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Sulphur Lick Run Road Decommissioning and Relocation

Environmental Assessment

Forest Service
Monongahela National Forest
Marlinton/White Sulphur Springs Ranger District
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CONTENTS

CHAPTER 1 – INTRODUCTION 1-1
1.1 Background 1-1
1.2 Proposed Action 1-1
1.3 Purpose and Need for Proposed Action 1-1
1.4 Relationship to Forest Plan and Other Documents 1-4
1.4.1 Roads and Facilities 1-4
1.4.2 Special Areas 1-5
1.5 Decision Framework 1-6
1.6 Project Record 1-6

CHAPTER 2 – PROPOSED ACTION AND ALTERNATIVE ACTIONS 2-1
2.1 Introduction 2-1
2.2 Alternative A – No Action Alternative 2-1
2.3 Alternative B – Proposed Action – Preferred Alternative 2-2
2.3.1 Sulphur Lick Run Road 2-4
2.3.2 FR 719A 2-5
2.3.3 Unnamed Woods Road 2-5
2.3.4 Mitigation Measures 2-7

CHAPTER 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES 3-8
3.1 Introduction and Methodology 3-8
3.1.1 Concerns, Issues, and Opportunities 3-8
3.1.2 Resources Addressed in this EA 3-8
3.2 Resources Not Analyzed in This EA 3-8
3.2.1 Geology and Minerals 3-8
3.2.2 Hazardous Materials 3-9
3.2.3 Farmlands 3-9
3.2.4 Floodplain and Water Quality 3-10
3.2.5 Wetlands and Surface Waters 3-10
3.2.6 Wild and Scenic Rivers 3-11
3.2.7 Air Quality 3-11
3.2.8 Noise 3-12
3.2.9 Socioeconomics 3-13
3.2.10 Environmental Justice 3-13
3.2.11 Cultural Resources 3-14
3.2.12 Land Use 3-14
3.2.13 Recreation and Hunting 3-15
3.2.14 Section 4(f) Resources 3-15
3.2.15 Section 6(f) Resources 3-15
3.3 Roads and Access 3-16
3.3.1 Affected Environment 3-16
Roads Analysis Findings, Maintenance Levels 3-16
Past Flood Damage 3-16
Private Property Access 3-17
3.3.2 Environmental Consequences 3-17
Alternative A 3-17

Alternative B 3-17
3.4 Soils 3-18
3.4.1 Affected Environment 3-18
3.4.2 Environmental Consequences 3-20
Alternative A 3-20
Alternative B 3-20
Cumulative Effects 3-20
3.5 Protected and Non-native Invasive Species 3-21
3.5.1 Affected Environment 3-21
Protected Species 3-21
Non-Native Invasive Species (NNIS) 3-24
Agency Coordination 3-24
3.5.2 Environmental Consequences 3-24
Alternative A 3-24
Alternative B 3-25
Cumulative Effects 3-25

CHAPTER 4 – CONSULTATION AND COORDINATION 4-1
4.1 Federal, State, and Local Agencies 4-1
4.2 Public and Stakeholder Involvement 4-1
4.2.1 Scoping 4-1
4.2.2 Release of the EA for Public Review 4-1
4.3 Environmental Permits 4-1

CHAPTER 5 – LIST OF PREPARERS 5-3

CHAPTER 6 – REFERENCES 6-1

APPENDICES

APPENDIX A: DISASTER DECLARATION

APPENDIX B: AGENCY CORRESPONDENCE

APPENDIX C: BEST MANAGEMENT PRACTICES

APPENDIX D: PUBLIC SCOPING REPORT

Chapter 1 – INTRODUCTION

In June of 2016, torrential rain caused epic flooding in West Virginia. This one-in-one-thousand-year event severely damaged roads, trails, and recreation sites in the southern half of the Monongahela National Forest (MNF or Forest). A major disaster declaration was issued by President Obama on June 25, 2016. In the Brushy Mountain Grouse Management Area, a segment of Forest Road (FR) 719 received extensive damage and remains closed.

This Environmental Assessment (EA) analyzes the decommissioning a segment of FR 719 (hereafter referred to as Sulphur Lick Run Road), and providing an alternate access route by reconstructing FR 719A and unnamed woods road. The non-system unnamed woods road is a proposed addition to the MNF formal road system and, as such, needs to be brought up to Forest Service standards.

The National Environmental Policy Act of 1969 (42 U.S.C. 4321 *et seq*.) requires Federal agencies to consider the potential environmental consequences of their actions, document the analysis, and make the information available to the public. This EA was prepared to meet the National Environmental Policy Act (NEPA) requirements of the United States Department of Agriculture, Forest Service (Forest Service), and Federal Highway Administration (FHWA), and presents the agencies' decision-making process and the potential impacts of implementing the proposed action. This EA also documents compliance with other relevant Federal and State laws and regulations. The FHWA is a cooperating agency, and intends to adopt this EA to issue a decision document. This EA is anticipated to result in a Finding of No Significant Impact (FONSI).

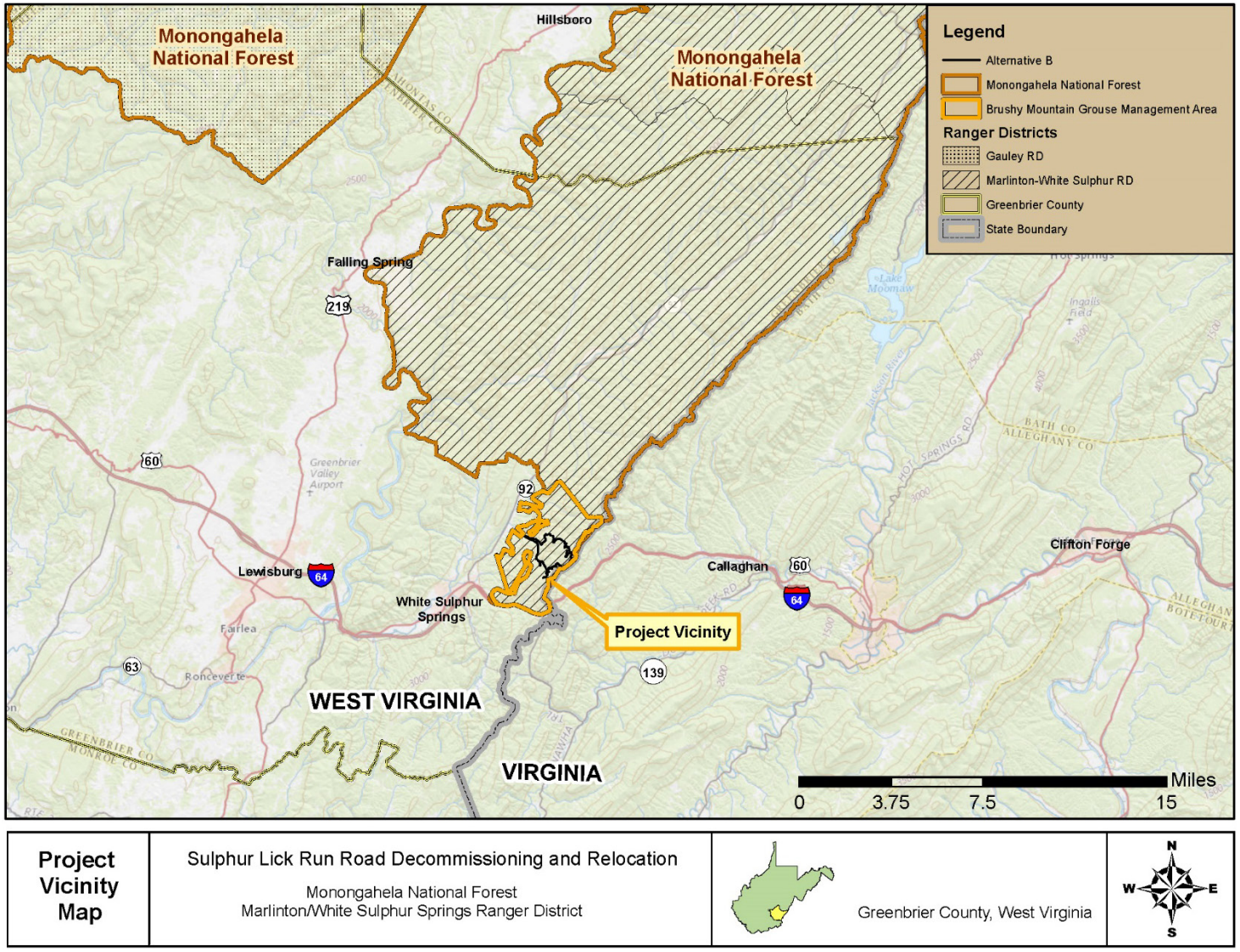
The proposed action was determined to be eligible for funding through the Emergency Relief for Federally-Owned Roads (EFRO) Program. The ERFO program was established to assist Federal agencies with the repair or reconstruction of Federal lands transportation facilities that are open to public travel and are found to have suffered serious damage by a natural disaster occurring over a wide area.

1.1 Background

The MNF was established in 1920 in the northcentral highlands of West Virginia. The more than 919,000-acre national forest provides timber, water, grazing, minerals, and recreational opportunities. The project area lies in the Brushy Mountain area in the southwest corner of the Marlinton/White Sulphur Ranger District, in Greenbrier County (refer to Figure 1). Interstate 64 (I-64) is on the southern edge and the West Virginia/Virginia state line is on the eastern edge. The 7,148 acres in the project area include approximately 6,862 acres of Forest Service land and 322 acres of privately-owned land. The area was acquired by the MNF in 2003 from the Westvaco Corporation. Westvaco actively managed the lands for commercial timber with frequent harvests. [1]

[1] US Forest Service. Monongahela Nations Forest Marlinton-White Sulphur Ranger District, August 14, 2015 letter regarding Brush Mountain Ruffed Grouse Habitat Manager Project Scoping Letter

Figure 1 - Project Vicinity



Source: WSP USA, Inc.

Prior to 2003, the FR 719 complex (Buskirk/Sulphur Lick Run Roads) was a network of old logging roads. In 2003, these roads were officially adopted into the MNF road system and so they were upgraded as needed to become formal roads and have been maintained since then. The three formal Forest Service roads in the project area are Sulphur Lick Run Road, FR 719A, and FR 719B. Repairs to FR 719B are not part of this project and are being undertaken separately. The unnamed woods road is not currently a part of the formal road network.

Sulphur Lick Run Road, FR 719A, and the unnamed woods road are one-lane, two-way gravel roads. The roadway width of Sulphur Lick Run Road and FR 719A is 14 feet with 2-foot shoulders, while the width of the unnamed woods road varies from 4.5 feet to 11 feet. The roads are used for resource management activities such as logging and fire management activities, access to private properties, and for recreation activities such as hunting and hiking. The project area is also being managed by the Forest Service for Brushy Mountain Ruffed Grouse habitat restoration. Public access via these roads is available from September 1 through January 30. Outside of those dates the roads are only accessible for landowners and Forest Service staff.

In 2016, the Forest Service closed the FR 719 complex at State Route 92 to the end of these roads on Brushy Mountain because the roads were no longer traversable due to the extent of the damage.

1.2 Proposed Action

The MNF and FHWA propose to repair the FR 719 complex in the Brushy Mountain area through a series of actions, including decommissioning a section of Sulphur Lick Run Road, and providing an alternate access route by reconstructing FR 719A and unnamed woods road. Minor repairs are also proposed for the remaining sections of Sulphur Lick Run Road and FR 719A. Chapter 2 provides additional details on the proposed decommissioning and rehabilitation activities.

The rehabilitated roads would be designed to the standard of Operational Maintenance Level (ML) 2, a common standard for designated forest roads. ML 2 is defined in the Forest Service Handbook (FSH) 7709.59, sec. 62.32 as:

> "Assigned to roads open for use by high-clearance vehicles. Passenger car traffic, user comfort, and user convenience are not considerations. Warning signs and traffic control devices are not provided with the exception that some signing, such as W-18-1 "No Traffic Signs" may be posted at intersections. Motorists should have no expectations of being alerted to potential hazards while driving these roads. Traffic normally is minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses. Log haul may occur at this level."

1.3 Purpose and Need for Proposed Action

The purpose of the project is to restore safe and sustainable vehicular access within the Brushy Mountain area, which includes:

- Access for Forest Service administration and land maintenance;
- Access to private lands for management and use of those lands;

- Public access for future hunting areas; and
- Access for forest fire protection and suppression.

The activities listed above are typically accessed using high-clearance vehicles such as sport utility vehicles (SUVs) and trucks. This is consistent with the desired conditions outlined in the 2006 *Monongahela National Forest Land and Resource Management Plan* (updated 2011).

The proposed action is needed because the extensive damage on Sulphur Lick Run Road made it unusable by vehicles. As a result of the rainfall and subsequent flooding in June 2016, portions of the roads were partially or completely washed out by Sulphur Lick Run and other, unnamed stream reaches. Sulphur Lick Run Road, between mile post (MP) 0.8 and the beginning of the unnamed woods road, suffered catastrophic damage and are unusable due to side slope and roadway washouts. Figures 2 and 3 illustrate the damaged roadway.

Figure 2 - Culvert and Road Washout on Sulphur Lick Run Road

Figure 3- Slide Area on Sulphur Lick Run Road

Due to the proximity of this section of Sulphur Lick Run Road to Sulphur Lick Run, it is likely that future heavy rain events would continue to cause washouts. Bringing this road up to standard is environmentally and economically unfeasible. The FR 719 complex provides vehicular access to private landholdings within this section of MNF and also provides access for logging trucks and heavy Forest Service vehicles to help with fire suppression. The deterioration of Sulphur Lick Run Road and the unnamed woods road has disrupted roadway continuity for public and private vehicular use. The proximity of Sulphur Lick Run Road to Sulphur Lick Run makes the road vulnerable to future storm damage, and so more stable vehicular access is needed.

The shallow, rocky and dry character of the soils in the area, the steep slopes, and severe weather events have contributed to substantial erosion on roadbed and slopes of Sulphur Lick Run Road. The roadbed is expected to continue to erode, sending debris and sediment downstream.

1.4 Relationship to Forest Plan and Other Documents

The 2006 *Monongahela National Forest Land and Resource Management Plan* (updated 2011) provides management direction for the National Forest System lands within the project area. Directions are provided in the form of goals, objectives, and Forest-wide standards and guidelines (S&G) and Management Area (MA) prescriptions. The following are goals, objectives, S&Gs and MA prescriptions that apply to the proposed actions for the Sulphur Lick Run Road decommissioning and relocation project.

1.4.1 Roads and Facilities

According to the Plan, the road network matches the level of management activities occurring on the Forest and supplies the transportation system needed for recreation, special uses, timber harvest, range management, minerals development, fire protection, and other resource management needs. MNF manages the transportation network to reduce adverse effects to resources. Roads needed for long-term objectives are maintained to provide for user safety and resource protection, while roads not needed for long term objectives are decommissioned and stabilized. Facilities are developed for the standard adequate for their intended purpose.

Management directions for roads and facilities that are applicable to the proposed project are as follows:

Goal RF01 – Provide a transportation system that is safe, cost efficient, meets access needs, and minimizes adverse impacts to natural resources. (page II-54)

Goal FR02 – Provide developed roads to the density and maintenance level needed to meet resource and use objectives. During watershed or project-level planning: (page II-54)

a. Update inventory of area transportation system.
b. Determine the minimum transportation system necessary to achieve access management objectives.
c. Incorporate cost efficiency into construction, reconstruction and maintenance needs.
d. Identify roads to decommission, obliterate, replace, or improve that are causing resource damage.

Objective FR03 – Over the next decade, decommission or reclaim at least 30 miles of roads that are no longer needed for achieving access management objectives. These can include system roads and old woods roads. Actions may range from full obliteration to administratively removing a road from the transportation system so long as it poses no resource impacts without additional rehabilitation efforts. (page II-54)

Standard RF04 – Roads shall be constructed to the standard appropriate to their intended use, considering safety and other resource concerns. (page II-55)

Guideline RF08 – In support of road management decisions, use an interdisciplinary science-based roads analysis process such as *Roads Analysis: Informing Decisions About Managing the National Forest Transportation System* (USDA FS, 1999 Report FS-643). (page II-55)

Guideline RF09 – Evaluate existing routes during transportation planning to determine whether they should be retained, reconstructed, replaced, or decommissioned. Evaluate transportation needs based on existing uses and condition, the access needs of cooperators, permittees, and private landowners, environmental and economic impacts, and compatibility with management prescriptions. Coordinate evaluation with information in the *Roads Analysis Report for the Monongahela National Forest* (January 2003) or updated versions. (page II-55)

Guideline RF10 - During watershed or project-level analysis, opportunities for road decommissioning should be identified and prioritized based on: (page II-55)

a. Hazard assessments in the *Roads Analysis Report for the Monongahela National Forest* (January 2003) or updated versions
b. Identified needs in drainages with 303(d) impaired water bodies
c. The access needs of cooperators, permittees, and private landowners
d. Prescription units that exceed road density standards for the management prescription
e. Other site-specific concerns identified in the watershed or project analyses

Guideline RF11 - The process to determine road maintenance levels should evaluate the purpose of the road, the type of vehicles expected, the duration and frequency of use, and necessary environmental protection measures. (page II-55)

Guideline RF12 - Roads that are no longer needed for access or management should be decommissioned. Evaluate long-term access needs and potential trail conversion or linear wildlife opening opportunities prior to making a decision to decommission a road. (page II-55)

Guideline RF13 - Road decommissioning should include the following: (page II-55)

a. Road should be physically blocked to prevent vehicle use, unless designated for use by trail vehicles.
b. Drainage structures should be removed and natural drainage re-established, unless needed for use by trail vehicles.
c. The road profile should not normally be returned to contour during decommissioning, but recontouring may occur to meet special environmental or visual needs.
d. Exposed soils should be revegetated and natural plant succession should be allowed to occur, unless needed for trail purposes.
e. Decommissioning should normally be accomplished in conjunction with other project work but may occur independently if funding is available.

Guideline RF16 - Work with intermingled and adjacent landowners and local governments to develop roads or road systems that serve the needs of all parties. (page II-55)

1.4.2 Special Areas

Management Prescriptions

The MNF has been divided into smaller units called Management Prescriptions (MPs), organized around a common management emphasis. MP direction is designed to tier to Forest-wide direction and to meet Forest-wide goals and desired conditions. However, MP direct is generally intended to be more specific

than Forest-wide direction, addressing specific elements or concerns related to each program area. MP 8.0 Special Areas emphasizes the preservation of unique ecosystems or areas for scientific or recreational purposes, areas to conduct research, or protection of special areas of national significance.

MP 8.6 Grouse Management Areas are managed to create and maintain habitat suitable for ruffed grouse. The project area is in one of the two current Grouse Management Area on the Forest. In March 2018, MNF announced the decision to authorize the Brushy Mountain Ruffed Grouse restoration project to increase successional habitat in the project area. The project would increase open and brushy habitat that provides nesting, foraging, and herbaceous cover habitat and young forests for wildlife such as ruffed grouse, wild turkey poults, and small mammals.

Goal 8601 - Emphasize the creation and maintenance of ruffed grouse habitat. Coordinate vegetation management with the habitat needs of species requiring relatively high degrees of diversity.

Standard 8603 - Consult with West Virginia Department of Natural Resource (WVDNR) biologists in the planning of project activities in this area.

Guideline 8605 - Public motorized use should be restricted to reduce grouse disturbance and vulnerability. Work with West Virginia Department of Natural Resource to provide sufficient motorized access for adequate hunter distribution during the grouse hunting season. Unlimited motorized access should be avoided.

1.5 Decision Framework

The Marlinton/White Sulphur Springs District Ranger of the MNF is the Responsible Official for the decision. Based on the analysis of this document, and considering public comments received during the public scoping and the 30-day EA comment period, the Responsible Official will decide whether further analysis is needed or whether a Finding of No Significant Impact (FONSI) is appropriate.

1.6 Project Record

This EA incorporates by reference the Project Record (40 Code of Federal Regulations (CFR) 1502.21) documenting this NEPA process. The Project Record contains the Biological Evaluation, Cultural Resources Investigation, Specialist Reports and other technical documentation used to support the analysis and conclusions in this EA. These Specialist Reports address soil and water, fish, wildlife, vegetation, fuels and fire, air quality, botany, heritage and cultural resources, visual quality, and recreation, documenting the detailed analytical framework, methods, and conclusions employed to assess impacts on these resources.

The reports also describe the affected environment, or baseline conditions, that provide background for the discussion of environmental consequences summarized in Chapter 3 of this EA. Relying on Specialist Reports and the Project Record helps implement the Council on Environmental Quality (CEQ) Regulations provision that agencies should reduce NEPA paperwork (40 CFR 1500.4). The objective is to furnish enough site-specific information to demonstrate a reasoned consideration of the environmental impacts of the alternatives and how these impacts can be mitigated without repeating detailed analysis and background information available elsewhere. The Project Record is available for project review at the FHWA – Eastern Federal Lands Highway Division office in Sterling, Virginia.

Chapter 2 – PROPOSED ACTION AND ALTERNATIVE ACTIONS

2.1 Introduction

This chapter describes the alternatives that were analyzed for the Sulphur Lick Run Road repair project; Alternative A (No Action Alternative) and Alternative B (Proposed Action). It includes a description of each alternative considered and presents the alternatives in comparative form, describing the differences between each alternative and providing a clear basis for choice by the responsible official.

Under NEPA, Federal agencies are required to explore and evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). In addition to the No Action and the Proposed Action alternatives, another alternative to repair Sulphur Lick Run Road in-kind was analyzed briefly. However, it was determined that this alternative does not meet the project's purpose to restore safe and sustainable access within the Brushy Mountain area and that this alternative should be dismissed from further consideration.

2.2 Alternative A – No Action Alternative

Under Alternative A (No Action), no repairs to the observed damage sites would be made and no other activities would be implemented to help meet the purpose and need for action as described in Chapter 1. Sulphur Lick Run Road would be inaccessible after MP 0.8 (after its intersection with FR 719B) due to the washout of two 54-inch diameter corrugated metal pipes. This would preclude vehicular access to the remainder of Sulphur Lick Run Road and its connections to other unnamed woods roads. Additionally, FR 719A would remain open for access to the unnamed woods road, but it would not be extended and upgraded to Forest Road Standards. Only high-clearance vehicle could access portions of FR 719A and the unnamed woods road, and under current maintenance levels FR 719A would limit access for many passenger vehicles.

As stated, if this alternative were to be implemented, the damaged road sections on Sulphur Lick Run Road, FR 719A, and the unnamed woods road would remain as-is, with no further repairs, construction, removal, or reconstruction. Sulphur Lick Run Road and FR 719A would no longer be accessible to provide maintenance for the entire road, and lands accessed for grouse and timber management, and fire safety management would not be obtainable.

The remaining road prism would exist as it does today, with no obliteration efforts, no culvert removal, no ditch removal, no "pull back" of eroded sections, and no erosion control measures. The road would eventually grow in with vegetation and would be left vulnerable to further or additional erosion issues. Sedimentation of Sulphur Lick Run and other unnamed tributaries would continue.

If no action takes place, sometime in the future, the Forest Service would decide upon a permanent closure point at a location with a turnaround, and the remaining section would be physically blocked. Closure signs would be posted at the beginning of Sulphur Lick Run Road and FR 719A, as well as the turnaround points. This closure would be part of routine road maintenance for public safety and private landowner access, and not associated with this project in terms of leaving the road in its current state. All turnaround points would be located at least 200 feet from streams, ensuring compliance with Forest Plan Guidance.

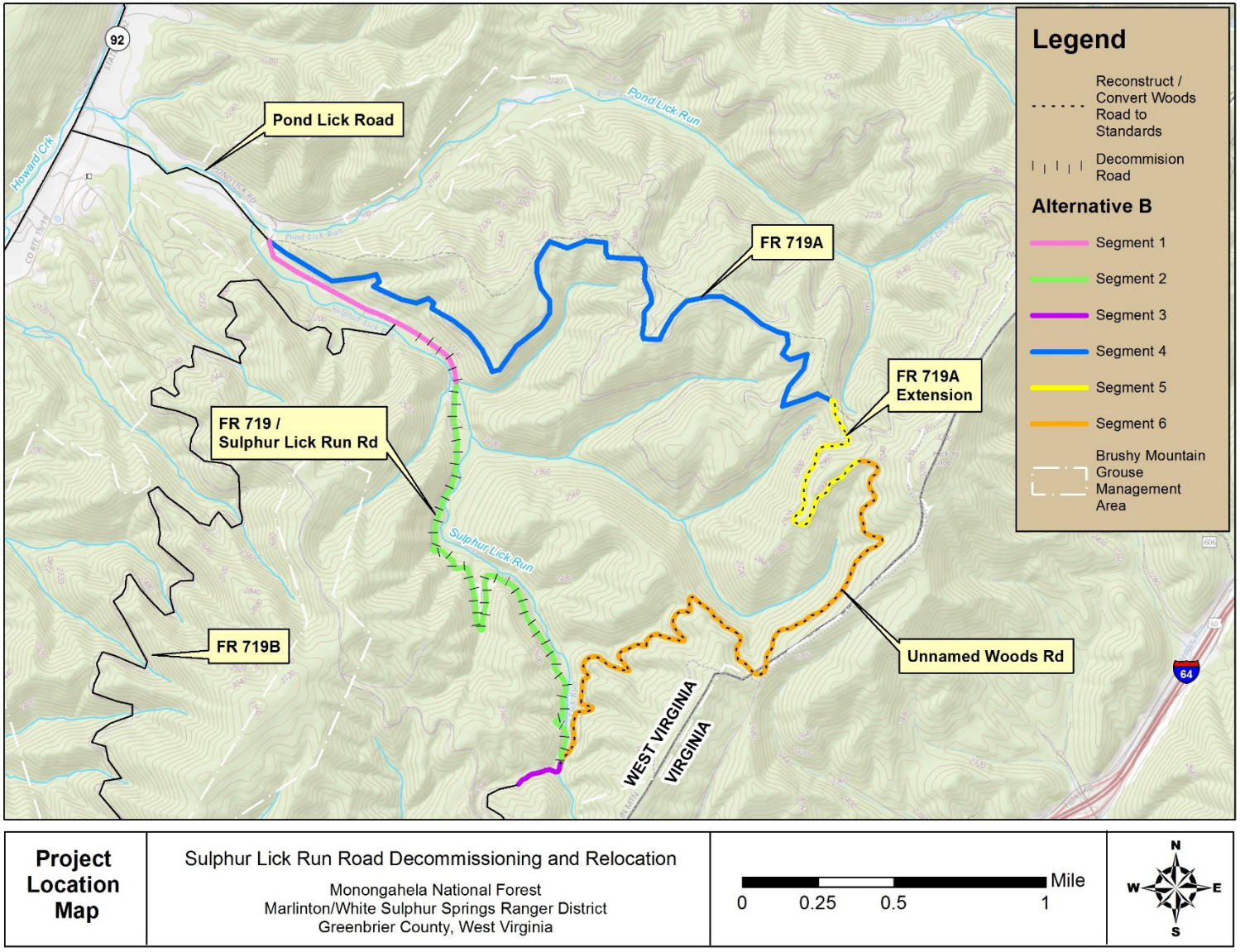
Alternative A would not meet the project's purpose of maintaining safe motorized transportation vehicular access for forest administration, maintenance, and fire protection, as well as access to private properties within the Brushy Mountain area of the MNF. The no action alternative is analyzed in Chapter 3 as the current condition to provide a basis for the comparison of other feasible alternatives, as required as part of the NEPA process.

2.3 Alternative B – Proposed Action – Preferred Alternative

Alternative B (proposed action) was developed to meet the purpose and need for action as described in Chapter 1. The proposed action would restore vehicle access in the Brushy Mountain Grouse Management Area. This would allow for grouse and timber management, fire safety management, and would provide access to adjacent private landholdings.

As displayed in Figure 4, the roads have been divided into segments within which the same type of work is proposed. The various improvements involve the decommissioning of most of Sulphur Lick Run Road and rehabilitation of the FR 719A and an unnamed woods road. The portion of Sulphur Lick Run Road that would not be decommissioned would be reconstructed at locations that received storm damage. Specific improvements to Sulphur Lick Run Road, FR 719A, and the unnamed woods road are described below.

Figure 4 - Location Map and Associated Roads



Source: WSP USA, Inc.

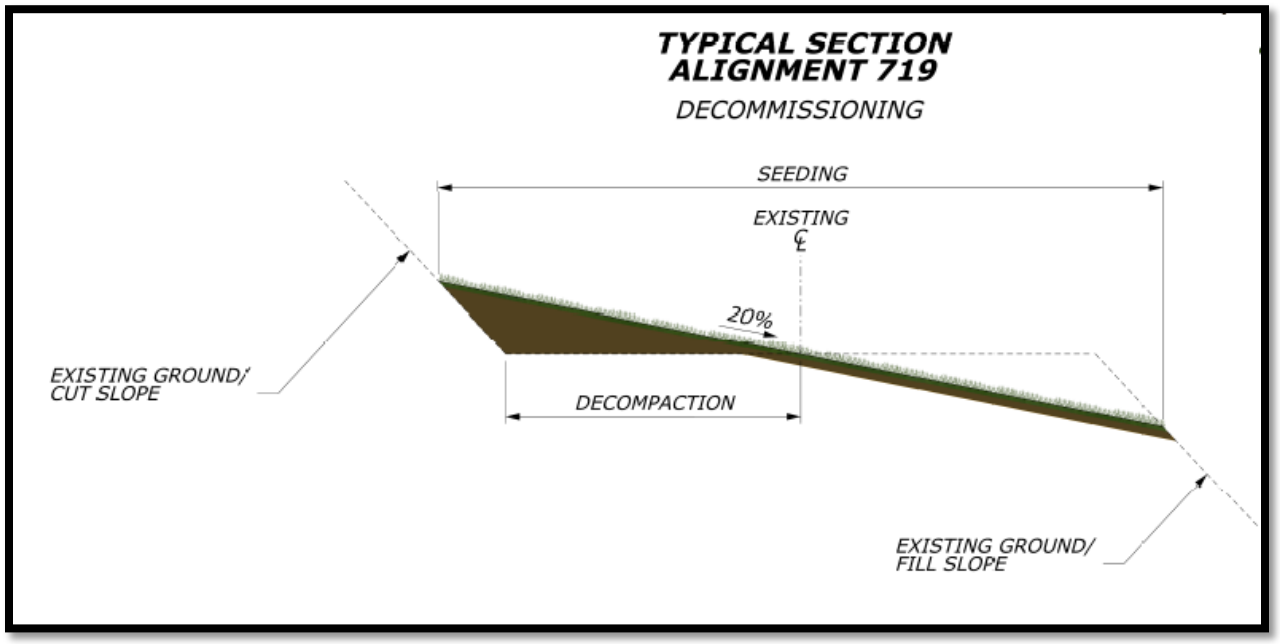
2.3.1 Sulphur Lick Run Road

The proposed improvements for Sulphur Lick Run Road are divided into three segments, Segment 1, Segment 2, and Segment 3. The total length of improvements to Sulphur Lick Run Road is 15,043 feet.

Segment 1: Sulphur Lick Run Road, from Pond Lick Road to the North end of the Road Decommissioning (a distance of 4,721 feet). Segment 1 would receive general roadway reconditioning to include grading and "smoothing" of the road surface. This is to address erosion grooves within the roadway that need to be filled.

Segment 2: Sulphur Lick Run Road, from the North End of the Road Decommissioning to the Intersection with the Unnamed Woods Road (a distance of 9,354 feet). Segment 2 would be decommissioned. Existing culverts would be removed and disposed of off-site and drainages would be re-established by excavating fill material, grading the stream bottom and banks to similar existing contours, and revegetating to provide a stable condition. Unstable fill material and road shoulders would be removed through the regrading of the existing fill material in order to obliterate the road and provide a stable condition. A soils analysis would be completed by the Forest Service to determine appropriate soil amendment to encourage the regrowth of vegetation. The area would be revegetated using a native seed mix. Physical barriers would be constructed at each end to prohibit vehicular traffic within this section. Physical barriers could include a combination of soil berms, trees, and other natural materials to camouflage the prior existence of the road. Decommissioning is not intended to recreate pre-development conditions. A typical section is depicted in Figure 5.

Figure 5 – Typical Section for Roadway Decommissioning



Source: WSP USA, Inc.

Segment 3: Sulphur Lick Run Road, from the Intersection with the Unnamed Woods Road to the Southwestern Terminus of project (a distance of 968 feet). Segment 3 would be rehabilitated in-kind to restore the road to pre-storm conditions. Rehabilitation would include: clearing and grubbing; embankment construction; construction of mechanically stabilized earth (MSE) walls; culvert replacement; and resurfacing with aggregate. MSE walls stabilize unstable slopes and retain the soil on steep slopes, and are constructed with soils and artificial reinforcement, such as pre-cast concrete.

In order to construct the improvements in Segments 1, 2, and 3, three temporary stream crossings are proposed (unnamed stream, Sulphur Lick Run, and unnamed tributary to Sulphur Lick Run). The road is currently washed out at these locations, and temporary access across the drainage is needed for construction equipment and materials. The temporary stream crossings would likely be comprised of pipe culverts and reshaping of existing fill material.

2.3.2 FR 719A

The proposed improvements to FR 719A are divided into two segments, Segment 4 and Segment 5. The total length of improvements to FR 719A is 31,935 feet (6.05 miles).

Segment 4: FR 719A, from Pond Lick Road to the North end of the FR 719A Extension (a distance of 17,418 feet). The existing road (14-foot wide single lane with 2-foot shoulders) would be rehabilitated in-kind. Minimal improvements are needed.

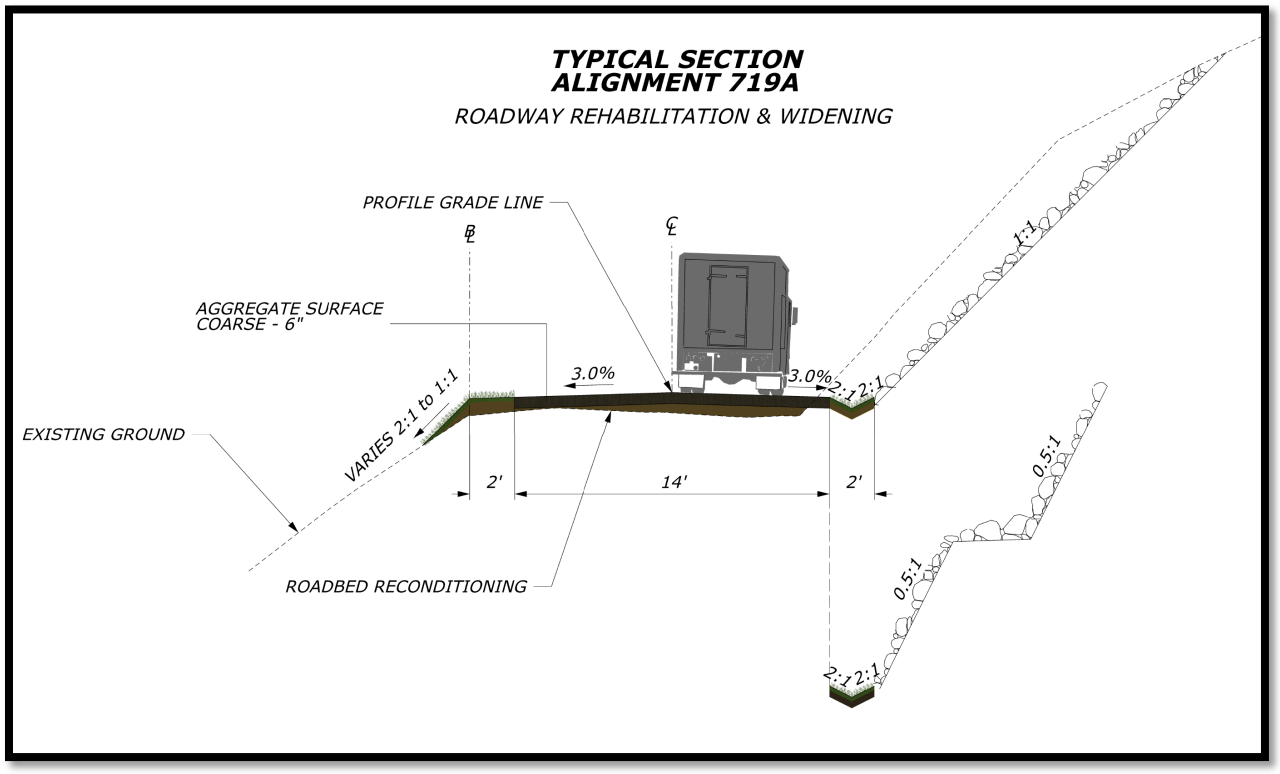
Segment 5: FR 719A Extension, from the South end of FR 719A to the North end of the Unnamed Woods Road (a distance of 4,517 feet). The road would be rehabilitated primarily by clearing and grubbing and resurfacing. The existing roadway alignment would be followed to minimize cutting into the hillside and/or placing fill material downslope of the road.

The typical section for these segments are illustrated in Figure 6.

2.3.3 Unnamed Woods Road

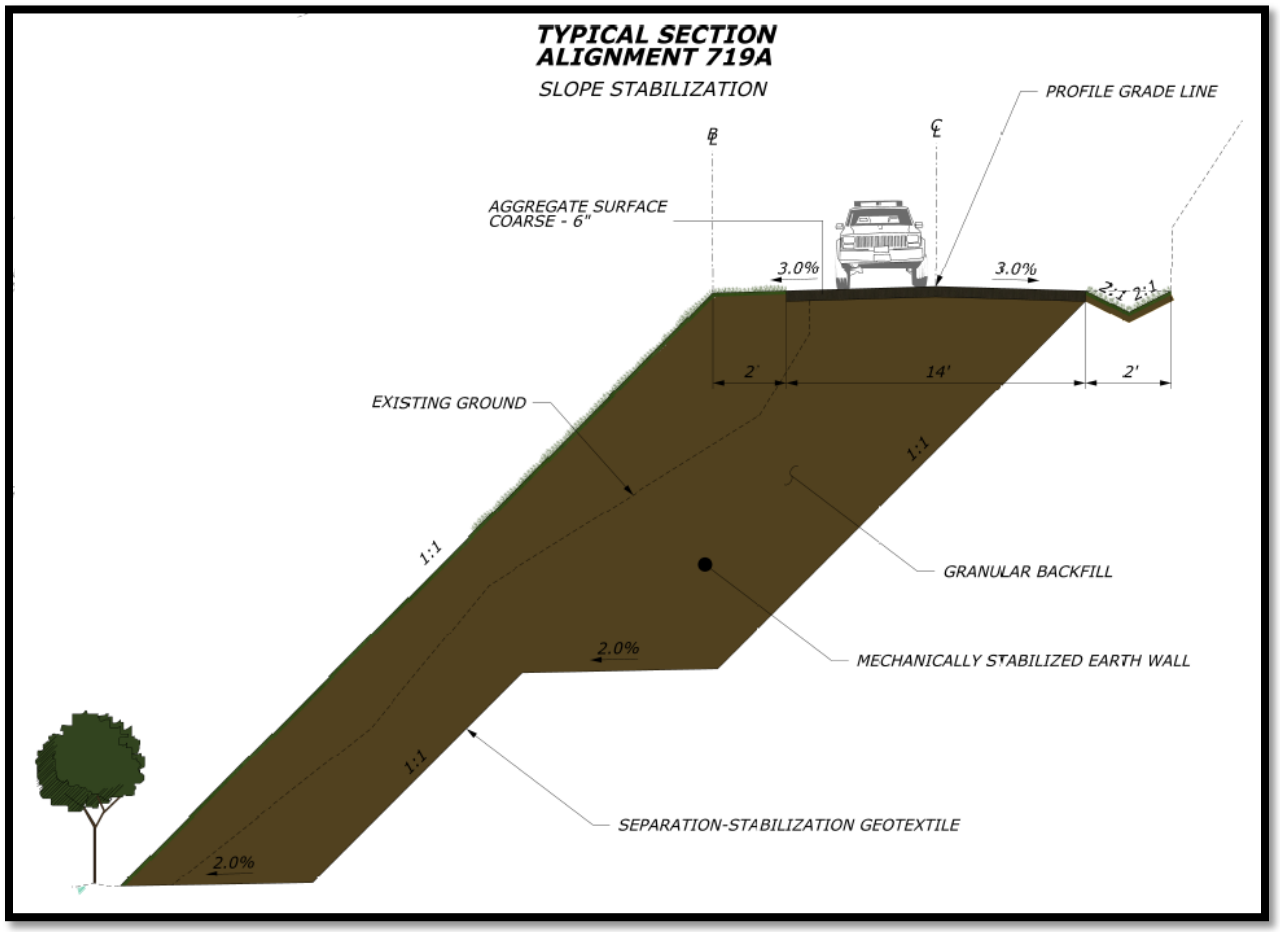
Segment 6: the unnamed woods road from the eastern end of FR719A to the intersection with Sulphur Lick Run Road (a distance of 13,283 feet). The unnamed woods road is a former logging road. The existing road, which varies in width from 4.5 feet to 11 feet, would be reconstructed to provide a 14-foot wide single travel lane with a 2-foot wide ditch adjacent to the hillside and a 2-foot wide shoulder on the downhill side (Figure 7). The hillside would be excavated and fill material would be placed as needed to widen the existing road and provide 1:1 cut-slopes and between 1:1 and 2:1 fill slopes (Figure 6). The use of retaining walls, mechanically stabilized earth walls, or other means to reduce the amount of ground disturbance would be analyzed during the design process. Six damaged 18-inch diameter culverts along this segment would be replaced with larger culverts, ranging from 24 to 36 inches in diameter, to better convey runoff in these low areas in the mountainous topography (hillslope hollows). The roadbed would be reconditioned, and then resurfaced with 6 inches of aggregate.

Figure 6 – Typical Section for Roadway Rehabilitation and Widening



Source: WSP USA, Inc.

Figure 7 – Typical Section for Slope Stabilization



Source: WSP USA, Inc.

2.3.4 Mitigation Measures

Mitigation measures include actions taken to avoid, minimize or compensate for potential adverse impacts. During resource and regulatory agency coordination, mitigation measures were developed that would be implemented under Alternative B.

- No tree clearing would be allowed between April 1 and November 15 in order to avoid impacts to bat species utilizing trees for roosting.
- On FR 719A, disturbance of Canada cinquefoil and other spring blooming plants found on road shoulders and slopes would be avoided to the maximum extent possible in order to avoid impacts to the Appalachian grizzled skipper. Any fill material used would be acidic, like the native shales. No limestone fill/aggregate would be used.

Best management practices (BMPs), which include existing regularly occurring policies, practices and measures required by law, regulation or policy, would also be implemented under Alternative B. BMPs are identified in Appendix C.

Chapter 3 – AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction and Methodology

3.1.1 Concerns, Issues, and Opportunities

Issues, as discussed in NEPA, describe the relationship between the action being proposed and the environmental (natural, cultural, and socioeconomic) resources. Scoping was completed through coordination with resource specialists from the Forest Service and FHWA and outreach to the public and Federal, State, and local stakeholders to aid in the identification of issues that should be analyzed in greater detail in this EA. The scoping process identified three issues, which are listed below.

- Roads and Access – Storm damage has rendered the FR 719 road complex unusable, and has made this part of the Forest inaccessible by vehicles. The location of Sulphur Lick Run Road adjacent to Sulphur Lick Run makes it vulnerable to future storm damage.
- Soils – The soils in the project area are generally very shallow, rocky, dry, and acidic, and much of the area is on steep slopes. Past severe weather events have increased erosion of these soils, including the roadbeds.
- Protected and Non-native Invasive Species – Potential habitat for nine Federally-listed plant and animal species exists in the project area, along with four Regional Forester's Sensitive Species (RFSS) plant species. Non-native invasive species abound in the project area.

3.1.2 Resources Addressed in this EA

The issues identified during scoping are analyzed within this EA as the following resources: Roads and Access (Section 3.3); Soils (Section 3.4); and, Protected and Non-native Invasive Species (Section 3.5). Resource areas considered but dismissed for further analysis are discussed in Section 3.2 below.

3.2 Resources Not Analyzed in This EA

Other resources were considered during the development of this EA, but it was determined that impacts to these resources would be limited in extent, duration, and intensity, and; therefore, do not require detailed analysis in this EA. These resources are described briefly below.

3.2.1 Geology and Minerals

The primary geologic formations within this area are the Devonian Aged Brallier and Milboro Shales transitioning into the Chemung Group. The shale decomposes rapidly when exposed to the weather, breaking down quickly into silty muck, which is not good for most engineering purposes.

Within the project area, there is no known mineral development or past mineral activity. In addition, there are no known private (reserved or outstanding) minerals under the National Forest System land surface within the project area. Therefore, geology and minerals is dismissed from further analysis in this EA.

3.2.2 Hazardous Materials

The *Resource Conservation and Recovery Act* of 1976 established a comprehensive program for managing hazardous wastes from the time they are produced until their disposal. The U.S. Environmental Protection Agency (USEPA) regulations define solid wastes as any "discarded materials" subject to a number of exclusions. The *Comprehensive Environmental Response Compensation and Liability Act* of 1980, deals with the release (spillage, leaking, dumping, accumulation, etc.), or threat of a release of hazardous substances into the environment.

A search of the USEPA Envirofacts system (https://www3.epa.gov/enviro/) to determine the potential presence of hazardous materials within the project area. The Envirofacts system integrates information from a variety of databases and includes latitude and longitude information. Each of these databases contains information about facilities that are required to report activity to a state or Federal agencies. Results of the search determined no known hazardous waste sites within the project's boundaries. Therefore, hazardous materials is dismissed from further analysis in this EA.

3.2.3 Farmlands

The Council on Environmental Quality directed that Federal agencies assess the effects of their actions on farmland soils classified by the U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) as prime or unique. Prime or unique farmland is defined as soil that particularly produces general crops such as common foods, forage, fiber, and oil seed; unique farmland produces specialty crops such as fruits, vegetables, and nuts. In addition, 7 CFR 658.2(a) includes in the definition of farmland those lands that are determined by the appropriate state or unit of local government agency or agencies, with concurrence of the Secretary of the Agriculture, to be farmlands of statewide or local importance.

Utilizing data provided by the USDA – NRCS Web Soil Survey (https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx), there are two soils classified as "farmland as statewide importance" that exist along the banks of Sulphur Lick Run:

- ErB—Ernest silt loam, 3 to 8 percent slopes
- MaC—Macove channery silt loam, 8 to 15 percent slopes

These two soil units account for 33.7 acres (3 percent) and 59.7 acres (5.3 percent) of the Area of Interest (AOI)[2], respectively. In addition, these two soils are considered as prime farmland if irrigated; however, none are irrigated within the project area. Lastly, there are no unique farmlands identified within the project area.

Due to the absence of prime or unique farmlands or statewide or locally important farmlands associated with the project area, the issue of farmlands is dismissed from further analysis in this EA. This determination has been coordinated with the West Virginia State Soil Scientist, whose comments of October 10, 2018 have been incorporated. Refer to Appendix B for the October 10, 2018 NRCS email.

[2] It should be noted that the AOI covers a broader area than the proposed project limits, so the actual acreage affected would be less than reported above.

3.2.4 Floodplain and Water Quality

Executive Order 11988 requires that all federal agencies conduct an analysis of their proposed action on floodplains. Pursuant to this Order, floodplains are defined by the Federal Emergency Management Agency (FEMA) as the 100-year floodplain.

The *Federal Water Pollution Control Act* of 1972, as amended by the *Clean Water Act* of 1977, is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters; to enhance the quality of water resources; and to prevent, control, and abate water pollution.

The project is located on Flood Insurance Rate Maps in Greenbrier County, Panel 700 of 800, Map #54025C0700E. Portions of this project are located in or near a FEMA defined floodplain; however, Base Flood Elevations (BFEs) are not determined. Road decommissioning and rehabilitation activities would have no impact on the existing floodplain.

The design of the roadway is consistent with the floodplain management criteria set forth in the National Flood Insurance Regulations (Title 44 CFR Sections 59 through 80). The project would be consistent with the requirements of floodplain management guidelines for implementing Executive Order 11988 and FHWA guidelines 23 CFR 650A.

For repairs adjacent to Sulphur Lick Run and unnamed tributaries, stabilization of drainages would improve water quality by reducing erosion and sedimentation. Temporary sedimentation may occur during construction; however, BMPs would be implemented to minimize erosion and sedimentation from ground disturbing activities that expose bare soil. Therefore, floodplains and water quality is dismissed from further analysis in this EA.

3.2.5 Wetlands and Surface Waters

The *Clean Water Act* establishes the basic structure for regulating discharges of pollutants into the waters of the United States and regulating quality standards for surface waters. Surface waters include lakes, rivers, streams, wetlands, and coastal areas.

Sulphur Lick Run, an intermittent stream, is located within the project area. Sulphur Lick Run occurs as headwaters to the Greenbrier River network, flowing westward downstream via Howard Creek. In-stream work is limited to the removal of damaged culvert and stream restoration at the Sulphur Lick Run crossings and temporary stream crossings needed for the repair and decommissioning activities. Since there would be no permanent placement of fill material in any streams, permanent adverse effects to streams are not anticipated. MNF does not anticipate implementing new management activities (e.g., recreational, heritage, and minerals management), independent of the proposed repairs.

For this project, the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping was obtained for the project area (https://www.fws.gov/wetlands/data/mapper.html). NWI maps show reconnaissance level information on the location, type and size of wetlands and deepwater habitat and are prepared from the analysis of high altitude imagery. No wetlands were shown as being present in the project area. Observations taken during the site visit on April 24, 2018 confirmed that no wetlands are present in the project area. There are also no springs or seeps located within or adjacent to the project area. Therefore, wetlands and surface waters is dismissed from further analysis in this EA.

3.2.6 Wild and Scenic Rivers

The *National Wild and Scenic Rivers Act* of 1968 is administered by four Federal agencies: The Bureau of Land Management (BLM), the National Park Service (NPS), the USFWS, and the Forest Service. The Act protects selected rivers, and their immediate environments, which possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values. Within the state of West Virginia, there is one National Scenic River, the Bluestone River. West Virginia has approximately 32,260 miles of river, of which 10 miles are designated as wild and scenic—this is less than of 1 percent of the state's river miles.

The designated 10-mile section is located within Mercer and Summers Counties, approximately 50 miles from the project area. The Bluestone River and its watershed would not be affected by the project either directly or indirectly. The proposed project area is not located within or adjacent to a Congressionally designated wilderness, wilderness study area, wild and scenic rivers or national recreation area. Therefore, wild and scenic rivers is dismissed from further analysis in this EA.

3.2.7 Air Quality

The *Clean Air Act* of 1977 is the primary regulatory authority used by the West Virginia Department of Environmental Protection (WVDEP) – Division of Air Quality to protect the state's air quality. In addition to the Act, state law grants broad authority to the agency to project the state's air quality. Under the requirements of the Act, the USEPA regulates multiple air pollutant types, known as criteria pollutants. The seven criteria pollutants are carbon monoxide (CO); lead (Pb); sulphur dioxide (SO2); ozone (O3); particulate matter with diameters of 100 micrometers or less (PM10); and particulate matter with diameters of 2.5 micrometers or less (PM2.5). Additional hazardous air pollutants and other toxics, are regulated under the *Clean Air Act Amendments* of 1990.

For each criteria pollutant, the maximum concentration above which adverse effects on human health may occur is called a National Ambient Air Quality Standard (NAAQS). Attainment means that the levels of criteria pollutants in a particular area are less than the NAAQS. Non-attainment means that the levels of criteria pollutants in the air are at or above the NAAQS in an area. Greenbrier County is currently in attainment for all criteria pollutants (WVDEP 2016).

None of the alternatives under consideration involve a stationary source of air emissions. However, proposed activities would require the use of heavy equipment, such as graders, bulldozers, backhoes, dump trucks, cranes and other diesel- and gasoline-fueled equipment, which would intermittently emit non-stationary source quantities of criteria air pollutants. The emission rates of the equipment used on site are considered minimal and would not impact regional air quality.

In addition to tailpipe emissions from heavy equipment, the temporary disturbance of the ground surface during excavation and grading activities could potentially generate fugitive dust. Fugitive dust can affect public health, especially if laden with hazardous materials. The type and severity of the effects depend in large part on the size and nature of the dust particles as well as the length of exposure. The types of effects that can occur include inhalation of fine particles that can accumulate in the respiratory system causing various respiratory problems including persistent coughs, wheezing, eye irritations, and physical discomfort. Construction personnel would be expected to implement reasonable measures,

such as applying water to exposed surfaces or stockpiles of dirt, when windy and/or dry conditions promote problematic fugitive dust emissions.

Adhering to reasonable measures would minimize any fugitive dust emissions. Use of mitigation measures would further reduce the possibility of adverse impacts from fugitive dust emissions. Overall, impacts from fugitive dust emissions would be negligible. Because impacts to air quality from the proposed action would not have a measurable impact on air quality, air quality is dismissed from further analysis in this EA.

3.2.8 Noise

Sound exists in the human and natural environment at all times. Some sounds are necessary or desirable for human communication or pleasure, some sounds are unnoticed, and others are unwanted or disturbing. Unwanted sounds are called noise. Traffic noise levels are expressed in terms of the hourly, A-weighted equivalent sound level in decibels. A decibel (dB) is a unit that relates the sound pressure of a noise to the faintest sound the young human ear can hear. Because most environmental noise fluctuates from moment to moment, it is standard practice to condense data into a single level called the equivalent sound level (Leq). The Leq averages the louder and quieter moments but gives much more weight to the louder moments in the averaging.

FHWA has developed a set of noise abatement criteria (NAC) and procedures to be used in the planning and design of roads and highways. The NAC are defined by values represent the upper limit of traffic noise deemed acceptable for various land use activity categories. Traffic noise levels are expressed in terms of the hourly dBs. Table 2 presents the criteria for determining noise impacts. The project area falls within category G, undeveloped land. These are lands that are not dependent upon serenity and quiet to fulfill their intended purpose.

Recent annual average daily traffic (AADT) on the Sulphur Lick Run Road is reported as less than 50, with an operating speed limit of 25 miles per hour. For Sulphur Lick Run Road, FR 719A, and the unnamed woods road, the seasonally adjusted AADT in the design year (2038) is anticipated to be 50 AADT.

Due to the low level of future traffic and the undeveloped, forested, and mountainous character of the project area, no noise impacts are anticipated with the construction and operation of Alternative B. Therefore, noise is dismissed from further analysis in this EA.

Table 2: Noise Abatement Criteria

Activity Category	Traffic Noise level (Leq)	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67	Exterior	Residential.
C[1]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structure, radio stations, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structure, radio studios, recording studios, schools, and television studios.
E[1]	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A-D, or F.
F	–––	–––	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	–––	–––	Undeveloped lands that are not permitted.

Source: Federal Highway Administration.
[1] Includes undeveloped lands permitted for this activity category.

3.2.9 Socioeconomics

The socioeconomic environment consists of local and regional businesses and residents, and the local and regional economy. The local economy and most business of the communities surrounding the forest are based on professional services, government, education, manufacturing, tourist sales and services, and recreation; the regional economy is strongly influenced by timber, manufacturing, and tourist activity. Should the proposed project be implemented, short-term economic benefits from construction related expenditures and employment would include economic gains for some local and regional businesses and individuals.

The project would not change present and future forest use, transportation patterns, or those uses of surrounding lands. There would be short-term benefits to the local and regional economy and local and regional businesses should the preferred alternative be selected and implemented. There would be no effects to present or future land use. Therefore, socioeconomics is dismissed from further analysis in this EA.

3.2.10 Environmental Justice

Executive Order 12898, "General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," requires all Federal agencies to incorporate environmental justice into their missions by identifying and addressing the disproportionately high and/or adverse human health or

environmental effects of their programs and policies on minorities and low-income populations and communities.

The project area is located approximately 3.5-miles northeast of the City of White Sulphur Springs, in Greenbrier County, West Virginia. Based on data collected from the U.S. Census Bureau's American Community Survey (ACS) 5-Year Estimates (2012-2016), 17.7 percent of the population in Greenbrier County is at or below the poverty line, compared with 18.3 percent for West Virginia.

Based on the same ACS 5-year estimates, the population of Greenbrier County is 35,580 persons; most county residents (92.5 percent) identify as white alone, while 6.6 identify as minority (white alone, non-Hispanic) populations. This is below the statewide average of 7.5 percent for minority populations.

Although minority and low-income groups are present in Greenbrier County, the proposed action would not have any disproportionate or adverse impacts on minority or low-income populations. Therefore, environmental justice is dismissed from further analysis in this EA.

3.2.11 Cultural Resources

Section 106 of the *National Historic Preservation Act* requires Federal agencies to take into account the effect of a project on any district, site, building, structure, or object that is included in, or eligible for inclusion in the National Register of Historic Places (NRHP). Section 106 also requires Federal agencies to afford the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment.

Surveys were conducted for Native American religious or cultural sites, archaeological sites, and historic properties or areas that may be affected by the project and were summarized in the Combined Cultural Resources Report (July 2018). Based on survey results, no archaeological sites were determined to be present within the Area of Potential Effect (APE). One section of FR 719 was determined to be over 50 years old, but it would not meet the criteria for eligibility for the NRHP. The Forest Service determined that the proposed undertaking would have no effect to historic properties. On September 11, 2018, the Forest Service transmitted their findings to the West Virginia Division of Culture and History, which serves as the State Historic Preservation Officer (SHPO). In a letter dated October 12, 2018, the SHPO concurred with the Forest Service's determination. (Refer to Appendix B for the October 12, 2018 SHPO letter.) Therefore, cultural resources are dismissed from further analysis in this EA.

3.2.12 Land Use

The unincorporated community of Mapledale lies along WV 90 to the west of the Brushy Mountain area of MNF and the FR 719 complex. Within this section of the MNF, there are several private land holdings that are served by the FR 719 complex. The immediate project area is undeveloped with heavily forested and mountainous terrain, with narrow forest roads along the Sulphur Lick Run valley or on the side of the mountain.

The project would not result in any adverse effects to adjacent land uses. Rather, it would provide more reliable access for Forest Service resource management, to private land holdings, and for public access for hunting and hiking areas. Therefore, land use is dismissed from further analysis in this EA.

3.2.13 Recreation and Hunting

The project area is not within a designated Wilderness Area, Wilderness Study Area, or National Recreation Area, nor is there a Wild and Scenic River in the project area. No designated recreational facilities such as trails or camping sites exist along or near the FR 719 road complex. Hunters and hikers may use the road network from September 1 through January 30 when public access is allowed. The project area is being managed by the Forest Service for Brushy Mountain Ruffed Grouse habitat restoration.

The project would facilitate access into the area for recreational pursuits, thus improving recreational opportunities in a safe and sustainable manner. Therefore, recreation and hunting is dismissed from further analysis in this EA.

3.2.14 Section 4(f) Resources

Section 4(f) of the *Department of Transportation (DOT) Act* of 1966 provides for the special consideration of public parks and recreation lands, wildlife and waterfowl refuges, and historic sites during the transportation development process. The Act states: "It is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites" (49 U.S.C. §303(a)). Amended by *the Safe, Accountable, Flexible, Efficient Transportation Equity Act*: A Legacy for Users (SAFETEA LU) in 2005, Section 4(f) requires the following, as codified in 23 CFR Part 774:

The Administration may not approve the use of Section 4(f) property unless a determination is made that:

(1) There is no feasible and prudent avoidance alternative to the use of land from the property; and (2) the action includes all possible planning to minimize harm to the property resulting from such use; or

(2) The Administration determines that the use of the property, including any measure(s) to minimize harm (such as any avoidance, minimization, mitigation, or enhancement measures), will have a *de minimis* impact on the property.

The MNF is a multiple-use property and there are no recreational areas located within in the project area. While hiking on the forest roads and hunting can occur, it is not the principle designated use. There are no Section 4(f) properties in the project area. Therefore, Section 4(f) resources is dismissed from further analysis in this EA.

3.2.15 Section 6(f) Resources

The *Land and Water Conservation Fund (LWCF) Act* of 1965 established a funding source to assist Federal, state and local governments to acquire land and water for recreational and conservation needs. Section 6(f)(3) of the Act requires that those properties acquired or developed with its funds shall not be converted to a use other than public outdoor recreation without the approval of the Secretary of the Department of the Interior, acting through the NPS and at the request of the state delegate/state liaison officer. Section 6(f)'s conversion protection requires the replacement with other recreational property of "at least fair market value and reasonably equivalent usefulness and location." (36 CFR §59.3).

In 2010 LWCF funds assisted in the purchase of a 448-acre tract of the MNF in Pocahontas County; this tract is on a bluff adjacent to a stretch of the historic Staunton-Parkersburg Turnpike. The Turnpike was a heavily traveled route over the Allegheny Mountains during the Civil War. The $900,000 purchase price was entirely funded through a LWCF appropriation.

The project alternatives would not impact the land acquired for the extension of the Turnpike property. No other LWCF-funded projects in the MNF have been identified. Therefore, Section 6(f) resources is dismissed from further analysis in this EA.

3.3 Roads and Access

3.3.1 Affected Environment

The FR 719 complex consists of narrow, graveled roads. Prior to the flood damage in 2016, these roads provided access to private landholdings within this section of the forest, for habitat restoration, for logging trucks and heavy Forest Service vehicles for maintenance and fire suppression, and were used by hunters and hikers. No recreation facilities are served by these roads. Public access via the forest roads is allowed from September 1 to January 30; outside those dates, the road is only accessible for landowners and Forest Service staff. Locked gates are in place to prevent unauthorized use.

Following the 2016 flood, the Forest Service closed FR 719 complex at State Route 92 because portions of these roads are partially or completely washed out by Sulphur Creek Run and other stream reaches.

Roads Analysis Findings, Maintenance Levels

Sulphur Lick Run Road and FR 719A are formal forest service roads. The unnamed woods road is a proposed addition to the formal road system in MNF, and as a such must be brought up to Forest Service standards. These roads experience very low traffic volumes, less than 50 vehicles per day (average daily traffic or ADT), and future volumes are expected to remain at or below 50 ADT. Operating speed on these roads is anticipated to be about 25 miles per hour due to the mountainous terrain and narrow road bed (14 feet or narrower).

These roads would be designed for Operational Maintenance Level (ML) 2, which are roads open for use by high clearance vehicles, with no consideration for passenger car traffic. For ML 2, traffic is normally minor, usually consisting of one or a combination of administrative, permitted, dispersed recreation, or other specialized uses.

Past Flood Damage

Sulphur Lick Run Road, FR 719A, and the unnamed woods road experienced extensive damage during the 2016 flood. Similar damages had resulted from a 2015 flood event and the 2016 flood further exacerbated damage to the project area.

The heavy rainfall and subsequent flooding of Sulphur Lick Run Creek and other stream reaches partially or completely eroded portions of the roads. Sulphur Lick Run Road, between mile post (MP) 0.8 and the beginning of the unnamed woods road, suffered catastrophic damage and has been unusable due to side slope and roadway washouts.

Due to the proximity of this section of road to Sulphur Lick Run, it is likely that future heavy rain events would continue to cause washouts.

Private Property Access

The Forest Service Handbook 2709.12 - Road Rights of Way Grants Handbook (9/86 R-1 Supplement 2) Chapter 60) states that the *Alaska National Interest Lands Conservation Action (ANILCA)* of 1980 applies to all non-Federal land with the National Forest System, including those lands outside the state of Alaska. Per ANILCA, access to non-Federal owned land within the boundaries of the National Forest System must be adequate to secure the owner reasonable use and enjoyment of their land. Private lands are accessed by Sulphur Lick Run Road and FR 719A in this area of the MNF.

3.3.2 Environmental Consequences

Alternative A

Under Alternative A (No Action), government and private vehicles would continue to be prohibited from using Sulphur Lick Run Road east of its intersection with FR 719B and its connections to other unnamed woods roads. Access to portions of FR 719A and the unnamed woods road effectively would be limited to high clearance vehicles because of numerous side slope and roadway washouts. This restriction would hamper maintenance for the entire road network and limit access to forest lands for grouse and timber management and fire safety management. Other FS roads (woods roads) in the Brushy Mountain boundary may be used to provide access to the private landholdings in this section of the MNF, although the route may increase the travel time to those properties. Vehicular access for timber and grouse management and fire safety management in remote areas of this area may require a longer route and higher travel time.

At some point in the future, the Forest Service would decide upon a permanent closure point at a location with a turnaround, and the remaining section would be physically blocked. Closure signs would be posted at the beginning of Sulphur Lick Run Road and FR 719A, as well as the turnaround points. This closure would be part of routine road maintenance for public safety and private landowner access. As previously stated, all turnaround points would be located at least 200 feet from steams, ensuring compliance with Forest Plan Guidance.

Under Alternative A, access to private landholdings and a large swath of the Brushy Mountain Grouse Management Area would be cutoff and inaccessible, which would noncompliant with the Forest Plan Guidance. It would also contribute to longer emergency response times within this section of the Forest. This would also increase the potential of additional slides or weather-related events. These adverse impacts could occur over the immediate, mid-, or long-term.

Alternative B

The proposed action would restore vehicle access to much of the FR 719 complex in the Brushy Mountain Grouse Management Area. Although Sulphur Lick Run Road from Pond Lick Road to the end of the decommissioned section would be rehabilitated to provide passage by high-clearance vehicles, the majority of Sulphur Lick Run Road would be decommissioned. Physical barriers would be constructed at each end of the decommissioned section to prohibit vehicular traffic within this section.

The decommissioning of approximate 9,354 feet of Sulphur Lick Road would remove a direct access route to the southern portions of the Brushy Mountain area. This change in access, however; would be mitigated by the development and rehabilitation of two other road segments.

FR 719A would be rehabilitated from Pond Lick Road to the unnamed woods road. Both in-kind rehabilitation and rehabilitation to current roadway standards would occur on FR 719A in order to bring the road to ML 2. The existing steep grades and tight curves would remain in place in order to minimize large cuts and fills along the hillsides.

Unnamed woods road, a former logging road, would also be rehabilitated in order to be brought to ML 2 per Forest Service Standards, from the eastern end of the FR 719A to the intersection with Sulphur Lick Run Road. The existing steep grades and tight curves would remain in place to minimize large cuts and fills along the hillsides. The improvements would also include drainage repairs, which would reestablish full access to the Brushy Mountain Grouse Management Area and the southern section of the MNF. Alternative B would relocate vehicular access to a more stable location, reducing the probability for future flood events to impact access is this part of MNF.

Construction of the proposed road segments would temporarily restrict access within the project area; however, these impacts would occur only until construction is completed (approximately six months).

3.4 Soils

3.4.1 Affected Environment

Most physical soil-related concerns in the project area revolve around management-created disturbance involving roads in general. Soil disturbance related to constructing, reconstructing, or decommissioning roads through the operation of heavy equipment in steep and/or wet areas is of particular concern.

The soils within the project area were mapped through the USDA Natural Resources Conservation Service (NRCS) Soil Survey Program. The soil surveys span two counties: Greenbrier County, West Virginia and Allegany County, Virginia, and encompass an area of interest (AOI) of 1,132.5 acres. The distribution of soil types in the AOI are shown in Table 3. More than 75 percent of soils in the AOI for this project are Weikert channery silt loam on mountain slopes (25 to 30 percent slopes). In general, the soils in the project area are very shallow, rocky, dry, and acidic.

Table 3: Soils in Area of Interest

Soil Unit Symbol	Soil Unit Name	Acres in AOI	Percent of AOI
Allegany County			
7D	Berks-Weikert channery silt loams, 15 to 35 percent slopes, very stony	0.7	0.1%
7E	Berks-Weikert channery silt loams, 35 to 55 percent slopes, very stony	2.7	0.2%
52 E	Weikert-Berks-Rough complex, 35 to 55 percent slopes	0.1	0.0%
Virginia Subtotal for AOI		**3.5**	
Greenbrier County			
BcF	Berks channery loam, 35 to 55 percent slopes, very stony	13	1.1%
BrE	Berks-Weikert complex, 15 to 35 percent slopes, very stony	15.7	1.4%
BrF	Berks-Weikert complex, 35 to 55 percent slopes, very stony	14	1.2%
MaC	Ernest silt loam, 3 to 8 percent slopes	33.7	3.0%
McE	Macove channery silt loam, 8 to 15 percent slopes	59.7	5.3%
WcE	Macove channery silt loam, 15 to 35 percent slopes, very stony	58.9	5.2%
WeD	Weikert channery silt loam, 15 to 25 percent slopes	58.2	5.1%
WeF	Weikert channery silt loam, 25 to 55 percent slopes	875.8	77.3%
West Virginia Subtotal for AOI		**1129**	
Total AOI		**1132.5**	**100.0%**

Source: Custom Soil Resource Report for Allegany County, Virginia and Greenbrier County, West Virginia, August 6, 2018

Heavy disturbance in the past by the previous landowner has affected soil conditions throughout the MNF, including the Brushy Mountain area. This area was logged commercially, during which numerous skid trails and haul roads were created. Roads increase sediment delivery to streams by retarding water infiltration into the soil and thus concentrating overland flow (Megahan and King, 2004). Retarded water infiltration in roads can be attributed to soil compaction and the inherent loss of soil aggregate structure, pore space and hydraulic connectivity. Roads can also disrupt natural drainage patterns by intercepting subsurface flow. Intercepted subsurface flow cannot infiltrate back into the road surface which results in concentrated overland flow. Both of these processes become more severe on steeper slopes where water has less time to infiltrate and water velocity (and erosive power) increases. However, negative impacts to soil quality and productivity (as the result of soil compaction, changes in

nutrient cycling and erosion) are still expected on gentle to moderate slopes (<40%). Additionally, research has found that the construction and use of roads cause more landslides than any other forest management activity (Sidle et al., 1985; Moore et al., 1991; Megahan and King, 2004). The steep slopes within the project area greatly increase the risk of erosion, slips and landslides.

Soil chemistry within this region is a soil resource concern due to the prevalence of inherently acidic and nutrient poor geologies in conjunction with acidic deposition in the Central Appalachian Region. Acidic deposition occurs when acid rain (caused by upwind industrial emissions of sulfur and nitrogen oxides) further acidifies the soil. This results in sensitive soils where alkalinity and nutrient capital are contained mainly within the organic and uppermost mineral horizons. These horizons are also the most frequently disturbed during many management activities such as road construction. Soil fertility testing should be conducted (free of cost at West Virginia University) and would provide lime and fertilizer recommendations to increase the success of revegetation.

Damage from the 2015 and 2016 flooding events and the subsequent closure of the FR 719 complex means that little if any road maintenance has been conducted. Consequently, soil erosion resulting from the existing road prism has continued. Signs of erosion around culverts and on non-vegetated cut banks are evident on the existing road system. Surface water flows down the middle of some roads during heavy precipitation events. The erosion and surface flow over bare soils adds to the already existing sediment load in streams.

Due to the composition of the soils and their potential for washout, it is unknown if the existing soils could be used as fill material for the project, or would need to be removed from the area. Geologic material within the project area consists of unconsolidated silty shales that weather relatively rapidly.

3.4.2 Environmental Consequences

Alternative A

Under the no action alternative, soil conditions along the FS 719 road complex and the unnamed woods road would continue to deteriorate. Areas of bare soil existing in the project area such as on washed-out roads and trails would continue to have soil movement during heavy rain events. Erosion around culverts and on non-vegetated cut banks would continue in these areas, contributing to the sediment load to streams.

Alternative B

Soil disturbance would occur as part of the construction activities of decommissioning the section of Sulphur Lick Run Road, rehabilitating FR 719A, and upgrading the unnamed woods road. These actions would require soil disturbance that removes or displaces organic matter and topsoil. These activities would cause unavoidable, short-term adverse impacts in the form of compaction, erosion, and nutrient loss. Alternative B would result in an irretrievable commitment of the soil resource on approximately 15.8 acres. However, Alternative B would result in improved soil quality in the long term because of the proposed road decommissioning and upgraded system road maintenance.

Cumulative Effects

Past actions, such as the commercial logging of the study area, created areas of intense soil compaction, soil nutrient loss and overall soil quality degradation. Other present and reasonably foreseeable future

actions that would occur within the study area include the storm damage repairs on FR 719B. Under Alternative A, soils would continue to deteriorate and exposed bare soil would continue to erode. When the impacts of Alternative A are combined with the adverse impacts of other past, present, and reasonably foreseeable future actions, there would be an overall adverse impact on soils. Alternative A would have a noticeable contribution to the adverse impact. Under Alternative B, road decommissioning would improve soil quality and productivity. While the extension of 719B and reconstruction of existing woods roads would result in soil quality degradation, erosion and sedimentation in these areas would be reduced due to regular road maintenance. When the impacts of Alternative B are combined with the adverse impacts of other past, present, and reasonably foreseeable future actions, there would be an overall adverse impact on soils; however, Alternative B would make a noticeable contribution towards reducing the intensity of the adverse impact.

3.5 Protected and Non-native Invasive Species

3.5.1 Affected Environment

The project is within in the Brushy Mountain Grouse Management area, which is in the southwest corner of the MNF, and the southern portion of the Allegheny Mountains. This region is in the Northern Valley and Ridge province of the Central Appalachian Forest/Highlands ecoregion. Major habitat types in this area includes temperate broadleaf, coniferous forest, and meadow province (mixed mesophytic forests). The mixed mesophytic forests contain clover, goldenrod, oxeye daisy, and Rosa multiflora that thrive in moderate humidity and avoid soil with standing water.

Protected Species

USFWS's Information for Planning and Consultations website (IPaC) was used to obtain an official species list of Federally-protected species that have the potential to occur in the project area. The IPaC report indicated that five Federally-listed plant species and four Federally-listed animal species had the potential to be present in the project area. Four Regional Forester's Sensitive Species (RFSS) plant species were also identified as having the potential to occur in the project area.

Botanical field surveys were conducted September 11 to 14, 2017 to document the presence of any Federally-listed threatened and endangered plant species and RFSS plant species (protected species), and their associated habitat, in the project area. Forest community types and invasive species occurrences were also identified and mapped throughout the project area per MNF protocol.

A RFSS butterfly species that occurs in the project area was later identified through coordination with the WVDNR in October 2018.

The protected species within the project area are described in the paragraphs below and listed in Table 4.

Table 4: Protected Species with potential presence along ERFO Roads in the MNF

Protected Species along ERFO Roads	IPaC Identified	*Status Listing	Potential Habitat Identified	Species identified in Field Survey
Plants				
Small whorled pogonia (*Isotria medeoloides*)	Yes	LT/G2/S1	Yes, forested areas.	No
Roan Mountain sedge (*Carex roanensis*)	Yes	TES/G2/G3/S1	Yes, steep, wooded, sparsely vegetated road banks at the Sulphur Lick Run.	No.
White alumroot (*Heuchera alba*)	Yes	TES/G2Q/S2	Yes, rocky slopes and ridges at the Sulphur Lick Run.	No
Animals				
Indiana bat (*Myotis sodalis*)	Yes	LE	Yes, forested areas surrounding existing roads and stream corridors.	No
Northern long-eared bat (*Myotis septentrionalis*)	Yes	LT	Yes, forested areas surrounding existing roads and stream corridors.	No
Appalachian grizzled skipper (*Pyrgus wyandot*)**		TES/G1/G2Q	Yes, along road shoulders and slopes with exposed shale	Yes

* Federal or Regional Forester's Sensitive Species (TES)/Global/National/State; LE= Federal listing as Endangered; LT= Federal listing as Threatened; G = Global conservation status rank indicator; T = Subspecies, varieties, and populations; G1 or T1 = Critically imperiled; G2 or T2 = Imperiled; G3 or T3 = Vulnerable; G4 or T4 = Apparently secure; S1 = Critically imperiled, S2 = Imperiled, S3 = Vulnerable, S4 = Apparently secure.

** Reported in letter dated October 3, 2018 from Susan Olcott, Project Leader, Wildlife Diversity Program, WVDNR.

Source: Biological Evaluation–Botany, March 2018.

Plant Species

Small Whorled Pogonia

The small whorled pogonia is a Federally-listed threatened species (G2/S1) that was once sighted in the White Sulphur Ranger District, but has not been seen in recent re-visits. This species is a small perennial herb in the orchid family and prefers deciduous or mixed-deciduous/coniferous forest in second or third growth successional stages, and occurs in both young and maturing forests. Majority of occupied sites have sparse to moderate ground cover, relatively open understory, and proximity to logging roads, streams or other features that create long persisting breaks in canopy, and highly acidic-nutrient-poor soil. The project area could support this species; however, no species was identified during the survey.

Roan Mountain Sedge

The Roan Mountain Sedge is a RFSS (G2/G3/S1) endemic to the southern and central Appalachian Mountains. This species is mostly abundant near the Highland Scenic Highway in Pocahontas County and near Big Run in Pendleton County. The habitat of this species is rich soils of mid- to high-elevation mesic forests, including rich cove and northern hard wood forests. Potential habitat is known to be found on steep, rocky, wooded, sparsely vegetated road banks within the Sulphur Lick Run area. However, this species was not identified during field surveys.

White Alumroot

The White Alumroot, a RFSS (G2Q/S2), is a perennial herb that prefers rocky wooded ridgetops at a high elevation, rock outcrops and road sides. Potential habitat is known to occur in rocky slopes and ridges in the Sulphur Lick Run area. However, this species was not identified during field surveys.

Animal Species

Indiana Bat

During the winter, the Federally-endangered Indiana bat are underground in caves within karst areas. In the summer, they roost under exfoliating bark on dead or nearly dead trees. Sometimes they will use live trees, such as hickory species *(Carya spp.).* The Indiana bat prefers foraging habitat and travel corridors along existing roads and streams. These animals are potentially throughout the MNF.

Northern Long-Eared Bat

The Federally-threatened northern long-eared bat (NLEB) is similar to the Indiana bat in regards to foraging habitat, looking for waterbodies, open areas, and forested hillsides or ridges. However, the NLEB prefer upland forests with more canopy cover. They prefer roost trees that are over-topped (live or snag trees), early successional tree species. These animals are potentially throughout the MNF within forested areas along streams or roadways.

Appalachian Grizzled Skipper

The Appalachian grizzled skipper is a West Virginia state species of conservation concern and a RFSS. A grizzled skipper colony was discovered in the early 2000s along the lower portions of FS 719A, corresponding with Section 4 of this project. This population of Appalachian grizzled skipper is the largest population known. The species uses Canada cinquefoil (*Potentilla canadensis*) during all its life stages; eggs are laid on the underside of leaves, larva create leaf shelters and eat the leaves, pupas find shelter under the winter rosettes, and adults nectar from blooms in spring; the plant is essential to the species survival. Additionally, the skippers require some trees for adults to roost in and other spring blooming plants for survival. Along FS 719A, these primarily include moss phlox (*Phlox subulata*), bird-foot violet (*Viola pedata*), and Carolina vetch (*Vicia caroliniana*), among others.

WVDNR and MNF have been coordinating monitoring and management of this butterfly species since it was identified. Management involves release and enhancement of its larval host Canada cinquefoil and nectar sources during flight of the adults (mostly mid-April – mid-May depending on temperatures) and daylighting the road to increase sunlight for these plants.

Non-Native Invasive Species (NNIS)

The non-native invasive species in the project area include Nepalese browntop, rambler rose, Japanese barberry, crownvetch, Morrow's honeysuckle, and tree of heaven.

As part of the MNF protocol, the invasive species occurrences, or communities, were mapped and the stand-level observations (infestation) were documented as high, moderate or low. The NNIS were identified in segments 1, 2, 5 and 6 (see Figure 1) of the project area. A high level of infestation of Nepalese browntop, rambler rose, and Japanese barberry was identified at MP 0 at Sulphur Lick Run Road. The Nepalese browntop and rambler rose are the primary invasive species found in the project area, with low to moderate infestations throughout the project area. Moderate levels of non-native invasive species are also concentrated along or near the woods road, from MP 4 towards MP 2. Various pockets of NNIS infestations are along or near the woods road between MP 0 through MP 2.

Agency Coordination

On August 8, 2018, the FHWA coordinated with the USFWS regarding protected species. In their response on September 5, 2018, the USFWS determined that five Federally-listed species may occur within the vicinity of the project area and may be affected by the proposed project: Indiana bat (*Myotis sodalis*), NLEB (*Myotis septentrionalis*), running buffalo clover *(Triofolium stoloniferum*), small whorled pogonia (*Isotria medeoloides*), and shale barren rockcress (*Arabis serotina*). The USFWS concurred that the project is not likely to adversely affect these Federally-listed species and that no further consultation under section 7 of the *Endangered Species Act* is required. Refer to Appendix B for the September 5, 2018 concurrence.

In September 2018, MNF coordinated with WVDNR regarding protected species. On October 3, 2018, the WVDNR sent a letter to the FHWA regarding the Appalachian grizzled skipper butterfly colony that is found along FR719A within the project area. The WVDNR requested that specific BMPs for skipper habitat management be incorporated into the road restoration. Refer to Appendix B for the October 3, 2018 WVDNR letter.

3.5.2 Environmental Consequences

Alternative A

Under Alternative A, no improvements would be made to Sulphur Lick Run Road, 719, 719A or the unnamed woods road. The roadbeds, side slopes, embankments, and drainage culverts damaged by recent flooding would continue to have erosion and contribute soils, rocks, and debris to downhill slopes and streams. The 719 complex would remain closed to vehicular traffic and the roads would not be maintained. Native and non-native vegetation would continue to reestablish on the unused roads, in particular, non-native invasive species such as Japanese barberry, Nepalese browntop, and rambler rose. While white alumroot and Roan Mountain sedge normally grow along road sides/embankments, increasingly larger washouts and slides of the embankment may reduce the amount of potential habitat for these protected species.

Long-term closure of the 719 complex would make Forest Service access for land and fire management activities difficult to impossible. Uncontrolled fires may destroy trees that provide bat habitat and wooded areas that provide habitat for small whorled pogonia and Roan Mountain sedge.

Alternative B

Alternative B would require clearing of vegetation for road decommissioning, rehabilitation and upgrading. Decommissioning activities would include excavating and disposing of existing fill materials, grading the stream bottom and banks to similar existing contours, and revegetating to provide a stable condition. Roadway rehabilitation and upgrading would also involve clearing and grubbing, embankment construction, construction of mechanically stabilized earth walls, culvert replacement, and resurfacing with aggregate. Approximately 10.8 acres of vegetation would be cleared to reconstruct/rehabilitate roads and to decommission the portion of Sulphur Lick Run Road.

The project would remove some trees that may be used by bat species for foraging and roosting; however, the surrounding forest would not be impacted. Trees would be cut during winter hibernation to avoid impacts to roosting bats. Excavation, regrading, and embankment construction would also temporarily disturb potential habitat for white alumroot and roan mountain sedge on steep, rocky slopes adjacent to the existing roadbeds; however, these roadside areas would again provide potential habitat after construction is completed. Potential habitat for the small whorled pogonia would likely be destroyed in areas where amendments of lime and fertilizer are added to facilitate the revegetation of decommissioned road section and shoulders and slopes of the rehabilitated roads, but potential habitat for these species continues to be present in the general project area. The decommissioned portion of Sulphur Lick Run Road and the rehabilitated/upgraded roads would offer open corridors for bat foraging and for the white alumroot and roan mountain sedge to reestablish. Alternative B would impact a relatively small amount of potential habitat for protected species; however, abundant habitat similar in nature is available throughout the MNF. The decommissioning of a 1.77-mile section of Sulphur Lick Run Road would also reduce habitat fragmentation.

The introduction of construction equipment and materials in combination with earthwork activity increases the potential for NNIS to spread.

Cumulative Effects

Past actions, such as the commercial logging of the study area, caused heavy disturbance with removal of swaths of forests, opening of forest understory, and the construction of skid roads. Other present and reasonably foreseeable future actions that would occur within the study area include the storm damage repairs on FR 719B, timber management, and ruffed grouse habitat restoration. The Forest Service continues to manage the area for timber, but with a much lighter hand and substantial consideration of resource health and protection. In 2018, MNF initiated a ruffed grouse habitat restoration project for the area, aimed at increasing open and brushy habitat that provides nesting, foraging, and herbaceous cover habitat and young forests for wildlife such as the ruffed grouse, wild turkey poults, and small mammals. It may also provide areas of improved habitat for the small whorled pogonia. Alternative A would contribute to the potential spread of NNIS resulting from continued erosion along the closed FR 719 road complex. When the impacts of Alternative A are combined with the adverse impacts of other past, present, and reasonably foreseeable future actions, there would be an overall adverse impact on protected species. Alternative A would have a noticeable contribution to the adverse impact. Under Alternative B, the decommissioning activities on Sulphur Lick Run Road and the roadway rehabilitation activities on FR 719A and the unnamed words road, would likely reduce the incidence and spread of non-native invasive along these roadways. The road decommissioning and rehabilitation activities, by improving soils on embankments and shoulders in the immediate project vicinity, may reduce potential

habitat for the Roan Mountain sedge, which prefers sparsely vegetated road banks. The project area would continue to provide travel and foraging corridors for the Federally-protected bat species. When the impacts of Alternative B are combined with the beneficial impacts of other past, present, and reasonably foreseeable future actions, there would be an overall beneficial impact on protected species. Alternative B would have a noticeable contribution to the beneficial impact.

Chapter 4 – CONSULTATION AND COORDINATION

4.1 Federal, State, and Local Agencies

The Forest Service and FHWA consulted the following individuals, Federal, State and local agencies during the development of this EA:

- US Forest Service - Monongahela National Forest (Marlinton/White Sulphur Springs Ranger District)
- Federal Highway Administration – Eastern Federal Lands Highway Division
- U.S. Fish and Wildlife Service
- West Virginia State Historic Preservation Office
- West Virginia Department of Natural Resources
- Greenbrier County Planning Commission

4.2 Public and Stakeholder Involvement

4.2.1 Scoping

The project was advertised in the *Pocahontas Times* (Newspaper of Record) and the *Register-Herald* on June 20, 2018 to notify the public of the project and allow for comment. In addition, individuals and stakeholders (Ruffed Grouse Society and Wild Turkey Federation) were individually contacted based on prior interest in MNF-related projects. A list of those individuals is available in the project record. No comments or responses were received during the scoping comment period.

4.2.2 Release of the EA for Public Review

This EA will be available for public review from October 29, 2018 through November 28, 2018. During this 30-day period, hardcopies of the EA will be available for review at the Marlinton/White Sulphur Ranger District, 1627 Cemetery Road, Marlinton, West Virginia 24954 and the McClintic Public Library, 500 8th Street, Marlinton, West Virginia 24954. An electronic version of this document will be made available on the project website: https://flh.fhwa.dot.gov/projects/wv/wverfofs201616/. Comments on this EA will be summarized and addressed in an appendix to the decision document.

4.3 Environmental Permits

If the proposed action is implemented, several permits would be required to construct the project. These permits include:

Section 404 (of the Clean Water Act) Permit

Section 404 regulated the discharge of dredged and/or fill materials in the Waters of the U.S., which include ephemeral, intermittent, and perennial streams, wetlands, lakes, and ponds. Examples of “fill

material" include rock, sand, soil, clay, plastics, construction debris, wood chips, overburden from mining or other excavation activities, and materials used to create any structure or infrastructure in Waters of the U.S. The U.S. Army Corps of Engineers is the agency responsible for issuing the Section 404 permit. This project would discharge fill material into Waters of the U.S. and would most likely quality for authorization under a Nationwide Permit.

Section 401 (of the Clean Water Act) Permit

Section 401 requires that any applicant for a Section 404 permit also obtain a Water Quality Certification from the state. The purpose of the certification is to confirm that the discharge of fill materials will comply with the state's applicable Water Quality Standards. In West Virginia, the West Virginia Department of Environmental Protection (WVDEP), in conjunction with the West Virginia Division of Natural Resources, certifies physical alterations under Section 401 and state water quality standards.

Section 402 (of the Clean Water Act) Permit

The West Virginia National Pollutant Discharge Elimination System (NPDES) Stormwater Program requires operators of construction sites that disturb one (1) acre or greater, including smaller sites that are part of a larger common plan of development, to obtain authorization to discharge stormwater under an NPDES Construction Stormwater General Permit. This project would result in land disturbance greater than one acre; therefore, coverage under the Construction Stormwater General Permit would be obtained.

Chapter 5 – LIST OF PREPARERS

Below is a list of persons who contributed to the development of this EA:

Forest Service - Monongahela National Forest (Marlinton/White Sulphur Springs Ranger District)

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Adrienne Nottingham – Assistant Forest Soil Scientist

Gavin Hale – Heritage Program Manager

FHWA – Eastern Federal Lands Highway Division

Lisa Landers – Environmental Protection Specialist

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Henry Ward – Senior Supervising Archeologist

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EAC / Archaeology

Elizabeth Anderson Comer – Principal Investigator

Robert Wanner – Supervising Archeologist

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