Table 2.2-94; Figure 2.2-9 and Figure 2.2-10).

**TABLE 2.2-94 POTENTIALLY SUITABLE MONARCH BUTTERFLY HABITAT WITHIN THE SITING CORRIDORS IN MONONGALIA, PRESTON, MINERAL, AND HAMPSHIRE COUNTIES (ACRES)**

County	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Monongalia/Preston	356.2	348.4	123.2	356.2	123.2
Mineral/Hampshire	459.2	459.1	459.2	486.0	486.2
<b>Total <sup>a</sup></b>	<b>815.4</b>	<b>807.6</b>	<b>582.5</b>	<b>842.2</b>	<b>609.4</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**West Virginia Division of Natural Resources Species**

The WVDNR developed an RTE species program to implement conservation actions for all federally listed species in West Virginia, including several delisted species and a number of species that are not federally listed but are in need of additional conservation actions. Some of the key roles and



responsibilities of the WVDNR RTE program include, but are not limited to, conducting surveys to document the range of RTE species in West Virginia, monitoring the status and trends of RTE species populations, developing best management conservation practices, and implementing conservation and management programs focused on the recovery of RTE species. WVDNR provided a Natural Heritage Inventory Review letter and corresponding geospatial data regarding current known occurrences and associated buffers of RTE species and/or sensitive habitats that occur within and adjacent to the Proposed Route and Alternative Route Siting Corridors (Propson 2024, pers. comm.; Table 2.2-95). WVDNR's response is provided in Attachment 3, West Virginia Agency Correspondence.

**TABLE 2.2-95 RARE, THREATENED, AND ENDANGERED SPECIES OCCURRENCE AND PREFERRED HABITAT WITHIN THE SITING CORRIDORS**

Common Name	Scientific Name	Preferred Habitat
Allegheny woodrat	<i>Neotoma magister</i>	Extensive patches of rocky outcrops, rocky cliffs, and talus slopes with boulders, crevices, and caves within varied forest habitats
Bobolink	<i>Dolichonyx oryzivorus</i>	Open grassland and herbaceous habitats that lack woody vegetation and have high grass cover
Canada frostweed	<i>Helianthemum candense</i>	Dry, rocky, or sandy, open forested habitats
Climbing fumitory	<i>Adlumia fungosa</i>	Rocky outcrops, slopes, shores in dry to mesic forested habitats with recent disturbance
Columbine duskywing	<i>Erynnis lucilius</i>	Wooded habitats, including barrens, glades, and ridgetops with extensive patches of columbines
Dwarf anemone	<i>Anemone quinquefolia</i> var. <i>minima</i>	Under <i>Alnus serrulate</i> along small streams in acidic forest habitats
Mottled duskywing	<i>Erynnis martialis</i>	Deciduous, coniferous, and mixed forest; grassland herbaceous and shrub/scrub habitats
Northern cricket frog	<i>Acris crepitans</i>	Marshes, marshy margins of ponds, and small low velocity streams with abundant solar exposure
Northern lance	<i>Elliptio fisheriana</i>	Soft sediment; less than 2 feet from highly stable stream and river banks with intact riparian zones
Pine siskin	<i>Carduelis pinus</i>	Partly open landscapes with large trees and plentiful woodland edge
Regal fritillary	<i>Argynnis idalia</i>	Migratory; fields, roadside areas, and open fields that contain milkweed
Shalebarren bindweed	<i>Calystegia spithamea</i> ssp. <i>prushiana</i>	Dry, open, sunny sites with rocky or sandy substrates, including pine/oak barrens, scree, and talus slopes
Shalebarren goldernrod	<i>Solidago arguta</i> var. <i>harrisii</i>	Open, xeric shale slopes
Spotted turtle	<i>Clemmys guttata</i>	Aquatic habitats with soft bottom and aquatic vegetation. Seasonal movements between aquatic habitats common
White alumroot	<i>Heuchera alba</i>	Rocky or shaley forested ridgetops; shaded or north-facing slopes
Wood turtle	<i>Glyptemys insculpta</i>	Permanent streams on the margins of woods; may roam during summer months and be present in adjacent habitats

Source: WVDNR 2025; NatureServe 2025

The vegetation and other natural features present within the Proposed Route and Alternative Route Siting Corridors provides a variety of potentially suitable habitat for RTE species to varying degrees based on species-specific life histories and/or route. Potentially suitable habitat for the above species includes the following land cover types:

- Barren Land (Rock/Sand/Clay)
- Cultivated Crops
- Deciduous Forest
- Developed, Open Space
- Emergent Herbaceous Wetlands
- Evergreen Forest
- Grassland/Herbaceous
- Mixed Forest
- Open Water
- Pasture/Hay
- Shrub/Scrub
- Woody Wetlands

The total acreage of potentially suitable RTE habitat within the Proposed Route and Alternative Route Siting Corridors ranges from 206.2 to 1,372.3 acres in Monongalia/Preston Counties and 2,078.6 to 2,152.0 acres in Mineral/Hampshire Counties (Table 2.2-96 and Table 2.2-97; Figure 2.2-9 and Figure 2.2-10).

**TABLE 2.2-96 POTENTIALLY SUITABLE RARE, THREATENED, AND ENDANGERED SPECIES HABITAT WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

County	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Monongalia/Preston	419.7	428.9	137.1	419.7	137.1
Mineral/Hampshire	846.5	943.4	69.2	846.5	69.2
<b>Total <sup>a</sup></b>	<b>1,266.3</b>	<b>1,372.3</b>	<b>206.2</b>	<b>1,266.3</b>	<b>206.2</b>

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-97 POTENTIALLY SUITABLE RARE, THREATENED, AND ENDANGERED SPECIES HABITAT WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Habitat	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Non-forested	478.6	478.5	478.6	507.1	507.2
Forested	1,673.1	1,673.5	1,673.1	1,620.4	1,571.4
<b>Total <sup>a</sup></b>	<b>2,151.7</b>	<b>2,152.0</b>	<b>2,151.7</b>	<b>2,127.5</b>	<b>2,078.6</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.



As stated previously, the WVDNR provided geospatial data depicting the current known occurrences of RTE species within and adjacent to the Siting Corridors. The acreage of known occurrences/occupied habitat and associated buffers for state-listed species within the Siting Corridors is provided in Table 2.2-98 and Table 2.2-99. Discussion of impacts on waterbodies and aquatic habitats that may potentially be used by some state-listed species is provided in Section 2.2.3, Surface Water Resources and Aquatic Species/Habitat.

**TABLE 2.2-98 RARE, THREATENED, AND ENDANGERED SPECIES WITHIN AND ADJACENT TO THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Species	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Balsam Poplar	0.0	9.7	0.0	0.0	0.0
Bobolink	60.3	60.3	60.3	60.3	60.3
Dwarf Anemone	1.7	1.6	0.0	1.7	1.7
Pine Siskin	191.9	191.8	187.3	191.8	187.4
Regal Fritillary	104.8	104.8	102.7	104.7	102.7
<b>Total <sup>a,b</sup></b>	<b>358.6</b>	<b>368.1</b>	<b>350.3</b>	<b>358.5</b>	<b>350.4</b>

Source: WVDNR 2025

<sup>a</sup> Total acreage of impacts may overstate the actual impacts as species-specific occurrence buffers overlap in some areas.

<sup>b</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-99 RARE, THREATENED, AND ENDANGERED SPECIES WITHIN AND ADJACENT TO THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Species	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Allegheny Woodrat	105.4	105.3	105.2	105.3	105.3
Canada Frostweed	14.3	14.3	14.3	14.3	0.0
Climbing Fumitory	1.1	1.1	1.1	1.1	0.0
Columbine Duskywing	61.6	61.7	61.6	0.0	0.0
Mottled Duskywing	61.6	61.7	61.6	0.0	0.0
Northern Cricket Frog	140.6	140.5	140.6	118.6	118.7
Northern Lance	0.1	0.1	0.1	0.1	0.1
Shale Barren Bindweed	4.0	4.0	4.0	4.0	4.0
Shalebarren Goldenrod	4.0	4.0	4.0	4.0	4.0
Spotted Turtle	< 0.1	< 0.1	< 0.1	< 0.1	0.0
White Alumroot	3.8	3.8	3.8	3.8	3.8
<b>Total <sup>a,b</sup></b>	<b>396.6</b>	<b>396.5</b>	<b>396.4</b>	<b>251.3</b>	<b>236.0</b>

Source: WVDNR 2025

<sup>a</sup> Total acreage of impacts may overstate the actual impacts as species-specific occurrence buffers overlap in some areas.

<sup>b</sup> Totals may not match the sum of addends due to rounding.

### Migratory Bird Treaty Act

Migratory birds are protected under the MBTA, which is administered by the USFWS. Table 2.2-100 lists the migratory bird species of concern that may occur within the Siting Corridors according to the USFWS IPaC database. In total, there were 18 species of migratory birds with the potential to occur within the Siting Corridors. There are 16 birds of conservation concern (BCC), and 2 species are protected under the Bald and Golden Eagle Protection Act (further discussed below).

**TABLE 2.2-100 MIGRATORY BIRDS WITH POTENTIAL TO OCCUR WITHIN THE SITING CORRIDORS**

Common Name	Scientific Name	Status	Breeding Season
Bald eagle	<i>Haliaeetus leucocephalus</i>	Vulnerable <sup>a</sup>	September 1 to August 31
Black-billed cuckoo	<i>Coccyzus erythrophthalmus</i>	BCC	May 15 to October 10
Black-capped chickadee	<i>Poecile atricapillus praticus</i>	BCC	April 10 to July 31
Bobolink	<i>Dolichonyx oryzivorus</i>	BCC	May 20 to July 31
Canada warbler	<i>Cardellina canadensis</i>	BCC	May 20 to August 10
Cerulean warbler	<i>Setophaga cerulea</i>	BCC	August 27 to July 20
Chimney swift	<i>Chaetura pelagica</i>	BCC	March 15 to August 25
Eastern whip-poor-will	<i>Antrostomus vociferus</i>	BCC	May 1 to August 20
Golden eagle	<i>Aquila chrysaetos</i>	Vulnerable <sup>a</sup>	NA <sup>b</sup>
Golden-winged warbler	<i>Vermivora chrysoptera</i>	BCC	May 1 to July 20
Henslow's sparrow	<i>Centronyx henslowii</i>	BCC	May 1 to August 31
Kentucky warbler	<i>Geothlypis formosa</i>	BCC	April 20 to August 20
Northern saw-whet owl	<i>Aegolius acadicus</i>	BCC	March 1 to July 31
Prairie warbler	<i>Setophaga discolor</i>	BCC	May 1 to July 31
Prothonotary warbler	<i>Protonotaria citrea</i>	BCC	April 1 to July 31
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	BCC	May 10 to September 10
Rusty blackbird	<i>Euphagus carolinus</i>	BCC	NA <sup>b</sup>
Wood thrush	<i>Hylocichla mustelina</i>	BCC	May 10 to August 31

Source: USFWS n.d.

BCC = bird of conservation concern; NA = not applicable

<sup>a</sup> Not a BCC but protected under the Bald and Golden Eagle Protection Act

<sup>b</sup> Does not occur within the Siting Corridor for the Proposed Route and Alternative Routes during the breeding season

Seasonal presence and use of the Siting Corridors by avian species listed in Table 2.2-100 will vary in duration and intensity by season and species, but use of the Siting Corridors is expected year-round. Potentially suitable habitats for MBTA species include the following land cover types:

- Barren Land (Rock/Sand/Clay)
- Cultivated Crops
- Deciduous Forest
- Developed, Open Space

- Emergent Herbaceous Wetlands
- Evergreen Forest
- Grassland/Herbaceous
- Mixed Forest
- Open Water
- Pasture/Hay
- Shrub/Scrub
- Woody Wetlands

The total acreage of potentially suitable habitat available for MBTA species within the Siting Corridors ranges from 206.2 to 1,372.3 acres in Monongalia/Preston Counties and 2,078.6 to 2,152.0 acres in Mineral/Hampshire Counties (Table 2.2-101 and Table 2.2-102; Figure 2.2-9 and Figure 2.2-10; Attachment 1d).

**TABLE 2.2-101 POTENTIALLY SUITABLE MIGRATORY BIRD TREATY ACT SPECIES HABITAT WITHIN THE SITING CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Potentially Suitable Habitat	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Non-forested habitat	419.7	428.9	137.1	419.7	137.1
Forested habitat	846.5	943.4	69.2	846.5	69.2
<b>Total <sup>a</sup></b>	<b>1,266.3</b>	<b>1,372.3</b>	<b>206.2</b>	<b>1,266.3</b>	<b>206.2</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-102 POTENTIALLY SUITABLE MIGRATORY BIRD TREATY ACT SPECIES HABITAT WITHIN THE SITING CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Potentially Suitable Habitat	Proposed Route and Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Non-forested habitat	478.6	478.5	478.6	507.1	507.2
Forested habitat	1,673.1	1,673.5	1,673.1	1,620.4	1,571.4
<b>Total <sup>a</sup></b>	<b>2,151.7</b>	<b>2,152.0</b>	<b>2,151.7</b>	<b>2,127.5</b>	<b>2,078.6</b>

Source: USGS 2024

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**Bald and Golden Eagle Protection Act**

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and MBTA. While noted on the IPaC reports, through coordination with the WVDNR, it was determined that there are no known bald eagle nests within a 660-foot buffer of the Siting Corridors. The lack of nest observations does not mean bald eagle nests do not exist but only that they have not been



observed. The Siting Corridors in all counties provide potentially suitable habitat and are in proximity to areas that have high potential for bald eagle nesting habitat (i.e., eagle abundance areas and areas near large bodies of water). Golden eagles do not occur in the Siting Corridors during the breeding season.

### 2.2.8.2 IMPACTS

Construction and operation would result in both temporary and permanent impacts on RTE species or their habitats within the Proposed Route and Alternative Routes B through F ROW Corridors, as well as the ancillary facility workspaces outside of the Proposed Route ROW Corridor (Figure 2.2-9 and Figure 2.2-10); Attachment 1d). The terrestrial and aquatic habitats present within the ROW Corridor and ancillary facility workspaces provide potentially suitable habitat for individual species to varying degrees based upon species-specific habitat requirements and life histories. The following discussion likely overstates the potential for impacts on RTE species and their habitats, as not all habitat is potentially suitable for all species. Further, not all potentially suitable habitat is actively, recently, or historically occupied by any particular species.

Temporary impacts on RTE species and/or their habitats, if present, could occur within the ROW Corridor and ancillary facility workspaces outside of the Proposed Route ROW Corridor. Impacts on potentially suitable habitat would be temporary if the existing land cover type is:

- Barren Land (Rock/Sand/Clay)
- Developed, Open Space
- Emergent Herbaceous Wetland
- Grassland/Herbaceous
- Open Water
- Pasture/Hay
- Shrub/Scrub

These habitats would be restored or allowed to regenerate with select vegetation management as required by site conditions and would be expected to provide potentially suitable habitat for the life of the MARL Project. Other temporary impacts from construction activities (e.g., noise and vibration) could cause temporary displacement of more mobile species to areas outside of construction zones. Most displaced species are expected to return to the area following construction, many of which would be expected to use the newly established and revegetated herbaceous and shrub/scrub habitat during operation. Loss of less mobile individuals and plants could occur as a result of ground disturbances associated with construction.

Impacts on forested habitats would result from construction, mainly from the conversion of forested habitats to maintained ROW Corridor. The permanent conversion of forested habitat to herbaceous and shrub/scrub habitat would result in the loss of potentially suitable roosting habitat for listed bat species and could potentially increase forest fragmentation in the ROW Corridors. The MARL Project has been designed to minimize the total amount of tree clearing to the greatest extent practicable to minimize impacts on forested habitats and associated RTE species. The MARL Project was also designed to parallel existing ROWs to avoid and minimize impacts from new forested habitat fragmentation to the greatest extent practicable. The total length where the MARL

Project will parallel existing ROWs varies by Alternative Route (Table 2.2-81). In addition, NEET MA has identified five locations in West Virginia along the Proposed Route where forested riparian buffers would be preserved to avoid and minimize impacts on sensitive forested habitats. Further discussion of these riparian exclusion zones and associated mitigation of impacts is provided in Section 3.

NEET MA will coordinate with applicable federal and state agencies and other stakeholders to determine avoidance and minimization measures, as appropriate, to minimize and prevent impacts on RTE species and loss of RTE species habitats within the ROW Corridor and ancillary facility workspaces. Construction and routine maintenance activities will comply with all MARL Project-specific permit requirements and conditions and will be conducted under MARL Project-specific plans and procedures to minimize or avoid impacts on RTE species and/or their habitats during construction and throughout operation. Following construction, the MARL Project will result in the establishment and maintenance of natural vegetation and habitats in accordance with applicable federal, state, and local requirements that would be expected to be used by some RTE species during the MARL Project's operational life.

### **Federally Listed Threatened and Endangered Species**

#### ***Bats***

Impacts on Indiana, northern long-eared, and tricolored bats are largely driven by the loss of potentially suitable forested roosting habitat used by individuals, if present, from April 1 to October 15. The total acreage of potentially suitable roosting habitat that would be affected by construction within the ROW Corridor ranges from 26.3 acres to 396.5 acres in Monongalia/Preston Counties and 646.2 acres to 696.8 acres in Mineral/Hampshire Counties (Table 2.2-103 and Table 2.2-104; Figure 2.2-9 and Figure 2.2-10; Attachment 1d). These acres would be converted to herbaceous and shrub/scrub habitat following construction and no longer provide potentially suitable roosting habitat. Temporary impacts on roosting individuals from disturbance associated with construction and routine maintenance activities could occur, if present adjacent to the ROW Corridors. Displaced individuals would be expected to return to areas adjacent to the ROW Corridors following construction. The potentially suitable roosting habitat impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.3 percent to 0.5 percent of the 207,706.1 acres of potentially suitable roosting habitat present within the MARL Project Study Area in West Virginia.

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TABLE 2.2-103 POTENTIALLY SUITABLE HABITAT AND KNOWN OCCURRENCES OF LISTED BATS WITHIN THE SITTING AND ROW CORRIDORS IN MONGALIA AND PRESTON COUNTIES (ACRES)

Potentially Suitable Habitat	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Potential roosting habitat	846.5	361.6	943.4	396.5	69.2	26.3	846.5	361.6	69.2	26.3
Foraging habitat	1,266.3	533.6	1,372.3	583.3	206.2	82.7	1,266.3	533.6	206.2	82.7
Hibernation / staging / swarming habitat	528.3	220.1	675.4	285.6	112.9	45.3	528.0	220.1	112.9	45.3
Known summer occurrence	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: USGS 2024

ROW = right-of-way

TABLE 2.2-104 POTENTIALLY SUITABLE HABITAT AND KNOWN OCCURRENCES OF LISTED BATS WITHIN THE SITTING AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Potentially Suitable Habitat	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Potential roosting habitat	1,673.1	696.4	1,673.5	696.8	1,673.1	696.4	1,620.4	667.7	1,571.4	646.2
Foraging habitat	2,151.7	904.9	2,152.0	905.2	2,151.7	904.8	2,127.5	888.2	2,078.6	865.4
Hibernation / staging / swarming habitat	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Known summer occurrence	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: USGS 2024

ROW = right-of-way



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Additional impacts on listed bats could occur from the temporary loss of foraging habitat within the Proposed Route and Alternative Route ROW Corridors during construction. The total acreage of foraging habitat that would be affected by construction within the ROW Corridors ranges from 82.7 to 583.3 acres in Monongalia/Preston Counties and 865.4 to 905.2 acres in Mineral/Hampshire Counties (Table 2.2-103 and Table 2.2-104; Figure 2.2-9 and Figure 2.2-10; Attachment 1d). These impacts would remain until vegetation is established within the ROW Corridor following construction. Displaced individuals would be expected to return to the area and use the newly established ROW for foraging after construction is complete. Foraging habitat quality would improve as the ROW Corridor is revegetated. The potentially suitable foraging habitat impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.3 percent to 0.5 percent of the 289,292.0 acres of potentially suitable foraging bat habitat present within the MARL Project Study Area West Virginia.

The Proposed Route and Alternative Route ROW Corridors intersect two known occupied hibernacula buffers for listed bats in Monongalia/Preston Counties. Trees within these buffers may be used by roosting and foraging bats during spring staging, summer maternity, and fall swarming. Species are considered present from April 1 to November 15. The total acreage of potentially suitable swarming/staging habitat for use by roosting and/or foraging bats within these buffers that would be affected by construction ranges from 45.3 to 285.6 acres in Monongalia/Preston Counties (Table 2.2-103 and Table 2.2-104; Figure 2.2-9 and Figure 2.2-10; Attachment 1e and Attachment 1d). The potentially suitable bat swarming/staging habitat impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.1 percent to 0.9 percent of the 32,988.1 acres of potentially suitable bat swarming / staging habitat present within the MARL Project Study Area in West Virginia.

No impacts on subterranean winter hibernacula would occur during construction or routine maintenance activities. Further, it is assumed that tree clearing activities associated with construction and routine maintenance in areas where bats are known to be present during the active season(s) would occur during the winter months when bats are hibernating (November 16 through March 31). No direct impacts on listed bats would be expected.

Impacts on potentially suitable bat habitat would also occur associated with access roads and other temporary ancillary facilities outside of the Proposed Route ROW Corridor (Table 2.2-105 and Table 2.2-106). Impacts on bat habitat associated with both temporary access roads and other temporary ancillary facility workspaces outside of the Proposed Route ROW Corridor represent 0.1 percent of the 207,706.1 acres of potentially suitable roosting habitat, 0.1 percent of the 289,292.0 acres of potentially suitable foraging habitat, and 0.3 percent of the 32,988.1 acres of potentially suitable bat swarming / staging habitat present within the MARL Project Study Area in West Virginia. Similarly, impacts associated with permanent access roads represent 0.1 percent of the acres of potentially suitable roosting habitat and 0.1 percent of the acres of potentially suitable foraging habitat within the MARL Project Study Area in West Virginia. There are no permanent access road impacts on potentially suitable bat swarming / staging habitat.

**TABLE 2.2-105 POTENTIALLY SUITABLE HABITAT AND KNOWN OCCURRENCES OF LISTED BATS WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Habitat	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Potential roosting habitat	0.5	24.6	48.3
Potential foraging habitat	0.6	42.9	59.3
Swarming / staging habitat	0.0	28.8	64.1

Source: USGS 2024; USFWS n.d.

**TABLE 2.2-106 POTENTIALLY SUITABLE HABITAT AND KNOWN OCCURRENCES OF LISTED BATS WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Habitat	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Potential roosting habitat	3.4	70.0	104.5
Potential foraging habitat	3.7	93.6	120.3
Swarming / staging habitat	0.0	0.0	0.0

Source: USGS 2024; USFWS n.d.

### ***Monarch Butterfly***

Impacts on monarch butterfly are largely driven by the loss of open grassland and herbaceous habitats that meet the species' habitat requirements. The acreage of potentially suitable monarch butterfly habitat that would be temporarily disturbed within the ROW Corridors ranges from 51.4 acres to 149.5 acres in Monongalia/Preston Counties and 200.7 acres to 211.5 acres in Mineral/Hampshire Counties (Table 2.2-107; Figure 2.2-9 and Figure 2.2-10; Attachment 1d). Some loss of individual larvae and/or eggs could occur, if present within the ROW Corridor. Loss of adults would not be expected given their volant nature. Following construction, the MARL Project would result in the establishment and maintenance of potentially suitable habitats that could be used by resident and migrating monarch butterflies during operation. The potentially suitable monarch butterfly habitat impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.3 percent to 0.5 percent of the 75,462.1 acres of potentially suitable monarch butterfly habitat present within the MARL Project Study Area in West Virginia.

TABLE 2.2-107 POTENTIALLY SUITABLE MONARCH BUTTERFLY HABITAT WITHIN THE SITING AND ROW CORRIDORS IN MONONGALIA, PRESTON, MINERAL, AND HAMPSHIRE COUNTIES (ACRES)

County	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Monongalia/Preston	356.2	144.1	348.4	149.5	123.2	51.4	356.2	144.1	123.2	51.4
Mineral/Hampshire	459.2	200.8	459.1	200.7	459.2	200.8	486.0	211.5	486.2	210.0
<b>Total<sup>a</sup></b>	<b>815.4</b>	<b>344.9</b>	<b>807.6</b>	<b>350.2</b>	<b>582.5</b>	<b>252.2</b>	<b>842.2</b>	<b>355.6</b>	<b>609.4</b>	<b>261.5</b>

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.



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Impacts on potentially suitable monarch butterfly habitat would also occur associated with access roads and ancillary facility workspaces outside of the Proposed Route ROW Corridor (Table 2.2-108). Impacts on potentially suitable monarch butterfly habitat associated with both temporary access roads and other temporary ancillary facilities each represent less than 0.1 percent of the 75,462.1 acres of potentially suitable monarch butterfly habitat within the MARL Project Study Area in West Virginia. Similarly, impacts associated with permanent access roads represent less than 0.1 percent of the acres of potentially suitable monarch butterfly habitat within the MARL Project Study Area in West Virginia.

**TABLE 2.2-108 POTENTIALLY SUITABLE MONARCH BUTTERFLY HABITAT WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR (ACRES)**

County	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Monongalia/Preston	0.1	17.4	10.2
Mineral/Hampshire	0.3	23.6	15.7
<b>Total <sup>a</sup></b>	<b>0.4</b>	<b>41.0</b>	<b>25.9</b>

Source: USGS 2024; USFWS n.d.

<sup>a</sup> Totals may not match the sum of addends due to rounding.

### West Virginia Division of Natural Resources Species

Impacts on RTE species are largely driven by loss of potentially suitable habitat and direct impacts on less mobile species. Construction and operation could result in both temporary and permanent impacts on RTE species and/or their habitats. The extent of impacts on potentially suitable habitat for RTE species, if present, that could occur within the ROW Corridors are summarized in Table 2.2-109 and Table 2.2-110.

Impacts would be temporary if existing land cover type is:

- Barren Land (Rock/Sand/Clay)
- Developed, Open Space
- Emergent Herbaceous Wetlands
- Grassland/Herbaceous
- Open Water
- Pasture/Hay
- Shrub/Scrub

These habitats will be restored or allowed to regenerate with select vegetation management as required by site conditions. The total acreage of potentially suitable non-forested habitat that would be temporarily disturbed within the ROW Corridors ranges from 56.3 to 186.8 acres in Monongalia/Preston Counties and from 208.4 to 211.5 acres in Mineral/Hampshire Counties (Table 2.2-109 and Table 2.2-110; Figure 2.2-9 and Figure 2.2-10; Attachment 1d). The non-forested habitat impacts associated with the ROW Corridors range from 0.3 percent to

0.5 percent of the 81,585.8 acres of non-forested habitat present within the MARL Project Study Area in West Virginia.

Permanent impacts on forested habitats within the ROW Corridors would result from construction, mainly from the conversion of forested habitats to maintained ROW and would affect species that use forested habitat. The total acreage of permanent impacts on forested habitats ranges from 26.3 to 396.5 acres in Monongalia/Preston Counties and 646.2 to 696.8 acres in Mineral/Hampshire Counties (Table 2.2-109 and Table 2.2-110; Figure 2.2-9 and Figure 2.2-10; Attachment 1e and Attachment 1d). The forested habitat impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.3 percent to 0.5 percent of the 207,706.1 acres of forested habitat present within the MARL Project Study Area in West Virginia.

In addition to impacts on potentially suitable habitat, impacts on RTE species could occur, if present within and adjacent to the ROW Corridors. Temporary impacts from construction activities (e.g., noise and vibration) could cause temporary displacement of more mobile species to areas outside of construction zones. Due to the volant nature of some of these species, direct impacts would not be expected during construction and routine maintenance. Displaced mobile species are expected to return to the area following construction and would be expected to use the newly established and revegetated herbaceous and shrub/scrub habitat during operation. Loss of less mobile species such as plants, if present within the ROW Corridors, could occur as a result of ground disturbances associated with construction. The total acreage of occupied habitat within the Siting Corridors and ROW Corridors ranges from 0.0 to 75.0 acres in Monongalia/Preston Counties and 0.0 to 140.6 in Mineral/Hampshire Counties (Table 2.2-111 and Table 2.2-112; Figure 2.2-9 and Figure 2.2-10; Attachment 1e and Attachment 1d).

TABLE 2.2-109 POTENTIALLY SUITABLE HABITAT FOR RARE, THREATENED, AND ENDANGERED SPECIES WITHIN THE SITTING AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Potentially Suitable Habitat	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
Non-forested habitat	419.7	172.0	428.9	186.8	137.1	56.3	419.7	172.0	137.1	56.3
Forested habitat	846.5	361.6	943.4	396.5	69.2	26.3	846.5	361.6	69.2	26.3
<b>Total<sup>a</sup></b>	<b>1,266.3</b>	<b>533.6</b>	<b>1,372.3</b>	<b>583.3</b>	<b>206.2</b>	<b>82.7</b>	<b>1,266.3</b>	<b>533.6</b>	<b>206.2</b>	<b>82.7</b>

Source: USGS 2024; Propson 2024, pers. comm.

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.2-110 POTENTIALLY SUITABLE HABITAT FOR RARE, THREATENED, AND ENDANGERED SPECIES WITHIN THE SITTING AND ROW CORRIDORS IN MINERAL/HAMPSHIRE COUNTIES (ACRES)

Potentially Suitable Habitat	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
Non-forested habitat	478.6	208.5	478.5	208.4	478.6	208.5	507.1	220.5	507.2	219.2
Forested habitat	1,673.1	696.4	1,673.5	696.8	1,673.1	696.4	1,620.4	667.7	1,571.4	646.2
<b>Total<sup>a</sup></b>	<b>2,151.7</b>	<b>904.9</b>	<b>2,152.0</b>	<b>905.2</b>	<b>2,151.7</b>	<b>904.8</b>	<b>2,127.5</b>	<b>888.2</b>	<b>2,078.6</b>	<b>865.4</b>

Source: USGS 2024; Propson 2024, pers. comm.

ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.2-111 KNOWN OCCURRENCES OF RARE, THREATENED, AND ENDANGERED SPECIES WITHIN THE SITTING AND ROW CORRIDORS IN MONONGALIA AND PRESTON COUNTIES (ACRES)

Species	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
Balsam poplar	0.0	0.0	9.7	3.6	0.0	0.0	0.0	0.0	0.0	0.0
Bobolink	60.3	25.2	60.3	25.2	60.3	25.2	60.3	25.2	60.3	25.2
Dwarf anemone	1.7	0.7	1.6	0.7	0.0	0.0	1.7	0.7	1.7	0.0
Pine siskin	191.9	75.0	191.8	75.0	187.3	75.0	191.8	75.0	187.4	75.0
Regal fritillary	104.8	41.2	104.8	41.2	102.7	41.2	104.7	41.2	102.7	41.2
<b>Total<sup>a,b</sup></b>	<b>363.2</b>	<b>142.2</b>	<b>371.1</b>	<b>145.7</b>	<b>350.3</b>	<b>141.5</b>	<b>363.1</b>	<b>142.2</b>	<b>350.4</b>	<b>141.5</b>

Source: USGS 2024; Propson 2024, pers. comm.

ROW = right-of-way

<sup>a</sup> Total acreage of impacts may overstate the actual impacts as species-specific occurrence buffers overlap in some areas.

<sup>b</sup> Totals may not match the sum of addends due to rounding.



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TABLE 2.2-112 KNOWN OCCURRENCES OF RARE, THREATENED, AND ENDANGERED SPECIES WITHIN THE SITTING AND ROW CORRIDORS IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)

Species	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor	Sitting Corridor	ROW Corridor
Allegheny woodrat	105.4	42.8	105.3	42.8	105.2	42.8	105.3	42.8	105.3	42.8
Canada frostweed	14.3	6.4	14.3	6.4	14.3	6.4	14.3	6.4	14.3	6.4
Climbing fumitory	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Columbine duskywing	61.6	29.3	61.7	29.3	61.6	29.3	61.6	29.3	61.6	29.3
Mottled duskywing	61.6	29.3	61.7	29.3	61.6	29.3	61.6	29.3	61.6	29.3
Northern cricket frog	140.6	55.9	140.5	55.9	140.6	55.9	118.6	47.5	118.7	47.5
Northern lance	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0
Shale barren bindweed	4.0	1.7	4.0	1.7	4.0	1.7	4.0	1.7	4.0	1.7
Shale barren goldenrod	4.0	1.7	4.0	1.7	4.0	1.7	4.0	1.7	4.0	1.7
Spotted turtle	<0.1	0.0	<0.1	0.0	<0.1	0.0	<0.1	0.0	<0.1	0.0
White alumroot	3.8	1.5	3.8	1.5	3.8	1.5	3.8	1.5	3.8	1.5
<b>Total <sup>a,b</sup></b>	<b>396.6</b>	<b>169.6</b>	<b>396.5</b>	<b>169.6</b>	<b>396.4</b>	<b>169.6</b>	<b>251.3</b>	<b>102.5</b>	<b>236.0</b>	<b>95.1</b>

Source: USGS 2024; Propson 2024, pers. comm.

ROW = right-of-way

<sup>a</sup> Total acreage of impacts may overstate the actual impacts as species-specific occurrence buffers overlap in some areas.

<sup>b</sup> Totals may not match the sum of addends due to rounding.



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CLIENT: NextEra Energy Transmission MidAtlantic, Inc. and NextEra Energy Transmission Virginia, Inc.  
PROJECT NO: 0718854 DATE: January 2026

Impacts on potentially suitable habitat for RTE species would also occur associated with access roads and other temporary ancillary facility workspaces outside of the Proposed Route ROW Corridor (Table 2.2-113 and Table 2.2-114). Impacts on non-forested habitat associated with temporary access roads and other temporary ancillary facilities represent 0.1 percent of the 81,585.8 acres of non-forested habitat within the MARL Project Study Area in West Virginia. Similarly, impacts on forested habitat associated with temporary access roads and other temporary ancillary facilities represent 0.1 percent of the 207,706.1 acres of forested habitat within the MARL Project Study Area in West Virginia. Impacts associated with permanent access roads represent less than 0.1 percent of the 289,292.0 acres of the total non-forested and forested potentially suitable RTE habitat within the MARL Project Study Area in West Virginia.

**TABLE 2.2-113 POTENTIALLY SUITABLE RARE, THREATENED, AND ENDANGERED HABITAT WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR IN MONONGALIA AND PRESTON COUNTIES (ACRES)**

Potentially Suitable Habitat	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Non-forested	0.1	18.3	11.0
Forested	0.5	24.6	48.3
<b>Total <sup>a</sup></b>	<b>0.6</b>	<b>42.9</b>	<b>59.3</b>

Source: USGS 2024; USFWS n.d.

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.2-114 POTENTIALLY SUITABLE RARE, THREATENED, AND ENDANGERED HABITAT WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR IN MINERAL AND HAMPSHIRE COUNTIES (ACRES)**

Potentially Suitable Habitat	Permanent Access Roads	Temporary Access Roads	Other Temporary Ancillary Facilities
Non-Forested	0.3	23.6	15.7
Forested	3.4	70.0	104.5
<b>Total <sup>a</sup></b>	<b>3.7</b>	<b>93.6</b>	<b>120.3</b>

Source: USGS 2024; USFWS n.d.

<sup>a</sup> Totals may not match the sum of addends due to rounding.

**Migratory Bird Treaty Act**

Impacts on MBTA species are largely driven by loss of potentially suitable habitat and direct impacts during the nesting season when eggs or non-volant chicks are present. Construction and operation could result in both temporary and permanent impacts on MBTA species and/or their habitats. The extent of impacts on potentially suitable habitat for MBTA species, if present, that could occur within the ROW Corridors are described in Table 2.2-113 and Table 2.2-114.

Impacts would be temporary if existing vegetation is:

- Barren Land (Rock/Sand/Clay)
- Developed, Open Space
- Emergent Herbaceous Wetlands
- Grassland/Herbaceous
- Open Water
- Pasture/Hay
- Shrub/Scrub

These habitats will be restored or allowed to regenerate with select vegetation management as required by site conditions. The total acreage of temporary impacts on potentially suitable habitat for MBTA species ranges from 56.3 to 186.8 acres in Monongalia/Preston Counties and 208.4 to 220.5 acres in Mineral/Hampshire Counties (Table 2.2-113 and Table 2.2-114; Figure 2.2-9 and Figure 2.2-10; Attachment 1d). The potentially suitable non-forested MBTA species habitat impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.3 percent to 0.5 percent of the 81,585.8 acres of potentially suitable habitat present within the MARL Project Study Area in West Virginia.

Impacts on forested habitats would result from construction, mainly from the conversion of forested habitats to maintained ROW and would affect MBTA species that use forested habitat. In addition, cutting of forested vegetation could also potentially increase forest fragmentation in some areas. The total acreage of permanent impacts on forested habitats ranges from 26.3 to 396.5 acres in Monongalia/Preston Counties and 646.2 to 696.8 acres in Mineral/Hampshire Counties (Table 2.2-113 and Table 2.2-114; Figure 2.2-9 and Figure 2.2-10; Attachment 1e and Attachment 1d). The potentially suitable forested MBTA habitat impacts associated with the Proposed Route and Alternative Route ROW Corridors range from 0.3 percent to 0.5 percent of the 207,706.1 acres of potentially suitable habitat present within the MARL Project Study Area in West Virginia.

Impacts on potentially suitable MBTA habitat would also occur associated with access roads and other temporary ancillary facility workspace outside of the Proposed Route ROW Corridor (Table 2.2-113 and Table 2.2-100). Impacts on non-forested habitat associated with temporary access roads and other temporary ancillary facilities each represent 0.1 percent or less of the 81,585.8 acres of potentially suitable non-forested habitat within the MARL Project Study Area in West Virginia. Similarly, impacts on forested habitat associated with temporary access roads and other temporary ancillary facilities each represent less than 0.1 percent of the 207,706.1 acres of potentially suitable forested habitat within the MARL Project Study Area in West Virginia.

### **Bald and Golden Eagle Protection Act**

As discussed above, there are no known bald eagle nests within the ROW Corridors for the MARL Project. If nests or individuals are identified before, during, or after construction, NEET MA will coordinate with applicable stakeholders to avoid and minimize impacts on bald eagle throughout the Project's operation. As stated above, golden eagles do not breed within the Siting or ROW Corridors of the Proposed Route or the Alternative Routes. As such, no impact on nesting golden eagles would occur.

## 2.3 HUMAN ENVIRONMENT

This section describes human-influenced elements of the environment, including land use and land cover, recreation lands and designated natural resources, aesthetics, cultural resources, and transportation infrastructure within and applicable to the MARL Project.

### 2.3.1 LAND USE AND LAND COVER

This section describes land use and land cover within and applicable to the MARL Project. Land use / land cover (hereafter, "land cover") refers to the visible, topographic, vegetation, and human-influenced characteristics of land, whereas land use refers to the actual way that land is used, regardless of what land cover is visible. For example, an area of developed, medium intensity land cover could include a variety of land use types, such as low or medium intensity residential or other developed uses such as commercial or industrial.

#### 2.3.1.1 EXISTING CONDITIONS

ERM catalogued land cover within the Siting Corridors for the Proposed Route and each of the five Alternative Routes (B through F) using GIS data from the National Land Cover Database (USGS 2024a). Figure 2.3-1 and Figure 2.3-2 show land cover existing conditions crossed by the Siting Corridor for the Proposed Route and each Alternative Route, and Attachment 1d shows this information in more detail. Table 2.3-1 includes the acreage of land cover classifications within the Proposed Route Siting Corridor and each Alternative Route Siting Corridor for Monongalia and Preston Counties combined, while Table 2.3-2 provides similar information for Mineral and Hampshire Counties combined. The Proposed Route and Alternative Route D are completely collocated in West Virginia and, therefore, described together.

As shown in Table 2.3-1 and Table 2.3-2, the percentage of each land cover type within the Siting Corridors in Monongalia and Preston Counties is broadly similar across the Proposed Route and Alternative Routes B, D, and E. All routes share the same Siting Corridor in Monongalia County east of the Monongahela River, while Alternative Routes C and F cross only a small area of extreme northeastern Preston County. As a result, the distribution of land cover types within the Siting Corridor for Alternative Routes C and F in Monongalia and Preston Counties differs from the land cover patterns for other routes (Table 2.3-1). The distribution of land cover types within Mineral and Hampshire Counties is generally for the Proposed Route and all Alternative Routes (Table 2.3-2).

FIGURE 2.3-1 LAND COVER EXISTING CONDITIONS (MONONGALIA AND PRESTON COUNTIES)

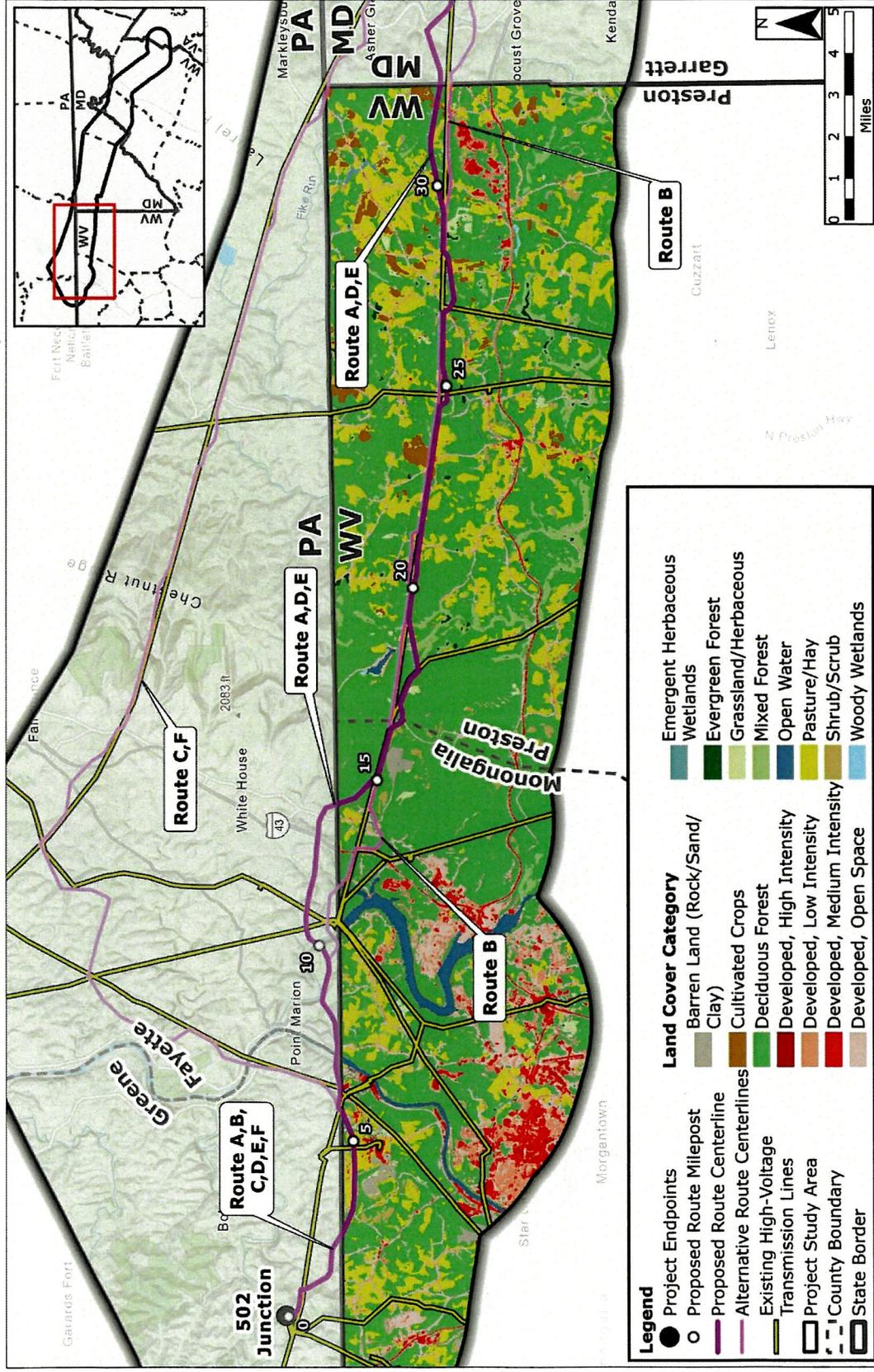
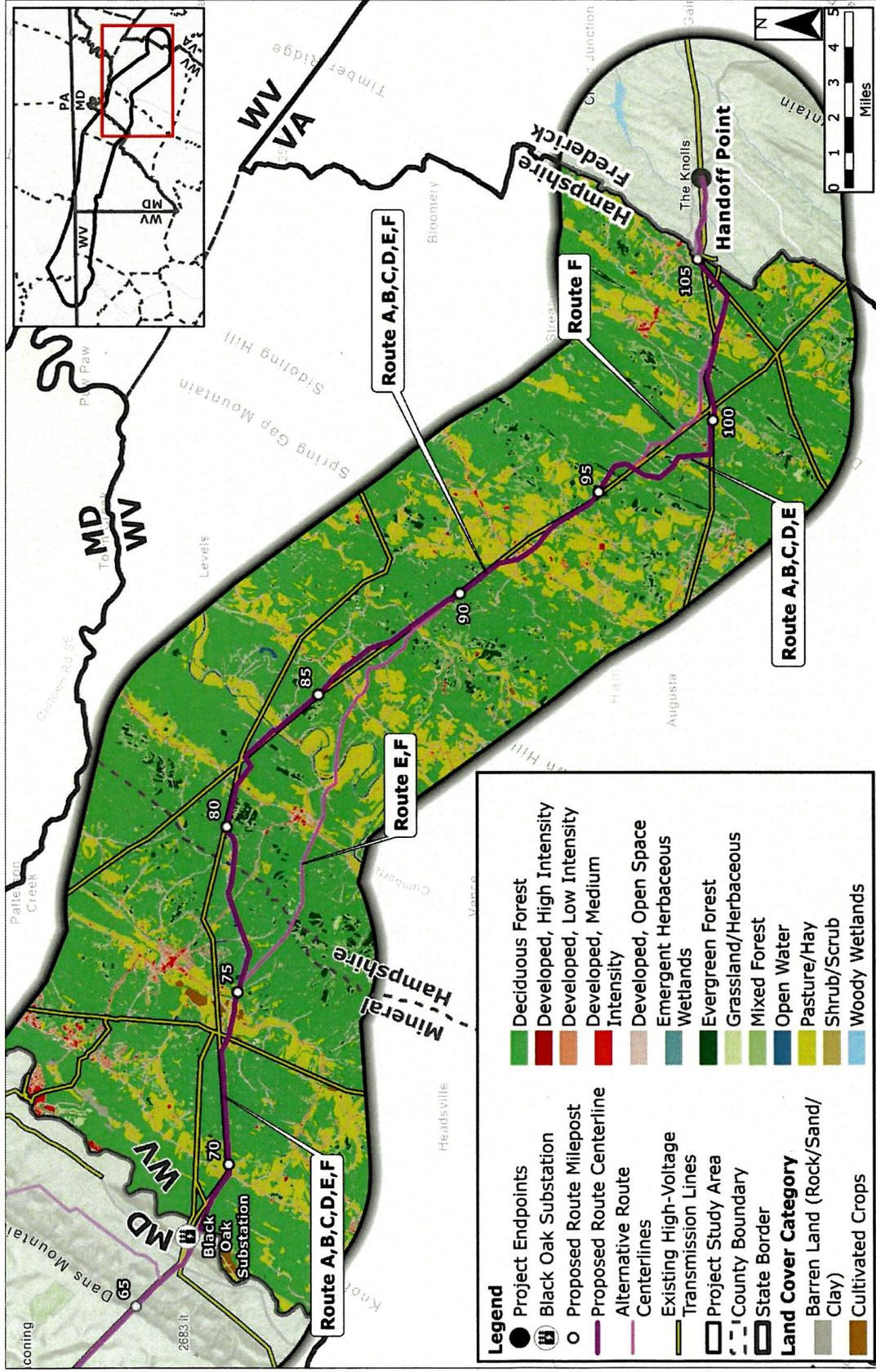


FIGURE 2.3-2 LAND COVER EXISTING CONDITIONS (MINERAL AND HAMPSHIRE COUNTIES)



Source: USGS 2024a

MD = Maryland; PA = Pennsylvania; VA = Virginia; WV = West Virginia



TABLE 2.3-1 LAND COVER CLASSIFICATIONS WITHIN THE SITING CORRIDORS (MONONGALIA AND PRESTON COUNTIES)

Land Cover Category <sup>a</sup>	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Barren Land (Rock/Sand/Clay)	10.3	0.8	20.2	1.5	5.6	2.7	10.3	0.8	5.6	2.7
Cultivated Crops	53.0	4.2	57.6	4.2	8.2	3.9	53.0	4.2	8.2	3.9
Deciduous Forest	810.8	63.6	911.5	65.9	66.5	32.0	810.8	63.6	66.5	32.0
Developed, Low Intensity	7.8	0.6	9.2	0.7	1.6	0.8	7.8	0.6	1.6	0.8
Developed, Medium Intensity	0.2	<0.1	0.7	0.1	0.0	0.0	0.2	<0.1	0.0	0.0
Developed, Open Space	28.7	2.2	33.7	2.4	5.7	2.7	28.7	2.2	5.7	2.7
Emergent Herbaceous Wetlands	0.4	<0.1	0.0	0.0	0.0	0.0	0.4	<0.1	0.0	0.0
Evergreen Forest	1.0	0.1	4.5	0.3	0.0	0.0	1.0	0.1	0.0	0.0
Grassland/Herbaceous	30.4	2.4	40.4	2.9	0.0	0.0	30.4	2.4	0.0	0.0
Mixed Forest	34.4	2.7	27.4	2.0	2.7	1.3	34.4	2.7	2.7	1.3
Open Water	0.2	<0.1	2.6	0.2	0.0	0.0	0.2	<0.1	0.0	0.0
Pasture/Hay	270.0	21.2	247.9	17.9	116.2	55.9	270.0	21.2	116.2	55.9
Shrub/Scrub	26.7	2.1	26.4	1.9	1.3	0.6	26.7	2.1	1.3	0.6
Woody Wetlands	0.3	<0.1	0.0	0.0	0.0	0.0	0.3	<0.1	0.0	0.0
<b>Total <sup>b</sup></b>	<b>1,274.3</b>	<b>100.0</b>	<b>1,382.3</b>	<b>100.0</b>	<b>207.8</b>	<b>100.0</b>	<b>1,274.3</b>	<b>100.0</b>	<b>207.8</b>	<b>100.0</b>

Source: USGS 2024a

<sup>a</sup> Although the developed, high intensity land cover category is within the MARL Project Study Area in West Virginia, it is not within the Siting Corridor.

<sup>b</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.3-2 LAND COVER CLASSIFICATIONS WITHIN THE SITING CORRIDORS (MINERAL AND HAMPSHIRE COUNTIES)**

Land Cover Category <sup>a</sup>	Proposed Route and Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Barren Land (Rock/Sand/Clay)	0.2	<0.1	0.2	<0.1	0.2	<0.1	0.2	<0.1	0.0	0.0
Cultivated Crops	15.0	0.7	15.0	0.7	15.0	0.7	14.9	0.7	14.9	0.7
Deciduous Forest	1,456.5	67.3	1,456.8	67.3	1,456.5	67.3	1,436.4	67.2	1,397.3	67.0
Developed, Low Intensity	9.8	0.5	9.8	0.5	9.8	0.5	7.0	0.3	6.2	0.3
Developed, Medium Intensity	1.5	0.1	1.5	0.1	1.5	0.1	1.5	0.1	1.5	0.1
Developed, Open Space	69.1	3.2	69.1	3.2	69.1	3.2	68.1	3.2	76.5	3.7
Emergent Herbaceous Wetlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evergreen Forest	53.7	2.5	53.7	2.5	53.7	2.5	32.1	1.5	26.0	1.2
Grassland/Herbaceous	16.7	0.8	16.7	0.8	16.7	0.8	21.7	1.0	24.0	1.2
Mixed Forest	161.6	7.5	161.7	7.5	161.6	7.5	150.6	7.1	146.9	7.0
Open Water	4.1	0.2	4.1	0.2	4.1	0.2	5.8	0.3	6.1	0.3
Pasture/Hay	372.5	17.2	372.5	17.2	372.5	17.2	395.6	18.5	384.2	18.4
Shrub/Scrub	0.9	<0.1	0.9	<0.1	0.9	<0.1	0.7	<0.1	1.5	0.1
Woody Wetlands	1.3	0.1	1.3	0.1	1.3	0.1	1.3	0.1	1.3	0.1
<b>Total <sup>b</sup></b>	<b>2,163.1</b>	<b>100.0</b>	<b>2,163.3</b>	<b>100.0</b>	<b>2,163.1</b>	<b>100.0</b>	<b>2,136.0</b>	<b>100.0</b>	<b>2,086.2</b>	<b>100.0</b>

Source: USGS 2024a

<sup>a</sup> Although the developed, high intensity land cover category is within the MARL Project Study Area in West Virginia, it is not within the Siting Corridor.

<sup>b</sup> Totals may not match the sum of addends due to rounding.



Within Monongalia and Preston Counties, deciduous forest occupies the largest total acreage and pasture/hay occupies the second largest total acreage of any land cover type within the Siting Corridors for the Proposed Route and Alternative Routes B, D, and E. For Alternative Routes C and F (which follow a common Siting Corridor in these two counties), pasture/hay is the most common land cover, while deciduous forest is the second-most common. Together, deciduous forest and pasture/hay cover 83.9 to 87.9 percent of the Siting Corridors. Developed areas cover 2.9 to 3.5 percent of the total area crossed by the Siting Corridors for the Proposed Route and Alternative Routes in Monongalia and Preston Counties. Most of this developed land is developed, open space, which includes uses such as parks, golf courses, and athletic fields.

Deciduous forest and pasture/hay are also the most common and second-most common land cover types (respectively) in the Siting Corridors for all Alternative Routes in Mineral and Hampshire Counties. Together, these two land cover types account for 84.6 to 85.8 percent of the Siting Corridors. Developed areas (primarily developed, open space) cover 3.6 to 4.0 percent of the Siting Corridors in Mineral and Hampshire Counties.

### 2.3.1.2 IMPACTS

This section discusses the impacts of the Proposed Route ROW Corridor and each Alternative Route's ROW Corridor on land cover. Table 2.3-3 and Table 2.3-4 summarize the acreage of land cover crossed by each ROW Corridor. Table 2.3-5 shows the ancillary facility workspaces outside of the Proposed Route ROW Corridor. Section 2.2, Natural Environment, describes how these land cover changes would affect soils, water resources, aquatic habitats and species, wetlands, floodplains, vegetation, wildlife, and special-status species. The remainder of this section describes the general land cover impacts of the Proposed Route and Alternative Routes, highlights notable differences in land cover impacts among the Alternative Routes, and provides contextual comparisons between the land cover in the ROW Corridors and the MARL Project Study Area in West Virginia.

The distribution of each land cover type within the ROW Corridor is broadly similar to the distribution within the Siting Corridor (Section 2.3.1.1) across the Proposed Route and all five Alternative Routes. Overall, the combination of deciduous forest and pasture/hay accounts for the largest share of each ROW Corridor, totaling 83.4 to 88.1 percent of each ROW Corridor in Monongalia and Preston Counties and 85.1 to 86.2 percent of each ROW Corridor in Mineral and Hampshire Counties. Deciduous forest is the most common land cover type in each ROW Corridor (64.7 to 65.4 percent), except for the shared alignment of Alternative Routes C and F in Monongalia and Preston Counties, where pasture/hay (58.0 percent) is more common than deciduous forest (30.1 percent).

More generally, the combination of forest (including deciduous forest, evergreen forest, and mixed forest) and agricultural (pasture/hay and cultivated crops) land cover accounts for 90.2 to 93.3 percent of all ROW Corridors in Monongalia and Preston Counties and 94.0 to 94.9 percent of all ROW Corridors in Mineral and Hampshire Counties. Developed lands (developed, medium intensity; developed, low intensity; and developed, open space) account for 2.6 to 3.7 percent of the ROW Corridors in Monongalia and Preston Counties and 3.7 to 4.2 percent of all ROW Corridors in Mineral and Hampshire Counties. As is the case for the Siting Corridors, the developed, open space land cover type accounts for most developed land in each ROW Corridor.

TABLE 2.3-3 LAND COVER CLASSIFICATIONS WITHIN THE SITTING AND ROW CORRIDORS (MONONGALIA AND PRESTON COUNTIES)

Land Cover Category <sup>a</sup>	Proposed Route / Alternative Route D			Alternative Route B			Alternative Route C			Alternative Route E			Alternative Route F						
	Siting Acres	%	ROW Acres	Siting Acres	%	ROW Acres	Siting Acres	%	ROW Acres	Siting Acres	%	ROW Acres	Siting Acres	%	ROW Acres				
Barren Land (Rock/Sand/Clay)	10.3	0.8	4.2	0.8	20.2	1.5	9.2	1.6	2.7	5.6	2.2	10.3	0.8	4.2	0.8	5.6	2.7	1.9	2.2
Cultivated Crops	53.0	4.2	23.7	4.4	57.6	4.2	27.0	4.6	8.2	3.9	3.0	53.0	4.2	23.7	4.4	8.2	3.9	3.0	3.6
Deciduous Forest	810.8	63.6	346.6	64.7	911.5	65.9	383.9	65.4	66.5	32.0	30.1	810.8	63.6	346.6	64.7	66.5	32.0	25.1	30.1
Developed, Low Intensity	7.8	0.6	2.6	0.5	9.2	0.7	3.6	0.6	1.6	0.8	0.6	7.8	0.6	2.6	0.5	1.6	0.8	0.6	0.7
Developed, Medium Intensity	0.2	<0.1	0.0	0.0	0.2	0.1	<0.1	0.0	0.0	0.0	0.0	0.2	<0.1	0.0	0.0	0.0	0.0	0.0	0.0
Developed, Open Space	28.7	2.2	11.1	2.1	33.7	2.4	14.3	2.4	5.7	2.7	2.5	28.7	2.2	11.1	2.1	5.7	2.7	2.5	3.0
Emergent Herbaceous Wetlands	0.4	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evergreen Forest	1.0	0.1	0.0	0.0	4.5	0.3	0.3	0.1	0.0	0.0	0.0	1.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Grassland/Herbaceous	30.4	2.4	13.8	2.6	40.4	2.9	19.0	3.2	0.0	0.0	0.0	30.4	2.4	13.8	2.6	0.0	0.0	0.0	0.0
Mixed Forest	34.4	2.7	14.9	2.8	27.4	2.0	12.2	2.1	2.7	1.3	1.3	34.4	2.7	14.9	2.8	2.7	1.3	1.3	1.5
Open Water	0.2	<0.1	<0.1	<0.1	2.6	0.2	1.1	0.2	0.0	0.0	0.0	0.2	<0.1	<0.1	<0.1	0.0	0.0	0.0	0.0
Pasture/Hay	270.0	21.2	106.5	19.9	247.9	17.9	105.7	18.0	116.2	55.9	48.3	270.0	21.2	106.4	19.9	116.2	55.9	48.3	58.0
Shrub/Scrub	26.7	2.1	12.8	2.4	26.4	1.9	10.5	1.8	1.3	0.6	0.7	26.7	2.1	12.8	2.4	1.3	0.6	0.7	0.8
Woody Wetlands	0.3	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	<0.1	0.0	0.0	0.0	0.0	0.0	0.0
<b>Total<sup>a</sup></b>	<b>1,274.3</b>	<b>100.0</b>	<b>536.1</b>	<b>100.0</b>	<b>1,382.3</b>	<b>100.0</b>	<b>587.0</b>	<b>100.0</b>	<b>207.8</b>	<b>100.0</b>	<b>83.2</b>	<b>1,274.3</b>	<b>100.0</b>	<b>536.1</b>	<b>100.0</b>	<b>207.8</b>	<b>100.0</b>	<b>83.2</b>	<b>100.0</b>

Source: USGS 2024a

<sup>a</sup> Although the developed, high intensity land cover category is within the MARL Project Study Area in West Virginia, it does not occur within the Siting and/or ROW Corridors.

<sup>b</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.3-4 LAND COVER CLASSIFICATIONS WITHIN THE SITTING AND ROW CORRIDORS (MINERAL AND HAMPSHIRE COUNTIES)

Land Cover Category <sup>a</sup>	Proposed Route / Alternative Route D			Alternative Route B			Alternative Route C			Alternative Route E			Alternative Route F						
	Siting Acres	%	ROW Acres	Siting Acres	%	ROW Acres	Siting Acres	%	ROW Acres	Siting Acres	%	ROW Acres	Siting Acres	%	ROW Acres				
Barren Land (Rock/Sand/Clay)	0.2	<0.1	0.0	0.0	0.2	<0.1	0.0	0.0	0.2	<0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cultivated Crops	15.0	0.7	5.6	0.6	15.0	0.7	5.6	0.6	15.0	0.7	5.6	14.9	0.7	5.6	0.6	14.9	0.7	5.6	0.6
Deciduous Forest	1456.5	67.3	611.4	67.3	1456.5	67.3	611.4	67.3	1,456.5	67.3	611.4	1,436.4	67.2	595.9	66.9	1,397.3	67.0	577.3	66.5
Developed, Low Intensity	9.8	0.5	3.3	0.4	9.8	0.5	3.3	0.4	9.8	0.5	3.3	7.0	0.3	2.5	0.3	6.2	0.3	2.1	0.2
Developed, Medium Intensity	1.5	0.1	0.5	<0.1	1.5	0.1	0.5	<0.1	1.5	0.1	0.5	1.5	0.1	0.5	0.1	1.5	0.1	0.5	0.1
Developed, Open Space	69.1	3.2	31.6	3.5	69.1	3.2	31.6	3.5	68.1	3.2	29.8	68.1	3.2	29.8	3.3	76.5	3.7	33.9	3.9
Emergent Herbaceous Wetlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Evergreen Forest	53.7	2.5	20.8	2.3	53.7	2.5	20.8	2.3	53.7	2.5	20.8	32.1	1.5	12.1	1.4	26.0	1.2	10.4	1.2
Grassland/Herbaceous	16.7	0.8	7.0	0.8	16.7	0.8	7.0	0.8	16.7	0.8	7.0	21.7	1.0	8.8	1.0	24.0	1.2	9.8	1.1
Mixed Forest	161.6	7.5	63.0	6.9	161.7	7.5	63.0	6.9	161.6	7.5	63.0	150.6	7.1	58.6	6.6	146.9	7.0	57.4	6.6
Open Water	4.1	0.2	2.1	0.2	4.1	0.2	2.1	0.2	4.1	0.2	2.1	5.8	0.3	3.4	0.4	6.1	0.3	3.6	0.4
Pasture/Hay	372.5	17.2	161.4	17.8	372.5	17.2	161.3	17.8	372.5	17.2	161.4	395.6	18.5	172.4	19.3	384.2	18.4	165.7	19.1
Shrub/Scrub	0.9	<0.1	0.8	0.1	0.9	<0.1	0.8	0.1	0.9	<0.1	0.8	0.7	<0.1	0.6	0.1	1.5	0.1	0.6	0.1
Woody Wetlands	1.3	0.1	1.1	0.1	1.3	0.1	1.1	0.1	1.3	0.1	1.1	1.3	0.1	1.1	0.1	1.3	0.1	1.1	0.1
<b>Total<sup>b</sup></b>	<b>2,163.1</b>	<b>100.0</b>	<b>908.6</b>	<b>100.0</b>	<b>2,163.3</b>	<b>100.0</b>	<b>909.0</b>	<b>100.0</b>	<b>2,163.1</b>	<b>100.0</b>	<b>908.6</b>	<b>2,136.0</b>	<b>100.0</b>	<b>891.2</b>	<b>100.0</b>	<b>2,066.2</b>	<b>100.0</b>	<b>868.0</b>	<b>100.0</b>

Source: USGS 2024a

<sup>a</sup> Although the developed, high intensity land cover category is within the MARL Project Study Area in West Virginia, it is not within the Siting and/or ROW Corridor.

<sup>b</sup> Totals may not match the sum of addends due to rounding.



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TABLE 2.3-5 LAND COVER CLASSIFICATIONS WITHIN THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR

Land Use Type	Monongalia and Preston Counties			Mineral and Hampshire Counties			Total West Virginia									
	Permanent Access Roads Acres	Temporary Access Roads Acres	Other Temporary Ancillary Facilities %	Permanent Access Roads Acres	Temporary Access Roads Acres	Other Temporary Ancillary Facilities %	Permanent Access Roads Acres	Temporary Access Roads Acres	Other Temporary Ancillary Facilities %							
Barren Land (Rock/Sand/Clay)	0.0	0.7	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Cultivated Crops	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Deciduous Forest	0.5	87.1	24.6	54.7	48.1	81.2	3.3	90.6	63.0	66.0	80.1	3.9	90.1	87.6	62.4	
Developed, Low Intensity	0.0	0.0	1.8	4.1	0.0	0.0	0.0	0.0	1.8	1.9	<0.1	0.0	0.0	3.7	2.6	
Developed, Medium Intensity	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.3	0.2	
Developed, Open Space	<0.1	7.2	14.2	31.5	0.4	0.7	0.0	0.0	12.9	13.5	1.3	<0.1	1.0	27.1	19.3	
Emergent Herbaceous Wetlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Evergreen Forest	0.0	0.0	0.0	0.0	0.0	0.0	<0.1	0.3	1.4	1.4	0.9	<0.1	0.3	1.4	1.0	
Grassland/Herbaceous	0.0	0.0	0.1	0.3	1.2	2.1	<0.1	0.7	1.3	1.3	0.3	<0.1	0.6	1.4	1.0	
Mixed Forest	0.0	0.0	<0.1	0.1	0.1	0.2	<0.1	0.4	5.6	5.9	7.3	<0.1	0.4	5.6	4.0	
Open Water	0.0	0.0	<0.1	<0.1	0.0	0.0	0.0	0.0	<0.1	<0.1	<0.1	0.0	0.0	<0.1	<0.1	
Pasture/Hay	0.0	0.0	2.6	5.8	7.2	12.2	0.3	8.0	9.4	9.8	14.1	0.3	6.9	12.0	8.6	
Shrub/Scrub	<0.1	5.6	0.5	1.1	1.3	2.2	0.0	0.0	<0.1	<0.1	0.0	<0.1	0.8	0.5	0.4	
Woody Wetlands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
<b>Total<sup>a</sup></b>	<b>0.6</b>	<b>100.0</b>	<b>45.0</b>	<b>100.0</b>	<b>59.3</b>	<b>100.0</b>	<b>3.7</b>	<b>100.0</b>	<b>95.5</b>	<b>100.0</b>	<b>120.3</b>	<b>4.3</b>	<b>100.0</b>	<b>140.5</b>	<b>100.0</b>	<b>179.6</b>

Source: USGS 2024a

<sup>a</sup> LoD = limit of disturbance

<sup>b</sup> Totals may not match the sum of addends due to rounding.



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MARL Project construction would result in temporary restrictions on access to land used for work areas within the ROW Corridor, which affects the ability to use that land. In addition, MARL Project construction would result in temporary access restrictions to land used for ancillary facility workspaces outside of the ROW Corridor, including temporary and permanent access roads, construction work areas, construction equipment staging, laydown areas, and other construction work areas. These areas would be restricted prior to and during construction and reopened to previous uses upon completion of construction.

During construction, forested portions of the ROW Corridor will be cleared of trees and vegetation coverage will be converted to herbaceous and scrub/shrub land cover for the life of the MARL Project. The 671.4 to 1,092.2 acres of forest (combined, all forest types and all counties) within the ROW Corridors represent 0.3 to 0.5 percent of all forest available within the MARL Project Study Area in West Virginia. Of the 1,051.5 acres of forest within the ROW Corridor for the Proposed Route in Table 2.3-3 and Table 2.3-4 (combined), 5.4 acres of forest are within the riparian habitat exclusion zones discussed in detail in Section 3. The topography in these locations allows the transmission line to be constructed without removing trees in riparian areas.

The ancillary facility workspaces outside of the Proposed Route ROW Corridor, including temporary and permanent access roads, construction work areas, construction equipment staging, laydown areas, and other construction work areas would primarily affect forest (especially deciduous forest), which would comprise 72.7 percent of these workspaces, statewide. Pasture/hay land cover would comprise 10.4 percent of these workspaces. Reforestation of these areas would be possible after construction, taking at least 20 years to reach maturity. Similarly, the developed, open space areas will maintain their function once construction is completed, as will the agricultural activities in the 10.2 acres of agricultural land (including cultivated crops and pasture/hay) being temporarily impacted.

The cleared ROW for permanent access roads would result in permanent conversion of 0.6 acre of land—including 0.5 acre of deciduous forest and minimal areas of developed, open space and shrub/scrub land cover—to roads. The open space and shrub/scrub land cover will be used for permanent access roads with little change in overall land use character. The deciduous forest will be cleared and converted to shrub/scrub and will remain as such in perpetuity to ensure permanent access is provided for maintenance and upkeep for the duration of the transmission infrastructure.

To the greatest extent practicable, the MARL Project will parallel existing ROWs to avoid and minimize impacts from new forested habitat fragmentation. If construction and operation results in fragmentation of existing forested areas, this fragmentation would not likely meaningfully change the overall forest patterns in West Virginia due to the extensive remaining forested areas in the counties crossed by the routes.

The Proposed Route and the five Alternative Route ROW Corridors would affect between 51.3 to 177.9 acres of agricultural lands, which represents 0.1 to 0.3 percent of cultivated crops and pasture/hay available within the MARL Project Study Area in West Virginia. During construction, agricultural lands within the ROW Corridor will be unavailable for agricultural production, resulting in temporary impacts on farming operations such as crop harvesting and grazing. Additionally, the



land clearing associated with the transmission ROW infrastructure could have impacts on soil erosion and compaction. As stated in Section 2.2.2, Soils, BMPs for the protection of topsoil and avoidance of degradation of farmland could include minimization of soil disturbance where possible, salvage of topsoil removed during grading activities for redistribution during the final reclamation of a site to facilitate the re-establishment of desirable vegetation, and stabilization of soil post-construction. During operation, agricultural activities will generally be allowed to continue, resulting in no long-term change in land cover.

In developed areas, the ROW Corridor would avoid encroachment on residential and nonresidential structures to the greatest degree possible. Construction in developed areas would temporarily affect typical activities due to the presence of construction equipment and MARL Project components. Operation will not change the land cover categorization or land uses in developed areas, except that new third-party structures will not be permitted by NEET MA within the ROW Corridor.

During MARL Project operation, changes in land cover would occur where structures are installed, as well as where forested land is converted to herbaceous and shrub / scrub habitat to accommodate the ROW Corridor. MARL Project operation will have minimal impact on farming operations, because livestock grazing and row crops can typically coexist with the transmission line. To the degree that the ROW Corridor crosses orchards, nurseries, tree farms, or other agricultural activities that involve trees or other vegetation with a natural mature height of greater than 10 feet, such vegetation will be replaced with herbaceous and scrub / shrub habitat. Equipment and vehicles that do not exceed 14 feet in height (including those that can be extended to no more than 14 feet in height) will also be allowed to operate within the ROW Corridor. Operation will not change the land cover categorization or land uses in developed areas, except that new third-party structures will not be permitted by NEET MA within the ROW Corridor.

To minimize permanent changes to land cover, NEET MA will use existing paved and/or gravel/dirt roads for temporary construction and long-term maintenance access within and outside of the ROW Corridor, where feasible. To minimize tree clearing in forested areas, the MARL Project will only clear trees required to establish the ROW Corridor and within the ancillary facility workspaces. NEET MA will coordinate with affected landowners prior to establishment of ROW easements and construction to negotiate measures to minimize impacts on the long-term viability of the use of the property.

### 2.3.2 RECREATION LANDS AND DESIGNATED NATURAL RESOURCES

This section describes the existing recreation lands and designated natural resources, including protected trails and waters, crossed by the Proposed Route and each of the Alternative Routes, as well as the impacts on these resources.

#### 2.3.2.1 EXISTING CONDITIONS

ERM collected information on recreational resources using publicly available datasets from ArcGIS Online and USGS Protected Areas Database of the United States. Unless otherwise noted, data on existing protected areas and recreational features were obtained from state and local GIS sources.



Recreational lands and designated protected areas include publicly accessible lands and corridors that support outdoor activities such as hiking, biking, scenic driving, and wildlife observation. These resources include:

- National and state-designated trails (e.g., National Scenic Trails, National Historic Trails);
- Public parks, forests, and waterbodies (and access routes to these resources); and
- Multi-use paths and greenways.

Figure 2.3-3 and Figure 2.3-4 show these resources, and Attachment 1f, Recreational Lands and Protected Lands Mapbook, shows this information in more detail. Table 2.3-6 and Table 2.3-7 summarize recreation resources crossed by or within the Siting Corridors for the Proposed Route and each Alternative Route, as well as the extent of each resource within each Siting Corridor.

The Siting Corridors each cross the recreational resources and lands listed below, except where noted (Figure 2.3-3 and Figure 2.3-4):

- **Allegheny Trail:** The Allegheny Trail extends north-to-south for approximately 311 miles from the Virginia-West Virginia border near Pearlsburg, Virginia, to the West Virginia-Pennsylvania border north of Brandonville, West Virginia (WVSTA 2023). The trail connects diverse ecosystems across West Virginia, offering both recreational access and conservation by protecting scenic landscapes, watersheds, and wildlife habitats (Wood 2024). Alternative Routes C and F do not cross this trail.
- **American Discovery Trail:** The American Discovery Trail spans nearly 7,000 miles across 15 states—including a segment in northern West Virginia east of Knobly Mountain—connecting ecosystems, communities, and cultural landmarks from coast to coast. The trail system features multi-use accessibility and integrates urban and backcountry landscapes (American Discovery Trail Society 2025).
- **Patterson Creek Water Trail:** Patterson Creek is a scenic and ecologically valuable waterway that runs through Fort Ashby, West Virginia. The water trail offers 37 miles of recreational opportunities from paddling and tubing to fishing and wildlife observation (Upper Potomac Riverkeeper 2014).
- **Cacapon River Water Trail:** The Cacapon River is a biologically rich and ecologically significant waterway in northeastern West Virginia that provides riparian zones and diverse aquatic life. The water trail offers a rich array of recreational opportunities including swimming, paddling, fishing, and wildlife observation (Constantz et al. 2005).
- **South Branch Potomac River:** The South Branch Potomac River is a 141-mile scenic tributary of the Potomac River that flows through the Eastern Panhandle of West Virginia. Recreational opportunities include an exceptional smallmouth bass fishery, as well as paddling and wildlife observation (WVDEP 1999).
- **Coopers Rock State Forest:** Coopers Rock State Forest is West Virginia's largest state forest, encompassing over 12,700 acres of ecologically rich terrain east of Morgantown. Renowned for its dramatic overlooks, extensive trail systems, and historical significance, the forest serves as a vital natural resource for recreation, education, and conservation (WVDOF n.d.). Alternative Routes C and F do not cross this forest.

- CLRLT: The CLRLT permanently protects the land, water, and rural heritage of the Cacapon and Lost River Valley in northeastern West Virginia through strategic partnerships and conservation easements (CLRLT 2025).
- White Horse Mountain WMA: The White Horse Mountain WMA is a forested mountain landscape that supports diverse species and offers opportunities for hunting, wildlife observation, and nature-based recreation (WVDNR 2022). Alternative Routes E and F do not cross this WMA.





TABLE 2.3-6 RECREATIONAL TRAILS WITHIN THE SITING CORRIDORS (MILES)

Resource	Agency/ Organization	Recreation Type	County	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Allegheny Trail	West Virginia Scenic Trails Association	Natural Surface Trail	Preston	0.1	0.1	NA	0.1	NA
Patterson Creek Water Trail	WVDEP	Water Trail	Mineral	0.1	0.1	0.1	0.1	0.1
American Discovery Trail	American Discovery Trail Society	Natural Surface Trail	Mineral	0.1	0.1	0.1	0.1	0.1
South Branch Potomac River	WVDEP	River	Hampshire	0.1	0.1	0.1	0.2	0.2
Cacapon River Water Trail	West Virginia Public Land Corporation	Water Trail	Hampshire	0.1	0.1	0.1	0.1	0.1
<b>Total <sup>a</sup></b>				<b>0.5</b>	<b>0.5</b>	<b>0.4</b>	<b>0.6</b>	<b>0.5</b>

Source: USGS 2024b

NA = not applicable (Alternative Route does not cross trail); WVDEP = West Virginia Department of Environmental Protection  
<sup>a</sup> Totals may not match the sum of addends due to rounding.

**TABLE 2.3-7 RECREATION LANDS AND DESIGNATED NATURAL RESOURCE AREAS WITHIN THE SITING CORRIDORS (ACRES)**

Resource	Agency/ Organization	Recreation Type	County	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Coopers Rock State Forest	West Virginia Department of Forestry	State Forest	Monongalia	NA	14.3	NA	NA	NA
			Preston	73.5	53.3	NA	73.4	NA
White Horse Mountain	WVDNR	WMA	Hampshire	34.2	34.2	34.2	NA	NA
CLRLT Easement	CLRLT	Conservation Easement	Hampshire	2.5	2.5	2.5	2.5	2.5
<b>Total <sup>a</sup></b>				<b>110.2</b>	<b>104.2</b>	<b>36.7</b>	<b>75.9</b>	<b>2.5</b>

Source: USGS 2024b

NA = not applicable (Alternative Route does not cross lands); CLRLT = Cacapon & Lost Rivers Land Trust; WMA = Wildlife Management Area;

WVDNR = West Virginia Department of Natural Resources

<sup>a</sup> Totals may not match the sum of addends due to rounding.



### 2.3.2.2 IMPACTS

This section details the impacts the MARL Project would have on recreational resources and protected lands crossed by the ROW Corridors for the Proposed Route and each Alternative Route. As shown in Table 2.3-8, the Proposed Route and each Alternative Route will cross comparable extents of many of the same resources.

The general impacts of ROW Corridor crossings of recreational trails and protected lands (regardless of the ROW Corridor selected for the MARL Project or the resource being crossed) would include:

- Temporary restrictions on access to or use of trail segments during construction at each trail or resource crossing;
- Fragmentation of areas that may be suitable for new or expanded land protections, especially adjacent to existing protected lands;
- Permanent aesthetic changes within and visible from recreation lands and trails due to the presence of new transmission infrastructure where no such infrastructure currently exists (including some previously undisturbed lands), which could affect the ability of trail users to experience natural and natural-appearing settings, especially for users whose intended recreational activities include viewing habitat, wildlife, and natural (or natural-appearing) settings;
- Changes in the behavior and habitat of wildlife (one of the primary reasons for trail use) due to new aboveground transmission infrastructure, surface disturbance, and increased human access to the ROW Corridor;
- Alterations or modifications to existing trail routes to accommodate new infrastructure; and
- Opportunities for new trail routes, improved access to existing trails and recreation amenities, and support for regional trail connectivity.

During MARL Project construction, recreational trail closures or restrictions would occur during construction across a trail or other recreational resource, which would typically take no more than several days at any single location.

NEET MA will coordinate with applicable land management agencies, organizations, and affected landowners to construct the Proposed Route consistent with permit requirements, or other recommended measures, to address and mitigate impacts. These measures will include (among others) early coordination with recreation agencies, such as WVDNR and the West Virginia Department of Transportation, to address impacts and mitigation.

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TABLE 2.3-8 RECREATIONAL TRAILS WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS (MILES)

Resource	County	Proposed Route/ Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
		Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Allegheny Trail	Preston	0.1	<0.1	0.1	<0.1	NA	NA	0.1	<0.1	NA	NA
Patterson Creek Water Trail	Mineral	0.1	<0.1	0.1	<0.1	0.1	<0.1	0.1	<0.1	0.1	<0.1
American Discovery Trail	Mineral	0.1	<0.1	0.1	<0.1	0.1	<0.1	0.1	<0.1	0.1	<0.1
South Branch Potomac River	Hampshire	0.1	<0.1	0.1	<0.1	0.1	<0.1	0.2	0.1	0.2	0.1
Cacapon River Water Trail	Hampshire	0.1	<0.1	0.1	<0.1	0.1	<0.1	0.1	<0.1	0.1	<0.1
<b>Total<sup>a</sup></b>		<b>0.5</b>	<b>0.2</b>	<b>0.5</b>	<b>0.2</b>	<b>0.4</b>	<b>0.2</b>	<b>0.6</b>	<b>0.3</b>	<b>0.5</b>	<b>0.2</b>

Source: USGS 2024b

NA = not applicable (Alternative Route does not cross trail); ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.

TABLE 2.3-9 RECREATION LANDS AND DESIGNATED NATURAL RESOURCE LANDS WITHIN THE SITTING CORRIDORS AND ROW CORRIDORS (ACRES)

Resource	County	Proposed Route/ Alternative Route D		Alternative Route B		Alternative Route C		Alternative Route E		Alternative Route F	
		Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor	Siting Corridor	ROW Corridor
Coopers Rock State Forest	Monongalia	NA	NA	14.3	5.1	NA	NA	NA	NA	NA	NA
White Horse Mountain	Preston	73.5	31.3	53.3	24.1	NA	NA	73.5	31.3	31.3	NA
CLRLT Easement	Hampshire	34.2	14.9	34.2	14.9	34.2	14.9	NA	NA	NA	NA
	Hampshire	2.5	0.0	2.5	0.0	2.5	0.0	2.5	0.0	0.0	0.0
<b>Total<sup>a</sup></b>		<b>110.2</b>	<b>46.2</b>	<b>104.2</b>	<b>44.0</b>	<b>36.7</b>	<b>14.9</b>	<b>75.9</b>	<b>31.3</b>	<b>31.3</b>	<b>2.5</b>

Source: USGS 2024b

NA = not applicable (Alternative Route does not cross lands); CLRLT = Cacapon & Lost Rivers Land Trust; ROW = right-of-way

<sup>a</sup> Totals may not match the sum of addends due to rounding.

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As shown in Table 2.3-9, the shared ROW Corridor of the Proposed Route and Alternative Route D will cross the largest extent of recreational and protected lands, slightly more than Alternative Route B. Differences in the acreage of recreational and protected lands within the ROW Corridor for each Alternative Route are generally proportional to the differences in overall route length and Siting Corridor acreage. The Proposed Route / Alternative Route D and Alternative Route B have the greatest length in West Virginia among the Alternative Routes. The 46.2 acres of land within the ROW Corridor for the Proposed Route and Alternative Route D are 0.2 percent of the recreational lands within the MARL Project Study Area in West Virginia. Alternative Route F will cross the smallest acreage of protected lands among the Alternative Routes. Except for the trails listed in Table 2.3-8, crossings of recreational and protected lands would not affect designated recreational sites or facilities.

### 2.3.3 AESTHETICS

The aesthetic or scenic character of a landscape refers to the overall visual qualities that give a landscape its distinct and recognizable identity. It generally captures the features (e.g., topography/terrain, vegetation, waterbodies, human development), elements (forms, lines, colors, textures), patterns and spatial relationships, and visual composition of the landscape.

This section describes the existing visual characteristics of the landscapes that the Proposed Route and all five Alternative Route Siting Corridors cross in West Virginia, as well as the primary viewer groups and their sensitivity to landscape changes. In addition, this section describes anticipated changes (impacts) in visual characteristics, identifies sensitive visual resources, and addresses potential visibility of the MARL Project as it crosses different types of landscapes. Refer to Appendix J, Visual Impact Assessment, of the Routing Study for additional detail.

#### 2.3.3.1 EXISTING CONDITIONS

The Proposed Route and all five Alternative Route Siting Corridors cross portions of Monongalia, Preston, Mineral, and Hampshire Counties. The aesthetic character of these counties is visually diverse with a mix of natural landforms, varied vegetation cover, water features, urban to rural development, and existing energy generation and transmission infrastructure. The Siting Corridors are slightly different (with the exception of the Proposed Route and Alternative Route D that are collocated in West Virginia), but they are generally routed through similar landscape types.

Monongalia and Preston Counties are in the Appalachian Plateau physiographic province (NPS 2017), which is characterized by mountainous terrain incised by rivers and streams that contribute to the rolling, gently undulating terrain and curvilinear forms. The vegetation cover is mixed with large, contiguous forested areas interspersed with open agricultural fields. The forests add vertical features, textural complexity, and seasonal color dynamics to the landscape. The forest canopy often obscures underlying landforms and creates a sense of visual enclosure in many areas. Human development ranges from higher density urban areas (e.g., Morgantown) to lower density agricultural and rural areas. Residential, agricultural, and commercial/industrial structures tend to be found along transportation corridors and add geometric forms and hard, straight lines to the landscape. Linear infrastructure (e.g., highways, roads, transmission and

distribution lines) throughout the area introduces strong linear and geometric forms with their visual prominence dependent on the scale of the structures (mass and height), topography, and vegetative and other screening.

Mineral and Hampshire Counties are in the Valley and Ridge physiographic province (NPS 2017), which is characterized by long, narrow mountain ridges with intervening valleys. The mountain ridges form strong diagonal and horizontal lines that appear as repeating, undulating bands across the landscape. The valleys between these ridges tend to have gently rolling to flat terrain. Rivers and streams occur frequently in the valleys and add sinuous, curvilinear forms and lines to the landscape. The vegetation patterns generally follow the landform patterns with the ridges covered in dense forests and a patchwork of agricultural fields, riparian areas, and manicured lawns dotting the valley floors. The forested areas add vertical features that reinforce the elevation differences present on the landscape and help enclose views. The differences in vegetation types and patterns also create textural complexity and seasonal color dynamics that contribute to the aesthetic character of the area. Human development tends to be concentrated in the valleys where small communities and clusters of agricultural structures follow the natural alignment of the terrain. The built environment is generally low (single- and two-story buildings), is geometric, and often appears as subordinate to the dominant natural features. Roads, utility corridors, and other linear infrastructure follow the valley bottoms and occasionally cross ridges through gaps or engineered cuts. This type of infrastructure is highly visible in some areas (e.g., elevated vantage points) and tends to contrast with the landscape's natural forms and patterns.

The Monongalia, Mineral, and Hampshire County comprehensive plans do not have a scenic or visual resource section (Monongalia County Planning Commission 2023; Mineral County Planning Commission 2010; Hampshire County Planning Commission 2019); however, the plans recognize the scenic setting and/or quality across their respective counties. The Hampshire County Comprehensive Plan includes several goals and objectives related to scenic resources and scenic quality primarily centered around protecting and preserving scenic resources related to housing, transportation infrastructure, and parks and recreation. Preston County does not have a comprehensive plan and instead has a strategic plan (Preston County Economic Development Authority 2023). The plan notes scenic views as one of the strengths of the county. While all four counties recognize the scenic quality of their respective settings, none of the planning documents identify specific scenic resources or vistas that have visual protections. They also do not have specific, established visual or scenic quality objectives related to the preservation of existing visual characteristics and the desired level or degree of change that may be allowable; therefore, Section 2.2.3.2 gages aesthetics impacts from the MARL Project by describing anticipated changes in visual characteristics against existing visual characteristics.

The Siting Corridors cross a variety of parks, trails, and other protected areas. The scenic character of these opportunities is implicit in their designation and is a factor that influences the visitor experience. The recreation and protected areas crossed by one or more of the Siting Corridors are listed in Section 2.3.2. Additionally, cultural/historic and archaeological sites within the Siting Corridors are addressed in Section 2.3.4, Cultural Resources. Existing landscapes in the MARL Project Study Area in West Virginia are grouped into landscape units, which are geographic areas that share similar land cover and corresponding visual characteristics.



The existing landscape units found along the Siting Corridors for the Proposed Route and each of the Alternative Routes are described in Table 2.3-10 and shown on Figure 2.3-5 and Figure 2.3-6. The existing landscapes are grouped into landscape units, which are geographic areas that share similar land cover and corresponding visual characteristics. These units are intended to capture representative visual characteristics across an entire landscape area. They provide a macro-scale framework for capturing existing conditions and identifying potential changes in visual conditions from a proposed project. The landscape units are primarily delineated based on aerial imagery, topographic maps, and photographs from the MARL Project Study Area in West Virginia. In Monongalia, Preston, and Mineral Counties, these landscape units alternate primarily between Forested Mountains and Rural Agriculture areas that are representative of the larger Appalachian Plateau physiographic province. In Hampshire County, the landscape units include Rural Agriculture, Forested Ridgelines, and River Valley units, which are generally representative of the larger Valley and Ridge physiographic province.

Landscape characteristics are a set of attributes, qualities, or traits that make the landscape unit identifiable or unique. Landscape characteristics are described based on the specific combination of visual features in a landscape unit, including:

- Landforms: The topography/terrain features of the landscape including any waterbodies or rivers;
- Vegetation: The variety of vegetation/vegetative communities present on the landscape; and
- Built environment: The existing structures, facilities, or other built modifications on the landscape.

These features are described in terms of their primary forms, lines, colors, and textures. These common visual elements are used to describe landscape features across many of the established visual resource management systems, including the Federal Highway Administration visual impact assessment for highway projects (FHWA 2015), the Bureau of Land Management visual resource management system (BLM 1984), the U.S. Forest Service scenery management system (USFS 1995), and others.

Viewer groups are defined by their interaction with a landscape (e.g., residents, motorists, recreationists) and their preferences or sensitivity to changes or modifications to the landscape. The way that viewer groups perceive visual resources provides additional context for assessing a project's visual impacts. In general, viewers with a strong attachment to a landscape and/or with an expectation of scenic quality have higher sensitivity to changes on a landscape compared to viewers for which scenic resources and quality are incidental or irrelevant to their activity. Across the landscapes in West Virginia, there are several types of viewer groups, including the following:

- Area residents: These viewers live in the vicinity of the MARL Project. They are more likely to be highly sensitive to potential changes in landscape characteristics because they tend to value the scenic integrity of the landscape around their homes and may have more frequent and longer duration views from their residences. In addition, area residents tend to be most familiar with the area landscape and are therefore more perceptive of changes over time.

- Motorists, commuters, and other travelers: These viewers travel along the primary travel corridors in the area and have multiple opportunities to view the landscape. This means that their potential exposure to views of the MARL Project changes based on speed, direction of travel, and length of trip, as well as viewing angles and screening, among other factors. Due to this variability, these viewers (particularly along high-speed roadways) are typically less sensitive to changes in scenic conditions.
- Recreationists and tourists: These viewers select area parks, recreation areas, and other tourist attractions in part based on the scenic setting and quality of these areas; therefore, they also tend to be more sensitive to changes in the landscape.

Sensitivity and perception of visual resource changes (i.e., impacts) tend to vary by setting and viewer group. Many factors influence viewer sensitivity and the perception of impacts. In general, users with static, direct, frequent, or longer duration views (e.g., area residents), as well as those viewers engaged in setting-dependent activities (e.g., some types of recreation, tourism), tend to have higher levels of sensitivity to change compared to others. Anticipating viewer sensitivity is thus important in the overall evaluation of impacts from a proposed project to visual resources.

Table 2.3-11 lists existing scenic characteristics (landscape units) and primary viewer groups for the Proposed Route / Alternative Route D and the Alternative Route Siting Corridors in each county.

TABLE 2.3-10 SCENIC RESOURCE LANDSCAPE UNITS CROSSED BY THE PROPOSED AND ALTERNATIVE ROUTE SITTING CORRIDORS IN WEST VIRGINIA

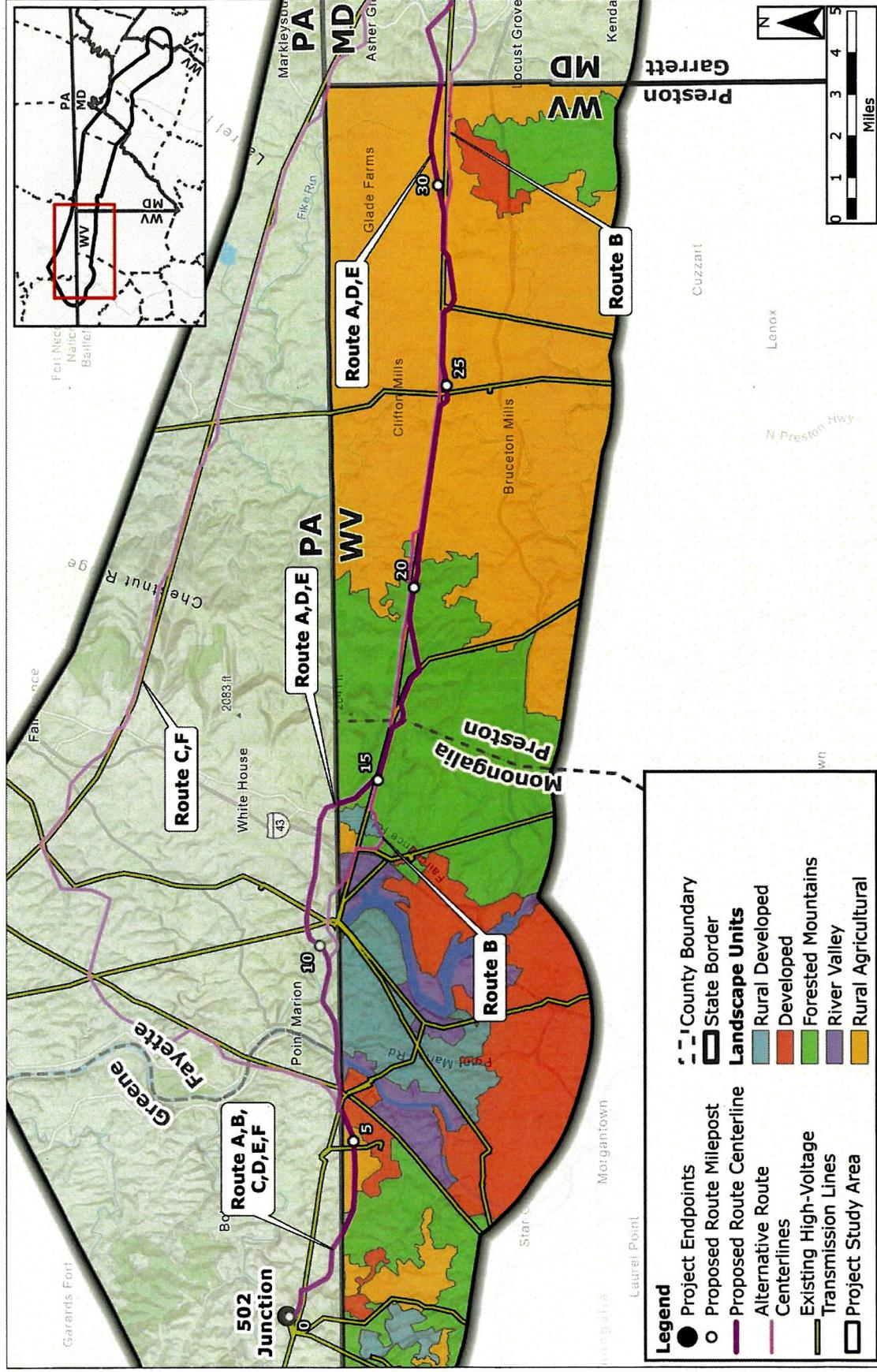
Landscapes Unit	Description	Scenic Characteristics	Vegetation	Built Environment
Forested Mountains	Mountainous terrain that is dominated by native forest cover and other vegetation with periodic clusters of low-density development and linear infrastructure	Generally obscured by vegetation but underlying landform is gently rolling, rounded, wide, and nondirectional	Dominated by deciduous mixed forest with vertical layering, tall and amorphous forms, repeating vertical lines, irregular horizontal line across the canopy, short, rounded forms, mix of green hues with assorted browns and grays, medium to coarse textures, and seasonal variability	Low, flat, gray, lightly textured; tall, vertical geometric forms with thin, slightly undulating horizontal lines; sporadic geometric forms with straight vertical and horizontal lines and various colors
Rural Agricultural	Dominated by agricultural fields, natural grass and shrublands, and pockets of dense forest; extend through the valleys between areas of forested mountains; small towns and other areas of low-density development are located along roadways in these valleys	Broad, gentle slopes, rounded, horizontal profile, with most underlying terrain obscured by vegetation and built features	Open, wide, low, regular to irregular horizontal lines; strips, vertical amorphous forms, continuous patches of uniform textures and colors; dominated by tan, green, brown, and other natural hues and subject to seasonal variation	Smooth, flat, gray strips with straight to curvilinear horizontal lines; geometric forms, straight and angular lines, multiple colors (e.g., white, gray, tan, yellow), ordered, sparse; tall, vertical geometric forms with thin, slightly undulating horizontal lines; sporadic geometric forms with straight vertical and horizontal lines and various colors
Forested Ridgelines	Forested ridgelines follow long, narrow mountain ridges generally oriented north-to-south with native forest cover and periodic clusters of low-density development and linear infrastructure	Obscured by vegetation in most areas; underlying landform is low, long, narrow, linear, rounded; ridgelines form continuous, regular, horizontal lines across skyline	Dominated by deciduous mixed forest with interspersed evergreen species; contiguous forested areas appear as rounded to amorphous forms on the landscape; individual trees and shrubs add multi-height amorphous, round, and conical forms; soft, feathered horizontal lines and repeating vertical lines; mix of green hues with assorted browns and grays, medium to coarse textures, and seasonal variability	Low, flat, gray, smooth; tall, vertical linear and geometric forms with thin, slightly undulating horizontal lines; sporadic geometric forms with straight vertical and horizontal lines and various colors
River Valleys	Similar to rural agriculture landscapes but serpentine river as a focal feature of the valley	Broad, north-to-south oriented valleys; flat to gentle slopes, horizontal profile; sinuous, meandering form with curvilinear lines delineating transition from water to riparian vegetation; except for river, most underlying terrain obscured by vegetation and built features	Open, wide, low, regular to irregular horizontal lines; strips, vertical amorphous forms, continuous patches of uniform textures and colors; broken and contiguous tall, rounded forms along rivers; dominated by tan, green, brown, and other natural hues and subject to seasonal variation	Smooth, hard, flat, gray strips with straight to curvilinear horizontal lines; geometric forms, defined straight and angular lines, multiple colors (e.g., white, gray, tan, yellow, red, blue), ordered, sparse; repeating tall, vertical geometric and linear forms with thin, slightly undulating horizontal lines
Rural Developed	Areas of low-density development (e.g., residential and commercial buildings) primarily aligned along a travel corridor interspersed with forested areas and/or agricultural fields	Rolling to flat, narrow gentle to moderate slopes, irregular; long, soft horizontal and diagonal lines, colors and textures obscured by aboveground vegetation and structures	Low, flat, geometric bounded by tall, irregular, vertical, amorphous forms; regular, simple, soft and repeating vertical lines; mix of natural green hues with splashes of bright hues (e.g., red, pink, orange) and subject to seasonal variation; smooth to medium, patchy, discontinuous textures	Low, geometric, smooth, regular forms; bold, straight, simple, vertical and horizontal lines; multiple colors (e.g., white, gray, black, blue, yellow), smooth to medium, patchy, scattered textures
Developed	Dominated by cleared lands with a high level of development including residential, commercial, and/or industrial buildings and structures, aboveground infrastructure, and maintained lawns/planting areas and remnant native vegetation	Broad benches, flat to rolling areas with rounded ridgetops and steep drainage cuts; long horizontal and diagonal lines; colors and textures generally obscured by aboveground buildings and structures, as well as vegetation	Low, smooth, simple, geometric to irregular with medium to high repeated forms adding vertical context; regular horizontal and vertical, simple lines; vibrant to matte greens, tans, browns with pops of brilliant colors and subject to seasonal variation; smooth to coarse textures	Rectilinear, geometric, definite, solid, multi-height, linear forms; bold, angular, horizontal, vertical, simple, hard lines; subtle to vivid, multiple hues (gray, white, blue, green, yellow, etc.); coarse to fine, patchy, ordered, discontinuous, granular textures



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FIGURE 2.3-5 LANDSCAPE UNITS IN MONONGALIA AND PRESTON COUNTIES





**TABLE 2.3-11 LANDSCAPE UNITS AND VIEWER GROUPS IN THE PROPOSED AND ALTERNATIVE ROUTE SITING CORRIDORS**

<b>County / Landscape Units / Viewer Groups</b>	<b>Proposed Route / Alternative Route D</b>	<b>Alternative Route B</b>	<b>Alternative Route C</b>	<b>Alternative Route E</b>	<b>Alternative Route F</b>
<b>Monongalia County</b>					
Landscape Units	Forested Mountains Rural Agricultural Developed	Forested Mountains Rural Agricultural River Valley Rural Developed Developed	Forested Mountains Rural Agricultural Developed	Forested Mountains Rural Agricultural Developed	Forested Mountains Rural Agricultural Developed
Viewer Group(s)	Area Residents Motorists	Area Residents Motorists Recreationists	Area Residents Motorists	Area Residents Motorists	Area Residents Motorists
<b>Preston County</b>					
Landscape Units	Forested Mountains Rural Agricultural	Forested Mountains Rural Agricultural	Forested Mountains Rural Agricultural	Forested Mountains Rural Agricultural	Forested Mountains Rural Agricultural
Viewer Group(s)	Area Residents Motorists	Area Residents Motorists Recreation	Area Residents Motorists	Area Residents Motorists Recreation	Area Residents Motorists
<b>Mineral County</b>					
Landscape Units	Forested Mountains Rural Agricultural	Forested Mountains Rural Agricultural	Forested Mountains Rural Agricultural	Forested Mountains Rural Agricultural	Forested Mountains Rural Agricultural
Viewer Group(s)	Area Residents Motorists	Area Residents Motorists	Area Residents Motorists Recreationists	Area Residents Motorists	Area Residents Motorists Recreationists
<b>Hampshire County</b>					
Landscape Units	Forested Ridgelines Rural Agricultural River Valley	Forested Ridgelines Rural Agricultural River Valley	Forested Ridgelines Rural Agricultural River Valley	Forested Ridgelines Rural Agricultural River Valley Rural Developed	Forested Ridgelines Rural Agricultural River Valley Rural Developed
Viewer Group(s)	Area Residents Motorists Recreationists	Area Residents Motorists Recreationists	Area Residents Motorists Recreationists	Area Residents Motorists Recreationists	Area Residents Motorists Recreationists

### 2.3.3.2 IMPACTS

The MARL Project involves the construction and operation of a new 500 kV transmission line and associated ROW Corridor that will cross portions of Monongalia, Preston, Mineral, and Hampshire Counties. The degree to which overhead transmission lines influence and are visible on a landscape depends on a number of factors, including, but not limited to, structure height and color, existing landscape features (e.g., topography, vegetation, built environment), duration of the view, and distances from the viewer. The specific combination of these factors changes by location, contributing to a range of potential influences and impacts as noted for the Proposed Route and each Alternative Route. The existing landscape character features and characteristics were used to evaluate the degree of visual change from the MARL Project (i.e., the degree to which the MARL Project would change the existing landscape characteristics across each landscape unit).

The Proposed Route and five Alternative Routes (as noted previously, Alternative Route D shares the same alignment in West Virginia as the Proposed Route) will cross through various landscape types with varying degrees of visibility. Visibility of the new transmission line will be influenced by the amount of existing screening, viewing distances, and background colors and textures, among other factors; however, visibility is not considered an impact on its own. Rather visibility, current landscape characteristics, the degree of visual change, and viewer sensitivity are all considered holistically in determining the level of potential impact. Visibility considerations, including roads, parks and other designated natural areas, and nearby residential dwellings are described below.

Lattice structures connected by overhead conductors will be constructed within the ROW Corridor. The lattice structures will range in height from 85 feet to 190 feet, and the average conductor span lengths will be 1,258 feet. In general, visibility of these new structures will be most pronounced at shorter distances (generally under 0.5 mile). Views of the new transmission line and any permanent roads and changes to existing visual conditions will be greatest from within the cleared ROW Corridor, at and adjacent to permanent ancillary facilities, at road crossings, across open fields or other clearings, and from elevated areas. Some segments of the Proposed Route and Alternative Routes will cross through forested areas (e.g., Forested Mountains, Forested Ridgeline Landscape Units) that generally provide a substantial amount of screening that will help limit views. While the new transmission line may also be visible at greater distances (generally over 0.5 mile), including from higher elevation areas that provide panoramic views of the regional landscape, its presence on the landscape would diminish at longer distances.

Construction activities within the ROW Corridor and at ancillary facilities outside of the ROW Corridor (e.g., permanent and temporary access roads, wire work area) would be temporary and visible during the construction period (anticipated to be approximately 24 months). The initial construction phase will involve clearing and grading portions of the ROW Corridor and ancillary facilities. Trees and other vegetation will be removed and potentially open previously screened areas to view. Grading activities would create exposed earth surfaces, cut slopes, and fill areas that may contrast with and be visible on the landscape. Once cleared, construction activities would progress to excavating pole foundations, assembling the transmission towers, pouring concrete, and stringing the conductors, among other activities. These activities create dynamic movement on the landscape along the ROW Corridor and at temporary ancillary facilities. The

presence of machines and other equipment, material stockpiles, worker vehicles, construction support facilities, and other temporary features would create visual disruptions that will be most visible within the ROW Corridor and at adjacent ancillary facilities but may also be visible in other nearby locations. In particular, the use of cranes and other tall equipment that extends above the existing tree line would potentially be visible from more distant locations. Additionally, disturbed areas will be revegetated with native species to help establish similar colors and textures as the surrounding landscape.

During operation, the new transmission line would add tall, geometric structures and long, linear lines to the landscape. The transmission structures will create a series of repetitive, dominant vertical features that will extend above existing trees canopies and add new focal points that shift the vertical structure of the landscape. The conductors will appear as multiple undulating, overhead horizontal lines spanning the areas between transmission poles. The thin conductors will be most apparent in foreground views (under 0.5 mile), in particular where they span open fields and roads with few to no screening features. In forested areas, the conductors are better absorbed into the landscape and at greater distances (into the middle ground and background) they would be harder to discern against background features and the sky. The MARL Project construction materials are not expected to result in significant glare; therefore, no visual impacts are anticipated.

A limited number of permanent access roads will also be constructed outside of the ROW Corridor. These access roads would appear as flat, smooth, curvilinear forms with distinct lines delineating the transition from adjacent vegetation to the roads. Permanent access roads would be most noticeable within the cleared ROW and would also create visual changes in some areas outside of the ROW Corridor.

Riparian habitat exclusion zones have been identified where forested riparian buffers will be preserved to avoid and minimize impacts on sensitive waterbodies (Section 3). While a location-specific visual resource assessment was not completed at the riparian habitat exclusion zones, it is anticipated that these areas will partially screen MARL Project infrastructure (including the cleared ROW Corridor) and enhance the recreational experience on and along the rivers in the vicinity of these zones.

Where feasible, the Proposed Route and Alternative Route ROW Corridors were designed to maximize paralleling opportunities with existing high-voltage transmission lines in the area to the maximum extent practicable. Paralleling the ROW Corridors with these existing lines helps minimize visual impacts by repeating landscape elements that are already present and better absorbing these elements into the existing landscape. Paralleling also helps maintain existing vegetative screening, in particular in forested areas. Table 2.3-12 indicates the miles of paralleling opportunities by county for the Proposed Route and each Alternative Route.

**TABLE 2.3-12 MILES OF PARALLELING OPPORTUNITIES BY ROUTE IN WEST VIRGINIA**

<b>County<sup>a</sup></b>	<b>Proposed Route / Alternative Route D</b>	<b>Alternative Route B</b>	<b>Alternative Route C</b>	<b>Alternative Route E</b>	<b>Alternative Route F</b>
Monongalia	1.4	3.4	0.0	1.4	0.0
Preston	7.8	9.9	0.0	7.8	0.0
Mineral	5.0	5.0	5.0	5.0	5.0
Hampshire	13.5	13.4	13.5	7.8	5.9
<b>Total<sup>b</sup></b>	<b>27.7</b>	<b>31.7</b>	<b>18.5</b>	<b>22.1</b>	<b>10.9</b>

<sup>a</sup> Table 1.1-1 summarizes the MARL Project features of the Proposed Route and Alternative Routes in West Virginia and overall MARL Project—including the centerline length—and the miles and percentage of paralleling.

<sup>b</sup> Totals may not match the sum of addends due to rounding.

In West Virginia, Alternative Route B has the greatest mileage of paralleling opportunities with the Proposed Route having the second greatest mileage of paralleling, while Alternative Route F has the least amount. The MARL Project towers could be taller (depending on final engineering) and potentially more prominent on the landscape; however, they generally add similar forms, lines, colors, and textures to existing conditions and thereby maximize the ability of the landscape to absorb the infrastructure. While the Proposed Route and five Alternative Routes have factored in paralleling opportunities, there is less of a visual benefit when adding a high-voltage transmission line next to a lower voltage line. In such cases, the difference in ROW width and structure forms between different voltage lines may actually increase the presence of both routes (existing and new) on the landscape. These differences are noted by Alternative Route below. Appendix J of the Routing Study provides a more detailed description of visual changes and impacts from specific locations near the ROW Corridors.

**Proposed Route / Alternative Route D**

The Proposed Route / Alternative Route D ROW Corridor crosses multiple Forested Mountain and Rural Agricultural landscapes in Monongalia, Preston, Mineral, and Hampshire Counties. In forested areas, dense vegetation and rugged terrain will help screen views of the transmission line, limiting visibility primarily to road crossings. In contrast, open agricultural fields and grasslands offer broader sightlines, making the MARL Project infrastructure (tall lattice towers and long, thin overhead conductors) more visually prominent and apparent from area roads, farm buildings, and residences sporadically located throughout the area.

The Proposed Route / Alternative Route D ROW Corridor crosses multiple roads (Section 2.3.5, Transportation Infrastructure):

- 7 tertiary roads in Monongalia County;
- 1 secondary and 21 tertiary roads in Preston County;
- 2 secondary and 10 tertiary roads in Mineral County; and
- 2 secondary and 40 tertiary roads in Hampshire County.



At these crossings, the Proposed Route / Alternative Route D would result in changes to vegetation forms and lines within the cleared ROW Corridor. Additionally, the tall, geometric transmission structures and overhead undulating horizontal lines would also be perceptible at these crossings. The duration of these views (structure visibility) would be dependent on the speed and direction of travel for motorists on these roads.

To help reduce visual impacts, portions of the Proposed Route / Alternative Route D ROW Corridor would parallel existing high-voltage transmission lines, including the following:

- 1.4 miles in Monongalia County along an existing 138 kV line;
- 7.8 miles in Preston County along two existing 138 kV lines;
- 5.0 miles in Mineral County along an existing 500 kV line; and
- 13.5 miles in Hampshire County along an existing 138 kV line.

The MARL Project will be located adjacent to the existing transmission line infrastructure, and the MARL Project ROW Corridor will abut the existing corridor thereby increasing the width of the cleared ROW. Many of these existing high-voltage transmission lines have similar lattice structures to the MARL Project. While the MARL Project towers could be taller (depending on final engineering design) and potentially more prominent on the landscape, they add similar forms, lines, colors, and textures to existing visual conditions; however, some of the existing high-voltage transmission lines have short, paired H-frame wooden towers that are visually distinct from the MARL Project infrastructure.

There are several parks, outdoor recreational use areas, or other designated natural resource areas (e.g., protected trails and waters) crossed by the Proposed Route / Alternative Route D ROW Corridor in West Virginia (Section 2.3.2), including the following:

- None in Monongalia County;
- Allegheny Trail (less than 0.1 mile) and Coopers Rock State Forest (31.3 acres) in Preston County;
- American Discovery Trail (less than 0.1 mile) and Patterson Creek Water Trail (less than 0.1 mile) in Mineral County; and
- Cacapon River Water Trail (less than 0.1 mile), South Branch Potomac River (0.1 mile), and White Horse Mountain WMA (14.9 acres) in Hampshire County.

Across all four counties, there are 91 residential dwellings within 500 feet of the Proposed Route / Alternative Route D centerline, including 3 in Monongalia County, 18 in Preston County, 13 in Mineral County, and 57 in Hampshire County. While this proximity does not mean that these residents will have unobstructed views of the ROW Corridor, it increases the likelihood that there may be perceivable changes in foreground (under 0.5 mile) scenic conditions from these residences.

### **Alternative Route B**

The Alternative Route B ROW Corridor crosses similar types of landscapes across all four West Virginia counties as the Proposed Route / Alternative Route D ROW Corridor. Similarly, dense vegetation and rugged terrain would help screen views of the transmission line in forested areas, while open agricultural fields and grasslands would offer broader, more extensive views of the new infrastructure.

Across all types of landscapes, the Alternative Route B ROW Corridor would be most visible where it crosses roads. The number of road crossings in each county includes the following (Section 2.3.5):

- 1 primary road and 8 tertiary roads in Monongalia County;
- 1 secondary road and 16 tertiary roads in Preston County;
- 2 secondary and 10 tertiary roads in Mineral County; and
- 2 secondary and 40 tertiary roads in Hampshire County.

To help reduce visual impacts, portions of the Alternative Route B ROW Corridor parallel existing high-voltage transmission lines, including the following:

- 3.4 miles in Monongalia County along an existing 138 kV line;
- 9.9 miles in Preston County along an existing 138 kV transmission line;
- 5.0 miles in Mineral County along an existing 500 kV line; and
- 13.4 miles in Hampshire County along an existing 138 kV line.

The Alternative Route B ROW Corridor crosses through several parks, recreation areas, or other designated natural resource areas, including the following (Section 2.3.2):

- Coopers Rock State Forest (5.1 acres) in Monongalia County;
- Allegheny Trail (less than 0.1 mile) and Coopers Rock State Forest (24.1 acres) in Preston County;
- American Discovery Trail (less than 0.1 mile) and Patterson Creek Water Trail (less than 0.1 mile) in Mineral County; and
- Cacapon River Water Trail (less than 0.1 mile), South Branch Potomac River (less than 0.1 mile), and White Horse Mountain WMA (14.9 acres) in Hampshire County.

There are 128 residential dwellings within 500 feet of the Alternative Route B centerline across all four counties. This is a greater amount than under the Proposed Route / Alternative Route D (91 dwellings) and includes 36 residential dwellings in Monongalia County, 24 in Preston County, 11 in Mineral County, and 57 in Hampshire County.

### **Alternative Route C**

The Alternative Route C ROW Corridor follows the same alignment as the Proposed Route / Alternative Route D ROW Corridor in Monongalia, Mineral, and Hampshire Counties. While the route alignment is different in Preston County, the ROW Corridor crosses a very small part of the same Forested Mountain Landscape Unit as the Proposed Route / Alternative Route D ROW Corridor; therefore, changes in scenic characteristics will be the same under Alternative Route C,

but there will be changes in exposure/visibility of the MARL Project as compared with the Proposed Route / Alternative Route D ROW Corridor.

The Alternative Route C ROW Corridor would also be most visible where it crosses roads. The number of road crossings in each county includes the following (Section 2.3.5):

- 4 tertiary road crossings in Monongalia County;
- No road crossings in Preston County;
- 2 secondary and 10 tertiary roads in Mineral County; and
- 2 secondary and 40 tertiary roads in Hampshire County.

The number of road crossings under Alternative C are less than the Proposed Route / Alternative Route D in Monongalia and Preston Counties but the same in Mineral and Hampshire Counties.

There are no existing high-voltage transmission line paralleling opportunities in Monongalia and Preston Counties under Alternative Route C. Paralleling opportunities would be the same as the Proposed Route / Alternative D ROW Corridor in both Mineral and Hampshire Counties.

There are no parks, recreation areas, or other designated natural resource areas in the Alternative Route C ROW Corridor in Monongalia and Preston Counties (Section 2.3.2). In Mineral and Hampshire Counties, the Alternative Route C ROW Corridor would cross the same designated natural resource areas as the Proposed Route / Alternative Route D ROW Corridor.

There are 73 residential dwellings within 500 feet of the Alternative Route C centerline, which is fewer residential dwellings than for the Proposed Route / Alternative Route D. The number of residential dwellings under Alternative Route C includes one dwelling in Monongalia County and two dwellings in Preston County, both of which are less than the Proposed Route / Alternative Route D. The number of residential dwellings in Mineral and Hampshire Counties (13 dwellings and 57 dwellings, respectively) is same as the Proposed Route / Alternative Route D.

### **Alternative Route E**

In Monongalia and Preston Counties, the Alternative Route E ROW Corridor follows the same alignment as the Proposed Route ROW Corridor. In Mineral and Hampshire Counties, the Alternative Route E ROW Corridor follows the Proposed Route / Alternative Route D ROW Corridor in several areas but also deviates and follows a more southerly route across the eastern portion of Mineral County and western portion of Hampshire County. Across all four counties, the Alternative Route E ROW Corridor crosses the same landscape units as the Proposed Route / Alternative Route D ROW Corridor.

As with other routes, the Alternative Route E ROW Corridor would also be most visible where it crosses roads. It would cross the same number and types of roads in Monongalia and Preston Counties (Section 2.3.5). The number of road crossings in Preston and Hampshire Counties includes the following:

- No road crossings in Monongalia County;
- No road crossings in Preston County;
- 1 secondary road and 7 tertiary roads in Mineral County; and
- 3 secondary roads and 36 tertiary roads in Hampshire County.

In both Mineral and Hampshire Counties, there are slightly fewer road crossings than the Proposed Route / Alternative Route D.

In Monongalia, Preston, and Mineral Counties, the Alternative Route E ROW Corridor parallels the same high-voltage transmission lines over the same distance as the Proposed Route / Alternative Route D ROW Corridor. In Hampshire County, the Alternative Route E ROW Corridor parallels the same existing 138 kV line as the Proposed Route / Alternative Route D ROW Corridor but over a shorter distance (7.8 miles instead of 13.5 miles).

There are no parks, recreation areas, or other designated natural resource areas in the Alternative Route E ROW Corridor in Monongalia County (Section 2.3.2). In Preston, Mineral and Hampshire Counties, the Alternative Route E ROW Corridor would cross the same designated natural resource areas as the Proposed Route / Alternative Route D ROW Corridor, except that it avoids crossing the White Horse Mountain WMA in Hampshire County.

Alternative Route E has the same number of residential dwellings within 500 feet of the centerline as the Proposed Route / Alternative Route D in both Monongalia and Preston Counties. There are slightly fewer residential dwellings within 500 feet of the Alternative Route E centerline in Mineral and Hampshire Counties, including 9 residential dwellings (compared to 13 under the Proposed Route) in Mineral County and 52 residential dwellings (compared to 57 under the Proposed Route) in Hampshire County.

### **Alternative Route F**

The Alternative Route F ROW Corridor follows the same alignment as the Alternative Route C ROW Corridor in Monongalia and Preston Counties. In Mineral County, the Alternative Route F ROW Corridor follows the same alignment as the Alternative Route E ROW Corridor, but the Alternative Route F ROW Corridor deviates slightly from the Alternative Route E ROW Corridor in Hampshire County. While there are slightly different alignments in Hampshire County, changes in visual resource characteristics and visibility under Alternative Route F would be similar to those previously described.

Specifically, the number of road crossings in each county includes the following (Section 2.3.5):

- 7 tertiary roads in Monongalia County (same as the Proposed Route / Alternative Route D);
- No road crossings in Preston County (fewer than the Proposed Route / Alternative Route D);
- 1 secondary road and 7 tertiary roads in Mineral County (fewer than the Proposed Route / Alternative Route D); and
- 3 secondary roads and 41 tertiary roads in Hampshire County (more than Proposed Route / Alternative Route D).

There are no existing high-voltage transmission line paralleling opportunities in Monongalia and Preston Counties under Alternative Route F. In Mineral County, the paralleling opportunities are the same as the Proposed Route / Alternative Route D (5.0 miles along an existing 500 kV transmission line). In Hampshire County, the Alternative Route F ROW Corridor parallels the same existing 138 kV line as the Proposed Route / Alternative Route D ROW Corridor but over a shorter distance (5.9 miles instead of 13.5 miles).

There are no parks, recreation areas, or other designated natural resource areas in the Alternative Route F ROW Corridor in Monongalia and Preston Counties (Section 2.3.2). In Mineral and Hampshire Counties, the Alternative Route F ROW Corridor would cross the same designated natural resource areas as the Proposed Route / Alternative Route D ROW Corridor, except that it avoids crossing the White Horse Mountain WMA in Hampshire County.

In both Monongalia and Preston Counties, the number of residential dwellings within 500 feet of the Alternative Route F centerline are the same as Alternative Route C (fewer in total across both counties than the Proposed Route / Alternative Route D). In Mineral County, there is the same number of residential dwellings (9) within 500 feet of the Alternative Route F centerline as Alternative Route E (slightly fewer than the Proposed Route / Alternative Route D). There are 65 residential dwellings within 500 feet of the Alternative Route F centerline in Hampshire County. This is the greatest number of residential dwellings under any of the alternatives.

### 2.3.4 CULTURAL RESOURCES

A desktop review of previously recorded aboveground architectural resources, archaeological sites, cemeteries, and battlefields was conducted to evaluate constraints and opportunities to support the MARL Project with data obtained in September 2025 (NPS 2018; NRHP 2025; WV SHPO 2025). This section is presented differently than other resource sections due to the regulatory nature of cultural resources. The cultural resources existing conditions assessment discussed in this section includes archaeological sites and aboveground architectural resources within a 1-mile buffer from the route centerline. The impacts assessment for the architectural resources includes those resources within a 0.5-mile buffer from the route centerline, whereas impacts for archaeological resources were considered for the ROW Corridor (Attachment 1g, Cultural Resources Mapbook). For ancillary facilities, impacts are considered to be the footprint of the ancillary facility workspace for archaeology and up to 500 feet on either side of the ancillary facility workspace (e.g., access road) or radius around the workspace for potential visual impacts.

As part of the CPCN application process, the PSC may require further assessment of the integrity of each archaeological site and evaluation of aboveground architectural resources. Such investigations will be performed during a subsequent phase of the MARL Project.

According to 36 CFR § 60.4, cultural resources eligible for listing on the National Register of Historic Places (NRHP) are defined as buildings, structures, objects, sites, and districts that have integrity and meet one or more of the significance criteria outlined below. Integrity can be broadly interpreted but generally refers to a resource's location, design, setting, materials, workmanship, feeling, and/or association through which the resource's significance is evident. Depending on the ultimate permitting needs for the MARL Project, the West Virginia State Historic Preservation Office (WV SHPO) will review or assist the federal agency in determining potential MARL Project impacts on significant cultural resources as outlined in the federal or state laws. Consideration of the below criteria evaluation will likely guide the WV SHPO in its determination of what constitutes a significant cultural resource. For the purposes of this ERD, MARL Project impacts are generally considered adverse when they result in the loss of a resource's integrity to the point where it may no longer be eligible for the NRHP.

The following criteria for evaluation of NRHP eligibility are outlined in 36 CFR § 60.4:

- **Criterion A (Event):** Association with one or more events that have made a significant contribution to the broad patterns of national, state, or local history;
- **Criterion B (Person):** Association with the lives of persons significant in the past;
- **Criterion C (Design/Construction):** Embodiment of distinctive characteristics of a type, period, or method of construction; or representation of the work of a master; or possession of high artistic values; or representation of a significant and distinguishable entity whose components may lack individual distinction; and
- **Criterion D (Information Potential):** Properties that yield, or are likely to yield, information important in prehistory or history.

#### 2.3.4.1 EXISTING CONDITIONS

The existing conditions for the Proposed Route / Alternative Route D and each of the four other Alternative Routes are discussed in more detail below. Attachment 1g shows the locations of the resources within the 1-mile buffer from the Proposed Route and Alternative Route centerlines.

In many cases, the WV SHPO Interactive Map did not include NRHP eligibility or status information for archaeological and architectural resources (WV SHPO 2025); therefore, ERM has presumed their status to be not evaluated for the purposes of this report.

#### Battlefields

The Proposed Route / Alternative Route D and four other Alternative Routes have portions that extend within the boundary of the Hanging Rock Battlefield in Hampshire County, West Virginia. This battlefield has not been evaluated for inclusion on the NRHP, nor has the boundary been fully confirmed (West Virginia GIS Technical Center 2011). On the WV SHPO Interactive Map (WV SHPO 2025)<sup>6</sup> used to identify cultural resources in relation to the MARL Project, the American Civil War battlefield is called the "Hanging Rocks Battlefield." Official accounts refer to the 1862 action as a skirmish and the location of the battlefield as Blue's Gap or Hanging Rock Pass; however, this is a separate engagement that should not be confused with another location in Hampshire County (approximately 4 miles northwest of Romney) known as Hanging Rocks, where a Civil War skirmish occurred in 1861; or a location in Roanoke County, Virginia, called Hanging Rock, where a battle occurred in 1864.

#### Cemeteries

The WV SHPO maps cemeteries as a separate layer that are distinct from archaeological sites; therefore, they are discussed separately here. There are 43 previously recorded cemeteries within the 1-mile buffer of the Proposed Route and Alternative Route centerlines (Table 2.3-13).

#### Archaeological Resources

There are no known NRHP-eligible or NRHP-listed archaeological sites within the 1-mile buffer from the centerline of the Proposed Route or Alternative Route centerlines. A total of 20 known archaeological sites are located within the 1-mile buffer from the Proposed Route and Alternative Route centerlines and are listed and described in Table 2.3-14. Archaeological sites that are within the ROW Corridors are discussed in more detail in Section 2.3.4.2.

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<sup>6</sup> This resource was removed from the WV SHPO Interactive Map GIS System according to WV SHPO Administrator (Susan Wood 2025, pers. comm.).

TABLE 2.3-13 CEMETERIES WITHIN THE 1-MILE BUFFER FROM THE PROPOSED ROUTE AND ALTERNATIVE ROUTE CENTERLINES

Resource ID	Cemetery Name	Description	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
<b>Monongalia County</b>							
46-MG-204	Conaway Cemetery	Overgrown; easily identifiable	X	X	X	X	X
46-MG-224	Fletcher Cemetery	Well maintained		X			
46-MG-351	Garlow Cemetery	Well maintained	X	X	X	X	X
46-MG-358	Fort Martin Cemetery	Roughly 135 burials	X	X	X	X	X
NA	Lazzell	No description	X	X	X	X	X
<b>Preston County</b>							
46-PR-115	Union Cemetery	No data	X	X		X	
46-PR-66	Webb Chapel Cemetery	Well maintained; church parishioners and surrounding community members		X			
PR-0579*	St. Peter's Evangelical Lutheran Church	No data	X	X		X	
PR-0583*	Mountain Grove Brethren Church Cemetery	No data	X	X		X	
NA	NA	Maple Street	X			X	
<b>Mineral County</b>							
NA	Carr Cemetery	No data	X	X	X	X	X
NA	Gerstell Cemetery	No data	X	X	X	X	X
NA	Van Meter Cemetery	No data	X	X	X	X	X
<b>Hampshire County</b>							
46-HM-128	Parke Cemetery	Overgrown; easily identifiable	X	X	X	X	X
46-HM-131	Springfield Hill Cemetery	Approximately 675 burials; well maintained with burials dating 1804-2016				X	X
46-HM-159	Foltz Cemetery	Overgrown; easily identifiable; 50 burials	X	X	X	X	X
46-HM-160	Saville Cemetery	Well maintained; 14 burials	X	X	X	X	X
46-HM-161	Hockman Cemetery	Well maintained; 34 burials	X	X	X	X	X
46-HM-162	No data	Overgrown; unidentifiable; 6 burials	X	X	X	X	X
46-HM-172	Loy Cemetery	Overgrown; easily identifiable; 12 burials	X	X	X	X	X
46-HM-173	Central United Methodist Cemetery	Well maintained; 147 burials	X	X	X	X	X
46-HM-184	Capon Chapel	Overgrown; easily identifiable; 270 burials	X	X	X	X	X
46-HM-206	No data	Located on a fairly level ridge in the city of Springfield's town plaza				X	X
46-HM-207	No data	No data	X	X		X	X
46-HM-237	No data	Overgrown; unidentifiable; 2 burials	X	X		X	X
46-HM-243	Newman Cemetery	Overgrown; unidentifiable; 3 burials				X	X
46-HM-245	Solomon Parker Cemetery	Overgrown; unidentifiable; 1 burial				X	X
46-HM-259	No data	Well maintained; 3 burials	X	X	X	X	X
46-HM-274	Mendenhall Cemetery	Overgrown; unidentifiable; 20 burials	X	X	X	X	X
46-HM-282	No data	Unidentifiable; 2 burials	X	X			
46-HM-283	No data	Situated on a gradual slope in a wooded area near the Forks of Cacapon on a private drive				X	X
46-HM-300	Caudy-Stump Cemetery	Poorly maintained	X	X	X	X	X
46-HM-311	Garden of the Cross Cemetery	Well maintained	X	X	X	X	X



Resource ID	Cemetery Name	Description	Proposed Route/ Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
46-HM-314	Grenzeback-Wall Cemetery	Overgrown; easily identifiable; 5 burials	X	X	X		
46-HM-332	Kline Family Cemetery	Overgrown; easily identifiable; 7 burials	X	X	X	X	
46-HM-343	Moreland Family Cemetery	Well maintained; 7 burials	X	X	X	X	
46-HM-344	Offutt/Haines Family Cemetery	Overgrown; easily identifiable; 24 burials	X	X	X	X	X
46-HM-369	Unnamed Cemetery	Overgrown; easily identifiable	X	X	X	X	X
46-HM-377	Milleson Cemetery	Overgrown; easily identifiable	X	X	X	X	X
46-HM-385	Smaltz Cemetery	Poorly maintained	X	X	X	X	X
46-HM-386	Bailes Cemetery	Well maintained	X	X	X	X	X
46-HM-389	Henderson Cemetery	Overgrown; easily identifiable	X	X	X	X	X
NA	Mount Bethel Cemetery	No data	X	X	X	X	X

Source: WV SHPO 2025

NA = not applicable

An asterisk (\*) indicates cemeteries are associated with churches in the architectural resources table.

An "X" indicates the cemetery is within the 1-mile buffer of the Proposed Route or Alternative Route centerline.



TABLE 2.3-14 ARCHAEOLOGICAL SITES WITHIN THE 1-MILE BUFFER FROM THE PROPOSED ROUTE AND ALTERNATIVE ROUTE CENTERLINES

Site Number	Site Name	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
<b>Monongalia County</b>								
46-MG-7	NA	Not applicable	Not Evaluated	X	X	X	X	X
46-MG-88	NA	Prehistoric site; lithic scatter	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X	X <sup>a</sup>	X
46-MG-213	NA	Historic site; industrial	Recommended Not Eligible	X	X		X	
46-MG-255	Isolated find 3	Prehistoric site; isolated find, undisturbed	Not Evaluated		X			
46-MG-349	FS-1	Historic site; farmstead/agricultural, disturbed	Not Evaluated	X	X	X	X	X
46-MG-350	FS-3	Historic site; farmstead/agricultural, disturbed	Not Evaluated	X	X	X	X	X
46-MG-356	F.S.4	Prehistoric site; disturbed	Not Evaluated	X	X	X	X	X
46-MG-357	F.S-11	Historic site; domestic/residential	Not Evaluated	X	X	X	X	X
46-MG-359	F.S-2	Historic site; domestic/residential	Not Evaluated	X	X	X	X	X
46-MG-360	F.S-3	Historic site; domestic/residential	Not Evaluated	X	X	X	X	X
46-MG-361	F.S-12	Historic site; domestic/residential	Not Evaluated	X	X	X	X	X
46-MG-362	F.S-13	Historic site; farmstead/agricultural	Not Evaluated	X	X	X	X	X
<b>Preston County</b>								
46-PR-63	NA	Historic site; domestic/residential	Not Eligible	X	X		X	
46-PR-115	1	Historic site; cemetery	Not Evaluated	X	X		X	
46-PR-124	Site 1	Prehistoric site; domestic/residential	Not Evaluated	X	X		X	
<b>Mineral County</b>								
46-MI-17	NA	Prehistoric site	Not Evaluated	X	X	X	X	X
46-MI-18	NA	Building	Not Evaluated	X	X	X	X	X
<b>Hampshire County</b>								
46-HM-12	NA	Prehistoric site	Not Evaluated				X	X
46-HM-97	NA	Prehistoric site	Not Evaluated	X	X	X	X	X
46-HM-98	NA	Prehistoric site	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>

Source: WV SHPO 2025

NA = not applicable; NRHP = National Register of Historic Places

An "x" indicates the archaeological site is within the 1-mile buffer of the Proposed Route or Alternative Route centerline.

<sup>a</sup> These sites are within the Proposed Route or Alternative Route ROW Corridor, as discussed in Section 2.3.4.2.



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**Aboveground Architectural Resources**

This section presents information on known aboveground architectural resources in the 1-mile buffer from the Proposed Route and Alternative Route centerlines. The locations of resources relevant to the Proposed Route and Alternative Route centerlines are depicted in Attachment 1g.

Table 2.3-15 lists the number of previously recorded aboveground architectural resources within the 1-mile buffer from the Proposed Route and Alternative Route centerlines and within each of the Proposed Route and Alternative Route ROW Corridors, as well as the number of NRHP-listed and NRHP-eligible resources within the 1-mile buffer from the Proposed Route and Alternative Route centerlines. In total, there are 211 previously recorded aboveground architectural resources within the 1-mile buffer from the Proposed Route and Alternative Route centerlines (Table 2.3-16).

Nine resources within the 1-mile buffer from the Proposed Route and Alternative Route centerlines are NRHP-listed or NRHP-eligible. A brief description of these NRHP-listed, NRHP-recommended eligible, and NRHP-eligible resources and their eligibility criteria are provided below.

**TABLE 2.3-15 SUMMARY OF ARCHITECTURAL RESOURCES WITHIN THE 1-MILE BUFFER FROM THE PROPOSED ROUTE AND ALTERNATIVE ROUTE CENTERLINES**

Route	Architectural Resources			
	Within ROW Corridor	Within 0.5-Mile Buffer from the Route Centerline	Within 1-Mile Buffer from the Route Centerline	NRHP-Listed or NRHP-Eligible Within 1-Mile Buffer from the Route Centerline
Proposed Route	0	55	133	6
Alternative Route B	0	58	140	7
Alternative Route C	0	43	87	2
Alternative Route D	0	55	133	6
Alternative Route E	0	64	188	8
Alternative Route F	0	44	145	4

Source: WV SHPO 2025

NRHP = National Register of Historic Places; ROW = right-of-way

**National Register of Historic Places-Listed Architectural Resources**

- Capon Chapel (HM-0441/NR #12001048) is a circa 1750 Colonial church which features wood over log exterior, gabled metal roof, and stone and block foundation. It was determined significant under Criterion C and Criteria Consideration A as a representative example of early rural religious architecture in Hampshire County and is within the 0.5-mile buffer from the Proposed Route and Alternative Route centerlines.
- Springfield Brick House / Frenchwood (NR #12001141) is a circa 1855 Georgian / Greek Revival dwelling with a gabled, steel roof, brick siding, and sandstone foundation. It was determined significant under Criterion C for architecture as an example of the transitional nature of architectural styles in the 19th century, as well as a good example of a grand estate home in the South Branch Valley. The resource is within the 1-mile buffer from Alternative Route E and F centerlines.

***National Register of Historic Places-Eligible Architectural Resources***

- Craftsman Dwelling (MI-0750-0088) is a circa 1924 Craftsman style dwelling with an asphalt shingle roof, wood exterior, and concrete block foundation. The dwelling was recommended eligible under Criterion C for its architecture due to its retention of architectural integrity and is within the 1-mile buffer from the Proposed Route and Alternative Route centerlines.
- Lake Lynn Hydroelectric Power House and Dam (MG-0392) was built in two stages (circa 1913 to 1914 and 1925 to 1926) by the West Virginia Power and Transmission Company. It controlled the flow of the Cheat River and created a 13-mile-long reservoir. The resource was state of the art within American power technology development during the 1910s and 1920s. The resource was nominated to the NRHP under Criterion C for engineering and is within the 1-mile buffer from the Proposed Route and Alternative Route D and E centerlines and is within the 0.5-mile buffer from Alternative Route B centerline.
- Front Gable Dwelling (PR-0526) is a circa 1910 front-gabled dwelling with an asphalt shingle roof, log siding, and stone rubble foundation. The dwelling was recommended eligible under Criterion C for architecture and is within the 0.5-mile buffer from Alternative Route B centerline and within the 1-mile buffer from the Proposed Route and Alternative Route D and E centerlines.
- A-Frame Dwelling (PR-0527) is a circa 1950 A-frame dwelling with an asphalt shingle roof and weatherboard siding. It was recommended to be eligible under Criterion C for its distinctive architecture and is within the 1-mile buffer from the Alternative Route B centerline.
- Barn (PR-0546) is a circa 1890 barn with a pressed metal gambrel roof, weatherboard siding, and stucco-covered foundation. It was recommended eligible under Criterion C for its architecture and is within the 1-mile buffer from the Proposed Route and Alternative Route B, D, and E centerlines.
- St. Peter's Evangelical Lutheran Church (PR-0579) is a circa 1870 church with a front-gabled asphalt shingle roof, weatherboard siding, and ashlar stone foundation. It was recommended eligible under Criterion C for architecture due to high historic integrity and was noted by the WV SHPO as needing additional information to make a determination of eligibility under Criteria A, B, and D. It is within the 1-mile buffer from the Proposed Route and Alternative Routes B, D, and E centerlines.
- Vernacular Dwelling (HM-0015) are circa 1820 log cabins with side-gabled, metal roofs, log siding, and stone foundations. It was recommended eligible under Criterion C for architecture and is within the 1-mile buffer from the Alternative Route E and F centerlines.

TABLE 2.3-16 ARCHITECTURAL RESOURCES WITHIN THE 1-MILE BUFFER FROM THE PROPOSED ROUTE AND ALTERNATIVE ROUTE CENTERLINES

Resource Number	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
<b>Mongalia County</b>							
MG-0057-0437	Hoard Property	Not Evaluated	X	X		X	
MG-0360	Former R.R. Station, P.O. & General Store	Not Evaluated	X	X		X	
MG-0392	Lake Lynn Hydroelectric Power House and Dam	Eligible	X	X <sup>a</sup>		X	
MG-0423	Calvary Church	Not Evaluated		X			
MG-0665	U.S. Morris Farm	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>		X <sup>a</sup>	
MG-0678	Lyons Farm	Not Evaluated	X	X		X	
MG-0680	Pleasant Hill School #2	Not Evaluated	X	X		X	
MG-0681	Pleasant Hill School #1	Not Evaluated	X	X		X	
MG-0686	Joseph A. Lyons Farm	Not Evaluated	X	X		X	
MG-0687	Jeffries Property	Not Evaluated	X	X		X	
MG-0689	John Morris Farm	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>		X <sup>a</sup>	
MG-0691	Colebank Farm	Not Evaluated	X	X		X	
MG-0692	Sugar Grove School	Not Evaluated	X	X		X	
MG-0697	Morris Farm	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>		X <sup>a</sup>	
MG-0854	Stone Arch Bridge	Not Evaluated	X	X		X	
MG-1416	Vernacular dwelling	Not Eligible	X	X	X	X	X
MG-1417	Vernacular dwelling	Not Eligible	X	X	X	X	X
MG-1418	Vernacular dwelling	Not Eligible	X	X	X	X	X
MG-1419	Folk Victorian dwelling	Not Eligible	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
MG-1420	Minimal Traditional dwelling	Not Eligible	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
MG-1421	Vernacular dwelling	Not Eligible	X	X	X	X	X
MG-1839	Morgan Run Bridge	Not Eligible	X <sup>a</sup>	X <sup>a</sup>		X <sup>a</sup>	
MG-1841	Charles C. Cythert House	Not Eligible	X <sup>a</sup>	X <sup>a</sup>		X <sup>a</sup>	
MG-1842	Shaw/Nabors House	Not Eligible	X	X <sup>a</sup>		X	
MG-1853	Helen & Harry Darby House	Not Eligible	X <sup>a</sup>	X		X <sup>a</sup>	
MG-1854	Foster DeWitt House	Not Eligible	X <sup>a</sup>	X		X <sup>a</sup>	
MG-1855	James F. Porter House	Not Eligible	X <sup>a</sup>	X		X <sup>a</sup>	
MG-1856	Lloyd & Minnie Wilburn House	Not Eligible	X <sup>a</sup>	X		X <sup>a</sup>	
MG-1858	Waitman Nabors House	Not Eligible	X <sup>a</sup>	X <sup>a</sup>		X <sup>a</sup>	
MG-1859	Martha Maris House	Not Eligible	X	X		X	
MG-1860	County Route 88/1 Bridge	Not Eligible		X			
MG-1866	George Lewellyn House	Not Eligible		X			
MG-2733	Beatty House	Not Eligible	X	X <sup>a</sup>		X	
<b>Preston County</b>							
PR-0026	Vernacular dwelling	Not Eligible		X		X	
PR-0028	Sister Property / Frazee Farm	Not Eligible	X	X		X	
PR-0114	Shady Grove Personage	Not Evaluated	X	X		X	
PR-0130	Side-gabled dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>		X <sup>a</sup>	
PR-0524	Cabin	Not Eligible	X <sup>a</sup>	X		X <sup>a</sup>	
PR-0526	Front-gabled dwelling	Eligible	X	X <sup>a</sup>		X	
PR-0527	A-frame dwelling	Eligible		X			



Resource Number	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
PR-0531	Barn	Not Eligible	X <sup>a</sup>	X <sup>a</sup>		X <sup>a</sup>	
PR-0542	Vernacular dwelling	Not Evaluated	X			X	
PR-0543	Shady Grove Church	Not Evaluated	X	X		X	
PR-0546	Barn	Eligible	X	X		X	
PR-0572	Vernacular dwelling	Not Eligible	X <sup>a</sup>	X		X <sup>a</sup>	
PR-0576	Craftsman dwelling	Not Eligible	X	X		X	
PR-0577	Front-gabled dwelling	Not Eligible	X	X		X	
PR-0579	St. Peter's Evangelical Lutheran Church	Eligible	X	X		X	
PR-0580	Barn	Not Eligible	X	X		X	
PR-0583	Mountain Grover Brethren Church	Not Eligible	X	X <sup>a</sup>		X	
PR-1056	Appalachian Lake Dam	Not Eligible			X		X
PR-1248	Vernacular dwelling	Not Eligible	X	X		X	
PR-1252	Vernacular commercial dwelling	Not Eligible	X			X	
<b>Mineral County</b>							
MI-0170	Charles Milar Bridge/Bridge #29-010	Not Eligible	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
MI-0368	A-frame House	Not Eligible	X	X	X	X	X
MI-0746	Fridley House	Not Eligible	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
MI-0747	Lee House	Not Eligible	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
MI-0750-0088	Craftsman bungalow	Eligible	X	X	X	X	X
MI-0750-0089	Colonial Revival dwelling	Not Eligible	X	X	X	X	X
MI-0750-0091	Craftsman bungalow	Not Eligible	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
MI-0750-0092	Gable-front dwelling	Not Eligible	X	X	X	X	X
<b>Hampshire County</b>							
HM-0015	Vernacular log cabins	Eligible					
HM-0021	Dream Hollow Farm Kennel	Not Evaluated	X	X	X	X	X
HM-0022	Frame house	Not Evaluated	X	X	X	X	X
HM-0023	Frame house	Not Evaluated	X	X <sup>a</sup>	X	X	X <sup>a</sup>
HM-0257	Deerfield Valley Farm/Col. Parke's Tavern	Not Evaluated	X	X	X	X	X
HM-0258	I-House dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0259	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-0260	Log cabin	Not Evaluated	X	X	X	X	X
HM-0316	I-House dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0325	Gable-front dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0326	I-House dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0328	Cottage	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0329	Bungalow dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0330	Central-hall dwelling	Not Evaluated	X	X	X	X	X
HM-0347	Massed Plan dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0348	Bungalow dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0349	Saville Cemetery	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0350	Hidden Spring Farm	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0351	American Foursquare dwelling	Not Evaluated	X	X	X	X	X
HM-0352	Double house	Not Evaluated	X	X	X	X	X
HM-0353	Single dwelling	Not Evaluated	X	X	X	X	X



Resource Number	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
HM-0354	Cross-gabled dwelling	Not Evaluated	X	X	X	X	X
HM-0355	Cemetery	Not Evaluated	X	X	X	X	X
HM-0356	Hockman Farm, Gothic Barn	Not Evaluated	X	X	X	X	X
HM-0360	I-House dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0361	Zion Church of Christ	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0362	I-House dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0363	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-0364	Barn, U-shaped	Not Evaluated	X	X	X	X	X
HM-0370	Colonial Revival dwelling	Not Evaluated	X	X	X	X	X
HM-0429	I-House dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0430	I-House dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0434	Bungalow dwelling	Not Evaluated	X	X	X	X	X
HM-0437	Modern dwelling	Not Evaluated	X	X	X	X	X
HM-0438	Modern dwelling	Not Evaluated	X	X	X	X	X
HM-0439	Camp White Rock	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0440	Massed Plan dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0441/ 12001048	Capon Chapel	Listed	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0442	Massed Plan dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0443	I-House dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0444	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-0473	Cottage	Not Evaluated	X	X	X	X	X
HM-0474	Cottage	Not Evaluated	X	X	X	X	X
HM-0475	Cottage	Not Evaluated	X	X	X	X	X
HM-0476	Cottage	Not Evaluated	X	X	X	X	X
HM-0578	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-0579	Log dwelling	Not Evaluated	X	X	X	X	X
HM-0580	I-House dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0581	I-House dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0582	Hall-and-parlor dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0628	Bungalow dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0629	American Foursquare dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0630	I-House dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0641	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-0642	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-0943	Vernacular schoolhouse	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0944	Central-passageway dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-0957	Side-passageway dwelling	Not Evaluated	X	X	X	X	X
HM-0958	Single dwelling	Not Evaluated	X	X	X	X	X
HM-0959	Central-passageway dwelling	Not Evaluated	X	X	X	X	X
HM-0960	Points Store Building	Not Evaluated	X	X	X	X	X
HM-1027	Log dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-1028	John & Flossie Grapes Edwards House	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-1029	Foltz-Grapes Farm	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-1030	Kidwell House	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>



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Resource Number	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
HM-1031	Craftsman dwelling	Not Evaluated	X	X	X	X	X
HM-1032	Cottage	Not Evaluated	X	X	X	X	X
HM-1034	Ranch dwelling	Not Evaluated	X	X	X	X	X
HM-1035	Central-passage dwelling	Not Evaluated	X	X	X	X	X
HM-1036	Craftsman dwelling	Not Evaluated	X	X	X	X	X
HM-1037	Barns	Not Evaluated	X	X	X	X	X
HM-1038	Central-passage dwelling	Not Evaluated	X	X	X	X	X
HM-1063	Central-passage dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X	X
HM-1064	Side-passage dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X	X
HM-1103	Single-pen log dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X	X
HM-1105	Craftsman dwelling	Not Evaluated	X	X	X	X	X
HM-1106	Bridge piers	Not Evaluated	X	X	X	X	X
HM-1107	Barn	Not Evaluated	X	X	X	X	X
HM-1108	Single dwelling	Not Evaluated	X	X	X	X	X
HM-1110	Single dwelling	Not Evaluated	X	X	X	X <sup>a</sup>	X <sup>a</sup>
HM-1111	Single dwelling	Not Evaluated	X	X	X	X <sup>a</sup>	X <sup>a</sup>
HM-1112	Craftsman dwelling	Not Evaluated	X	X	X	X <sup>a</sup>	X <sup>a</sup>
HM-1113	Single dwelling	Not Evaluated	X	X	X	X	X
HM-1114	Ranch	Not Evaluated	X	X	X	X <sup>a</sup>	X <sup>a</sup>
HM-1115	Central-passage dwelling	Not Evaluated	X	X	X	X	X
HM-1116	Central-passage dwelling	Not Evaluated	X	X	X	X	X
HM-1157	Central-passage dwelling	Not Evaluated	X	X	X	X	X
HM-1177	Vernacular dwelling	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>
HM-1325	Cheap Chuck's Antiques and Yard Sales	Not Evaluated	X <sup>a</sup>	X <sup>a</sup>	X <sup>a</sup>	X	X
HM-1326	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-1327	Bungalow dwelling	Not Evaluated	X	X	X	X <sup>a</sup>	X <sup>a</sup>
HM-1328	Bungalow dwelling	Not Evaluated	X	X	X	X <sup>a</sup>	X <sup>a</sup>
HM-1329	Bungalow dwelling	Not Evaluated	X	X	X	X <sup>a</sup>	X <sup>a</sup>
HM-1330	Bungalow dwelling	Not Evaluated	X	X	X	X <sup>a</sup>	X <sup>a</sup>
HM-1331	I-House dwelling	Not Evaluated	X	X	X	X <sup>a</sup>	X <sup>a</sup>
HM-1332	Colonial Revival dwelling	Not Evaluated	X	X	X	X	X
HM-1333	Bungalow dwelling	Not Evaluated	X	X	X	X	X
HM-1334	Hall-and-Parlor dwelling	Not Evaluated	X	X	X	X	X
HM-1335	Storefront	Not Evaluated	X	X	X	X	X
HM-1336	Bungalow dwelling	Not Evaluated	X	X	X	X	X
HM-1337	Bungalow dwelling	Not Evaluated	X	X	X	X	X
HM-1338	Side-hallway dwelling	Not Evaluated	X	X	X	X	X
HM-1339	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-1340	Side-hallway dwelling	Not Evaluated	X	X	X	X	X
HM-1341	Cottage	Not Evaluated	X	X	X	X	X
HM-1342	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-1343	Colonial Revival dwelling	Not Evaluated	X	X	X	X	X
HM-1344	Federal style dwelling	Not Evaluated	X	X	X	X	X
HM-1345	Hall-and-Parlor dwelling	Not Evaluated	X	X	X	X	X



Resource Number	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
HM-1346	Kate Blue House	Not Evaluated				X <sup>a</sup>	X <sup>a</sup>
HM-1347	Cottage	Not Evaluated				X <sup>a</sup>	X <sup>a</sup>
HM-1348	Springfield United Methodist Church	Not Evaluated				X	X
HM-1349	American Foursquare dwelling	Not Evaluated				X	X
HM-1350	Single dwelling	Not Evaluated				X	X
HM-1351	Springfield Greenspring School	Not Evaluated				X	X
HM-1352	Colonial Revival dwelling	Not Evaluated				X	X
HM-1353	Veterans Memorial Park	Not Evaluated				X	X
HM-1354	Gilkison House	Not Evaluated				X	X
HM-1355	Springfield Presbyterian Church	Not Evaluated				X	X
HM-1356	Federal style dwelling	Not Evaluated				X	X
HM-1359	I-House dwelling	Not Evaluated				X	X
HM-1360	Minimal Traditional dwelling	Not Evaluated				X	X
HM-1361	American Foursquare dwelling	Not Evaluated				X	X
HM-1362	I-House dwelling	Not Evaluated				X	X
HM-1363	Side-hallway dwelling	Not Evaluated				X	X
HM-1364	Side-hallway dwelling	Not Evaluated				X	X
HM-1365	I-House dwelling	Not Evaluated				X	X
HM-1366	Gable-front dwelling	Not Evaluated				X	X
HM-1367	Cross-gabled dwelling	Not Evaluated				X	X
HM-1368	End-gabled dwelling	Not Evaluated				X	X
HM-1369	Bungalow	Not Evaluated				X	X
HM-1370	Minimal Traditional dwelling	Not Evaluated				X	X
HM-1371	I-House dwelling	Not Evaluated				X	X
HM-1372	I-House dwelling	Not Evaluated				X	X
HM-1373	Front-gabled dwelling	Not Evaluated				X	X
HM-1374	Side-hallway dwelling	Not Evaluated				X	X
HM-1375	American Foursquare dwelling	Not Evaluated				X	X
HM-1376	Gable-front dwelling	Not Evaluated				X	X
HM-1377	Hall-and-Parlor dwelling	Not Evaluated				X	X
HM-1378	Side-gabled dwelling	Not Evaluated				X	X
HM-1379	Railroad trestle	Not Evaluated				X	X
HM-1381	Bungalow dwelling	Not Evaluated	X	X	X	X	X
HM-1382	Side-gabled dwelling	Not Evaluated	X	X	X	X	X
HM-1383	Bungalow dwelling	Not Evaluated	X	X	X	X	X
HM-1384	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-1385	Railroad trestle	Not Evaluated				X	X
HM-1386	Double House	Not Evaluated				X	X
HM-1387	Cemetery	Not Evaluated				X	X
HM-1402	Gable-front and wing dwelling	Not Evaluated				X	X
NR #12001141	Springfield Brick House/Frenchwood	Listed				X	X

Source: NRHP 2025; WV SHPO 2025

NRHP = National Register of Historic Places

An "x" indicates the architectural resource is within the 1-mile buffer of the Proposed Route or Alternative Route centerline.

<sup>a</sup> This indicates the resource is within the 0.5-mile buffer from the Proposed Route or Alternative Route centerline, as discussed in Section 2.3.4.2.



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### 2.3.4.2 IMPACTS

The following section discusses the potential impacts associated with the MARL Project where the potential impacts on archaeological sites and cemeteries are associated with the ROW Corridors and potential impacts on aboveground architecture resources are associated with the 0.5-mile buffer from the Proposed Route and Alternative Route centerlines, as shown on Attachment 1g. Potential impacts on battlefields were considered for both the 0.5-mile buffer and the ROW Corridors for the Proposed Route and Alternative Routes, as shown on Attachment 1g. While consultation with the WV SHPO is ongoing, based on prior agency consultation and guidance from the WV SHPO's *West Virginia National Register and Architecture/History Survey Manual*, the 0.5-mile buffer is expected to be the maximum extent of consideration for visual impacts (WV SHPO 2016). Additionally, potential impacts for the Proposed Route ancillary facility workspaces were considered within the workspaces for archaeological sites and within a 500-foot buffer for aboveground architectural resources.

#### **Battlefields**

The Hanging Rock Battlefield has not been evaluated for inclusion on the NRHP (West Virginia GIS Technical Center 2011), nor has the boundary been fully confirmed. Based on a desktop analysis, ERM does not believe that the Proposed Route or Alternative Routes would have an adverse effect on the historical integrity of the Hanging Rocks Battlefield due to the lack of associated resources within the viewshed and existing impacts from powerlines and other modern intrusions; however, Alternative Route F is located at a greater distance from the main area of the battlefield and would involve less impacts on the resource's setting. Further, 13 ancillary facilities and 2 temporary access roads fall within the battlefield.

#### **Cemeteries**

There are no cemeteries within any of the Proposed Route or Alternative Route ROW Corridors or ancillary facility workspaces. No impacts on previously recorded cemeteries are anticipated as a result of construction or operation of the MARL Project.

#### **Archaeological Resources**

Two previously identified archaeological sites that have not been evaluated for their NRHP eligibility (46-HM-88 and 46-MG-98) are within the ROW Corridors for the Proposed Route and at least one Alternative Route (Table 2.3-17). Site 46-MG-88 is within the ROW Corridor of the Proposed Route and Alternative Route D and Alternative Routes B and E. Site 46-HM-98 is in the ROW Corridor for the Proposed Route and Alternative Route D and the other four Alternative Routes. Additionally, ERM conducted an investigation on archaeological resources within the ancillary facility workspaces, and no archaeological resources were identified with the workspaces. Each location's significance and integrity are not evaluated for inclusion on the NRHP.

The MARL Project archaeological resources investigation will include a field survey of these locations and their immediate vicinity to determine site boundary, depth, and the condition and nature of any artifact assemblage to assess information potential and applicability of all NRHP eligibility criteria. Should MARL Project construction or operation potentially affect a site location,

an evaluation of site eligibility for inclusion on the NRHP will be required. Should the impact be considered an adverse effect, NEET MA will review opportunities to avoid or minimize potential MARL Project impacts. Should an adverse effect be unavoidable, NEET MA will evaluate avoidance minimization measures such as the use of environmental mats or treatment options, which could include data recovery excavations. Archaeological work at these sites will be executed in coordination with the WV SHPO.

NEET MA will conduct a Phase I archaeological resources investigation of the Siting Corridor in coordination with the WV SHPO, as it is anticipated that any resource within the ROW corridor could be directly affected. The investigation will concentrate efforts in areas of high potential for both pre-contact and historic period archaeological sites. Should the investigation result in the identification of archaeological resources, additional archaeological investigations (including Phase II site evaluations) may be required to assess each site's eligibility for inclusion on the NRHP. NEET MA will coordinate treatment of an adverse effect through avoidance, minimization, or mitigation with the WV SHPO.

### **Aboveground Architectural Resources**

ERM conducted viewshed modeling to determine the distance of potential visual impact for architectural resources and determined that a 0.5-mile buffer from the route centerlines of the Proposed Route and Alternative Routes provided a sufficient distance to conduct a preliminary desktop impact assessment for the NRHP-listed and NRHP-eligible architectural resources (Table 2.3-18 and Table 2.3-19).

Additionally, ERM conducted a desktop study on aboveground architectural resources within 500 feet of the Proposed Route ancillary facilities. Table 2.3-20 shows the aboveground architectural resources within 500 feet of the Proposed Route ancillary facility workspaces that are located outside of the ROW Corridor. None are listed or recommended eligible or potentially eligible for inclusion on the NRHP.

Three NRHP-listed or NRHP-eligible resources are within this 0.5-mile buffer from the route centerlines for potential impact assessment. As shown in Table 2.3-18 and Table 2.3-19, these are the Lake Lynn Hydroelectric Power House and Dam (MG-0392), front-gabled dwelling (PR-0526), and Capon Chapel (HM-0441 / 12001048). Resources that have not yet been evaluated for NRHP eligibility may require further assessment and evaluation.

MARL Project impacts on NRHP-listed and NRHP-eligible architectural resources are based on visual assessment findings. These impact statements are preliminary and could change when ERM conducts the field survey.

**TABLE 2.3-17 ARCHAEOLOGICAL SITES WITHIN THE PROPOSED ROUTE AND ALTERNATIVE ROUTE ROW CORRIDORS**

County	Site Number	Site Name	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
Monongalia	46-MG-88	NA	Prehistoric – lithic scatter	Not evaluated	X	X		X	
Hampshire	46-HM-98	NA	Prehistoric	Not evaluated	X	X	X	X	X

Source: WV SHPO 2025

NA = not applicable; NRHP = National Register of Historic Places; WV SHPO = West Virginia State Historic Preservation Office  
 Not evaluated = no data on eligibility included in WV SHPO's mapping, presumed not evaluated for the purposes of this report

**TABLE 2.3-18 ARCHITECTURAL RESOURCES WITHIN THE 0.5-MILE BUFFER FROM THE PROPOSED ROUTE AND ALTERNATIVE ROUTE CENTERLINES**

Resource Number	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
<b>Monongalia County</b>							
MG-0392	Lake Lynn Hydroelectric Power House and Dam	Eligible		X			
MG-0665	U.S. Morris Farm	Not Evaluated	X	X		X	
MG-0689	John Morris Farm	Not Evaluated	X	X		X	
MG-0697	Morris Farm	Not Evaluated	X	X		X	
MG-1419	Folk Victorian dwelling	Not Eligible	X	X	X	X	X
MG-1420	Minimal Traditional dwelling	Not Eligible	X	X	X	X	X
MG-1839	Morgan Run Bridge	Not Eligible		X			
MG-1841	Charles C. Cythert House	Not Eligible	X	X		X	
MG-1842	Shaw/Nabors House	Not Eligible		X			



Resource Number	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
MG-1853	Helen & Harry Darby House	Not Eligible	X			X	
MG-1854	Foster DeWitt House	Not Eligible	X			X	
MG-1855	James F. Porter House	Not Eligible	X			X	
MG-1856	Lloyd & Minnie Wilburn House	Not Eligible	X			X	
MG-1859	Martha Maris House	Not Eligible		X			
MG-2733	Beatty House	Not Eligible		X			
<b>Preston County</b>							
PR-0130	Side-gabled dwelling	Not Evaluated	X	X		X	
PR-0524	Cabin	Not Eligible	X			X	
PR-0526	Front-gabled dwelling	Eligible		X			
PR-0531	Barn	Not Eligible	X	X		X	
PR-0576	Craftsman dwelling	Not Eligible	X	X		X	
PR-0583	Mountain Grover Brethren Church	Not Eligible		X			
<b>Mineral County</b>							
MI-0170	Charles Milar Bridge/Bridge #29-010	Not Eligible	X	X	X	X	X
MI-0746	Fridley House	Not Eligible	X	X	X	X	X
MI-0747	Lee House	Not Eligible	X	X	X	X	X
MI-0750-0091	Craftsman bungalow	Not Eligible	X	X	X	X	X
<b>Hampshire County</b>							
HM-0023	Frame house	Not Evaluated		X			X
HM-0258	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-0316	I-House dwelling	Not Evaluated	X	X	X	X	
HM-0325	Gable-front dwelling	Not Evaluated	X	X	X	X	

Resource Number	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
HM-0326	I-House dwelling	Not Evaluated	X	X	X	X	
HM-0328	Cottage	Not Evaluated	X	X	X	X	
HM-0329	Bungalow dwelling	Not Evaluated	X	X	X	X	
HM-0347	Massed Plan dwelling	Not Evaluated	X	X	X	X	X
HM-0348	Bungalow dwelling	Not Evaluated	X	X	X	X	X
HM-0349	Saville Cemetery	Not Evaluated	X	X	X	X	X
HM-0350	Hidden Spring Farm	Not Evaluated	X	X	X	X	X
HM-0351	American Foursquare dwelling	Not Evaluated	X	X	X	X	X
HM-0360	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-0361	Zion Church of Christ	Not Evaluated	X	X	X	X	X
HM-0362	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-0429	I-House dwelling	Not Evaluated	X	X	X	X	
HM-0430	I-House dwelling	Not Evaluated	X	X	X	X	
HM-0439	Camp White Rock	Not Evaluated	X	X	X	X	X
HM-0441/ 12001048	Capon Chapel	Listed	X	X	X	X	X
HM-0440	Massed Plan dwelling	Not Evaluated	X	X	X	X	X
HM-0442	Massed Plan dwelling	Not Evaluated	X	X	X	X	X

Resource Number	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
HM-0443	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-0580	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-0581	I-House dwelling	Not Evaluated	X	X	X	X	X
HM-0582	Hall-and-Parlor dwelling	Not Evaluated	X	X	X	X	X
HM-0628	Bungalow dwelling	Not Evaluated	X	X	X	X	X
HM-0629	American Foursquare dwelling	Not Evaluated	X	X	X	X	
HM-0630	I-House dwelling	Not Evaluated	X	X	X	X	
HM-0943	Vernacular schoolhouse	Not Evaluated	X	X	X	X	X
HM-0944	Central-passage dwelling	Not Evaluated	X	X	X	X	X
HM-1027	Log dwelling	Not Evaluated	X	X	X	X	X
HM-1028	John & Flossie Grapes Edwards House	Not Evaluated	X	X	X	X	X
HM-1029	Foltz-Grapes Farm	Not Evaluated	X	X	X	X	X
HM-1030	Kidwell House	Not Evaluated	X	X	X	X	X
HM-1064	Side-passage dwelling	Not Evaluated	X	X	X		
HM-1103	Single-pen log dwelling	Not Evaluated	X	X	X		
HM-1105	Craftsman dwelling	Not Evaluated	X	X	X		
HM-1110	Single dwelling	Not Evaluated				X	X



Resource Number	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
HM-1111	Single dwelling	Not Evaluated				X	X
HM-1112	Craftsman dwelling	Not Evaluated				X	X
HM-1114	Ranch	Not Evaluated				X	X
HM-1177	Vernacular dwelling	Not Evaluated	X	X	X	X	X
HM-1326	I-House dwelling	Not Evaluated				X	X
HM-1327	Bungalow dwelling	Not Evaluated				X	X
HM-1328	Bungalow dwelling	Not Evaluated				X	X
HM-1329	Bungalow dwelling	Not Evaluated				X	X
HM-1330	Bungalow dwelling	Not Evaluated				X	X
HM-1331	I-House dwelling	Not Evaluated				X	X
HM-1346	Kate Blue House	Not Evaluated				X	X
HM-1347	Cottage	Not Evaluated				X	X

Source: WV SHPO 2025

NRHP = National Register of Historic Places

An "X" indicates the architectural resource is within the 0.5-mile buffer from the Proposed Route or Alternative Route centerline.



**TABLE 2.3-19 ELIGIBLE AND LISTED ARCHITECTURAL RESOURCES WITHIN THE 0.5-MILE BUFFER FROM THE PROPOSED ROUTE AND ALTERNATIVE ROUTE CENTERLINES BY NATIONAL REGISTER OF HISTORIC PLACES STATUS**

Resource Number	Description	NRHP Status	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
HM-0441 / 12001048	Capon Chapel	Listed	X	X	X	X	X
MG-0392	Lake Lynn Hydroelectric Power House and Dam	Eligible		X			
PR-0526	Front-gabled dwelling	Eligible		X			

Source: WV SHPO 2025

NRHP = National Register of Historic Places

An "x" indicates the architectural resource is within the 0.5-mile buffer from the Proposed Route or Alternative Route centerline.

**TABLE 2.3-20 ABOVEGROUND ARCHITECTURAL RESOURCES WITHIN 500 FEET OF THE ANCILLARY FACILITY WORKSPACES OUTSIDE OF THE PROPOSED ROUTE ROW CORRIDOR**

Resource Number	Description	NRHP Status	Facility Type		
			Permanent Access Road	Temporary Access Road	Other Temporary Ancillary Facility
<b>Preston County</b>					
PR-0114	Building	Not Evaluated		X	
PR-0130	Building	Not Evaluated		X	
PR-0543	Building	Not Evaluated		X	
PR-0583	Building	Not Eligible		X	
PR-1248	Building	Not Eligible		X	
<b>Mineral County</b>					
MI-0750-0092	Building	Not Eligible		X	
<b>Hampshire County</b>					
HM-0258	Building	Not Evaluated		X	
HM-0325	Building	Not Evaluated			X
HM-0326	Building	Not Evaluated			X

Resource Number	Description	NRHP Status	Facility Type		
			Permanent Access Road	Temporary Access Road	Other Temporary Ancillary Facility
HM-0348	Building	Not Evaluated			X
HM-0429	Building	Not Evaluated			X
HM-0581	Building	Not Evaluated		X	
HM-0943	Building	Not Evaluated		X	
HM-0944	Building	Not Evaluated		X	
HM-1028	Building	Not Evaluated			X
HM-1105	Building	Not Evaluated		X	X
HM-1106	Building	Not Evaluated		X	
HM-1107	Building	Not Evaluated		X	
HM-1108	Building	Not Evaluated		X	

Source: WV SHPO 2025

NRHP = National Register of Historic Places



### ***National Register of Historic Places-Listed Architectural Resources***

Capon Chapel (HM-0441 / NRHP #12001048) is located approximately 850 feet to the south of the Proposed Route and Alternative Routes. As seen on Attachment 1g, it is near MP 102.5 of the Proposed Route and Alternative Route B; MP 108.6 of Alternative Route C; MP 110.2 of Alternative Route D; MP 101.3 of Alternative Route E; and MP 114.1 of Alternative Route F. The Proposed Route and Alternative Routes are identical in the location of the resource and, thus, would have the same impacts. The area surrounding the resource is rural, with agricultural fields to the north and some vegetation to the northwest. The existing Potomac Edison transmission line is located to the north of the Proposed Route and Alternative Routes and is mostly obscured by vegetation and distance. Alternatively, the Proposed Route and Alternative Routes are located closer to the chapel and would be visible from the chapel due to the cleared fields. The preliminary assessment indicates that the MARL Project would introduce additional modern elements to the northern viewshed.

### ***National Register of Historic Places-Eligible Architectural Resources***

The Lake Lynn Hydroelectric Power House and Dam (MG-0392) is located 0.3 mile to the south-southeast of Alternative Route B at MP 10.3 (Attachment 1g). The area surrounding the resource consists of the Cheat River and dense vegetation and forest. The existing Lake Lynn to West Run transmission line traverses the resource and many other existing transmission lines are located to the northeast, east, and south of the resource. The preliminary assessment indicates that construction of Alternative Route B would introduce modern elements to the northern viewshed.

The Front Gable Dwelling (PR-0526) is located 0.5 mile north of Alternative Route B at MP 17.9 (Attachment 1g). The area surrounding the resource consists of a lakefront residential community around Lake O Woods and dense vegetation and forest. The existing Potomac Edison transmission line is located to the south of Alternative Route B. The preliminary assessment indicates that construction of Alternative Route B would introduce additional modern elements to the southern viewshed but would likely be blocked by the dense vegetation surrounding the resource.

## **2.3.5 TRANSPORTATION INFRASTRUCTURE**

This section describes the existing transportation infrastructure in areas of West Virginia within the Siting Corridors for the Proposed Route and five Alternative Routes (B through F) and the potential impacts on that infrastructure generated by the Proposed Route and Alternative Routes B through F.

### **2.3.5.1 EXISTING CONDITIONS**

#### **Overview**

The Proposed Route and all five Alternative Route Siting Corridors cross portions of Monongalia, Preston, Mineral, and Hampshire Counties. Table 2.3-21 provides information on the major roads that cross the Siting Corridors. In addition to the major roads listed in Table 2.3-21, numerous smaller public roads also cross the Siting Corridors.

In addition to the road crossings within the Siting Corridors (Table 2.3-21), the Proposed Route and Alternative Routes cross the South Branch Valley Railroad (SBVR) in eastern Hampshire County. The SBVR is 52.4 miles long and runs from Petersburg to Green Spring, where it then connects to the CSX Railroad mainline. It primarily hauls grain, lumber, polymers, and aggregates (OmniTRAX 2025). The shared alignment of the Proposed Route and Alternative Routes B through D cross the SBVR near MP 81.0 (as measured on the Proposed Route), while the shared alignment of Alternative Routes E and F cross the SBVR near MP 80.0 (as measured on Alternative Route E).

There are no airports within the Siting Corridors, and the nearest public airport in West Virginia is Morgantown Municipal Airport in Monongalia County, which is 4.8 miles southeast of the Siting Corridors, as measured from MP 5.5.

**TABLE 2.3-21 MAJOR ROADS CROSSING THE SITING CORRIDORS**

Road	Road Segment	County	Annual Average Daily Traffic	Proposed Route / Alternative Route D	Alternative Route B	Alternative Route C	Alternative Route E	Alternative Route F
CO 53	WV 100 to Pennsylvania state line	Monongalia	1,035	Yes	Yes	Yes	Yes	Yes
CO 857	WV 43 to Pennsylvania state line	Monongalia	1,568	No	Yes	No	No	No
WV 43	I-68 to Pennsylvania state line	Monongalia	9,798	No	Yes	No	No	No
CO 8	WV 26 to Pennsylvania state line	Preston	546	Yes	Yes	No	Yes	No
WV 26	I-68 to Pennsylvania state line	Preston	1,416	Yes	Yes	No	Yes	No
WV 46	WV 28 to US 220	Mineral	3,221	Yes	Yes	Yes	Yes	Yes
WV 28	WV 46 to US 50	Mineral, Hampshire	4,167	Yes	Yes	Yes	Yes	Yes
CO 3	WV 28 to WV 29	Hampshire	954	Yes	Yes	Yes	No	No
CO 5	US 50 to CO 3	Hampshire	974	Yes	Yes	Yes	Yes	Yes
US 50	WV 29 to Virginia state line	Hampshire	5,283	Yes	Yes	Yes	Yes	Yes
WV 29	CO 3 to US 50	Hampshire	1,804	Yes	Yes	Yes	Yes	Yes
<b>Total Crossings</b>				<b>9</b>	<b>11</b>	<b>7</b>	<b>8</b>	<b>6</b>

Source: WVDOT 2025

CO = County Road; I- = Interstate highway; US = U.S. Route; WV = West Virginia State Route



## Transportation Planning Context

The West Virginia Statewide Transportation Improvement Program identifies transportation projects that are either eligible for federal aid or are considered regionally significant and are not currently federally funded (WVDOT 2022). Statewide Transportation Improvement Program projects identified for funding through 2028 on roads that cross the Siting Corridors in West Virginia are listed below:

- CO 857: Widening and improvement of CO 857 between U.S. Route (US) 119 and Mississippi Street in Monongalia County; and
- West Virginia State Route (WV) 28: Ditching operations for the entire length in Mineral County.

The comprehensive plans for each West Virginia county crossed by the Siting Corridor include few specific roadway improvements (Hampshire County 2019; Mineral County 2010; Monongalia County 2023; Preston County 2023). The comprehensive plans for Preston, Hampshire, and Mineral Counties all emphasize the importance of US 50 and broadly discuss upgrades and repairs to the road.

### 2.3.5.2 IMPACTS

During MARL Project construction, crossings of the roads described in Section 2.3.5.1, Existing Conditions, would result in temporary impacts on traffic. These impacts would take the form of multiple, separate, short-duration (5- to 20-minute) intermittent closures for safety as the transmission lines are being installed between the structures on either side of each road crossing. This would be most likely to occur on local roads and the state roads listed in Table 2.3-21, which typically have low traffic volumes. For these roads, closures would not result in substantial traffic impacts. Closures for the crossing of major roads like US 50 are not anticipated.

In addition, the MARL Project will require the use and upgrade of some existing roads to access the ROW Corridor, as well as the installation of temporary construction and long-term maintenance access roads from existing public roads along the ROW Corridor. The upgrade of existing roads and installation of new temporary or permanent access roads may result in temporary traffic impacts, such as single lane or shoulder closures, especially where new access roads meet existing roads. MARL Project operation (including routine maintenance) will require minimal use of access roads, and therefore, would not meaningfully affect local traffic.

NEET MA will coordinate with state and local road authorities to implement any upgrades of existing roads or temporary closure of shoulders or lanes on public roads necessary to install temporary or permanent access roads. As part of the permitting process for the MARL Project, NEET MA will prepare a Traffic Control Plan (TCP) for all road crossings and road upgrades in coordination with the West Virginia Division of Highways, CO officials, and other entities responsible for roads to minimize traffic impacts. The TCP will include traffic management measures, such as the use of road signs, flagging crews, lane closures, and detours. The TCP will also include measures to maintain access for emergency vehicles during construction. Additionally, NEET MA will avoid construction activities during school bus drop-off and pick-up times, as well as peak traffic times on affected roads to the degree possible. Other typical protective measures for

transmission line installation include, but are not limited to, clearance poles, cranes, or bucket trucks placed on each side of the road to protect the roadway during cable pulling activities.

Crossing of the SBVR line in Hampshire County will require activities similar to those described for road crossings. NEET MA will coordinate with the West Virginia State Rail Authority to obtain necessary permits and to incorporate pertinent safety procedures. Construction across the SBVR railroad is not expected to require railroad closures, and thus, would not affect railway operations.

The MARL Project would not affect any public airports. MARL Project construction may require the use of helicopters to facilitate construction on an as-needed basis (for structure setting, wire pulling operations, or equipment transport) due to topographic, constructability, or environmental constraints. Helicopter activity would primarily remain above the ROW Corridor and/or Ancillary Facilities workspaces (or between airports/heliports and the MARL Project). Helicopter flights would originate at existing public airports and heliports or possibly at temporary helipads closer to the MARL Project facilities. The frequency and duration of such flights (if any) and the location of temporary helipads (if any) would be determined as part of MARL Project design and permitting. The location of any temporary helipads in West Virginia would be identified as further design of the MARL Project advances and in accordance with all necessary approvals, if any. This analysis assumes that airports or heliports used for these flights would have sufficient capacity to accommodate MARL Project-related flights. Pilots would obey relevant laws and regulations applicable to air operations.

### 3. PROPOSED ROUTE MITIGATION

In addition to the general mitigation measures identified throughout Section 2, the following route-specific considerations have been evaluated and incorporated into the Proposed Route. These measures reflect additional refinements made during preliminary engineering design to further avoid and minimize impacts.

As part of this effort, the MARL Project has identified five locations in West Virginia where forested riparian buffers will be preserved to protect sensitive waterbodies. At these locations—referred to as riparian habitat exclusion zones—engineering solutions were developed to retain existing riparian vegetation within 100 feet on either side of the stream. No vegetation clearing or ground disturbance will occur within these zones. As detailed MARL Project engineering continues to progress, additional areas that might be able to be maintained could be identified. If such a scenario arises, the impacts on resource areas could be reduced.

The natural environment and human environment resources identified below will benefit from this engineering mitigation consideration and specifically address the additional measures incorporated into the Proposed Route. These sections highlight how the preservation of riparian habitat exclusion zones contributes to minimizing impacts on sensitive environmental features and supports broader MARL Project mitigation objectives.

#### 3.1 NATURAL ENVIRONMENT

##### 3.1.1 SURFACE WATER RESOURCES AND AQUATIC SPECIES/HABITAT

Riparian exclusion zones have been identified where forested riparian buffers will be preserved to avoid and minimize impacts on sensitive waterbodies. Of the five riparian exclusion zones in West Virginia, Big Sandy Creek is designated as a trout stocked stream, Laurel Run/Big Sandy Creek and Patterson Run are designated trout streams, and North River and Big Sandy Creek are designated as Group 1 high-quality and state mussel streams. At these locations, existing riparian vegetation within 100 feet on either side of the stream will be maintained to minimize impacts on aquatic habitats. In addition, no vegetation clearing or ground disturbance will occur within these exclusion zones. This approach serves as a key impact avoidance and minimization strategy, helping to preserve shade, bank stability, and organic material input critical to supporting trout and mussel species. These buffers also reduce sedimentation and thermal impacts, maintaining water quality and aquatic habitat integrity. The riparian habitat exclusion zones that will be avoided are depicted on Figure 3.1-1 and Figure 3.1-2 and summarized in Table 3.1-1.





**TABLE 3.1-1 WEST VIRGINIA RIPARIAN HABITAT EXCLUSION ZONES FOR THE PROPOSED ROUTE**

Stream Name	County	Nearest MP	Linear Stream Length within Riparian Habitat Exclusion Zone (feet)	Riparian Habitat Exclusion Zone (acres)
Patterson Run	Preston	18.5	384.1	1.8
Laurel Run/Big Sandy Creek	Preston	19.1	301.1	1.4
Big Sandy Creek	Preston	24.1	204.5	0.9
North Branch Potomac River <sup>a</sup>	Mineral	67.9	264.6	1.2
North River	Hampshire	95.5	264.8	1.2
<b>Total</b>	-	-	<b>1,419.1</b>	<b>6.5</b>

MP = milepost

<sup>a</sup> The North Branch Potomac River is located within both Maryland and West Virginia.

The riparian exclusion zones identified above would avoid impacts on 1,149.9 linear feet of NHD waterbodies, 1.2 acres of NWI waterbodies, 1.2 acres of NHD waterbodies, and 1.4 acres of WVDEP waterbodies.

### 3.1.2 WETLANDS

No NWI wetlands, NHD wetlands, or WVDEP wetlands are located within the riparian exclusion zones identified above.

### 3.1.3 VEGETATION

The five identified riparian exclusion zones would avoid impacts on 6.5 acres of native vegetation, most of which is deciduous forest.

### 3.1.4 WILDLIFE

The riparian exclusion zones will avoid impacts on 6.5 acres of potentially suitable wildlife habitat. These habitats will remain available during construction and throughout operation.

## 3.2 HUMAN ENVIRONMENT

### 3.2.1 LAND USE

The riparian habitat exclusion zones for the Proposed Route (Table 3.1-1) contain 4.1 acres of deciduous and mixed forest in Preston County and 1.2 acres of deciduous forest in Hampshire County, for a total of 5.4 acres statewide. Trees in these areas would remain in place throughout construction and operation, resulting in less conversion of forest to scrub/shrub and emergent land cover types.

### 3.2.2 RECREATION LANDS AND DESIGNATED NATURAL RESOURCE AREAS

None of the riparian habitat exclusion zones for the Proposed Route overlap with the recreation or natural resource lands discussed in Section 2.3.2.



### 3.2.3 AESTHETICS

While a location-specific visual resource assessment was not completed at the riparian habitat exclusion zones, it is anticipated that these areas will help partially screen MARL Project infrastructure (including the cleared ROW Corridor) and enhance the recreational experience on and along the rivers in the vicinity of the riparian habitat exclusion zones.

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## 4. REFERENCES

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