# NRCS West Virginia Preliminary Investigation Feasibility Report (PIFR)

Knapp Creek Watershed (HUC #0505000304)



October 2022

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#### Abbreviations

- CFR Code of Federal Regulations
- NECH National Environmental Compliance Handbook
- NWPH National Watershed Program Handbook
- NWPM National Watershed Program Manual
- PIFR Preliminary Investigation Feasibility Report
- USC United States Code

#### References

- NRCS National Environmental Compliance Handbook, Title 190, Part 610, May 2016
- NRCS National Watershed Program Manual, April 2014
- NRCS National Watershed Program Handbook, April 2014
- DM 9500-013 Guidance For Conducting Analyses Under The Principles, Requirements, And Guidelines For Water And Land Related Resources Implementation Studies And Federal Water Resource Investments, January 2017
- Principles and Requirements for Federal Investments in Water Resources, March 2013
- NB 390-21-4 PDM Watershed and Flood Prevention Operations Program Funding Guidance Preliminary Investigation Feasibility Reports and Remedial Projects, July 2022

#### Summary

The following PIFR is a summary report of resource concerns and opportunities in the Knapp Creek Watershed that may be eligible for a planning study according to the Watershed Protection and Flood Prevention Act (PL 83-566). The watershed is in the Greenbrier Valley Conservation District in the southeastern part of WV. The West Virginia Conservation Agency is the local sponsor for this request for assistance.

The Knapp Creek Watershed area contains an existing watershed project, that was assisted by the Natural Resources Conservation Service, which provides flood damage reduction for the Town of Marlinton. The Knapp Creek Watershed was the subject of a PL-83-566 project in the 1970s and the infrastructure from that completed plan is now past its planned service life, but it is still considered serviceable. The Knapp Creek Watershed Project was designed to provide an estimated \$187,300 in annual economic benefits in today's inflation-adjusted dollars. The project included a high hazard dam, stream channel work, and 13 natural stream restoration projects which can be seen on the map on page 8.

Potential solutions to resource problems and opportunities contained in this report could provide long-term relief with positive impacts to environmental, economic, and social aspects of living in the watershed. The baseline condition without Federal investment is a situation of deteriorating infrastructure and potential loss of flood protection, incidental recreation, and other amenities associated with the existing project. The alternatives that were developed for the PIFR include structural and non-structural measures consisting of land treatment practices, various levels of rehabilitation of the existing dam, and possible construction of new infrastructure. The Watershed Rehabilitation Program may be used for funding any necessary upgrades to watershed structures. If rehabilitation is the selected alternative after planning is complete, the rehabilitation program will be used.

Alternatives require participation by private landowners to implement. The sponsoring organization has partnered with the NRCS in the past. Examples of benefits include reduced flood damage, improved watershed protection, agricultural water management, and increased recreational options.

# Applicable Agency Authority and Authorized Purposes

The table below, provides documentation that the project is eligible for federal assistance and will meet statutory requirements.

Describe the potential project watershed area; how does the area meet the requirements outlined in NRCS's National Watershed Program Manual (See 506.50 NWPM Glossary - TTT. Watershed).

Response: The West Virginia Conservation Agency (WVCA) requested assistance with conducting a Preliminary Investigation and Feasibility Report (PIFR) for a potential watershed project in the Knapp Creek Watershed (10- digit HUC 0505000304). This assistance is authorized under the Watershed Protection and Flood Prevention Act (Public Law 83-566). The WVCA is interested in being a sponsor for a watershed plan project in the Knapp Creek Watershed and meets the PL 83-566 criteria for a sponsor. Agricultural and forested lands compose most of the watershed. Flood damage reduction, watershed protection and agricultural water management would be the likely purposes of a potential watershed project.

Will the project area exceed 250,000 acres in size? <sup>1,2</sup>	□ YES	⊠NO		
If over 250,000 acres will it be divided into sub-watersheds in one plan?	□ YES	⊠NO		
Potential Project Area Size: 70,230 acres				
Will any single structure provide more than 12,500 acre-feet of floodwate capacity, or have a 25,000 acre-feet of total capacity?	□ YES <sup>3</sup>	⊠NO		
How many recreational developments will be included in the project area?				
One development in a project area less than 75,000 acres		⊠YES	□NO	
• Two developments in a project area between 75,000 and 150,000	acres	□ YES	⊠NO	
• Three developments in a project area greater than 150,000 acres		□ YES	⊠NO	
Which authorized purposes will the project address? (Indicate only one pu	rpose as primary):	I		
	Primary	Oth	ner	
Flood prevention	$\boxtimes$			
Watershed Protection			]	
Public Recreation			3	
Public Fish and Wildlife			]	
Agricultural Water Management			3	
Municipal or Industrial Water Supply			]	
Water Quality Management			]	
Will the project produce substantial benefits to the general public, to communities, and to groups of landowners?			$\Box NO^3$	
Can the project be installed by individual or collective landowners under alternative cost-			⊠NO	
sharing assistance?				
Will the project have strong local citizen and sponsor support through agreements to				
obtain land rights, permits, contribute the local cost of construction, and carry out			$\Box NO^3$	
operation and maintenance.				
Will the project take place in a Special Designated Area? (if yes, check applicable area below.)         Appalachia       Image: Delaware River Basin         Basin       Image: Delaware River Basin         Basin       Image: Delaware River Basin				
Basin Basin				

1- For specific appropriations, the 250,000 acres is waived except for watershed projects with the flood prevention purpose.

2- Watersheds exceeding 250,000 acres can be broken up into smaller sub-watersheds.

3- The project will not meet the statutory requirements.

#### References:

16 USC 18 - §1004, Conditions for Federal assistance 7 CFR 611 - 11, Eligible Watershed Projects Title 390, NWPM – 500.3 Eligible Purposes

#### Potential for 20% Agricultural (Rural) Benefits

Knapp Creek Watershed is located in Pocahontas County. This County covers an area of 421 square miles and has a population of 8,414 with a population density of 9 persons per square mile. In comparison, the population density for the state of West Virginia is 77 people per square mile and nationally the population density is 94 people per square mile. As per the USDA definition, Pocahontas County is considered rural because there are no population centers with more than 50,000. Because it is a rural county, at least 20% of the benefits will meet the agricultural (rural) requirement. Populations potentially benefitting from a project would include rural residents, small businesses, and the general public.

#### References:

16 USC 18 - §1002, Definitions Title 390, NWPM – 506.50 Glossary, MMM. Rural or Rural Communities https://worldpopulationreview.com/states/west-virginia-population https://statisticalatlas.com/county/West-Virginia

Project Overview	
Proposed Project Name	Knapp Creek Watershed (HUC #0505000304)
State	West Virginia
County	Pocahontas
Congressional District	1 <sup>st</sup> Congressional District



Watershed Project Setting	
	Reference: Title 190 – NECH 610.69         Knapp Creek is located on the Knapp Creek Subwatershed of the Greenbrier         River Watershed is located in MLRA 127, Eastern Allegheny Plateau & Mountain and a small area in MLRA 147, Northern Appalachian Ridge & Valley Region.         Knapp Creek flows in a south and westerly direction to its' confluence with the Greenbrier River just downstream of Marlinton, West Virginia. The Greenbrier River joins the New River at Hinton, West Virginia. The New River joins the Gauley River at Kanawha Falls to form the Kanawha River. The Kanawha River eventually joins the Ohio River at Pt. Pleasant, West Virginia. The Ohio River joins the Mississippi River at Cairo, Illinois. The Mississippi flows into the Gulf of Mexico.         The total watershed drainage area is 70,230 acres which is entirely in Pocahontas County, West Virginia.         The topography in the watershed ranges from an elevation of 4,477' MSL on Paddy Knob on the Virginia/West Virginia state line to a low point of approximate elevation 2,114' MSL at the confluence of Knapp Creek with the Greenbrier River at Marlinton, West Virginia.         Knapps Creek flows through Minnehaha Springs, Huntersville, and Marlinton, West Virginia.         The majority of watershed falls in MLRA 127, Eastern Allegheny Plateau & Mountains. The geology is characterized by mostly flat-lying sedimentary beds. The overall topography is that of a high but strongly dissected plateau sharply cut by smaller tributaries. The rock strata have considerable thickness consisting of sandstone, limestone, and shale.         A very small portion of the eastern edge of the watershed falls into MLRA 147, Northern Appalachian Ridge & Valley Region. Uplift, folding and geologic erosion have had a major influence on t

	<ul> <li>West Virginia has a humid continental climate. Southeastern West Virginia, much like the rest of the state, experiences moderately cold winters and warm, humid summers. West Virginia has the highest average elevation east of the Mississippi River which helps moderate summer temperatures.</li> <li>The jet stream is located near or over the northeast during the winter bringing frequent storm systems to the watershed.</li> <li>Pocahontas County, in an average year, receives 47 inches of rain and 60 inches of snow. The average summer high is 79 degrees Fahrenheit in July, and the average winter low is 16 degrees Fahrenheit in January.</li> </ul>
Potential Project Area - Size	Knapp Creek 10-digit HUC (0505000304) is 70,230 acres.
Resource Information	
Soils	The project area lies within Major Land Resource Area (MLRA) 127. Pocahontas County lies in both the Eastern Allegheny Plateau and Mountains and the Southern Appalachian Ridges and Valleys Major Land Resource Areas. The dividing line between these areas roughly follows the west side of the Greenbrier River. The landforms of the county show the effects of orogenic movement coupled with erosional forces. Elevation, kind and position of rock, position of drainage courses, and climate are factors that also affect the type of topography in the county. The plateau and mountain area has nearly horizontal rocks that contain many resistant layers at the higher elevations with more weatherable rock below. This results in a dendritic drainage pattern. The ridge and valley area is slightly to strongly folded with resistant layers separated by large expanses of more weatherable rock. This results in a trellis drainage pattern. As a result of these factors, a rugged and complicated relief exists. The highest and lowest elevations in the survey area are 4,842 feet at Bald Knob on Back Allegheny Mountain and 1,952 feet where the Greenbrier River flows out of the county. Winters are cold and snowy at the higher elevations in Pocahontas County. Rainfall is evenly distributed during the year, but it is appreciably heavier on the windward, west-facing slopes than in the valleys. Normal annual precipitation is adequate for all crops, although summer temperatures and the length of the growing season, particularly at the higher elevations, may be inadequate. The total annual precipitation is about 45 inches at Buckeye. Of this, about 23 inches, or nearly 52 percent, usually falls in April through September. The surface rocks in the county are of sedimentary origin. The west-central part of the county, the area west of the West Fork of the Greenbrier River and the area in the vicinity of the head of the East Fork of the Greenbrier River are also included. This area is comprised, in part, by the Bluefield Formation of the Mauch Chunk G

	of limestone and calcareous shale. The Greenbrier reaches its maximum exposure in the Hillsboro area, also known as Little Levels. The Pocono Group consists of several hard sandstone members that form many of the ridges and flats near the Greenbrier River. It also includes some shale and siltstone. The area near the head of the East Fork of the Greenbrier River is a Pocono bench. The range of these landscapes can be from gently sloping to very steep. The soils are typically moderately deep to very deep and well drained.
Water	The quality of water making up the watershed is affected by non-point pollution in the urban areas. The upland areas of the watershed produce high sediment loads during runoff producing rains. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events. The watershed has areas with a surplus of water quantity and areas with depleted water quantity in normal conditions.
Air	The watershed is not in an area recognized for regularly having impaired air quality or any significant air quality issues.
Plants	The watershed provides for both agricultural crops as well as naturally vegetated areas utilized as wildlife habitat.
Animals	This area has animal resources consisting of game, non-game, and invasive species.
Energy	This area has various electrical, oil, and gas transmission facilities.

Pocahontas County WV Data 8         POPULATION         Total Population         Population in Households         Population in Families         Population in Group Quarters <sup>1</sup> Population Density         Diversity Index <sup>2</sup>	8,267 (100%) 7,949 (96.2%)	(As of July 1, 2021) HOUSING Total HU (Housing Units)	
Total Population Population in Households Population in Families Population in Group Quarters <sup>1</sup> Population Density			
Population in Households Population in Families Population in Group Quarters <sup>1</sup> Population Density		Total HU (Housing Units)	
Population in Families Population in Group Quarters <sup>1</sup> Population Density	7,949 (96.2%)	Total Ho (Hodoling Offico)	8,847 (100%)
Population in Group Quarters <sup>1</sup> Population Density		Owner Occupied HU	2,911 (32.9%)
Population Density	6,077 (73.5%)	Renter Occupied HU	688 ( 7.8%)
	318 ( 3.8%)	Vacant Housing Units	5,248 (59.3%)
Diversity Index <sup>2</sup>	9	Median Home Value	\$125,267
	11	Average Home Value	\$160,203
		Housing Affordability Index <sup>3</sup>	20
INCOME Median Household Income	\$41,019	HOUSEHOLDS Total Households	<b>S</b> 3,59
Average Household Income	\$55,273	Average Household Size	2.2
% of Income for Mortgage <sup>4</sup>	13%	Family Households	2,22
Per Capita Income	\$24,110	Average Family Size	2,22
Wealth Index <sup>5</sup>	524,110	Average Family Size	
(hometownlocator.com)			
Quality of Life: According t WV state average in quality			

	See COVID-19 D	ata for Pocahontas County, WV »	
<b>40</b> /100	OVERALL SCORE	CATEGORY	SCORE
		Population Health	45
		Equity	58
40		Education	31
Overall Score	35	Economy	31
Overall Score	State Average	Housing	46
	48	Food & Nutrition	51
33		Environment	68
Peer Group Average		Public Safety	49
Rural, Up-and-Coming		Community Vitality	58
		Infrastructure	49
Read our methodology to se rankings were calculated.		See the top communities overall »	

Resources of Specia	l Concern
Clean Water Act	Permitted actions may involve or likely result in the discharge or placement of dredged or fill material in or other pollutants into waters of the US. Ephemeral, intermittent, and perennial streams and certain wetlands will be considered to be waters of the US. Mitigation for unavoidable impacts should be expected under Sec. 404 of the Clean Water Act.
Clean Air Act	This watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues.
Coastal Zone Management	NA
Coral Reefs	NA
Cultural Resources	There are known cultural, archeological, and historically significant resources throughout the watershed. Consultation with Tribal Nations, West Virginia State Historic Preservation Officer, and other interested parties with vested interests in a yet to be determined area of potential effect will be conducted according to Section 106 of the <i>National Historical Preservation Act (NHPA</i> ) of 1966, as amended.
Endangered & Threatened Species	There is a total of 11 Federally listed threatened, endangered, or candidate species and 1 critical habitat potentially found in this watershed by the US Fish and Wildlife Service. According to West Virginia Department of Natural Resources, WV is a permanent home to 22 federally endangered species (17 animals, 4 plants) and 7 federally threatened species (5 animals, 2 plants). WVDNR's State Wildlife Action Plan (SWAP) recognizes 22 Conservation Focus Areas (CFA) throughout the state that includes Species of Greatest Conservation Need (SGCN). See Appendix E for a complete USFWS IPaC Species list, WVDNR state listings, a map of WV CFAs, and a list of SGCN for this watershed.

Environmental Justice	Environmental justice seeks fair treatment and meaningful involvement of all people and requires the identification of any disproportionately high and adverse effects from a proposed project on protected groups. Pocahontas County is completely within the Appalachian Region. This county is not designated as a limited resource county by USDA. However, it is designated as 'at-risk' by the Appalachian Regional Commission, indicating the economy is struggling. Reference: <a href="https://www.arc.gov/distressed-designation-and-county-economic-status-classification-system/">https://www.arc.gov/distressed-designation-and-county-economic- status-classification-system/</a> Pocahontas County is 97% white and 2% black. Other races make up less than 1% of the county population. The poverty rate in Pocahontas County is 18.1% compared to the WV rate of 15.8% and the national rate of 11.4%. <a href="https://www.census.gov/quickfacts/">https://www.census.gov/quickfacts/</a>
Essential Fish Habitat	NA
Floodplain Management	The purpose of floodplain management is to reduce flood damage. Floodplain management is the operation of community programs for preventative and corrective measures. These measures take a variety of forms and generally include zoning, division or building requirements, and special-purpose floodplain ordinances. Communities agree to adopt and enforce floodplain management ordinances to make flood insurance available to home and business owners. To date, 55 counties and 214 communities in West Virginia have voluntarily adopted and are enforcing local floodplain management ordinances that provide flood loss reduction building standards for new and existing development. Pocahontas County has a major risk of flooding over the next few decades. In addition to damage on properties, flooding can impact access to utilities, emergency services, transportation, damage to agricultural lands and crops, and adversely impacts the overall well-being of both urban and rural communities located in the floodplain. Pocahontas County West Virginia has adopted a Floodplain Ordinance on 11-3-2010. The county also has a Floodplain Coordinator.

Invasive Species	Invasive species are found in the watershed. EDDMaps provides a web-based mapping system for documenting invasive species and pest distribution. According to USGS there is no nonindigenous aquatic species recorded in the watershed. See Appendix E for complete species lists. The lists are not specific to the watershed. However, they are based on a WV county level in which the watershed is located.
Migratory Birds/Bald & Golden Eagle Protection Act	Migratory birds and eagles utilize the Knapp Creek Watershed habitats. There is a total of 15 federally listed birds in the area. The birds listed are birds of particular either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location. See Appendix E for complete list.
Natural Areas	<ul> <li>Federal: The US Forest Service manages the Monongahela National Forest which lies partially within the Knapp Creek Watershed.</li> <li>State: The West Virginia Division of Forestry manages Watoga State Park and West Virginia Division of Forestry manages Calvin Price State Forest, both located just southwest of the Knapp Creek Watershed boundary. WVDOF also manages Seneca State Forest at the watershed's northern boundary.</li> </ul>
Prime and Unique Farmlands	Presently there are 3,386 acres of Prime Farmland, which accounts for 5% of land in the study area. Additionally, there are 3,441 acres of Farmland of Local Importance and 2,060 acres of Farmland of Statewide Importance. Farmland protection boards are actively conserving land in the watershed. The threat of conversion, however, is not drastic.
Riparian Area	There are riparian areas present in or near the project area. Riparian areas found in this region are generally characterized as vegetated and un-vegetated. These areas are often utilized for agricultural purposes.
Scenic Beauty	Areas of potential scenic beauty in this watershed are typical of the Ridge and Valley physiographic province and common to the region.
Wetlands	There are 1,601 acres of wetlands within the Knapp Creek Watershed which consist of the following: 169 acres of Freshwater Emergent Wetlands; 423 acres of Freshwater Forested/Shrub Wetlands; 28 acres of Freshwater Pond; 9 acres of Other; and 972 acres of Riverine. Data collected from the US Fish and Wildlife Service National Wetlands Inventory.

Wild and Scenic	No designated Wild and Scenic Rivers are in or near the project area.
Rivers	All trout streams are designated as "Waters of Special Concern" in Pocahontas County.
	Rivers within the Monongahela National Forest designated as National Wild and
	Scenic Study Rivers. The Greenbrier River from its confluence with Knapps Creek to its
	confluence with the New River is protected from activities that would impound,
	divert, or flood the body of water as specified in the WV Natural Stream Preservation
	Act (WVNSPA).







# Knapp Creek Watershed National Wetlands Inventory





USDA is an equal opportunity provider, employer, and lender.

# Proposed Project Purpose and Need Statement

The purpose of the proposed project is to address resource concerns in the Knapp Creek Watershed where landowners and municipalities in flood prone areas are experiencing issues with flooding, watershed protection, agricultural water management, and public recreation. It is anticipated that the primary PL 566 project purpose will be flood prevention.

The Knapp Creek Watershed was the subject of a PL-83-566 project in the 1970s and the infrastructure from that completed plan is now past its planned service life, but it is still considered serviceable. Additionally, changes in climate and land use over the last 50 years have resulted in flooding in the watershed that may not have been accounted for in the original design of the watershed plan and could potentially be addressed now.

#### Resource Concerns and Opportunities

The Federal Objective or the goal for the planning study according to the Principles, Requirements, and Guidelines for Water and Land Related Resources Implementation Studies (PR&G) is a water resources project that reflects national priorities, protects the environment, and encourages economic development. The Marlin Creek watershed contains water resources concerns and opportunities that offer the potential for a watershed project that achieves the Federal Objective.

Resources	Concerns	Opportunities
Water	<ul> <li>Flooding</li> <li>Impact of excessive nutrients on surface waters</li> </ul>	<ul> <li>Reduce flood impacts</li> <li>Protect, improve water quality</li> <li>Reduce erosion and sediment</li> <li>Improve farming profitability</li> <li>Enhance recreation</li> <li>Improve nutrient management at farming operations</li> </ul>
Soil	<ul> <li>OM depletion is likely due to soil loss, compaction resulting in reduced infiltration on agricultural lands and urban lands, impervious surfaces. Erosion on farms is most likely from overgrazing and bare soil areas.</li> </ul>	<ul> <li>Reduce impacts to soils and improve soil health</li> </ul>
Air	No air quality issues present	Monitor state air data for potential issues
Plant	Lack of plant species diversity and presence of invasive species.	<ul> <li>Increase of plant diversity with the establishment of native regionally appropriate species.</li> </ul>
Animals	Lack of game and non-game species     diversity and habitat diversity	<ul> <li>Provide appropriate game and non- game habitat.</li> </ul>

Energy	<ul> <li>Potential damage to energy infrastructure from flooding</li> <li>Reported water pumping issues during flood operations</li> </ul>	<ul> <li>Efficiencies in energy use</li> <li>Improvements to air quality</li> </ul>
Human	<ul> <li>Decreasing population due to diminishing living standards</li> <li>Labor shortages and declining tax base</li> </ul>	Improvements to quality of life
Recreation	<ul> <li>Lack of recreational access</li> <li>Underutilization of water-based recreation potential</li> </ul>	<ul> <li>Increase accessibility to recreation for local residents</li> <li>Increased water recreation opportunities that help overcome historical barriers to water-based recreation for aging and disabled populations</li> </ul>
Environmental Justice	<ul> <li>Flooding</li> <li>Declining tax revenues for towns</li> </ul>	Overcome barriers to economic and human development
Cultural Resources / Historic Properties	• Full range of archaeological sites (Paleo- Indian to recent past) and historic properties eligible for listing on the National Registry of Historic Places	Tribal and SHPO consultation

#### Potential Effects of Proposed Alternatives on SWAPA + E + H Resources and Resources of Special Concern

**Use:** + - **Positive Impact** - - **Negative Impact** 0 - **No Impact** (\*-effects for Alt 2 unknown at this stage)

	Resource Concerns: SWAPA + Energy	y + Human
	Alt 1 – No Federal Action: Description: The sponsor does not implement any watershed measures using Federal funds	Alt 2 – All other alternatives: Description: Combination of structural and nonstructural measures using federal funds
Soil	-	*
Water	-	*
Air	0	*
Plants	-	*
Animals	-	*
Energy	0	*
Human	-	*
Clean Air Act	0	*
Clean Water Act/Waters of the U.S.	0	*
Coastal Zone Management	0	0
Coral Reefs	0	0
Cultural Resources/Historic Properties	0	*
Endangered & Threatened Species	0	*
Environmental Justice	0	*
Essential Fish Habitat	0	0
Floodplain Management	0	*
Invasive Species	0	*
Migratory Birds/Bald and Golden Eagle Protection Act	0	*
Natural Areas	0	*

\* - Effects for Alt 2 unknown at this time

## Opportunities

Opportunities exist to provide watershed protection, reduce flooding, manage excessive nutrients, and enhance recreational opportunities. There are opportunities to rehabilitate the existing Knapp Creek watershed structure to bring it up to current standards and extend its service life. The sponsors are willing to participate in the PL-566 program, allowing NRCS to potentially implement a combination of structural practices, non-structural practices, and land treatment measures that are designed to address resource concerns.

# State, Tribal, Federal Stakeholder Engagement

Notification letters were sent out to the Greenbrier Conservation District, West Virginia Conservation Agency, and key federal agencies, as described in Executive Order 10584 Section 3, on April 19, 2023. There are known cultural, archaeological, and historically significant resources throughout the watershed. Consultation with Tribal Nations, West Virginia State Historic Preservation Officer, and other interested parties with vested interests in a yet to be determined area of potential effect will be conducted according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.

Tribal Name	Date Sent	
Monacan Indian Nation	August 1 <sup>st</sup> , 2023	

#### Potential Alternatives

During the PIFR process, measures were identified to meet the stated purpose and need for the proposed project and alternatives were formulated according to PR&G criteria of completeness, effectiveness, efficiency, and acceptability. While all the potential alternatives listed may not be carried forward for full analysis during the planning process, this table documents that there are reasonable alternatives available to analyze and develop. The WV planning team also recognizes that during the planning process the NRCS team and local sponsors are likely to determine that the best alternative for the watershed is a combination of both nonstructural and structural measures. The Watershed Rehabilitation Program may be used for funding any necessary upgrades to watershed structures.

Alternatives	Possible Positive Impacts and Effects	Possible Adverse Impacts and Effects
Alt 1 - No work	-No new costs to taxpayers or sponsors -No new maintenance requirements	-No flood protection -No public works project(s) -Structures remain out of compliance -Hazard to public and infrastructure increases -Maintenance becomes more expensive
Alt 2 -New Flood Control Dams- Installation of additional flood control dams in the watershed to increase flood protection	-Increased flood protection -Recreation opportunities -Water supply, rural, ag, municipal, & industrial -Aquatic habitat	-Loss of private land through condemnation/easements -Loss of local tax base -Loss of farmland and/or terrestrial habitat

	-Short term construction jobs -Increased federal investment into local infrastructure -Increased public safety -Possible power generation capabilities included -Ag water management	-Loss of stream habitat -Aquatic organism passage barrier -Long term maintenance burden on sponsors -Potential relocations of homes, roads, & utilities -May require some local cost share funds
Alt 3-New Flood Control Channel- Channelization work in heavier populated area of the watershed to increase flood protection	<ul> <li>-Increased flood protection in more urban areas</li> <li>-Short term construction jobs</li> <li>-Increased federal investment into local infrastructure</li> <li>-Reduce significant risk to loss of life</li> <li>-Provide maintenance easements alongside the constructed channel thus prohibiting future development in these areas and protecting existing urban wildlife habitat</li> </ul>	-Loss of private land through condemnation/easements -Long term maintenance burden on sponsors -Potential relocations of utilities -May require some local cost share funds -Loss of stream habitat & riparian areas -May only reduce flooding from higher frequency storms
Alt 4-Rehabilitation of existing NRCS structures in Watershed	<ul> <li>-Increased flood protection</li> <li>-Recreation opportunities</li> <li>-Water supply, rural, ag, municipal, &amp; industrial</li> <li>-Aquatic habitat</li> <li>-Short term construction jobs</li> <li>-Increased federal investment into local area infrastructure</li> <li>-Bring structures into compliance with</li> <li>WV DEP Dam Safety Regulations and current NRCS criteria</li> <li>-Increased public safety</li> <li>-Extend structure life</li> <li>-Possible reduction of long term maintenance costs</li> <li>-Possible power generation capabilities added</li> <li>-Ag water management</li> </ul>	-Require local cost share funds (35%) -May require additional easements -Continued maintenance by sponsors
Alt 5- Repair (Non-NRCS Driven)	-Continues flood protection -Continued present usage -Short term construction jobs -Continued public safety -Extend structure life -Possible reduction of long term maintenance costs	-May require additional easements -Continued maintenance by sponsors -Possibility of no federal funds -No current federal program for "repairs" -Repairs may not bring structures into compliance with WVDEP Dam Safety Regulations and current NRCS criteria

Alt 6 - Decommissioning of Structures	-Restoring stream and riparian habitat -No long term maintenance cost -Return of local tax base with land usage -Short term construction jobs -Majority or all federal funds -Re-introduction of natural occurring sediments back into the stream system	-Loss of flood protection -Some local funding may be required -Loss of recreation & water supply -Loss of aquatic habitat -Loss of several years of sediment storage from man made acts
Alt 7 - Stream Restoration	-Restoring stream and riparian habitat -Reduced long term maintenance cost -Short term construction jobs -Majority or all federal funds -Reduction in sediment and nutrients -Increased outdoor recreation -Relatively low cost -Improved water quality -Increase in fish and wildlife populations	-No flood protection -Requires a fenced and maintained riparian area for cattle exclusion -Possible loss of pasture due to fencing
Alt 8 - Land Treatment	-Restoring forests and ag land to their production potential -No long term maintenance cost -Majority or all federal funds -Reduction in sediment and nutrients -Increased outdoor recreation -Relatively low cost -Improved water quality -Increase in fish and wildlife populations -Typically voluntary programs	-No flood protection -No public works project(s)
Alt 9 - Green Infrastructure/Low Impact Development	-Decreased flash flood events -Aquatic habitat uplift -Aesthetic improvements -Reduction in sediment and nutrients -Improved water quality -Extend life of flood control structures -Permanent jobs maintaining structures -Possible retrofitting existing structures for hydro power generation	-Funds needed for maintenance -Minor loss of land -Maintenance burden on landowners/sponsors -Increased cost of development

Alt 11 - Land Treatment, Stream Restoration, Rehab, Repair, Channelization, Green Infrastructure, New Structures	-Huge amount of federal money provided -Several years of construction jobs -Improved flood protection, water quality,	-Combination of all of the above -Large amount of cost share required from local sponsors -Maintenance cost and burden increases
Alt 10- Floodplain Buyout, flood proofing affected homes, relocation of homes	-Elimination of threat to life and property. -Floodplain converted to nature conservatory including wetlands. -Increased wildlife habitat. -Enhanced learning and recreational opportunities	-Relocation of cemeteries and utilities. -Loss of cultural values in the community. -Displacement of local businesses, schools, and public facilities. -Increased resistance to relocation and property condemnation. -Increased cost of development.

#### Facilitating Factors

- The West Virginia Conservation Agency is willing to work with NRCS to see the project through completion.
- The existence of the 1970s Knapp Creek Watershed Project demonstrates the public benefits that are possible from an NRCS watershed project.

# **Obstructing Factors**

Maintenance of existing watershed project has been the responsibility of the Greenbriar Valley Conservation District and local governmental entities, with assistance from the WV Conservation Agency. Local funding is dependent on state appropriations and local government budgets.

# Environmental Document

Potentially viable alternatives to resource problems will be further defined in the next phase of planning. Additional needs such as recreation, watershed protection, or ag water management, will be assessed in more detail if planning is authorized. At this point in the planning process, the interdisciplinary team has determined that the Environmental Document for the project may be an Environmental Assessment. However, it is acknowledged that an Environmental Impact Statement could be required if significant or controversial issues arise during further planning.

#### Sponsors

The WVCA is ready, willing, and able to be sponsors for a potential watershed project in the Knapp Creek Watershed. They meet the PL 83-566 sponsorship criteria for this potential watershed project and have demonstrated success on past projects. All sponsors who take an active role in project will complete the WS-4, PIFR Sponsor Declaration form. A summary of the sponsor responses will be included in this section. Completed WS-4 - PIFR Sponsor Declaration is included in Appendix B.

Sponsor Will:	Assist in Planning	Land Rights / Eminent Doman	Local Cost Share	O/M Funds	Permits	Land Treatment	ln- Kind MOU
West Virginia Conservation Agency	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Sponsor will:

- Assist in the locally led planning effort.
- Obtain needed land rights including the use of power of eminent domain, if necessary.
- Provide local cost-share funds and/or in-kind services to provide the required portion of total project costs.
- Provide funds for continuing operation and maintenance actions.
- Obtain required permits and approvals at sponsor cost:
- Provide leadership to help ensure adequate conservation land treatment measures are maintained on at least 50% of the watershed area above retention reservoirs.
- Before being credited with the value of any in-kind contribution for any in-kind services and/or acquisition of land rights, sponsor will sign a Memorandum of Understanding (MOU) with NRCS. In-kind contributions are applicable only to Rehabilitation projects as outlined in 390 NWPM Part 505, Subpart D.

# Potential Cooperating Agencies

Agency	Contact Information	Type of Involvement
US Army Corps of Engineers	USACE – Baltimore District Planning Division Regulatory	Regulatory [X]
	Functions/Permits 2 Hopkins Plaza Baltimore, MD 21201 Planning: (401)	Informed [X]
	962-2809 Regulatory: (410) 962-3670	Prepare permits or letters of permission document [X]
		Provide input [X]
US Fish and Wildlife Services	USFWS	Regulatory [X]
	6263 Appalachian	Informed [X]
	Highway Davis, WV 26260 501-513-4470	Prepare permits or letters of
	FW5_WVFO@fws.gov	permission document [X]
		Provide input [X]
West Virginia Department of	WVDEP	Regulatory [X]
Environment Protection	601 57th Street SE Charleston, WV	Informed [X]
(WVDEP)	25304 (304) 926-0499	Prepare permits or letters of
		permission document [X]
		Provide input [X]
USDA Farm Service Agency	USDA-FSA 1550 Earl Core Road Morgantown,	Regulatory []
<u> </u>		Informed [X]
	WV 26505 (304) 284-4800	Prepare permits or letters of permission document []
		Provide input [ ]
West Virginia Historic Preservation	WVSHPO	Regulatory [X]
Office (WVSHPO)	Capitol Complex	Informed [X]
	1900 Kanawha Boulevard, East Charleston, WV 25305-0300 (304)	Prepare permits or letters of
	558-0220	permission document [X]
		Provide input [X]

# Potential Stakeholders

Stakeholder	Role	Resources	Contribution
West Virginia Conservation Agency	Sponsor	Cost-share funds	For Plan-EA attain permits and assists with public scoping meetings, mailings, and overall administration of the project
USDA-NRCS	Lead Agency for Plan- EA, FA/TA, Reviews	Funding assistance, Technical Reviews	Reviews for project location, inventory needs, Plan-EA supplement
Army Corps of Engineers (USACE)	Section 404 permit, Section 10 permit, and section 408 review	Technical Reviews, Wetlands-Waters of the U.S. Jurisdiction	Permitting, technical review
Monacan Indian Nation- Chief Diane Shields	Permit- Cultural Review	Review of Project APE	Permit for Project APE
West Virginia Historic Preservation Program (WVSHPO)	Permit- Cultural Review	Review of Project APE	Permit for Project APE
WVDEP	Permits	Review for Permits	Review for Permits
WVDNR	Partner	Review of Plan – ED	Review of Plan - ED

## Notifications

Key federal agencies were notified on April 19, 2023. If a watershed plan – environmental assessment is undertaken, the NRCS must notify publish a notice of intent to the public and notify key federal and state agencies as described in the National Watershed Manual. (Executive Order 10584 Section 3).

### Estimated Project Implementation Timeline Notifications

#### \*\*Dependent on funding

Alternative X (assumes 1 rehab site) funding dependent, multiple sites could be worked concurrently

Planning Start	October	2025
Planning End	October	2029 (36 months typically)
Design Start	December	2029
Design End	December	2031 (24 months typically)
Construction Start	March	2032
Construction End	November	2033 (~42 months typically)

#### Recommendation

This preliminary investigation and feasibility report has been completed and submitted for approval to: Jon Bourdon, West Virginia State Conservationist.

By:

Name: <u>Christi Hicks</u>\_\_\_\_\_ Title: <u>Assistant State Conservationist - Water Resources</u> Date: \_\_\_\_\_ Organization: <u>Natural Resources Conservation Service</u> (NRCS)

It has been determined that this potential PL-566 watershed operations project:

Does	Does	
Dues	Not	
$\boxtimes$		meet the statutory acreage, volume/capacity of structure and recreational limit requirements;
$\boxtimes$		meet the requirements of one or more Watershed Operations authorized purposes;
$\boxtimes$		have the potential for a minimum of 20% agricultural, or rural, benefits;
$\boxtimes$		have one or more viable alternatives;
$\boxtimes$		have potential project sponsor(s) that meet and agree to all terms of responsibilities;
	$\boxtimes$	have apparent insurmountable obstacles.

Preparer Signature	HANNAH Signature: THACKER Date: 2024.03.04 14:37:18 -05'	<sup>00</sup> Date:
State Watershed Operations Program Manager	Signature:	_ Date:
State Technical Lead (SRC, SCE, Other)	Signature:	_Date:

	Not recommended for planning funding
Х	Accepted and recommended for Planning Funding

State Conservationist	Signature:	 Date:	

#### Glossary

Rural – All territories of a State that are not within the outer boundary of any city or town that has a population of 50,000 or more according to the latest decennial census of the United States (2010 Census Urban and Rural Classification and Urban Area Criteria). [Source Title 390 – NWPM Part 506.50 Glossary, MMM]

#### Appendix

- Appendix A: Sponsor Letter of Request
- Appendix B: WS-4 PIFR Sponsor Declaration Forms
- Appendix C: Preliminary Environmental Evaluation (CPA 52)
- Appendix D: Forecasted NRCS Staffing Needs
- Appendix E: Supporting Information Appendix (T&E and Invasive Species)

Appendix A.

Sponsor Letter of Request



United States Department of Agriculture Natural Resources Conservation Service 1550 Earl Core Road, Suite 200 Morgantown, WV 26505

Phone: (304) 284-7540 Fax: (855) 857-6448

SUBJECT:	WFPO - PIFR - STC Request for Assistance	DATE:	January 14, 2022
TO:	Clint Evans Acting Deputy Chief of Programs	FILE:	390-11

Dear Acting Chief Evans:

NRCS-WV requests Federal assistance to complete a Preliminary Investigation Feasibility Report (PIFR) for a watershed plan for Knapp Creek Watershed in Pocahontas County 0505000304. The project would provide flood protection and may address other resource problems in this rural watershed. We are requesting \$55,000 to complete the PIFR.

We have reviewed preliminary information related to the proposed project and it appears to be viable, meets at least one PL-566 purpose, and has a viable Sponsor. We have sufficient staff available to assist in its completion within 12 months.

We look forward to completing the PIFR to provide reasonable assurance that the desired watershed project plan can be developed that addresses a PL-566 purpose and that there are no apparent insurmountable obstacles. This will assist in the determining whether to recommend or not recommend the project for Planning funding in the future.

Sincerely,

JON BOURDON State Conservationist

cc: Pamela Yost, Watershed Economist, Morgantown, WV Donny Dodd, Water Resources Planning Specialist, Morgantown, WV Michele Belcher, Watershed Planner (Contractor), Morgantown, WV





January 14, 2022

Jon Bourdon State Conservationist Natural Resources Conservation Service 1550 Earl Core Road, Suite 200 Morgantown, WV 26505

Dear Jon:

The West Virginia Conservation Agency respectfully requests Natural Resources Conservation Service Watershed Program planning assistance for several potential Public Law (PL) 83-566 projects and one PL-534 project in West Virginia.

Each of these watersheds contain high-hazard, small watershed flood-control structures, and several have exceeded their service life. Due to downstream development in the intervening years, hazard classifications on several of these dams have increased from significant to high.

The WVCA would like NRCS to evaluate the following structures to determine if additional structures may benefit the watershed by providing increased flood control, public water supply, and recreational opportunities.

#### **PL-566 Projects**

Salt Lick Creek Watershed	HUC	0503020303
Harmon Creek Watershed	HUC	0503010111
Upper Deckers Creek Watershed	HUC	0502000302
Upper Grave Creek	HUC	0503010608
New Creek Watershed	HUC	0207000204
Knapp Creek Watershed	HUC	0505000304
Mill Creek Watershed	HUC	0503020206
Dave Fork-Christian Fork Watershed	HUC	0505000205
Salem Fork Watershed	HUC	0502000205
Polk Creek Watershed	HUC	0502000201
• Upper Buffalo Creek Watershed	HUC	0502000303
-531 Projects		

#### **PL-534 Projects**

Warm Springs Run Watershed

HUC 0207000405
### NRCS PL566, 534 Planning Page 2 January 14, 2022

We also understand the following requirements of sponsorship:

- This is a local project and the role of USDA-NRCS is to provide technical and financial assistance to the local sponsor in order to carry out the project. As a local sponsor, we will be engaged in the planning process and decision-making aspects of these projects.
- Several guidance documents will be jointly developed throughout this project that define the roles and responsibilities of the local sponsors and NRCS. These documents may include a Memorandum of Understanding, a Watershed Agreement, and a Project Agreement. Additional documents may be developed as agreed to by all parties.
- Local sponsors are responsible, if necessary, for obtaining real property rights associated with these projects.
- Local sponsors are responsible for the non-federal cost share funds of these projects and commit to obtaining the non-federal match.

The WVCA looks forward to working with NRCS to complete a Preliminary Investigation Feasibility Report (PIFR). If you have any questions, please contact Gene Saurborn, WVCA Watershed Projects Director, at our Morgantown Field Office, 201 Scott Avenue, Morgantown, WV 26508. Phone: 304 285-3118

Sincerely,

m

Brian Farkas Executive Director

cc: Don Dodd, Pam Yost, Julie Stutler, NRCS; Gene Saurborn, WVCA

Appendix B.

PIFR Sponsor Declaration Forms

Watershed Programs Standard Memorandum Preliminary Investigation – Feasibility Report Sponsor Authority and Role Declaration

State:	WV	County:	Pocahontas	Watershed:	Knapp Creek
-					

Project Name: Knapp Creek WATERSHED

Sponsor's Name	: WEST VI	RGINIA CON	GINIA CONSERVATION AGENCY				
Sponsor's Mailin	ng Address:		900 Kanawha Blvd., East Fax: (304) 558-1635 Charleston, WV 25305				
Contact Name:	GENE SAU	RBORN		Phone:	304-285-3118		
Title:	Director of V Programs	Vatershed	Email:	<u>gsaurbo</u>	rn@wvca.us		
Sponsor Website:	https://www	.wvca.us					

## Description of the existing condition in the watershed that would be addressed through a Watershed Flood Prevention Operations program project.

Frequent flooding occurs in the Knapp Creek Watershed. The flooding causes severe damages to neighborhood areas, crops. and infrastructure located in the floodplain. Sediment laden runoff on the surrounding areas is reducing the capacity of the creeks and drainage ditches to carry flood flows. Previously completed watershed projects are past their service life and O&M obligations and aren't functioning to full design capabilities. There is a need to provide reduction in floodwater damages and sediment being delivered into the Knapp Creek Watershed.

#### Potential benefits of a Watershed Flood Prevention Operations program project.

Benefits of a project could provide watershed protection and agricultural water management by reducing floodwater damages, erosion and sediment loading to intensified agricultural areas, residential, and infrastructure in the Knapp Creek Watershed located in Pocahontas County.

#### SPONSOR WILL

### Watershed Programs Standard Memorandum Preliminary Investigation – Feasibility Report Sponsor Authority and Role Declaration

State:	WV	County:	Pocahontas	Watershed:	Marlin Run	
Project	Name:	MARLIN	RUN WATERSHED			
•	Assist i	n the locall	y led planning effort:	:	YES X	NO
•			nd rights including th if necessary:	e use of power of	YES <u>X</u>	NO
٠			share funds and/or i ed portion of total p		YES X	NO
•	Provide actions		continuing Operatio	n and Maintenance	YES X	NO
•	Obtain	required p	ermits and approvals	s at Sponsor cost:	YES X	NO
•	adequa measu	ate conserv res are mai watershed	o to help ensure ation land treatment ntained on at least 5 area above retention	0% N/A <u>^</u>	YES	NO
•	contrib land rig	ution for a ghts, Spons	ited with the value o ny in-kind services ar or will sign a Memora IOU) with NRCS:	nd/or acquisition of	YES X	NO
Autho	rized Rep	resentative	of Sponsor			
Name	(printed)	Brian	Farkas	Title: Execut	ive Dire	ctor
	ure: Brian	21~	2 10:04 EDT)	Date	Oct 28,	2022

Appendix C.

Preliminary Environmental Evaluation (CPA 52)

U.S. Department of Agriculture Natural Resources Conservation Se		-CPA-52 11/2019	A. Client Name: West V	/irginia	a Conservation Agency	
	VALUATION WORKSHE	ET	B. Conservation Plan ID # (as Program Authority (opt		,	
D. Client's Objective(s) (pu The purpose of this project is to provide the purpose of this project is to provide the purpose of the purpos	rovide watershed protection and agri ood water damages, erosion and	icultural	C. Identification # (farm, trac Marlin Run Watershed, Pocahontas Part of 10-digit HUC (0505000302,	t, field County	#, etc. as required) <b>:</b> /, WV	
E. Need for Action:	H. Alternatives					
of deteriorating infrastructure and potential loss of flood protection, incidental recreation, rural water supply, and other amenities associated with existing impoundments. Previously completed watershed projects	maintenance on existing structures, consisting only of mowing and brusl clearing. Structures would continue deteriorate and flood protection wou compromised. Water supply would	trict to to still be still be	assistance through the Watershed	on of on. nancial t would proved mland,	Alternative 2 √ if RMS New Flood Control Channel- Channelization work in more heavily populated areas of the watershed to increase flood protection. Focused f for technical and financial assistanc through the Watershed Protection a Flood Prevention Act would result i reduced sedimentation, improved w quality, protection of prime farmlance reduce significant loss of life in the I Run Watershed.	y funding ee ind n vater I, and
	R	esou	rce Concerns			
		erns i	dentified through the Resourc	ces Inv	rentory process.	
F. Resource Concerns	I. Effects of Alternatives					
and Existing/ Benchmark	No Action		Alternative 1		Alternative 2	
Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	Amount, Status, Description (Document both short and long term impacts)	√ if does NOT meet PC	Amount, Status, Description (Document both short and long term impacts)	√ if does NOT meet PC	Amount, Status, Description (Document both short and long term impacts)	√if does NOT meet PC
SOIL						
Sheet and rill erosion Sedimentation caused by erosion in the uplands of the watershed negatively impact Marlin Run and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages.	Continued degradation of the resource without any federal action.	NOT meet PC	Increased flood control and holding capacity would decrease sediment loading within streams and reduce flooding impacts on stream bank erosion due to reduced flows.	NOT meet PC	Channelization would reduce streambank erosion and sedimentation by protecting adjacent streambanks.	NOT meet PC
WATER	Desidences businesses and	1	Increased flood protection provided		Channelization would reduce the	
issue in the watershed with the	Residences, businesses, and agricultural lands would continue to endure periodic flooding as storm frequency and intensity trends continue.	NOT meet PC	Increased flood protection provided by additional flood retention dams would reduce impacts of flooding within the watershed.	NOT meet PC	Channelization would reduce the risk of flooding in more urban areas.	NOT meet PC

Sediment transported to surface water Sedimentation caused by erosion in the uplands of the watershed negatively impact Marlin Run and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events.	degredated. Frequent flooding will continues to scour streambanks, increasing sedimentation within streams and reducing channel capacity.	NOT meet PC	Increased flood control and holding capacity would decrease sediment loading within streams and reduce flooding impacts on stream bank erosion due to reduced flows.	NOT meet PC	Channelization would reduce streambank erosion and sedimentation by protecting adjacent streambanks.	NOT meet PC
Nutrients transported to surface water Water quality is negatively affected by nutrients, failing septic systems, and runoff from rural landscapes within the watershed. Many streams within the watershed have elevated levels of fecal coliform from pasture/cropland, failing septic systems, and residential stormwater sources.	Continued degradation of the resource without any federal action.	NOT meet PC	Increased flood protection provided by additional flood retention dams would reduce impacts of flooding within the watershed. The risk of flood waters entering homes, businesses, and livestock feeding operations causing debris and other nutrients transported down the watershed would be reduced.	NOT meet PC	The creation of the channel would likely result in the need for flood plain easements on properties adjacent to the streams that may not have functioning septic systems, thus reducing the fecal coliform in the stream.	NOT meet PC
F. Resource Concerns	I. (continued)		Alternative 4		Altermetive 2	
and Existing/ Benchmark Conditions	No Action	,	Alternative 1	,	Alternative 2	,
(Analyze and record the existing/benchmark conditions for each identified concern)	Amount, Status, Description (Document both short and long term impacts)	√ if does NOT meet PC	Amount, Status, Description (Document both short and long term impacts)	√ if does NOT meet PC	Amount, Status, Description (Document both short and long term impacts)	√ if does NOT meet PC
AIR No resource concern identified Air quality is not a resource concern within the watershed	Air quality would not be impacted with no action.		Air quality may be slightly adversely impacted locally during construction activities (dust and		Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction	
		NOT meet PC	exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary.		equipment). The increases are expected to remain well within the air quality standards and would be temporary.	NOT meet PC
PLANTS		meet	equipment). The increases are expected to remain well within the air quality standards and would be temporary.	meet	equipment). The increases are expected to remain well within the air quality standards and would be temporary.	meet
PLANTS Plant structure and composition The watershed provides for both agricultural crops as well as naturally vegetated areas that provide wildlife habitat. There is a lack of plant species diversity, specifically along streams in riparian areas, and a presence of invasive species.	Agricultural crops and wildlife habitat would continue to be impacted by flooding.	meet	equipment). The increases are expected to remain well within the air quality standards and would be	meet	equipment). The increases are expected to remain well within the air quality standards and would be	meet

Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively effecting aquatic fish and invertebrate species habitat.	Continued degradation of the resources with continued sedimentation in the stream negatively impacting aquatic invertebrate habitat.	NOT meet PC	Aquatic habitat would be improved downstream of structures due to reduced sedimentation. Dams could pose a threat to aquatic habitat by restricting passage, depending on location in the watershed.	NOT meet PC	Potential to negatively impact stream structure and habitat for aquatic species. Riparian areas could be decrease in some areas but enhanced in others though the removal of structures along stream and future protection of the areas through conservation easements.	NOT meet PC
ENERGY						
No resource concern identified	No effect		Hydroelectric power generation		No effect	
This area has various electrical,			could be included as an element in			
oil, and gas transmission		NOT	the design of the structures to provide clean energy to the region.	NOT		NOT
facilities.		meet	provide clean energy to the region.	meet PC		meet
		PC		PC		PC
Human Economic and Soc Public Health and Safety	al Considerations Agricultural landowners, residents,	local	Installation of additional structures v	would	Channelization would increase floor	4
Damaging floods occur on an	businesses, transportation systems		increase flood protection of the cou		protection in more urban areas, creater	
annual basis with increasing	emergency services will continued t		residences and business. It would a		short term jobs during construction,	
severity over the past few	negatively affected by continued flo	oding.	provide the opportunity for rural wat		reduce significant risk to loss of life,	
decades. Flooding impacts residents' access to emergency			supply, recreation opportunities, and short term creation of jobs during	da	however it may only reduce flooding higher frequency storm events.	g from
services, results in loss of land,			construction.		nigher frequency storm events.	
and creates unsanitary						
conditions in effected residences						
and businesses.						
Special Env	vironmental Concerns: E	Envir	onmental Laws, Executi	ve Or	rders, policies, etc.	
In Section "G" complete an	d attach Environmental Proc	edures	s Guide Sheets for documenta	ation a	s applicable. Items with a "•	" may
			the lead agency and another			5,
		anothe	er agency. Planning and prac	tice im	plementation may proceed fo	or
practices not involved in co				tice im	plementation may proceed fo	or
practices not involved in co	onsultation	onmen			plementation may proceed fo Alternative 2	
G. Special Environmental Concerns (Document existing/	J. Impacts to Special Enviro No Action Document all impacts	onmen √if	tal Concerns Alternative 1 Document all impacts	√ if	Alternative 2 Document all impacts	√ if
G. Special Environmental Concerns	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as	onmen	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as		<i>Alternative 2</i> Document all impacts (Attach Guide Sheets as	
<b>G. Special Environmental</b> <b>Concerns</b> (Document existing/ benchmark conditions)	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable)	onmen √if needs	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as applicable)	√ if needs	<b>Alternative 2</b> Document all impacts (Attach Guide Sheets as applicable)	√ if needs
•Clean Air Act	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as	√ if needs further	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as applicable) May Affect	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect	√ if needs further
Clean Air Act     Guide Sheet	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable)	√ if needs further	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or	√ if needs further	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or	√ if needs further
•Clean Air Act	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable)	√ if needs further	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The	√ if needs further
Clean Air Act     Guide Sheet     The watershed is not involved in cr     G. Special Environmental     Concerns     (Document existing/     benchmark conditions)     •Clean Air Act     Guide Sheet     The watershed is not in an area	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable)	√ if needs further	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or	√ if needs further
G. Special Environmental     Concerns     (Document existing/     benchmark conditions)     •Clean Air Act <i>Guide Sheet</i> The watershed is not in an area     recognized for regularly having	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable)	√ if needs further	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not	√ if needs further
G. Special Environmental     Concerns     (Document existing/     benchmark conditions)     •Clean Air Act <i>Guide Sheet</i> The watershed is not in an area     recognized for regularly having     impaired air quality or significant	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable)	√ if needs further	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards.	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards.	√ if needs further
G. Special Environmental     Concerns     (Document existing/     benchmark conditions)     •Clean Air Act <i>Guide Sheet</i> The watershed is not in an area     recognized for regularly having     impaired air quality or significant	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable)	√ if needs further	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the	√ if needs further
G. Special Environmental     Concerns     (Document existing/     benchmark conditions)     •Clean Air Act <i>Guide Sheet</i> The watershed is not in an area     recognized for regularly having     impaired air quality or significant	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable)	√ if needs further	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards.	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards.	√ if needs further
G. Special Environmental Concerns (Document existing/ benchmark conditions)     •Clean Air Act <i>Guide Sheet</i> The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues.	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable) No Effect	√ if needs further	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	√ if needs further
Oracticos pot involved in cr G. Special Environmental Concerns (Document existing/ benchmark conditions) •Clean Air Act <i>Guide Sheet</i> The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues. •Clean Water Act / Waters of the	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable) No Effect	v if needs further action	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification. May Affect	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	√ if needs further action
Oracticos pot involved in cr     G. Special Environmental     Concerns     (Document existing/     benchmark conditions)     •Clean Air Act <i>Guide Sheet</i> The watershed is not in an area     recognized for regularly having     impaired air quality or significant     air quality issues.     •Clean Water Act / Waters of the     U.S.	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable) No Effect	√ if needs further	Alternative 1         Alternative 1         Document all impacts (Attach Guide Sheets as applicable)         May Affect       It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.         May Affect       Installation of any water control	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification. May Affect Installation of any structures within	√ if needs further
Clean Water Act / Waters of the U.S.     Guide Sheet	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable) No Effect	v if needs further action	tal Concerns Alternative 1 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification. May Affect	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.	√ if needs further action
Clean Water Act / Waters of the U.S.     Guide Sheet	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable) No Effect	v if needs further action	Alternative 1         Alternative 1         Document all impacts (Attach Guide Sheets as applicable)         May Affect       It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.         May Affect       Installation of any water control structures will involve the	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification. May Affect Installation of any structures within the stream that will involve the	√ if needs further action
Clean Water Act / Waters of the U.S.     Guide Sheet     Permitted actions may involve or fill	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable) No Effect	v if needs further action	Alternative 1         Document all impacts (Attach Guide Sheets as applicable)         May Affect         It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.         May Affect         Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification. May Affect Installation of any structures within the stream that will involve the placement of fill material in streams and must comply with all applicable local, state, and federal	√ if needs further action
Clean Water Act / Waters of the U.S.     Guide Sheet     Permitted actions may involve or fill material in or other pollutants	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable) No Effect	v if needs further action	Alternative 1         Document all impacts (Attach Guide Sheets as applicable)         May Affect         It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.         May Affect         Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification. May Affect Installation of any structures within the stream that will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require	√ if needs further action
Clean Water Act / Waters of the U.S.     Guide Sheet     Permitted actions may involve or likely result in the discharge or placement of dredged or fill material in or other pollutants into waters of the US.	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable) No Effect	v if needs further action	Alternative 1         Alternative 1         Document all impacts (Attach Guide Sheets as applicable)         May Affect       It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.         May Affect       Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification. May Affect Installation of any structures within the stream that will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained	√ if needs further action
Clean Water Act / Waters of the U.S.     Guide Sheet     Permitted actions may involve or fill material in or other pollutants	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable) No Effect	v if needs further action	Alternative 1         Alternative 1         Document all impacts (Attach Guide Sheets as applicable)         May Affect       It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.         May Affect       Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins.	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification. May Affect Installation of any structures within the stream that will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins.	√ if needs further action
G. Special Environmental Concerns (Document existing/ benchmark conditions)     •Clean Air Act <i>Guide Sheet</i> The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues.     •Clean Water Act / Waters of the U.S. <i>Guide Sheet</i> Permitted actions may involve or likely result in the discharge or placement of dredged or fill material in or other pollutants into waters of the US. Ephemeral, intermittent, and	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable) No Effect	v if needs further action	Alternative 1         Alternative 1         Document all impacts (Attach Guide Sheets as applicable)         May Affect       It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.         May Affect       Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification. May Affect Installation of any structures within the stream that will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained	√ if needs further action
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<ul> <li>Clean Air Act <ul> <li>Guide Sheet</li> </ul> </li> <li>Clean Air Act <ul> <li>Guide Sheet</li> </ul> </li> <li>Clean Air Act Guide Sheet</li> <li>The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues.</li> </ul> <li>Clean Water Act / Waters of the U.S. <ul> <li>Guide Sheet</li> </ul> </li> <li>Permitted actions may involve or likely result in the discharge or placement of dredged or fill material in or other pollutants into waters of the US. <ul> <li>Ephemeral, intermittent, and perennial streams and certain wetlands will be considered as waters of the US. Mitigation for unavoidable impacts should be</li> </ul></li>	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable) No Effect	v if needs further action	Alternative 1         Alternative 1         Document all impacts (Attach Guide Sheets as applicable)         May Affect       It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.         May Affect       Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation for stream impacts may	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification. May Affect Installation of any structures within the stream that will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation for stream impacts may	√ if needs further action
<b>Clean Water Act / Waters of the US. Clean Water Act / Waters of the US. Clean Water Act / Waters of the US. Clean Water Act / Waters of the US. Example the US. Example the US. Example the US. Explanation of the US. Mathematication of the US. Explanation of the US. Mathematication of the US. Mathmatrix of the US. Mathematication of </b>	J. Impacts to Special Enviro No Action Document all impacts (Attach Guide Sheets as applicable) No Effect	v if needs further action	Alternative 1         Alternative 1         Document all impacts (Attach Guide Sheets as applicable)         May Affect       It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.         May Affect       Installation of any water control structures will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation for stream impacts may	√ if needs further action	Alternative 2 Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification. May Affect Installation of any structures within the stream that will involve the placement of fill material in streams and must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins. Mitigation for stream impacts may	√ if needs further action

<ul> <li>Coastal Zone Management</li> </ul>	No Effect	No Effect	No Effect	
Guide Sheet	NO Ellect			
There are no costal zones				
present in or near the watershed.				
present in or near the watershed.				
Coral Reefs	No Effect	No Effect	No Effect	
Guide Sheet				
There are no coral reefs present				
in or near the watershed.				
Cultural Resources / Historic	No Effect	May Affect	May Affect	
Properties		Consultation with Tribal Nations,	Consultation with Tribal Nations,	
Guide Sheet		West Virginia State Historic	West Virginia State Historic	
There are known cultural,		Preservation Office (SHPO), and	Preservation Office (SHPO), and	
archeological, and historically		other interested parties will be	other interested parties will be	
significant resources throughout		conducted in according to Section	conducted in according to Section	
the watershed. Consultation with		106 of the National Historical	106 of the National Historical	
Tribal Nations, West Virginia		Preservation Act (NHPA) of 1966,	Preservation Act (NHPA) of 1966,	
State Historic Preservation		as amended.	as amended.	
Officer, and other interested				
parties with vested interests in a	1			
yet to be determined area of				
potential effect will be conducted				
according to Section 106 of the				
National Historical Preservation				
Act (NHPA) of 1966, as				
amended.				
<ul> <li>Endangered and Threatened</li> </ul>		May Affect	 May Affect	
Species	No action may have the potential	The structural alternative is not	The structural alternative is not	
Guide Sheet	to negatively impact federally listed	expected to create an adverse	expected to create an adverse	
There is a total of 11 Federally	aquatic species through continued	impact to threatened, endangered,	impact to threatened, endangered,	
listed threatened, endangered, or	sedimentation and habitat	or rare species. Federal, state,	or rare species. Federal, state,	
candidate species potentially	destruction.	and local wildlife agencies will be	and local wildlife agencies will be	
found in this watershed listed by		consulted prior to construction.	consulted prior to construction.	
the US Fish and Wildlife Service				
(USFWS). According to West				
Virginia Department of Natural				
Resources (WVDNR), WV is a				
permanent home to 22 federally				
endangered species (17 animals,				
4 plants) and 7 federally				
threatened species (5 animals, 2				
plants). WVDNR's State Wildlife	1			
Action Plan (SWAP) recognizes	1			
22 Conservation Focus Areas				
(CFA) throughout the state that				
includes Species of Greatest				
Conservation Need (SGCN). See				
Appendix E for a complete				
USFWS IPaC Species list,				
WVDNR state listings, map of				
WVDNR state listings, map of WV CFAs, and a list of SGCN for				
WV CFAs, and a list of SGCN for				

Environmental lustice					
Environmental Justice	No Effect		No Effect	No Effect	
Guide Sheet	1		No negative impacts are	No negative impacts are	
Pocahontas County is completely			anticipated. The project would	anticipated. The project would	_
within the Appalachian Region.	1		benefit historically underserved	benefit historically underserved	
This county is not designated as			residents, landowners, and	residents, landowners, and	
a limited resource county by			communities.	communities.	
USDA. However, it is					
designated as 'at-risk' by the					
Appalachian Regional					
Commission, indicating the	4				
economy is struggling.					
Pocahontas County is 97% white	4				
and 2% black. Other races					
make up less than 1% of the					
county population. The poverty					
rate in Pocahontas County is	1				
18.1% compared to the WV rate	1				
of 15.8% and the national rate of	1				
11.4%.					
	1				
	1				
<ul> <li>Essential Fish Habitat</li> </ul>	No Effect		No Effect	No Effect	
Guide Sheet					
This area is not designated as					
Essential Fish Habitat.					
Floodplain Management	No Effect		May Affect	May Affect	
Guide Sheet	Continued risk of flooding.		This alternative will result in the	This alternative will result in the	
Pocahontas county has a major	4		protection of the floodplain due to	protection of the floodplain due to	
				protoculori of the neouplain and to	
risk of flooding over the next few	1		decreased flooding impacts.	decreased flooding impacts	
risk of flooding over the next few decades.					
decades.			decreased flooding impacts.	decreased flooding impacts	
decades. Invasive Species	No Effect		decreased flooding impacts. May Affect	decreased flooding impacts May Affect	
decades. Invasive Species <i>Guide Sheet</i>	Continued expansion on invasive		decreased flooding impacts. May Affect Invasive species occur within the	decreased flooding impacts May Affect Invasive species occur within the	
decades. Invasive Species <i>Guide Sheet</i> Invasive species are found in the	Continued expansion on invasive		decreased flooding impacts. May Affect	decreased flooding impacts May Affect Invasive species occur within the watershed. Care would be taken	
decades. Invasive Species <i>Guide Sheet</i>	Continued expansion on invasive		decreased flooding impacts. May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in	decreased flooding impacts May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in	
decades. Invasive Species <i>Guide Sheet</i> Invasive species are found in the watershed.	Continued expansion on invasive species.		decreased flooding impacts. May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas	decreased flooding impacts May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas	
decades. Invasive Species <i>Guide Sheet</i> Invasive species are found in the watershed. •Migratory Birds/Bald and	Continued expansion on invasive		decreased flooding impacts. May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbad areas No Effect	decreased flooding impacts May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas No Effect	
decades. Invasive Species <i>Guide Sheet</i> Invasive species are found in the watershed. •Migratory Birds/Bald and Golden Eagle Protection Act	Continued expansion on invasive species.		decreased flooding impacts. May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbad areas No Effect Actions will not result in intentional	decreased flooding impacts May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbad areas No Effect Actions will not result in intentional	
decades. Invasive Species <i>Guide Sheet</i> Invasive species are found in the watershed. •Migratory Birds/Bald and Golden Eagle Protection Act <i>Guide Sheet</i>	Continued expansion on invasive species. No Effect		decreased flooding impacts. May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas No Effect Actions will not result in intentional or unintentional take of any	decreased flooding impacts May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbad areas No Effect Actions will not result in intentional or unintentional take of any	
decades. Invasive Species <i>Guide Sheet</i> Invasive species are found in the watershed. •Migratory Birds/Bald and Golden Eagle Protection Act <i>Guide Sheet</i> Migratory birds and eagles utilize	Continued expansion on invasive species. No Effect		decreased flooding impacts. May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbad areas No Effect Actions will not result in intentional	decreased flooding impacts May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbad areas No Effect Actions will not result in intentional	
decades. Invasive Species <i>Guide Sheet</i> Invasive species are found in the watershed. •Migratory Birds/Bald and Golden Eagle Protection Act <i>Guide Sheet</i> Migratory birds and eagles utilize the Marlin Run Watershed	Continued expansion on invasive species. No Effect		decreased flooding impacts. May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas No Effect Actions will not result in intentional or unintentional take of any	decreased flooding impacts May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbad areas No Effect Actions will not result in intentional or unintentional take of any	
decades. Invasive Species <i>Guide Sheet</i> Invasive species are found in the watershed. •Migratory Birds/Bald and Golden Eagle Protection Act <i>Guide Sheet</i> Migratory birds and eagles utilize	Continued expansion on invasive species. No Effect		decreased flooding impacts. May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas No Effect Actions will not result in intentional or unintentional take of any	decreased flooding impacts May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbad areas No Effect Actions will not result in intentional or unintentional take of any	
decades. Invasive Species <i>Guide Sheet</i> Invasive species are found in the watershed. •Migratory Birds/Bald and Golden Eagle Protection Act <i>Guide Sheet</i> Migratory birds and eagles utilize the Marlin Run Watershed	Continued expansion on invasive species. No Effect		decreased flooding impacts. May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas No Effect Actions will not result in intentional or unintentional take of any	decreased flooding impacts May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbad areas No Effect Actions will not result in intentional or unintentional take of any	
decades. Invasive Species <i>Guide Sheet</i> Invasive species are found in the watershed. •Migratory Birds/Bald and Golden Eagle Protection Act <i>Guide Sheet</i> Migratory birds and eagles utilize the Marlin Run Watershed habitats. There is a total of 15	Continued expansion on invasive species. No Effect		decreased flooding impacts. May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas No Effect Actions will not result in intentional or unintentional take of any	decreased flooding impacts May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbad areas No Effect Actions will not result in intentional or unintentional take of any	
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decades. Invasive Species <i>Guide Sheet</i> Invasive species are found in the watershed. •Migratory Birds/Bald and Golden Eagle Protection Act <i>Guide Sheet</i> Migratory birds and eagles utilize the Marlin Run Watershed habitats. There is a total of 15 federally listed birds in the area. The birds listed are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC)	Continued expansion on invasive species. No Effect		decreased flooding impacts. May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas No Effect Actions will not result in intentional or unintentional take of any	decreased flooding impacts May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbad areas No Effect Actions will not result in intentional or unintentional take of any	
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Natural Areas	No Effect		No Effect		No Effect	
Guide Sheet						
Federal: The US Forest Service						
manages the Monongahela						
National Forest which lies						
partially within the Marlin Run						
Watershed.						
State: State: The West Virginia						
Division of Forestry manages						
Watoga State Park and West						
Virginia Division of Forestry						
manages Calvin Price State						
Forest, both located just						
southwest of the Marlin Run						
Watershed boundary. WVDOF						
also manages Seneca State						
Forest at the watershed's						
northern boundary.						
Prime and Unique Farmlands	No Effect		No Effect		No Effect	
Guide Sheet	Continued potential threat to loss		Alternative would provide		Alternative would provide	
Presently there are 3,386 acres	of prime farm land from		protection of prime farmland		protection of prime farmland	
of Prime Farmland, which	streambank erosion.		through the reduction of		through the reduction of	
accounts for 5% of land in the			streambank erosion.		streambank erosion.	
study area. Additionally, there						
are 3,441 acres of Farmland of						
Local Importance and 2,060						
acres of Farmland of Statewide						
Importance. Farmland protection						
boards are actively conserving						
land in the watershed. The						
threat of conversion, however, is						
not drastic.						
Riparian Area			NA Affa		NA A.#	
Guide Sheet	No Effect		May Affect	_	May Affect	_
There are riparian areas present	Continued degradation of riparian		There are riparian areas present		There are riparian areas present	
			in or near the project area and may		in or near the project area and may	
in or near the project area. Riparian areas found in this	invasive species dominate		have the potential to be impacted.		have the potential to be impacted.	
	regrowth.					
region are generally						
characterized as vegetated and						
un-vegetated. These areas are						
often utilized for agricultural						
purposes.						
Coordia Descritor						
Scenic Beauty	No Effect		No Effect		No Effect	
Guide Sheet			Action is not likely to negatively		Action is not likely to negatively	
Areas of potential scenic beauty			affect the scenic beauty of the area		affect the scenic beauty of the area	
in this watershed are typical of			or alter the unique landscapes of		or alter the unique landscapes of	
the Ridge and Valley			the Ridge and Valley physiographic		the Ridge and Valley physiographic	
physiographic province and			province.		province.	
common to the region.						

<ul> <li>Wetlands</li> </ul>		No Effect		No Effect		No Effect	
Guide Sheet				Action is not likely to negatively		Action is not likely to negatively	
There are 1,601 a	acres of			impact any wetlands in the		impact any wetlands in the	
wetlands within th				watershed.		watershed.	
Watershed which	consist of the						
following: 169 acr	res of						
Freshwater Emer	gent Wetlands;						
423 acres of Fres	hwater						
Forested/Shrub V	Vetlands; 28						
acres of Freshwa	ter Pond; 9						
acres of Other; ar	nd 972 acres of						
Riverine. Data co	ollected from						
the US Fish and \	Nildlife Service						
National Wetland	s Inventory.						
<ul> <li>Wild and Scenic</li> </ul>	Rivers	No Effect		No Effect		No Effect	
Guide Sheet							
No designated W			_		_		
Rivers are in or no							
area. All trout stre							
designated as "W							
Concern" in Poca							
Rivers within the I	0						
National Forest de	•						
National Wild and Rivers. The Gree							
from its confluence							
Creek to its confluence							
New River is prote							
activities that wou							
divert, or flood the							
as specified in the							
Stream Preservat							
(WVNSPA).							
(							
K. Other Ager	ncies and	No Action		Alternative 1		Alternative 2	
Due ad Dublie	<b>O</b>	No Action		Alternative 1		Allemative Z	
Broad Public					ctures		
Easements, Perm	nissions, Public	None		Installation of any water control stru		New Flood Control Channel-	
Easements, Perm Review, or Permit	nissions, Public ts Required and	None		Installation of any water control stru will involve the placement of fill mat		New Flood Control Channel- Channelization work in more heavily	
Easements, Perm	nissions, Public ts Required and	None		Installation of any water control stru will involve the placement of fill mat streams and must comply with all	erial in	New Flood Control Channel- Channelization work in more heavily populated areas of the watershed to	
Easements, Perm Review, or Permit	nissions, Public ts Required and	None		Installation of any water control stru will involve the placement of fill mat streams and must comply with all applicable local, state, and federal l	erial in aws.	New Flood Control Channel- Channelization work in more heavily	
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Easements, Perm Review, or Permi Agencies Consult Cumulative Effect	hissions, Public ts Required and ted. ted.	None	s,	Installation of any water control stru will involve the placement of fill mat streams and must comply with all applicable local, state, and federal I Compliance will require permits and be obtained before construction beg Mitigation may also be required.	erial in aws. I must gins.	New Flood Control Channel- Channelization work in more heavily populated areas of the watershed to increase flood protection.	
Easements, Perm Review, or Permi Agencies Consult Cumulative Effect	nissions, Public ts Required and led. ts Narrative nulative impacts	None Absent the proper and increased	s,	Installation of any water control stru will involve the placement of fill mat streams and must comply with all applicable local, state, and federal I Compliance will require permits and be obtained before construction beg Mitigation may also be required.	erial in aws. I must gins.	New Flood Control Channel- Channelization work in more heavily populated areas of the watershed to increase flood protection.	crease
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U.S. Department of Agriculture		-CPA-52	A. Client Name: West V	/irginia	a Conservation Agency	
Natural Resources Conservation Se	rvice VALUATION WORKSHE	11/2019	B. Conservation Plan ID # (as Program Authority (opt	s applio	cable): Marlin Run PIFR	_
D. Client's Objective(s) (pu The purpose of this project is to pr water management by reducing flor sedimentation loading in the Marli	ovide watershed protection and agri ood water damages, erosion and	cultural	C. Identification # (farm, trac Marlin Run Watershed, Pocahontas Part of 10-digit HUC (0505000302,	t, field County	#, etc. as required) <b>:</b> <sup>,</sup> , WV	
E. Need for Action:	H. Alternatives					
The baseline condition without federal investment is a situation of deteriorating infrastructure and potential loss of flood protection, incidental recreation, rural water supply, and other amenities associated with existing impoundments. Previously	Alternative 3 √ if RMS Rehabilitation of existing NRCS stru in Watershed. Focused funding for technical and financial assistance th the Watershed Protection and Flood Prevention Act would result in exter the service life of the structures and their flood reduction values, as well meet the new WV Dam Safety and of NRCS criteria.	nrough d nding extend as	Alternative 4 √ if RMS Repair (Non-NRCS Driven) of existi structures in the watershed led by o local conservation agencies. There be no federal funding for these repa	ng ther would	Alternative 5 √ if RMS Decommissioning of Structures thro focused technical and financial assis through the Watershed Protection a Flood Prevention Act would result in restoration of the stream and riparia habitat.	ough stance ind 1
	P	05011	rce Concerns			
In Section "F" below, analy			dentified through the Resource	res Inv	ventory process	_
	ource Planning Criteria for g		-			
F. Resource Concerns	I. Effects of Alternatives		·			
and Existing/ Benchmark	Alternative 3		Alternative 4		Alternative 5	
(Analyze and record the existing/benchmark conditions for each identified concern)	Amount, Status, Description (Document both short and long term impacts)	√if does NOT meet PC	Amount, Status, Description (Document both short and long term impacts)	√if does NOT meet PC	Amount, Status, Description (Document both short and long term impacts)	√ if does NOT meet PC
SOIL						
Sedimentation caused by erosion in the uplands of the watershed negatively impact Marlin Run and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages.	No change in the amount of sediment produced by flooding with the rehabilitation of existing structures.	NOT meet PC	No change in the amount of sediment produced by flooding with the rehabilitation of existing structures.	NOT meet PC	Decommissioning structures could potentially increase the amount of soil erosion in the short term as disturbed areas are revegetated. There would be a transition back to naturally occurring in the streambed.	NOT meet PC
WATER Ponding and flooding	No change in the current amount		No change in the current amount		Potential increase in flooding in the	
Flooding has been a historical issue in the watershed with the expected risk of flooding	of flooding in the watershed, but the rehabilitation would extend the service life of the dams to provide flood protection longer into the future.	NOT meet PC	of flooding in the watershed, but the repairs could extend the service life of the dams to provide flood protection longer into the future.	NOT meet PC	watershed without the retention and controlled release of flood waters by structures.	NOT meet PC

Sedimentation caused by erosion in the uplands of the watershed negatively impact Marlin Run and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events.		NOT meet PC	No change in the current amount of sedimentation in the watershed.	NOT meet PC	Additional sedimentation in the stream could be expected due to increased flows during flooding events causing increased streambank erosion.	NOT meet PC
Nutrients transported to surface water Water quality is negatively affected by nutrients, failing septic systems, and runoff from rural landscapes within the watershed. Many streams within the watershed have elevated levels of fecal coliform from pasture/cropland, failing septic systems, and residential stormwater sources.	of nutrients transported within the watershed.	NOT meet PC	No change in the current amount of nutrients transported within the watershed.	NOT meet PC	Additional nutrients in the water could be expected due to increased flows during flooding events causing failures to structures, livestock feeding, or chemical storage areas.	NOT meet PC
F. Resource Concerns and Existing/ Benchmark	I. (continued) Alternative3		Alternative 4		Alternative 5	
Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	Amount, Status, Description (Document both short and long term impacts)	√if does NOT meet PC	Amount, Status, Description (Document both short and long term impacts)	√if does NOT meet PC	Amount, Status, Description (Document both short and long term impacts)	√ if does NOT meet PC
AIR No resource concern identified Air quality is not a resource	Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction		Air quality may be slightly adversely impacted locally during construction activities (dust and		Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction	
concern within the watershed	equipment). The increases are expected to remain well within the air quality standards and would be temporary.	NOT meet PC	exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary.	NOT meet PC	equipment). The increases are expected to remain well within the air quality standards and would be temporary.	NOT meet PC
concern within the watershed	equipment). The increases are expected to remain well within the air quality standards and would be	meet	equipment). The increases are expected to remain well within the air quality standards and would be	meet	equipment). The increases are expected to remain well within the air quality standards and would be	meet
	equipment). The increases are expected to remain well within the air quality standards and would be temporary. No change to the agricultural crops or natural vegetation.	meet	equipment). The increases are expected to remain well within the air quality standards and would be	meet	equipment). The increases are expected to remain well within the air quality standards and would be	meet PC

Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively effecting aquatic fish and invertebrate species habitat.	No change in the sedimentation of the streams, thus aquatic habitat would remain a resource concern.	NOT meet PC	No change in the sedimentation of the streams, thus aquatic habitat would remain a resource concern.	NOT meet PC	Aquatic habitat would be negatively effected by the increased intensity of flood events. Sedimentation loads would likely adversely affect the watershed	NOT meet PC
ENERGY						
No resource concern identified	Hydroelectric power generation		No effect		No effect	
	could be included as an element in					
This area has various electrical,	the design of the structures to	NOT		NOT		NOT
oil, and gas transmission	provide clean energy to the region.	meet		meet		meet
facilities.		PC		PC		PC
Human Economic and Soc		<u>.</u>				
Public Health and Safety	Rehabilitation of existing flood contr		Repair of existing flood control struc		Decommission of existing structures	
Damaging floods occur on an	structures would extend the flood co		would extend the flood control bene		result in the loss of flood protection	
annual basis with increasing			further into the future however repai		increase risk of loss of life. There w	
severity over the past few		es meet	the structures may not bring them in		also be a loss of recreation opportu	
decades. Flooding impacts	modern day safety standards.		compliance with current WV DEP D	am	and a reduction in water supply for t	ine
residents' access to emergency			Safety standards.		area.	
services, results in loss of land,						
and creates unsanitary conditions in effected residences						
and businesses.						
and businesses.						
Special Env	vironmental Concerns: E	nvir	onmental Laws, Executi	ve Or	ders, policies, etc.	
					s applicable. Items with a "•'	" may
					ment agency. In these cases	
		anothe	er agency. Planning and pract	tice im	plementation may proceed fo	r
practices not involved in c	J. Impacts to Special Enviro	nmon	tal Concorns			
		Jiiiieii	Alternative 4		Alterractive E	
Concorne						
Concerns	Alternative 3	√if		√if	Alternative 5	√if
(Document existing/	Document all impacts	√ if needs	Document all impacts	√ if needs	Document all impacts	√ if needs
	Document all impacts (Attach Guide Sheets as		Document all impacts (Attach Guide Sheets as		Document all impacts (Attach Guide Sheets as	
(Document existing/ benchmark conditions)	Document all impacts (Attach Guide Sheets as applicable)	needs	Document all impacts (Attach Guide Sheets as applicable)	needs	Document all impacts (Attach Guide Sheets as applicable)	needs
(Document existing/ benchmark conditions) •Clean Air Act	Document all impacts (Attach Guide Sheets as applicable) May Affect	needs further	Document all impacts (Attach Guide Sheets as applicable) May Affect	needs further	Document all impacts (Attach Guide Sheets as applicable) May Affect	needs further
(Document existing/ benchmark conditions) •Clean Air Act <i>Guide Sheet</i>	Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or	needs further	Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or	needs further	Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or	needs further
(Document existing/ benchmark conditions) •Clean Air Act <i>Guide Sheet</i> The watershed is not in an area	Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The	needs further action	Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The	needs further action	Document all impacts (Attach Guide Sheets as applicable) May Affect It is likely that no permitting or authorization is necessary. The	needs further action
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Guide Sheet This area is not designated as							
This area is not designated as		No Effect		No Effect		No Effect	
	I his area is not designated as Essential Fish Habitat.						

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Floodplain Management <i>Guide Sheet</i> Pocahontas county has a major risk of flooding over the next few decades.	May Affect This alternative will result continued protection the floodplain by reducing flooding impacts further into the future.		No Effect	May Affect Increased flooding as the result of decommissioning the flood control structures could result in increased active management of floodplains and their functions.	
Invasive Species <i>Guide Sheet</i> Invasive species are found in the watershed.	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.		May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.	
Migratory Birds/Bald and Golden Eagle Protection Act <i>Guide Sheet</i> Migratory birds and eagles utilize the Marlin Run Watershed habitats. There is a total of 15 federally listed birds in the area. The birds listed are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in the project location.	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.		No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.	
Natural Areas <i>Guide Sheet</i> Federal: The US Forest Service manages the Monongahela National Forest which lies partially within the Marlin Run Watershed. State: State: The West Virginia Division of Forestry manages Watoga State Park and West Virginia Division of Forestry manages Calvin Price State Forest, both located just southwest of the Marlin Run Watershed boundary. WVDOF also manages Seneca State Forest at the watershed's northern boundary.	No Effect		No Effect	No Effect	
Prime and Unique Farmlands Guide Sheet Presently there are 3,386 acres of Prime Farmland, which accounts for 5% of land in the study area. Additionally, there are 3,441 acres of Farmland of Local Importance and 2,060 acres of Farmland of Statewide Importance. Farmland protection boards are actively conserving land in the watershed. The threat of conversion, however, is not drastic.	May Affect Alternative would provide continued protection of prime farmland through the reduction of streambank erosion further into the future.		May Affect Alternative would provide continued protection of prime farmland.	May Affect Alternative may result in the loss of prime and unique farmlands through projected increase of streambank erosion cutting into farmland.	
Riparian Area <i>Guide Sheet</i> There are riparian areas present in or near the project area. Riparian areas found in this region are generally characterized as vegetated and un-vegetated. These areas are often utilized for agricultural purposes.	May Affect There are riparian areas present in or near the project area and may have the potential to be impacted.		May Affect There are riparian areas present in or near the project area and may have the potential to be impacted.	May Affect There are riparian areas present in or near the project area and may have the potential to be impacted.	
Scenic Beauty <i>Guide Sheet</i> Areas of potential scenic beauty in this watershed are typical of the Ridge and Valley physiographic province and common to the region.	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Ridge and Valley physiographic province.		No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Ridge and Valley physiographic province.	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Ridge and Valley physiographic province.	

<ul> <li>Wetlands</li> </ul>		No Effect	1	No Effect	1	No Effect	
Guide Sheet		Action is not likely to negatively		Action is not likely to negatively		Action is not likely to negatively	
There are 1,601 ac	cres of	impact any wetlands in the		impact any wetlands in the		impact any wetlands in the	
wetlands within the	e Marlin Run	watershed.		watershed.		watershed.	
Watershed which o	consist of the						
following: 169 acre	es of						
Freshwater Emerg	jent Wetlands;						
423 acres of Fresh							
Forested/Shrub W	,						
acres of Freshwate							
acres of Other; and							
Riverine. Data col							
the US Fish and W							
National Wetlands	inventory.						
•Wild and Scenic	Rivers	No Effect		No Effect		No Effect	
Guide Sheet							
No designated Wil	d and Scenic						
Rivers are in or ne	ar the project						
area. All trout strea	ams are						
designated as "Wa	aters of Special				1		
Concern" in Pocah			1				
Rivers within the N	0				1		
National Forest de	0		1				
National Wild and	,		1				
Rivers. The Greer					1		
from its confluence			1				
Creek to its conflue			1				
New River is prote activities that would					1		
	· · · ·						
divert, or flood the as specified in the							
Stream Preservation							
(WVNSPA).	OITACL						
K. Other Agen		Alternative 3		Alternative 4		Alternative 5	
Broad Public C Easements, Permi		Construction related to the rehabilit	ation of	Construction related to the repair of	\f	Construction related to the	
· · · · ·	· · · · · · · · · · · · · · · · · · ·	existing structures could involve the		existing structures could involve th		decommissioning of existing structu	ires
Agencies Consulte		placement of fill material in streams		placement of fill material in stream		could involve the placement of fill m	
g		must comply with all applicable loca				in streams and must comply with all	
		and federal laws. Compliance will		and federal laws. Compliance will		applicable local, state, and federal la	
		permits and must be obtained befo	re	permits and must be obtained befo	ore	Compliance will require permits and	l mus
		construction begins. Mitigation ma	y also	construction begins. Mitigation ma	ay also	be obtained before construction beg	jins.
		be required.		be required.		Mitigation may also be required.	
Cumulative Effects	s Narrative	Flood protection would be extended	d past	Repairs of existing structures woul	d extend	Decommissioning of structures coul	d hel
(Describe the cum	ulative impacts	the current service life of the struct	ures,	the life of their values and function	s and	restore the function of the stream ar	nd
considered, includi	ing past,	bring structures up to current engin	eering	possibly reduce the long term main	ntenance	riparian area, provide short term job	
present and knowr	n future actions	standards, and potentially create w		costs, however would not involve a	any	creation, and return the local tax bas	se wit
regardless of who	performed the	supply and energy production for th	ie area.	federal cost share.		land usage. There would be a nearly	
actions)		Annual maintenance costs associa	ted with			loss in flood protection, recreation, a	and
		the structures would likely decrease	Э.			water supply.	
L. Mitigation		Mitigation could be required for are	as of	Mitigation could be required for are	eas of	Mitigation would likely not be require	ed.
(Record actions to	avoid.	stream that may be impacted durin		stream that may be impacted durin		,	
,	· · ·	construction and rehabilitation. Ve	•		-		
minimize, and com	,	will be established on disturbed are	-	be established on disturbed areas			
minimize, and corr		following construction to a vegetativ	ve plan	construction to a vegetative plan			
minimize, and com			S and	developed in conjunction with NRO	CS and		
minimize, and con		developed in conjunction with NRC	ound	least spansers			
minimize, and con		developed in conjunction with NRC local sponsors.		local sponsors.			
	√ preterred						
M. Preferred	√ preferred alternative	local sponsors.					
M. Preferred Alternative	alternative	local sponsors.	rol	Repairs of existing flood control st		Decommissioning of structures with	
M. Preferred Alternative	alternative Supporting	Rehabilitation of existing flood cont	rol	Repairs of existing flood control str in the watershed would extend the		watershed would result in stream ar	
M. Preferred Alternative	alternative Supporting reason	Rehabilitation of existing flood cont structures in the watershed would e the life of their function.	rol extend	Repairs of existing flood control st in the watershed would extend the their function.		5	
M. Preferred Alternative	alternative Supporting reason	Rehabilitation of existing flood cont	rol	Repairs of existing flood control str in the watershed would extend the		watershed would result in stream ar	

Natural Resources Conservation Service         Matrix         West Virginal Conservation Agency           ENVIRONMENTAL EVALUATION WORKSHEET         B. Conservation Plan ID # (as applicable): Marin Run PIFR Program Authority (potional): PL-566           D. client's Objective(e) (purpose):         C. Identification # (ferm, Irach, field #, etc. as required): Marin Run Watershed, Potionanas County, WV Part of 10-digit HUC (0505000302, Knapp Creek)           E. Need for Action: The baseline condition without deferral investment is a stuated for detriction must fusion containal to act indication af and protection indicatinal formed masses and inparts habitat to is participan without and protection. This stuard function. Watershed Potection and function af ann Bill programs, such as CDP or NVOL, would completed watershed projects. The baseline condition without indicatinal formed massistence version and programs, such as CDP and NVOL, would completed watershed projects. The baseline condition af furm Bill programs, such as CDP and NVOL, would completed watershed projects. The baseline condition af furm Bill programs, such as CDP and NVOL, would completed watershed projects. The baseline condition af furm Bill programs, such as CDP and NVOL, and cogion.         Site of NVL and Stream Resources and the plantings cases the watershed in its aparting in conjunction with traditional farm Bill programs, such as CDP and NVOL, and cogion.           Not Market and the second programs such as CDP and NVOL, and cogion.         Site of Other Site of CDG Section III. Resource Planning Criteria for guidance).         Alternative 8 Alternative 8 Alterna
EVALUATION WORKNETEL      Program Authority (potional):     Proper management of potion     Proper man
The purpose of this project is to provide watershed protection and agricultural Marin Run Watershed, Pocahontas County, WV Part of 10-digit HUC (050500302, Knapp Creek) Part of 10-digit HUC (05050032, Knapp Creek
Part of 10-digit HUC (0505000302, Knapp Creek)         E. Need for Action: The baseline condition within Run Watershed.       Part of 10-digit HUC (0505000302, Knapp Creek)         E. Need for Action: The baseline condition within a stutution of detribution and the stream and ripartan habitato to incidential feeration (within restructure) within a stutution incidential recreation, rural water and ripartan habitato to solutation, rural water and ripartan habitato to solutation, rural water and ripartan habitato to incidential recreation, rural water and ripartan habitato to solutation, rural water for the solutation and man sasculated with existing improve water guality. Watershed protection and Flood Previously completed watershed projection rural water infancial assistance to install practices typical for the valiable through Conservation Technical assistance to install practices typical of the sastance to install practices typical for the region would be accessed in the usershift of a sastance to install practices typical for the region would decrease the channels assistance to install practices typical ( <i>Document both short and long term impacts</i> )
E. Need for Action: The baseline condition without afternatives Alternative 6 \/ if RMS \_ Alternative 8 \/ if RMS \_ Conditions of decironating infrastructurel.ow impact bestorem and frain habitat to its and/artification or practices such as usefued management/creation, rain baseduated with existing mpoundments. Previously are either past their service life or hazard lamabes as CIP or NVOL traditions with raditional assistance completed waters and thread thread thread thread mpoundments. Previously focus technical and financial assistance to install practices by pically associated with hazard dams. Bill processing the second of the second data second and thread
The baseline condition without       Alternative 6       I Remover of the stream and ipparian habits to its stream restoration would restore the stream and ipparian habits to its natural function. Watershed Protection and ipparian habits to its natural function. Watershed Protection and Evaluation across all landueses to prevent in chaptaking of deteriorating infrastructure/Low Impact Development. Adaptakin of practices such as welland management/creation, rain associated with stating moundments. Previously orgarins, such as ECIP or NWQ1, would programs, such as ECIP and NWQ1, and its assistance to install practices typical for the Assistance (TA), traditional Farm Bill programs such as ECIP or NWQ1, and its assistance to install practices typical for the Assistance (TA), traditional Farm Bill programs such as ECIP and NWQ1, and local sponsors.         Resource Concerns       I. Effects of Alternatives 6       Alternative 7       Alternative 7       Alternative 8         And Listing Bonchmark       Operating Criteria for guidance).       I. Effects of Alternatives 6       Alternative 7       Alternative 8         And Existing/Bonchmark       I. Effects of Alternatives 6       Alternative 7       Alternative 8       Alternative 8         Solutions for each identified through the secources lineation across as beet and in the uplands of twaterorshed in grazing and associated in the str
Natural Stream Restoration would restore orderivative marking structure and the stream and ripartan habitat to its natural function. Watershed Protection and incidental recreation, rural water supply. and other ameniles associated with existing pround mets. Previously completed watershed projects are either past theri service life our natural stream restoration.         Natural Stream Restoration would restore natural function. Watershed Protection and Flood Prevention Act funding in coujnction with traditional Farm flood Prevention Act funding in couplencies with associated with associated with existing programs, such as EQIP or NWQI, would focus technical and financial assistance to matural stream restoration.         Construction Stream Restoration and/or financial assistance could be available through Conservation Technical and/or financial assistance could be available through Conservation Technical and/or financial assistance could be available through Conservation Technical and Statance to install practices typical for the Assistance (TA), traditional Farm flood Prevention Act funding in conjunction with traditional Farm flood for the stream restoration.         Amount Status wailable through Conservation Technical and Statance to install practices typical for the Assistance (TA), traditional farm Bill programs such as EQIP or NWQI, and local sponsors.           Resource Concerns And Existing/ Benchmark (Analyze and record the existing/benchmark conditions for each identified concern)         I. Effects of Alternative 6 Anount, Status, Description (Document both short and long term impacts)         I. Matural stream restoration could not streambanks.         Amount, Status, Description (Manuel Concerns and long term impacts)         I. Bream Restoration could be decreased and resonand pand associated (Document both short and long term impacts)         Reduction
of deteriorating infrastructure and the stream and riparian habitat to its natural function. Watershed Protection and indicating recreation, rural water induction with radional Farm Bill conjunction with tradional Farm Bill sequences and the sequence water quality. Watershed Protection and Proce water quality. Watershed Protection and the sequence water quality. Watershed Protection and the sequence water quality. Watershed Protection and the gradens, perivous water quality. Watershed Protection and the gradens, perivous water quality. Watershed protection with traditional Farm Bill programs, such as EQIP on NWQ, would focus technical and financial assistance to install practices typical and financial assistance could be available through Conservation Technical hases technical and financial assistance to install practices typical for the hase EQIP on NWQ, and local sponsors.         Resource Concerns         In Section "F" below, analyze, record, and address concerns identified through the Resources Inventory process.         See FOT Section III - Resource Planning Criteria for guidance).         F. Resource Concerns and Existing/ Benchmark Conditions for each identified concern)         Alternative 6         Alternative 8         Alternative 8         Alternative 8         Alternative 6         Alternative 7         Alternative 8         Alternative 6         Alternative 7         Alternative 8         Conditions for eac
Indefendate recreation, rural vaters agains, pervious concrete, and tree plantings to assist the watershed in its supply, and other amenities associated with existing moundments. Previously concrete, and tree plantings to assist the watershed in its funding in conjunction with traditional Farm and/or financial assistance could be completed watershed projects. Section water quality. Watershed and/or financial assistance could be available through Conservation Technical and financial assistance to install practices typical for the Assistance (CTA), traditional Farm Bill programs, such as EQIP or NWQI, would facus technical and financial assistance to install practices typical for the Assistance (CTA), traditional Farm Bill programs, such as EQIP or NWQI, and facus technical and financial assistance to install practices typical for the Assistance (CTA), traditional Farm Bill programs, such as EQIP on NWQI, and be available through Conservation Technical assistance could be available through Conservation Technical assistance co
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associated with existing impoundments. Previously completed watershed projects are either past their service life or install practices typically associated with assistance to install practices typical or NWQI, would focus technical and financial assistance to install practices typical or NWQI, associated with new been reclassified as high hazard dams.       Capacity to handle flood waters. Technical and/or financial assistance could be available through Conservation Technical assistance to install practices typical for the Assistance (CTA), traditional Farm Bill programs, such as EQIP and NWQI, and local sponsors.         Resource Concerns         In Section "F" below, analyze, record, and address concerns identified through the Resources Inventory process. (See FOTS Section III - Resource Planning Criteria for guidance).         F. Resource Concerns         Alternative 6         Alternative 8         Amount, Status, Description (Document both short and long term impacts)         (Coursent both short and long term impacts)         Sedimentation caused by stream pairwein would focus teres see sedimentation in the stabilization of streambanks.         Or Programs, such as EQIP or NWQI, would focus technical and financial assistance (CTA), traditional form form freduced velocities typical for the region.
completed watershed projects are either past their service life of natural stream restoration.       install practices typical for the region.       available through Conservation Technical assistance to install practices typical for the Assistance (CTA), traditional Farm Bill programs such as EQIP and NWQ), and local sponsors.         Resource Concerns         In Section "F" below, analyze, record, and address concerns identified through the Resources Inventory process. (See FOTS Section III - Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark Conditions for each identified concern)       I. Effects of Alternative 6 Amount, Status, Description (Document both short and long term impacts)       \fractrative 7 (Document both short and long term impacts)       Amount, Status, Description (Document both short and long term impacts)       \fractrative 7 (Document both short and long term impacts)       \fractrative 8 (Document both sh
are either past their service life or have been reclassified as high hazard dams.       natural stream restoration.       assistance to install practices typical for the assistance to install practices typical for the region.       Assistance (CTA), traditional Farm Bill programs such as EQIP and NWQI, and local sponsors.         Resource Concerns         In Section "F" below, analyze, record, and address concerns Identified through the Resources Inventory process. (See FOTG Section III - Resource Planning Criteria for guidance).         F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)       I. Effects of Alternatives Anount, Status, Description (Document both short and long term impacts)       \vert meet pc       Amount, Status, Description (Document both short and long term impacts)       \vert meet pc         Soil         Soil         Soil         Sedimentation caused by stream bank erosion would be decreased by the stabilization of streambanks.         Not is tributaries. Sedimentation damages.       Not fregion would decrease sheet and region would decrease sheet and region would decrease sheet and region would decrease sheet and estream.       Not meet pc       Proper management of upland sopes would reduce erosion and sedimentation in the stallation for the watershed with the stabilization of streambanks.       Proper management of upland sopes would reduce erosion and sedimentation in the stallation green infrastructure by increasing the water holding capacity and natural       Flooding would
have been reclassified as high hazard dams.       region.       programs such as EQIP and NWQI, and local sponsors.         in Section "F" below, analyze, record, and address concerns identified through the Resources Inventory process.       (See FOTG Section III - Resource Planning Criteria for guidance).         F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark Conditions for each identified concern)       I. Effects of Alternatives       Alternative 7       Alternative 8         Amount, Status, Description (Document both short and long term impacts)       Viff does not not provide the existing/benchmark Conditions for each identified concern)       Mount, Status, Description (Document both short and long term impacts)       Viff does not provide the existing and associated practices, cover core, reduced tillage, and other related land treatment practices typical for the region would be decreased by the stabilization of streambanks.       Forest stand improvement, prescribed for the region would decrease sheet and differess esidementation caused by stream bank erosion would be decreased by the stabilization of streambanks.       NOT meet related land treatment practices typical for the region would decrease sheet and decrease see adimentation in the stream.       NOT meet related land treatment practices typical for the region would be mitigated through installation of green induced so the watersheed hold hood waters.       NOT meet related land treatment practices typical for the region would decrease sheet and not hold flood waters.       PC       Flooding would be mitigated through installation of green induced so the watersheed with the watersheed with the
Resource Concerns         In Section "F" below, analyze, record, and address concerns identified through the Resources Inventory process.         (See FOTG Section III - Resource Planning Criteria for guidance).         F. Resource Concerns         Alternative 6         Alternative 7         Alternative 8         Anount, Status, Description (Analyze and record the existing/benchmark conditions for each long term impacts)         (Document both short and long term impacts)
In Section "F" below, analyze, record, and address concerns identified through the Resources Inventory process. (See FOTG Section III - Resource Planning Criteria for guidance). F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark Conditions (Document both short and long term impacts) (Document both short and long term impacts) Solu Section 1II erosion No effect to upland erosion. Sedimentation caused by erosion in the uplands of the watershed with estabilization of streambanks. Sedimentation caused by erosion in the uplands of the watershed with estabilization of streambanks. NoT meet PC Ponding and flooding Natural stream restoration could increase the channel's capacity to hold flood waters. Not meet PC Not
In Section "F" below, analyze, record, and address concerns identified through the Resources Inventory process. (See FOTG Section III - Resource Planning Criteria for guidance). F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark Conditions (Document both short and long term impacts) (Document both short and long term impacts) Solu Section 1II erosion No effect to upland erosion. Sedimentation caused by erosion in the uplands of the watershed with estabilization of streambanks. Sedimentation caused by erosion in the uplands of the watershed with estabilization of streambanks. NoT meet PC Ponding and flooding Natural stream restoration could increase the channel's capacity to hold flood waters. Not meet PC Not
(See FOTG Section III - Resource Planning Criteria for guidance).         F. Resource Concerns and Existing / Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)       1. Effects of Alternatives         Amount, Status, Description (Iong term impacts)       \frac{\frac{1}{\
F. Resource Concerns and Existing/ Benchmark Conditions       I. Effects of Alternative 6       Alternative 7       Alternative 8         Conditions       Anount, Status, Description (Analyze and record the existing/benchmark conditions for each identified concern)       \iff does (Document both short and long term impacts)       \iff does meet Pc       Amount, Status, Description (Document both short and long term impacts)       \iff does meet Pc         Sheet and nill erosion       No effect to upland erosion. Sedimentation caused by stream bank erosion would be decreased by the stabilization of streambanks.       Forest stand improvement, prescribed grazing and associated practices, cover crop, reduced tillage, and other related land treatment practices typical for the region would decrease sheet and nill erosion on upland slopes and decrease sedimentation in the stream.       NoT meet PC       Reduction in soil erosion from reduced velocities of water conveyance during high rain events.         WATER       Natural stream restoration could increase the channel's capacity to hold flood waters.       Natural stream restoration could increase the channel's capacity to hold flood waters.       Proper management of upland slopes would reduce erosion and sedimentation. This would allow       Flooding would be mitigated through installation of green infrastructure by increasing the water holding capacity and natural
Alternative 6       Alternative 7       Alternative 8         Conditions       Amount, Status, Description       Vif       Amount, Status, Description       Vif         (Analyze and record the existing/benchmark conditions for each identified concern)       (Document both short and long term impacts)       Vif       Amount, Status, Description       Vif         SOIL       (Document both short and long term impacts)       Forest stand improvement, prescribed grazing and associated practices, cover crop, reduced tillage, and other related land treatment practices typical for the region would decrease sheet and effect to upland ension. Sedimentation caused by stream bank erosion would be decreased by the stabilization of streambanks.       NOT       Forest stand improvement, prescribed grazing and associated practices, cover crop, reduced tillage, and other related land treatment practices typical for the region would decrease sheet and effect to upland ension. Sedimentation caused by stream bank erosion would be decreased by the stabilization of streambanks.       NOT       NOT         WATER       Natural stream restoration could increase the channel's capacity to hold flood waters.       Proper management of upland slopes and begin shallation of green infrastructure by increasing the water hold increase the channel's capacity to hold flood waters.       Proper management of upland slopes would reduce erosion and sedimentation. This would allow       Flooding has been a historical issue in the watershed with the       Flooding capacity and natural
Conditions       Amount, Status, Description (Analyze and record the existing/benchmark conditions for each identified concern)       Amount, Status, Description (Document both short and long term impacts)       Viff does NOT meet       Amount, Status, Description (Document both short and long term impacts)       Viff does NOT meet         SolL       No effect to upland erosion. Sedimentation caused by stream bank erosion would be decreased by the stabilization of streambanks. Contributes to reduced channel capacity, further flood damages.       No effect to upland erosion. Sedimentation add by stream bank erosion of streambanks. NOT meet       Forest stand improvement, prescribed grazing and associated practices, cover crop, reduced tillage, and other related land treatment practices typical for the region would decrease sheet and differences estimation in the stream.       NOT       Reduction in soil erosion from reduced velocities of water conveyance during high rain events.       NOT         WATER       Natural stream restoration could increase the channel's capacity to hold flood waters.       Natural stream restoration could increase the channel's capacity to hold flood waters.       Proper management of upland sedimentation. This would allow       Flooding would be mitigated through installation of green infrastructure by increasing the water holding capacity and natural       Image: hold flood waters.
(Analyze and record the existing/benchmark conditions for each identified concern)       (Document both short and long term impacts)       does NOT meet PC       (Document both short and long term impacts)       (Document both short and long term impacts)       NOT meet PC       (Document both short and long term impacts)       (Document both short and long
conditions for each identified concern)       (Document both short and long term impacts)       meet PC       PC         Solu       No effect to upland erosion. Sedimentation caused by stream bank erosion would be decreased by the stabilization of streambanks. Contributes to reduced channel capacity, further flood damages.       NoT meet PC       Forest stand improvement, prescribed grazing and associated illage, and other related land treatment practices, cover crop, reduced dillage, and other related land treatment practices typical for the region would decrease sheet and rill erosion on upland slopes and decrease sedimentation in the stream.       NOT meet PC       NOT         WATER       Natural stream restoration could increase the channel's capacity to hold flood waters.       Natural stream restoration could increase the channel's capacity to hold flood waters.       Proper management of upland sopes would reduce erosion and sedimentation in the stream. sedimentation. This would allow       Flooding would be mitigated through installation of green infrastructure by increasing the water holding capacity and natural
Image: Condutions for each index field       Image: Condutions field <th< td=""></th<>
SOIL       No       Forest stand improvement, prescribed grazing and associated practices, cover crop, reduced tillage, and other related land treatment practices typical for the region would decrease sheet and rill erosion on upland slopes and decrease sedimentation in the stream.       Reduction in soil erosion from reduced velocities of water conveyance during high rain events.       Image: NOT meet PC         WATER       Matural stream restoration could increase the channel's capacity to hold flood waters.       Natural stream restoration could increase the channel's capacity to hold flood waters.       Proper management of upland slopes would reduce erosion and sedimentation in the stream. sedimentation. This would allow       Flooding would be mitigated through installation of green infrastructure by increasing the water holding capacity and natural
Sedimentation caused by erosion in the uplands of the watershed negatively impact Marlin Run and its tributaries. Sediment loading contributes to reduced channel capacity, further flood damages.       Sedimentation caused by stream bank erosion would be decreased by the stabilization of streambanks.       Image: prescribed grazing and associated practices, cover crop, reduced tillage, and other related land treatment practices typical for the region would decrease sheet and rill erosion on upland slopes and decrease sedimentation in the stream.       Image: NOT meet PC         WATER       Matural stream restoration could increase the channel's capacity to hold flood waters.       Natural stream restoration could increase the channel's capacity to hold flood waters.       Image: Proper management of upland slopes would reduce erosion and sedimentation. This would allow       Image: Plooding would be mitigated through installation of green infrastructure by increasing the water holding capacity and natural
bank erosion would be decreased by the stabilization of streambanks.       practices, cover crop, reduced tillage, and other related land treatment practices typical for the region would decrease sheet and rill erosion on upland slopes and decrease sedimentation in the stream.       NOT       conveyance during high rain events.       NOT         WATER       Ponding and flooding       Natural stream restoration could increase the channel's capacity to hold flood waters.       Proper management of upland solpes would reduce erosion and sedimentation. This would allow       Flooding would be mitigated through installation of green infrastructure by increasing the water holding capacity and natural       Image: Stream Stre
Sedimentation caused by erosion in the uplands of the watershed negatively impact Marlin Run and its tributaries. Sediment loading contributes to reduced channel capacity, further flood damages.       by the stabilization of streambanks.       NOT       itillage, and other related land treatment practices typical for the region would decrease sheet and rill erosion on upland slopes and decrease sedimentation in the stream.       NOT       events.       NOT         WATER       Ponding and flooding       Natural stream restoration could increase the channel's capacity to hold flood waters.       Proper management of upland slopes would reduce erosion and sedimentation. This would allow       Flooding would be mitigated through installation of green infrastructure by increasing the water holding capacity and natural
Integratively impact Marlin Run and its tributaries. Sediment loading contributes to reduced channel capacity, further flood damages.       NOT meet PC       PC       PC       NOT meet PC       PC       NOT meet PC       PC       PC       NOT meet PC       PC<
its tributaries. Sediment loading contributes to reduced channel capacity, further flood damages.       Its reduced channel rill erosion on upland slopes and decrease sedimentation in the stream.       Its reduced channel region would decrease site raind decrease site raind region would decrease sedimentation in the stream.       Its reduced channel region would decrease site raind region would be rease the raind rain region would be rease site raind region would be mitigated through installation of green infrastructure by increasing the water holding capacity and natural sedimentation. This would allow       Image: Proper management of upland slopes would reduce erosion and sedimentation. This would allow       Image: Proper management of upland slopes would reduce erosion and sedimentation. This would allow       Image: Proper management of upland through installation of green infrastructure by increasing the water holding capacity and natural
contributes to reduced channel capacity, further flood damages.       PC       In crossion on uptand suppose and decrease sedimentation in the stream.       PC
WATER       Proper management of upland increase the channel's capacity to hold flood waters.       Proper management of upland slopes would reduce erosion and sedimentation in the stream. sedimentation. This would allow       Flooding would be mitigated through installation of green infrastructure by increasing the water holding capacity and natural
Ponding and flooding       Natural stream restoration could increase the channel's capacity to hold flood waters.       Proper management of upland slopes would reduce erosion and sedimentation in the stream. sedimentation. This would allow       Flooding hold flood waters       Flooding capacity and natural
Ponding and flooding       Natural stream restoration could increase the channel's capacity to hold flood waters.       Proper management of upland slopes would reduce erosion and sedimentation in the stream. sedimentation. This would allow       Flooding hold flood waters       Flooding capacity and natural
Flooding has been a historical hold flood waters. sedimentation. This would allow water holding capacity and natural
issue in the watershed with the sedimentation. This would allow water holding capacity and natural
ocalificitation. The world allow
increasing over the next few and thus reduce flooding impacts. installation of rain gardens. The
decades as storms become     infrastructure would reduce       more frequent and severe, and     NOT
as the infrastructure ages.
Residences are in major risk of PC PC PC
flooding. Flooding is a threat to property, access to utilities,
emergency services,
transportation, agricultural land,
and crops.

in the uplands of the watershed negatively impact Marlin Run and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events.	sediments entering the watershed. Water quality would be beneficially effected and result in more outdoor recreation opportunities.	NOT meet PC	There would be a reduction in sediments entering the watershed. Water quality would be beneficially effected and result in more outdoor recreation opportunities.	NOT meet PC	Reduction in sediment entering the watershed y due to reduced velocities of water conveyance during high rain events.	NOT meet PC
Nutrients transported to surface water Water quality is negatively affected by nutrients, failing septic systems, and runoff from rural landscapes within the watershed. Many streams within the watershed have elevated levels of fecal coliform from pasture/cropland, failing septic systems, and residential stormwater sources.	There would be a reduction of nutrients in surface water with the exclusion of livestock from the stream in conjunction with natural stream and riparian area restoration.	NOT meet PC	There would be a reduction of nutrients in surface water with the installation of conservation practices such as Nutrient Management, Prescribed Grazing, and Access Control.	NOT meet PC	Enhancements and installation of wetlands and other green infrastructure can reduce nutrients transported to surface water within the local watershed	NOT meet PC
F. Resource Concerns	I. (continued)		All (* 7			
and Existing/ Benchmark Conditions	Alternative 6		Alternative 7		Alternative 8	
(Analyze and record the existing/benchmark conditions for each identified concern) AIR	Amount, Status, Description (Document both short and long term impacts)	√if does NOT meet PC	Amount, Status, Description (Document both short and long term impacts)	√ if does NOT meet PC	Amount, Status, Description (Document both short and long term impacts)	√ if does NOT meet PC
No resource concern identified	No effect		Localized odors and particulate		No effect	
Air quality is not a resource concern within the watershed		NOT meet PC	matter concerns could be addressed through conservation practices such as Waste Storage Facilities or Windbreaks/Shelterbelts.	NOT meet PC		NOT meet
				10		PC
PLANTS						PC
Plant structure and composition The watershed provides for both	and restoration of riparian areas could result in a loss of pasture or crop land.	NOT meet PC	Plant structure and composition would benefit from properly managed grazing (Prescribed Grazing and associated practices) as well as through implementation of Forest Stand Improvement in the watershed.	NOT PC	Plant structure and composition would be improved through the installation of green infrastructure- wetlands, rain gardens, tree plantings, etc.	NOT PC
Plant structure and composition The watershed provides for both agricultural crops as well as naturally vegetated areas that provide wildlife habitat. There is a lack of plant species diversity, specifically along streams in riparian areas, and a presence of	provide more naturally occurring plant species. Fencing streams and restoration of riparian areas could result in a loss of pasture or crop land.	meet	would benefit from properly managed grazing (Prescribed Grazing and associated practices) as well as through implementation of Forest Stand Improvement in	□ NOT meet	would be improved through the installation of green infrastructure- wetlands, rain gardens, tree	NOT meet

Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively effecting aquatic fish and invertebrate species habitat.	Aquatic habitat would be improved by installing practices return the streambed to a more natural value and function.	NOT meet PC	Aquatic habitat would be improved by the reduction in sedimentation of the stream caused by upland soil erosion through the installation of conservation practices typical of the region.	NOT meet PC	Aquatic habitat would be improved by the reduction and sedimentation of stream caused by high velocities of water during storm events. Aquatic habitat would also benefit from enhancement and creation of wetlands.	NOT meet PC
ENERGY						
No resource concern identified	No effect		No effect		Existing structures could be	
This area has various electrical, oil, and gas transmission facilities.		NOT meet PC		NOT meet PC	retrofitted for hydroelectricity production.	NOT meet PC
Human Economic and Soc	ial Considerations					
Public Health and Safety Damaging floods occur on an annual basis with increasing severity over the past few decades. Flooding impacts residents' access to emergency services, results in loss of land, and creates unsanitary conditions in effected residences and businesses.	would likely reduce erosion, sedime and flooding of roads and bridges, r in increased safety for the public an	m uld althy ernative ntation, esulting d There gular	While this alternative does not provi substantial, additional protection fro flooding and risk of loss of life, it wo create opportunities for increased of recreation that is associated with he streams. Implementation of this alte would likely reduce erosion, sedime and flooding of roads and bridges, r in increased safety for the public an reduction in maintenance activates. would also be less disruptions to req traffic, as well as emergency vehicle	m uld utdoor althy ernative ntation, esulting d There gular		nts
effects may need to be determined in c	consultation/coordination bet ermined in consultation with a D. Impacts to Special Enviro Alternative 6 Document all impacts (Attach Guide Sheets as	onmen √ if needs	er agency. Planning and pract	t <b>ice im</b> √if needs		r √if needs
benefimarik conditions)	applicable)	further action	applicable)	further action	applicable)	further action
•Clean Air Act <i>Guide Sheet</i> The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues.	May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the		No Effect Land treatment practices are not likely to negatively effect air quality.		May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory	
	appropriate air quality regulatory agency for verification.				appropriate an quality regulatory agency for verification.	

Coastal Zone Management     Outlabel Object	No Effect	_	No Effect	 No Effect	
Guide Sheet There are no costal zones					
present in or near the watershed.					
present in or near the watershed.					
Coral Reefs	No Effect		No Effect	 No Effect	
Guide Sheet					
There are no coral reefs present					
in or near the watershed.					
<ul> <li>Cultural Resources / Historic</li> </ul>	May Affect		May Affect	May Affect	
Properties	Consultation with Tribal Nations.		Consultation with Tribal Nations.	Consultation with Tribal Nations,	
Guide Sheet	West Virginia State Historic		West Virginia State Historic	West Virginia State Historic	
There are known cultural,	Preservation Office (SHPO), and		Preservation Office (SHPO), and	Preservation Office (SHPO), and	
archeological, and historically	other interested parties will be		other interested parties will be	other interested parties will be	
	conducted in according to Section		conducted in according to Section	conducted in according to Section	
the watershed. Consultation with	106 of the National Historical		106 of the National Historical	106 of the National Historical	
Tribal Nations, West Virginia	Preservation Act (NHPA) of 1966,		Preservation Act (NHPA) of 1966,	Preservation Act (NHPA) of 1966,	
State Historic Preservation	as amended.		as amended.	as amended.	
Officer, and other interested					
parties with vested interests in a					
yet to be determined area of					
potential effect will be conducted					
according to Section 106 of the					
National Historical Preservation					
Act (NHPA) of 1966, as					
amended.					
<ul> <li>Endangered and Threatened</li> </ul>	May Affect		May Affect	May Affect	
Species	This alternative is not expected to		This alternative is not expected to	This alternative is not expected to	
Guide Sheet	create an adverse impact to		create an adverse impact to	create an adverse impact to	
There is a total of 11 Federally	threatened, endangered, or rare		threatened, endangered, or rare	threatened, endangered, or rare	
listed threatened, endangered, or	species. Federal, state, and local		species. Conservation practices	species. Federal, state, and local	
candidate species potentially	wildlife agencies will be consulted		will be evaluated on a plan by plan	wildlife agencies will be consulted	
found in this watershed listed by	prior to construction.		basis through the Interagency	prior to construction.	
the US Fish and Wildlife Service			Coordinator Tool and all required		
(USFWS). According to West			avoidance strategies will be		
Virginia Department of Natural			followed.		
Resources (WVDNR), WV is a					
permanent home to 22 federally endangered species (17 animals,					
4 plants) and 7 federally					
threatened species (5 animals, 2					
plants). WVDNR's State Wildlife					
Action Plan (SWAP) recognizes					
22 Conservation Focus Areas					
(CFA) throughout the state that					
includes Species of Greatest					
Conservation Need (SGCN). See					
Appendix E for a complete					
USFWS IPaC Species list,					
WVDNR state listings, map of					
WV CFAs, and a list of SGCN for					
this watershed.					
Environmental Justice	May Affect		May Affect		
Guide Sheet	No negative impacts are		No negative impacts are		
Pocahontas County is completely			anticipated. The project would		
within the Appalachian Region.	benefit historically underserved		benefit historically underserved		
This county is not designated as	residents, landowners, and		residents, landowners, and		
a limited resource county by	communities.		communities.		
USDA. However, it is					
designated as 'at-risk' by the					
Appalachian Regional					
Commission, indicating the					
economy is struggling.					
Pocahontas County is 97% white					
and 2% black. Other races					
make up less than 1% of the					
county population. The poverty					
rate in Pocahontas County is					
18.1% compared to the WV rate					
of 15.8% and the national rate of					
11.4%.					
11.4%.					

				-		
•Essential Fish Habitat Guide Sheet	No Effect		No Effect		No Effect	_
This area is not designated as						
Essential Fish Habitat.		1				
Floodplain Management	May Affect		No Effect		No Effect	
Guide Sheet	Floodplain management would be		Land treatment practices are not		Annual flooding would likely be	
Pocahontas county has a major	a consideration during the design		likely to negatively effect flood		reduced to the decreased	
-	process of natural stream	1	plains. Annual flooding would		sedimentation of the stream and	
decades.	restoration and would likely be		likely be reduced to the decreased		increase water holding capacities	
	benefited.		sedimentation of the stream.		in wetlands and rain gardens.	
Invasive Species	May Affect	<b> </b>	May Affect		May Affect	
Guide Sheet	Invasive species occur within the		Invasive species occur within the		Invasive species occur within the	
	watershed. Care would be taken		watershed and would be controlled		watershed. Care would be taken	
watershed.	not to introduce invasive species in		through scheduled land treatment		not to introduce invasive species in	
	disturbed areas.		activates on privately owned or		disturbed areas.	
			operated lands.			
<ul> <li>Migratory Birds/Bald and</li> </ul>	No Effect	┝───	No Effect		No Effect	
Golden Eagle Protection Act	Actions will not result in intentional		Actions will not result in intentional		Actions will not result in intentional	
Guide Sheet	or unintentional take of any		or unintentional take of any		or unintentional take of any	
Migratory birds and eagles utilize			migratory bird, nest, or egg.		migratory bird, nest, or egg.	
the Marlin Run Watershed		1			····g·····, ····, ····, ····gg·	
habitats. There is a total of 15		1				
federally listed birds in the area.	1	1				
The birds listed are birds of	1					
particular concern either because	1	1				
they occur on the USFWS Birds		1				
of Conservation Concern (BCC)	1	1				
list or warrant special attention in	1	1				
the project location.		1				
		<u> </u>				
Natural Areas Guide Sheet	No Effect		No Effect	_	No Effect	
Federal: The US Forest Service						
manages the Monongahela		1				
National Forest which lies		1				
partially within the Marlin Run		1				
Watershed.		1				
State: State: The West Virginia						
Division of Forestry manages		1				
Watoga State Park and West		1				
Virginia Division of Forestry		1				
manages Calvin Price State						
U U						
Forest, both located just		1				
Forest, both located just southwest of the Marlin Run						
Forest, both located just southwest of the Marlin Run Watershed boundary. WVDOF						
Forest, both located just southwest of the Marlin Run Watershed boundary. WVDOF also manages Seneca State						
Forest, both located just southwest of the Marlin Run Watershed boundary. WVDOF also manages Seneca State Forest at the watershed's porthern boundary						
Forest, both located just southwest of the Marlin Run Watershed boundary. WVDOF also manages Seneca State Forest at the watershed's northern boundary Prime and Unique Farmlands	No Effect		No Effect		No Effect	
Forest, both located just southwest of the Marlin Run Watershed boundary. WVDOF also manages Seneca State Forest at the watershed's northern boundary Prime and Unique Farmlands <i>Guide Sheet</i>	Conversion of prime and unique		Conversion of prime and unique		Conservation of prime and unique	
Forest, both located just southwest of the Marlin Run Watershed boundary. WVDOF also manages Seneca State Forest at the watershed's northern boundary Prime and Unique Farmlands <i>Guide Sheet</i> Presently there are 3,386 acres	Conversion of prime and unique farmlands is not anticipated with		Conversion of prime and unique farmlands is not anticipated with		Conservation of prime and unique farmlands is not anticipated with	
Forest, both located just southwest of the Marlin Run Watershed boundary. WVDOF also manages Seneca State Forest at the watershed's northern boundary Prime and Unique Farmlands <i>Guide Sheet</i> Presently there are 3,386 acres of Prime Farmland, which	Conversion of prime and unique		Conversion of prime and unique		Conservation of prime and unique	
Forest, both located just southwest of the Marlin Run Watershed boundary. WVDOF also manages Seneca State Forest at the watershed's northern boundary Prime and Unique Farmlands <i>Guide Sheet</i> Presently there are 3,386 acres of Prime Farmland, which accounts for 5% of land in the	Conversion of prime and unique farmlands is not anticipated with		Conversion of prime and unique farmlands is not anticipated with		Conservation of prime and unique farmlands is not anticipated with	
Forest, both located just southwest of the Marlin Run Watershed boundary. WVDOF also manages Seneca State Forest at the watershed's northern boundary Prime and Unique Farmlands <i>Guide Sheet</i> Presently there are 3,386 acres of Prime Farmland, which accounts for 5% of land in the study area. Additionally, there	Conversion of prime and unique farmlands is not anticipated with		Conversion of prime and unique farmlands is not anticipated with		Conservation of prime and unique farmlands is not anticipated with	
Forest, both located just southwest of the Marlin Run Watershed boundary. WVDOF also manages Seneca State Forest at the watershed's northern boundary Prime and Unique Farmlands <i>Guide Sheet</i> Presently there are 3,386 acres of Prime Farmland, which accounts for 5% of land in the study area. Additionally, there are 3,441 acres of Farmland of	Conversion of prime and unique farmlands is not anticipated with		Conversion of prime and unique farmlands is not anticipated with		Conservation of prime and unique farmlands is not anticipated with	
Forest, both located just southwest of the Marlin Run Watershed boundary. WVDOF also manages Seneca State Forest at the watershed's northern boundary Prime and Unique Farmlands <i>Guide Sheet</i> Presently there are 3,386 acres of Prime Farmland, which accounts for 5% of land in the study area. Additionally, there are 3,441 acres of Farmland of Local Importance and 2,060	Conversion of prime and unique farmlands is not anticipated with		Conversion of prime and unique farmlands is not anticipated with		Conservation of prime and unique farmlands is not anticipated with	
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Scenic Beauty Guide Sheet Areas of potential in this watershed the Ridge and Val physiographic pro common to the rea	are typical of ley vince and	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Ridge and Valley physiographic province.		No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Ridge and Valley physiographic province.		No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Ridge and Valley physiographic province.	
•Wetlands Guide Sheet There are 1,601 a wetlands within th Watershed which following: 169 acro Freshwater Emerg 423 acres of Fresh Forested/Shrub W acres of Freshwat acres of Other; an Riverine. Data co the US Fish and V National Wetlands	e Marlin Run consist of the es of gent Wetlands; hwater /etlands; 28 er Pond; 9 d 972 acres of llected from Vildlife Service	No Effect Action is not likely to negatively impact any wetlands in the watershed.		No Effect Action is not likely to negatively affect any wetlands in the watershed.		May Affect Action is likely to have a positive impact on wetlands.	
•Wild and Scenic Guide Sheet No designated Wi Rivers are in or ne area. All trout stre designated as "W Concern" in Pocal Rivers within the N National Forest de National Forest de National Wild and Rivers. The Gree from its confluenc Creek to its confluenc Creek to its confluenc divert, or flood the as specified in the Stream Preservati (WVNSPA).	Id and Scenic ear the project ams are aters of Special nontas County. Monongahela esignated as Scenic Study nbrier River e with Knapps eence with the ected from Id impound, body of water WV Natural	No Effect		No Effect		No Effect	
K. Other Agen Broad Public 0		Alternative 6		Alternative 7		Alternative 8	
Easements, Perm	issions, Public s Required and	Implementation of natural stream restoration structures must comply v applicable local, state, and federal la Compliance will require permits and be obtained before construction beg	aws. must	No easements or permits are likely needed. Installation of all land treat practices will comply with all applica local, state, and federal laws. Any r permits will be obtained prior to construction.	ment ible	Implementation of all infrastructure i comply with all applicable local, stat federal laws. Compliance will requin permits and must be obtained befor construction begins.	te, and re
considered, includ	nulative impacts ling past, n future actions	Natural stream restoration would be the overall health of the stream and provide additional outdoor recreation opportunities. When applied throug the watershed, the cumulative effec would reduce the impacts of flooding	nal h out ts	Income stability for landowners and farmers in the area, water quality improvements, and improvements to overall environmental health when practices are applied within the sam region on many farms. The implementation would cumulatively the impacts of flooding.	o ie	Green Infrastructure would benefit th health of the stream and reduce imp flash flooding.	
L. Mitigation (Record actions to minimize, and cor		None		None		None	
M. Preferred	√ preferred alternative						
Alternative	Supporting reason	Natural stream restoration would be the overall heath of the stream.	nefit	Implementation of conservation pration pration provide to prevent upland erosion causing sediment loading of the water ways.		Reduced impacts of flash flooding a improvement of stream health.	and
		• /	local	local	mon	local	<u>`</u>
affected interes			mexis	such as society as a whole (hu	man, n	ational), the affected region, the	-

U.S. Department of Agriculture Natural Resources Conservation Se		S-CPA-52 11/2019	IA Client Name: West V	Virginia	a Conservation Agency	
ENVIRONMENTAL E		EET	B. Conservation Plan ID # (a Program Authority (op			
D. Client's Objective(s) (pu The purpose of this project is to p water management by reducing fi sedimentation loading in the Knap	rovide watershed protection and agr ood water damages, erosion and	icultural	C. Identification # (farm, trac Knapp Creek Watershed, Pocahonta Part of 10-digit HUC (0505000304, Creek)	t, field s County	#, etc. as required):	
E. Need for Action:	H. Alternatives					
The baseline condition without	Alternative 9 √ if RMS	s 🗌	√ if RM3	s 🗌	√ if RMS	S 🗌
federal investment is a situation	Combination of all alternatives- Lan		Floodplain buyout, flood proofing af			
of deteriorating infrastructure and potential loss of flood protection,	Treatment, Stream Restoration, Re Repair, Channelization, Green	hab,	homes, or relocation of homes- Ado repetitve flood damage to propertie			
incidental recreation, rural water	Infrastructure, and New Structures.		removing homes from the floodplain	-		
supply , and other amenities	-		flood proofing measures. Homes re			
associated with existing impoundments. Previously	practices and structures evaluated alternatives could more fully addres		from the floodplain would address r			
completed watershed projects	concerns associated with flooding.		concerns associated with flooding, and sedimentation, water quality,	erosion		
are either past their service life or	and sedimentation, water quality,		recreation, and water supply. Home	es		
have been reclassified as high hazard dams.	recreation, and water supply. Tech		removed would be replaced with	h		
	and financial assistance would be for in the area through the Watershed	ocusea	conservation practices to reestablis natural habitat. Technical and finan			
	Protection and Flood Prevention Ac	ct as	assistance would be focused in the			
			through the Watershed Protection a			
	as CTA, EQIP and NWQI, along wi funding and in kind services provide		Flood Prevention Act as well as trac Farm Bill programs. Flood proofing			
	local sponsors	Suby	occur outside of agency assistance			
	R	esou	rce Concerns			
In Section "F" below, analy	ze, record, and address cond			ces Inv	entory process	
	source Planning Criteria for g					
F. Resource Concerns	I. Effects of Alternatives		•			
and Existing/ Benchmark	Alternative 9					
Conditions	Amount, Status,	√if	Amount, Status,	√if	Amount, Status,	√if
(Analyze and record the	Description	does	Description	does	Description	does
existing/benchmark		NOT		NOT		NOT
conditions for each identified concern)	(Document both short and	meet PC	(Document both short and	meet PC	(Document both short and	meet PC
SOIL	long term impacts)		long term impacts)			
SUL		•	iong torm impactor		long term impacts)	
Sheet and rill erosion	Strategic installation of flood	[				
Sheet and rill erosion	Strategic installation of flood control structures, land treatment		Installation of flood control structures on homes and land			
	control structures, land treatment practices, natural stream		Installation of flood control structures on homes and land treatment practices on bought out			
Sheet and rill erosion Sedimentation caused by erosior in the uplands of the watershed	control structures, land treatment practices, natural stream restoration and green infrastructure		Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion			
Sedimentation caused by erosior in the uplands of the watershed negatively impact Knapp Creek	control structures, land treatment practices, natural stream		Installation of flood control structures on homes and land treatment practices on bought out			NOT
Sedimentation caused by erosior in the uplands of the watershed negatively impact Knapp Creek and its tributaries. Sediment	control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across	NOT	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce	NOT meet		NOT meet
Sedimentation caused by erosior in the uplands of the watershed negatively impact Knapp Creek and its tributaries. Sediment loading contributes to reduced	control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment	NOT	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce	NOT		NOT
Sedimentation caused by erosior in the uplands of the watershed negatively impact Knapp Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further	control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment	NOT	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce	NOT meet		NOT meet
Sedimentation caused by erosior in the uplands of the watershed negatively impact Knapp Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages.	control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment	NOT	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce	NOT meet		NOT meet
Sedimentation caused by erosion in the uplands of the watershed negatively impact Knapp Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages.	control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment loads in waterways.	NOT	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce sediment loads in waterways.	NOT meet		NOT meet
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Sedimentation caused by erosior in the uplands of the watershed negatively impact Knapp Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. WATER Ponding and flooding Flooding has been a historical issue in the watershed with the	control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment loads in waterways. Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure	NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce sediment loads in waterways.	NOT meet PC		NOT meet
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Sedimentation caused by erosion in the uplands of the watershed negatively impact Knapp Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. WATER Ponding and flooding Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few	control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment loads in waterways. Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce sedimentation of streams to allow more capacity	NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce sediment loads in waterways.	NOT meet PC		NOT meet
Sedimentation caused by erosion in the uplands of the watershed negatively impact Knapp Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. WATER Ponding and flooding Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few decades as storms become more frequent and severe, and	control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment loads in waterways. Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce sedimentation of	NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce sediment loads in waterways.	NOT meet PC		NOT meet PC
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Sedimentation caused by erosior in the uplands of the watershed negatively impact Knapp Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. WATER Ponding and flooding Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few decades as storms become more frequent and severe, and as the infrastructure ages.	control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment loads in waterways. Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce sedimentation of streams to allow more capacity during flood events and allow for more water retention and	NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce sediment loads in waterways.	NOT meet PC		NOT meet PC
Sedimentation caused by erosior in the uplands of the watershed negatively impact Knapp Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. WATER Ponding and flooding Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few decades as storms become more frequent and severe, and as the infrastructure ages. Approximately 18% of the residence are in major risk of flooding. Flooding is a threat to	control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment loads in waterways. Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce sedimentation of streams to allow more capacity during flood events and allow for more water retention and controlled flow from flood control	NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce sediment loads in waterways.	NOT meet PC		NOT meet PC
Sedimentation caused by erosior in the uplands of the watershed negatively impact Knapp Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. WATER Ponding and flooding Flooding has been a historical issue in the watershed with the expected risk of flooding increasing over the next few decades as storms become more frequent and severe, and as the infrastructure ages. Approximately 18% of the residence are in major risk of flooding. Flooding is a threat to property, access to utilities,	control structures, land treatment practices, natural stream restoration and green infrastructure would reduce soil erosion across all land uses and reduce sediment loads in waterways. Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce sedimentation of streams to allow more capacity during flood events and allow for more water retention and controlled flow from flood control	NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce soil erosion across all land uses and reduce sediment loads in waterways.	NOT meet PC		NOT meet PC
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Sediment transported to surface water Sedimentation caused by erosion in the uplands of the watershed negatively impact Knapp Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events.	control structures, land treatment	NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce sediment loads in waterways.	NOT meet PC		NOT meet PC
Nutrients transported to surface water Water quality is negatively affected by nutrients, failing septic systems, and runoff from rural landscapes within the watershed. Many streams within the watershed have elevated levels of fecal coliform from pasture/cropland, failing septic systems, and residential stormwater sources.	Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure nutrient transportation to waterways	NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce nutrient transportation to waterways.	NOT meet PC		NOT meet PC
F. Resource Concerns	I. (continued)					
and Existing/ Benchmark	Alternative 9					
Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	Amount, Status, Description (Document both short and long term impacts)	√if does NOT meet PC	Amount, Status, Description (Document both short and long term impacts)	√if does NOT meet PC	Amount, Status, Description (Document both short and long term impacts)	√if does NOT meet PC
No resource concern identified Air quality is not a resource concern within the watershed.	Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary.	NOT meet PC	Air quality may be slightly adversely impacted locally during construction activities (dust and exhaust from construction equipment). The increases are expected to remain well within the air quality standards and would be temporary.	NOT meet PC		NOT meet PC
PLANTS						
Plant structure and composition The watershed provides for both agricultural crops as well as naturally vegetated areas that provide wildlife habitat. There is a lack of plant species diversity, specifically along streams in riparian areas, and a presence of invasive species.	would be restored to natural, native vegetation, hydrophytic vegetation would benefit from wetland restoration and green infrastructure.		Plant structure and composition would be improved on cropland and pasture land, riparian areas would be restored to natural, native vegetation, hydrophytic vegetation would benefit from wetland restoration and green infrastructure.	NOT meet PC		NOT meet PC
ANIMALS						
Terrestrial habitat for wildlife and invertebrates Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 11	Terrestrial habitat would be improved through the implementation of wildlife oriented land treatment practices, riparian areas created as part of natural stream restoration and green		Terrestrial habitat would be improved through the implementation of wildlife oriented land treatment practices, riparian areas created as part of natural stream restoration and green			NOT

Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively effecting aquatic fish and invertebrate species habitat. ENERGY No resource concern identified This area has various electrical, oil, and gas transmission facilities.	The effects of sedimentation on aquatic wildlife would be significantly controlled with a strategic implementation of all alternatives previously evaluated. Hydroelectric power generation could be included as an element in the design of the structures to provide clean energy to the region.	NOT meet PC NOT meet PC	The effects of sedimentation on aquatic wildlife would be significantly controlled with a strategic installation of flood control structures on homes and land treatment practices on bought Applicants that would choose to participate in a floodplain buyout would decrease energy use in the area.	NOT meet PC NOT meet PC		NOT meet PC NOT meet PC
Human Economic and Soc Public Health and Safety	ial Considerations Strategic planning and installation o	of all	Installation of flood control structure	s on		
Damaging floods occur on an annual basis with increasing severity over the past few decades. Flooding impacts residents' access to emergency services, results in loss of land, and creates unsanitary conditions in effected residences and businesses.	previously evaluated alternatives we increase flood protection of the cour residences and business. It would a provide the opportunity for rural wat supply, recreation opportunities, and short term creation of jobs during construction. Over all watershed an stream health would be improved.	nties' also er d a	homes and land treatment practices bought out lots would increase flood protection of the counties' residence business. It would also provide rect opportunities and a short term creat jobs during construction. Over all watershed and stream health would improved.	d es and reation tion of		
Special Env	vironmental Concerns: E	Inviro	onmental Laws. Executi	ve Or	ders, policies, etc.	
effects may need to be dete practices not involved in c	consultation/coordination bet ermined in consultation with a onsultation. J. Impacts to Special Enviro <i>Alternative</i> 9	anothe	r agency. Planning and prac	-		
(Document existing/	Document all impacts	√if	Document all impacts	√if	Document all impacts	√if
benchmark conditions)	(Attach Guide Sheets as	needs further	(Attach Guide Sheets as	needs	(Attach Guide Sheets as	
	applicable)	action	applicable)	further action	` applicable)	needs further action
•Clean Air Act Guide Sheet The watershed is not in an area recognized for regularly having impaired air quality or significant air quality issues.	Applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.		applicable) May Affect It is likely that no permitting or authorization is necessary. The activity is expected to only have minor local impacts to air quality during construction and would not be expected to violate standards. Advise the client to contact the appropriate air quality regulatory agency for verification.			further

Coastal Zone Management	No Effect	 No Effect	_	
Guide Sheet There are no costal zones				
present in or near the watershed.				
·····				
Coral Reefs	No Effect	No Effect		
Guide Sheet				
There are no coral reefs present				
in or near the watershed.				
Cultural Resources / Historic	May Affect	May Affect	_	_
Properties	Consultation with Tribal Nations,	Consultation with Tribal Nations,		
Guide Sheet There are known cultural,	West Virginia State Historic Preservation Office (SHPO), and	West Virginia State Historic Preservation Office (SHPO), and		
archeological, and historically	other interested parties will be	other interested parties will be		
significant resources throughout	conducted in according to Section	conducted in according to Section		
the watershed. Consultation with	106 of the National Historical	106 of the National Historical		
Tribal Nations, West Virginia	Preservation Act (NHPA) of 1966,	Preservation Act (NHPA) of 1966,		
State Historic Preservation Officer, and other interested	as amended.	as amended.		
parties with vested interests in a				
yet to be determined area of				
potential effect will be conducted				
according to Section 106 of the				
National Historical Preservation				
Act (NHPA) of 1966, as				
amended.				
<ul> <li>Endangered and Threatened</li> </ul>	May Affect	 May Affect		
<ul> <li>Endangered and Threatened</li> <li>Species</li> </ul>	The structural alternative is not	The structural alternative is not		
Guide Sheet	expected to create an adverse	expected to create an adverse		
There is a total of 11 Federally	impact to threatened, endangered,	impact to threatened, endangered,		
listed threatened, endangered, or	•	or rare species. Federal, state,		
candidate species potentially	and local wildlife agencies will be	and local wildlife agencies will be		
found in this watershed listed by the US Fish and Wildlife Service	consulted prior to construction.	consulted prior to construction.		
(USFWS). According to West				
Virginia Department of Natural				
Resources (WVDNR), WV is a				
permanent home to 22 federally				
endangered species (17 animals,				
4 plants) and 7 federally				
threatened species (5 animals, 2 plants). WVDNR's State Wildlife				
Action Plan (SWAP) recognizes				
22 Conservation Focus Areas				
(CFA) throughout the state that				
includes Species of Greatest				
Conservation Need (SGCN). See				
Appendix E for a complete USFWS IPaC Species list,				
WVDNR state listings, map of				
WV CFAs, and a list of SGCN for				
this watershed.				
Environmontal lusti	No Effect	No Effect		 
Environmental Justice Guide Sheet	No Effect No negative impacts are	No Effect No negative impacts are		
Pocahontas County is completely		anticipated. The project would		$\square$
within the Appalachian Region.	benefit historically underserved	benefit historically underserved		
This county is not designated as	residents, landowners, and	residents, landowners, and		
a limited resource county by	communities.	communities.		
USDA. However, it is				
designated as 'at-risk' by the				
Appalachian Regional				
Commission, indicating the economy is struggling.				
Pocahontas County is 97% white				
and 2% black. Other races				
make up less than 1% of the				
county population. The poverty				
rate in Pocahontas County is				
18.1% compared to the WV rate of 15.8% and the national rate of				
11.4%.				

<ul> <li>Essential Fish Habitat Guide Sheet</li> </ul>	No Effect		No Effect		
This area is not designated as					
Essential Fish Habitat.					
Floodplain Management	May Affect		May Affect		
<i>Guide Sheet</i> Pocahontas county has a major	This alternative will result in the protection of floodplains due to the		This alternative will result in the protection of floodplains due to the		
risk of flooding over the next few	•		decreased impacts of flooding.		
decades.	decreased impacts of nooding.		decreased impacts of nooding.		
Invasive Species	May Affect		May Affect		
Guide Sheet	Invasive species occur within the		Invasive species occur within the		
Invasive species are found in the watershed.	watershed. Care would be taken	_	watershed. Care would be taken		
watersneu.	not to introduce invasive species in disturbed areas.		not to introduce invasive species in disturbed areas.		
<ul> <li>Migratory Birds/Bald and</li> </ul>	No Effect		No Effect	 	
Golden Eagle Protection Act	Actions will not result in intentional		Actions will not result in intentional		$\square$
Guide Sheet	or unintentional take of any		or unintentional take of any		
Migratory birds and eagles utilize	migratory bird, nest, or egg.		migratory bird, nest, or egg.		
the Knapp Creek Watershed					
habitats. There is a total of 15					
federally listed birds in the area. The birds listed are birds of					
particular concern either because					
they occur on the USFWS Birds					
of Conservation Concern (BCC)					
list or warrant special attention in					
the project location.					
Natural Areas	No Effect		No Effect		
Guide Sheet					
Federal: The US Forest Service manages the Monongahela					
National Forest which lies					
partially within the Knapp Creek					
Watershed.					
State: State: The West Virginia					
Division of Forestry manages					
Watoga State Park and West					
Virginia Division of Forestry manages Calvin Price State					
Forest, both located just					
southwest of the Knapp Creek					
Watershed boundary. WVDOF					
also manages Seneca State					
Forest at the watershed's					
northern boundary.					
Prime and Unique Farmlands	No Effect		No Effect		
Guide Sheet	Alternative would provide		Alternative would provide		
Presently there are 3,386 acres	protection of prime farmland		protection of prime farmland		
of Prime Farmland, which	through the reduction of		through the reduction of		
accounts for 5% of land in the	streambank erosion, sheet and rill		streambank erosion, sheet and rill		
study area. Additionally, there are 3,441 acres of Farmland of	erosion, and sedimentation of streams.		erosion, and sedimentation of streams.		
Local Importance and 2,060	Sucaris.		Sucaris.		
acres of Farmland of Statewide					
Importance. Farmland protection					
boards are actively conserving					
land in the watershed. The					
threat of conversion, however, is not drastic.					
101 UI ABUU.					
Riparian Area	May Affect		May Affect		
Guide Sheet	Riparian areas would be enhanced		Riparian areas would be enhanced		
There are riparian areas present	through the installation of natural		through the installation of natural		
in or near the project area.	stream restoration, land treatment		stream restoration, land treatment		
Riparian areas found in this	programs, and green		programs, and green		
region are generally characterized as vegetated and	infrastructure.		infrastructure.		
un-vegetated. These areas are					
often utilized for agricultural					
purposes.					

Seconia Regulty		No Effort		No Effort			
Scenic Beauty Guide Sheet Areas of potential in this watershed the Ridge and Val physiographic pro common to the re	are typical of ley vince and	No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Ridge and Valley physiographic province.		No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Ridge and Valley physiographic province.			
•Wetlands Guide Sheet There are 1,601 a wetlands within th Watershed which following: 169 acr Freshwater Emerg 423 acres of Fresh Forested/Shrub W acres of Other; an Riverine. Data co the US Fish and V National Wetlands	e Knapp Creek consist of the es of gent Wetlands; hwater /etlands; 28 er Pond; 9 d 972 acres of llected from! Vildlife Service	May Affect Alternative would enhance the values and functions of wetlands and surrounding ecosystems.		May Affect Alternative would enhance the values and functions of wetlands and surrounding ecosystems.			
•Wild and Scenic Guide Sheet No designated Wi Rivers are in or ne area. All trout stre designated as "W Concern" in Pocal Rivers within the I National Forest de National Wild and Rivers. The Gree from its confluenc Creek to its conflu New River is prote activities that wou divert, or flood the as specified in the Stream Preservat (WVNSPA).	Id and Scenic ear the project ams are aters of Special hontas County. Monongahela esignated as Scenic Study nbrier River e with Knapps lence with the acted from Id impound, body of water wWV Natural	No Effect		No Effect			
K. Other Ager Broad Public (		Alternative 9					
		Installation of any water control stru- will involve the placement of fill mat streams and must comply with all applicable local, state, and federal li Compliance will require permits and be obtained before construction beg Mitigation may also be required.	erial in aws. I must	Installation of any water control stru will involve the placement of fill mat streams and must comply with all applicable local, state, and federal I Compliance will require permits and be obtained before construction beg Mitigation may also be required.	erial in aws. I must		
present and known future actions		Strategic installation of all previously evaluated alternatives across the watershed will improve the areas ov resilience to flooding and improve q of life for the ecosystems and the residents.	verall	Strategic installation of flood control structures on homes and land treatr practices on bought out lots across watershed will improve the areas ov resilience to flooding and improve q of life for the ecosystems and the	ment the ⁄erall		
L. Mitigation (Record actions to avoid, minimize, and compensate)		Mitigation would likely be required for length of streams impacted. Vegeta will be established on disturbed area immediately following construction t vegetative plan developed conjuncti NRCS and local sponsors.	ation as o a	Mitigation would likely be required for length of streams impacted. Vegeta will be established on disturbed are immediately following construction to vegetative plan developed conjunct NRCS and local sponsors.	ation as o a		
M. Preferred	√ preferred						
Alternative	alternative Supporting reason	Installation of various flood control a land treatment practices will provide holistic approach to flood resiliency.	a	Installation of various flood control a land treatment practices will provide holistic approach to flood resiliency.	a		
N. Context (Re	ecord context	of alternatives analysis)	local	local		-	

		t of my knowledge, the data shown on this form	· · · · · · · · · · · · · · · · · · ·	
		ere a non-NRCS person (e.g. a TSP) assists with p	planning they are to sign the first signature	block and then NRCS is to sign
the seco	ond block	ck to verify the information's accuracy.		
_				
		Signature (TSP if applicable)	Title	Date
		E STUTLER STUTLER	Outreach Coordinator	10/19/2022
_		Date: 2022.10.19 18:37:08 -04'00'	Level 3 Certified Planner	
If profe	rrod alto	Signature (NRCS) ernative is not a federal action where NRCS ha	Title	Date
		r than the client then indicate to whom this is l		55-CFA-52 is shared with
Someon	lie other	r than the chefit then indicate to whom this is i	being provided.	
	-	The following costions are to be come	lated by the Deenensible Feder	
		The following sections are to be comp		· · · ·
		FO if the action is subject to NRCS control and res		
		RCS). These actions do not include situations in v		
		e client ultimately does with that assistance and sit		al determination (such as Farm Bill
		determinations) not associated with the planning		
		ion of Significance or Extraordinary Circumsta		
		questions below, consider the severity (intensity) o		
		significant effect may exist even if the Federal age		ill be beneficial. Significance
cannot l	be avoide	led by terming an action temporary or by breaking	it down into small component parts.	
lf you a	nswer A	ANY of the below questions "yes" then contact	t the State Environmental Liaison as the	ere may be extraordinary
-		and significance issues to consider and a site		
Yes	No			
	$\checkmark$	<ul> <li>Is the preferred alternative expected to cause</li> </ul>		
	$\overline{\checkmark}$	<ul> <li>Is the preferred alternative expected to sign</li> </ul>	· ·	
		to historic or cultural resources, park lands,	prime farmlands, wetlands, wild and scen	ic rivers, or ecologically critical
	$\checkmark$	areas?	a the smallth of the barrier and from the first	aluta ha biablu asutususisi0
		Are the effects of the preferred alternative o		
	$\checkmark$	<ul> <li>Does the preferred alternative have highly up</li> </ul>	ncertain effects or involve unique or unkno	own risks on the human
		environment?	readant for future actions with cignificant	impacto or represent o decision in
	$\checkmark$	<ul> <li>Does the preferred alternative establish a preferred alternative activities and a preferred alternative activities activities and a preferred alternative activities activitities activitities activities activities activities activitie</li></ul>	recedent for future actions with significant	impacts or represent a decision in
		principle about a future consideration?	ably expected to have potentially eignificat	nt onvironment impacts to the
	$\checkmark$	<ul> <li>Is the preferred alternative known or reason quality of the human anyiranment either indi</li> </ul>		ni environment impacts to the
	_	quality of the human environment either ind		
$\checkmark$		<ul> <li>Will the preferred alternative likely have a si</li> </ul>	5 i	
		the Evaluation Procedure Guide Sheets to a		
		as cultural or historical resources, endanger	•	
		coastal zones, coral reefs, essential fish hal	bitat, wild and scenic rivers, clean air, ripa	rian areas, natural areas, and
		invasive species.		
	$\checkmark$	<ul> <li>Will the preferred alternative threaten a viola</li> </ul>	ation of Federal, State, or local law or requ	irements for the protection of the
		environment?		

Q. NEPA Com The preferred a		ding (check one)	Action required
		federal action where the agency has control or responsibility.	Document in "R.1" below. No additional analysis is required
		ral action ALL of which is categorically excluded from further tal analysis AND there are no extraordinary circumstances as identified "P".	Document in "R.2" below. No additional analysis is required
	regional, or r	ral action that has been <b>sufficiently analyzed</b> in an existing Agency state, national NEPA document <b>and</b> there are no predicted <u>significant adverse</u> tal effects or extraordinary circumstances.	Document in "R.1" below. No additional analysis is required.
•	NEPA docur and has bee its own Findi	al action that has been sufficiently analyzed in another Federal agency's ment (EA or EIS) that addresses the proposed NRCS action and its' effects <u>en formally adopted by NRCS</u> . NRCS is required to prepare and publish ling of No Significant Impact for an EA or Record of Decision for an EIS ing another agency's EA or EIS document. (Note: This box is not to FSA)	Contact the State Environmental Liaison for list of NEPA documents formally adopted and available for tiering. Document in "R.1" below. No additional analysis is required
V	5) is a feder	ral action that has <b>NOT</b> been sufficiently analyzed or may involve predicted dverse environmental effects or extraordinary circumstances and may	Contact the State Environmental Liaison. Further NEPA analysis required.
R. Rationale S	Supporting the	ne Finding	
R.1 Findings Docun	nentation	An Environmental Assessment would be prepared for the project if it proceeds to the pla the salutatory acreage, volume/capacity of structure and recreation limit requirements fo also meets the requirements of one or more Watershed Operations authorized purposes and Agricultural Water Management. It meets the requirement for a minimum of 20% ag who are ready, willing and able to carry out their responsibilities. There are no apparent project. Section D of this form is not completed because the preferred alternative will no	or a PL-566 project. This potential project es: Flood Prevention, Watershed Protection, agricultural or rural benefits. It has sponsors t insurmountable obstacles to this potential
R.2 Applicable Cate Exclusion(s) (more than one n			
7 CFR Part 650 <i>C</i> <i>With NEPA</i> , subp <i>Categorical Exclus</i> prior to determinin proposed action is	part 650.6 <i>isions</i> states ng that a s categorically		
excluded under pa this section, the pr must meet six side See NECH 610.17	roposed action eboard criteria.		
	l Concerns, a	cts of the alternatives on the Resource Concerns, Economic and Social and Extraordinary Circumstances as defined by Agency regulation and	
S. Signature c	of Responsib	ble Federal Official:	
	ş	Signature Title	Date
		Additional notes	
		Additional notes	

Appendix D.

Forecasted NRCS Staffing Needs

## Marlin Run Staffing Needs

	Planner	Engineer	Engineer	Biologist	Economist	Admin Asst
Phase 1 -Identify Problems, Opportunities, & Concerns						
Final plan of work	30	16	16	16	16	6
Public Participation plan	20	12	12	12	12	2
Gather Data	50	50	50	50	50	20
Consultation List	6				12	2
Final assessment	18	18	18	18	18	6
Total	124	96	96	96	108	36
	r					
Phase 2 -Determine Objectives						
Document Sponsor Objectives	6	6	6	6	6	2
Write purpose & Need statement	10	6	6	6	6	4
Agency consultation/coordination	12	12	12	12	12	4
Tribal consultation	20				20	4
Scoping public meeting	12	10	10	10	10	4
Write scope of plan	10	10	10	10	10	8
Total	70	44	44	44	64	26
Phase 3 -Inventory Resources Resource Inventories & watershed assessment						
Economic & Social Assessment						
Collect Population Demographics					15	2
Identify effcts to public health & safety					16	2
Identify effcts to homes, businesses & ag operations					80	6
Identify visual concerns					15	2
Collect economic data					40	4
Identify non-NEPA laws related to project	4	4	4	4	6	2
Identify approved regional water resource plans in	2	2	2		2	2
project	2	2	2	2		
Final economic and social assessment					60	6
Archaeological & Historic Assessment						10
Literature review				240		10 6
Coordination with State Historic Preservation Officer				80		10
Final archaeologcial and historic assessment Geologic Assessment & Engineering Assessment				350		10
Review existing geologic investigations		20	20			
Enigneering Surveys		80	20 80			
Evaluate condition of existing structures		30	30			
Final geologic assessment and engineering						
assessment		100	100			
Total	6	236	236	676	234	52

## Marlin Run Staffing Needs

	Planner	Engineer	Engineer	Biologist	Economist	Admin Asst
Phase 4 -Analyze Resource Data						
Develop resource existing conditions	20	20	20	20	20	6
Economic & Social Assessment						
Quantify onsite/offsite damages					100	6
Economics and social effects (future without project					40	6
condition)						
Archaeological & Historic Assessment				16		
Geologic Assessment & Engineering Assessment						
Determine geologic investigation needs		40	40			
Review existing hydrology /hydraulic models		40	40			
Determine watershed conditions (CN, Tc, rainfall)		80	80			
Run preliminary hydraulics		40	40			
Develop hydrologic model for watershed		60	60			
Run hydrologic models		60	60			
Total	20	340	340	36	160	18

### Phase 5 -Formulate Alternatives

Analysis of initial alternatives						
Document alternatives eliminated from detailed						
study	10	12	12	8	8	10
Document reasonable alternatives	10	12	12	10	10	10
Identify permits, licenses, other entitlements required	4	4	4	4	4	2
Define mitigation strategies	8	6	6	10	10	4
Determine project costs for each alternative		22	22			4
Final plan of work	8	4	4	4	4	2
Final initial alternatives report	50	50	50	50	50	10
Total	90	110	110	86	86	42

# Marlin Run Staffing Needs

Phase 6 -Evaluate Alternatives	Planner	Engineer	Engineer	Biologist	Economist	Admin Asst
Summary & comparison of alternatives	12	12	12	12	12	4
Evaluate environmental resources	30			30		2
Geology		20	20			4
Foundation & slope stability		40	40			8
Sedimentation						
Hydrology & Hydraulics		110	110			20
Run hydrologic models		150	150			20
Breach inundation study		120	120			20
Develop floodplain maps						
Economics						
Determine economic benefits for each alternative					80	10
Trend analysis for alternatives					10	2
Claculate average annual damages					20	2
Calculate benefit cost ratio					6	
Detremine National Economic Efficiency plan					6	
Final summary & comparison of alternative table					180	20
Final environmental consequences narrative	100			100		20
Total	142	452	452	142	314	132
Phase 7 - Make Decisions						
Compare & review alternatives with sponsor	30	10	10	10	10	2

Compare & review alternatives with sponsor Evaluate environmental resources

	30	10	10	10	10	2
	440	110	110	110	110	40
Total	470	120	120	120	120	42

### Phase 8 - Review & Draft Environmental Document

Response to agencies and other interseted parties' comments	24	20	20	20	20	4
Repsonse NWMC and SLO review	100	40	40	40	40	10
Repsonse to HQ National Programmatic review	20	10	10	10	10	2
Complete plan	30	30	30	30	30	4
Total	174	100	100	100	100	20
# Marlin Run Staffing Needs, assuming NRCS will conduct work with own staff

	Planner	Engineer	Engineer	Bilologist	Economist	Admin Asst	
Total Hours	1096	1498	1498	1300	1186	368	
Hourly Rate							
(includes overhead)	\$120.00	\$100.00	\$100.00	\$100.00	\$100.00	\$75.00	TOTAL COST
Total Cost	\$131,520.00	\$149,800.00	\$149,800.00	\$130,000.00	\$118,600.00	\$27,600.00	\$707,320.00

Appendix E.

Supporting Information Appendix (T&E and Invasive Species)

### Endangered species

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

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact <u>NOAA Fisheries</u> for <u>species under their jurisdiction</u>.

Additional information on endangered species data is provided below.

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

#THUMBNAILS #LIST	B SPECIES GUIDELINES -
Mammals	STATUS
Gray Bat Myotis grisescens Wherever found	Endangered
Indiana Bat CH Myotis sodalis Wherever found	Endangered
Northern Long-eared Bat Myotis septentrionalis Wherever found	Threatened
Virginia Big-eared Bat Cen Corynorhinus (=Plecotus) townsendii virginianus Wherever found	Endangered
Fishes	STATUS
Candy Darter CH Etheostoma osburni Wherever found	Endangered
Insects NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found	Candidate
Rusty Patched Bumble Bee Bombus affinis Wherever found	Endangered
Flowering Plants	STATUS
Northeastern Bulrush Scirpus ancistrochaetus	Endangered
Shale Barren Rock Cress Boechera serotina Wherever found	Endangered
Small Whorled Pogonia Isotria medeoloides	Threatened
<b>Virginia Spiraea</b> Spiraea virginiana Wherever found	Threatened
Critical habitats	

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

This location overlaps the critical habitat for the following species:

NAME

TYPE Final

# Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act<sup>3</sup> and the Bald and Golden Eagle Protection Act<sup>3</sup>.

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described <u>below</u>. RELATED LINKS Birds of Conservation Concern

Measures for avoiding and minimizing impacts to birds

Nationwide conservation measures for birds

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

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

<b>#</b> THUMBNAILS	PROBABILITY OF PRESENCE SUMMARY
NAME / LEVEL OF CONCERN REEDING SEASON	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus Non-BCC Vulnerable	Breeds Sep 1 to Aug 31
Black-billed Cuckoo Coccyzus erythropthalmus BCC Rangewide (CON)	Breeds May 15 to Oct 10
Black-capped Chickadee Poecile atricapillus practicus BCC - BCR	Breeds Apr 10 to Jul 31
Bobolink Dolichonyx oryzivorus BCC Rangewide (CON)	Breeds May 20 to Jul 31
Canada Warbler Cardellina canadensis BCC Rangewide (CON)	Breeds May 20 to Aug 10
Cerulean Warbler Dendroica cerulea BCC Rangewide (CON)	Breeds Apr 27 to Jul 20

Chimney Swift Chaetura pelagica BCC Rangewide (CON)

Eastern Whip-poor-will Antrostomus vociferus BCC Rangewide (CON)

Golden Eagle Aquila chrysaetos Non-BCC Vulnerable

Golden-winged Warbler Vermivora chrysoptera BCC Rangewide (CON)

Kentucky Warbler Oporornis formosus BCC Rangewide (CON)

Prairie Warbler Dendroica discolor BCC Rangewide (CON)

Red-headed Woodpecker Melanerpes erythrocephalus BCC Rangewide (CON)

Rusty Blackbird Euphagus carolinus BCC - BCR

Wood Thrush Hylocichla mustelina BCC Rangewide (CON) Breeds Mar 15 to Aug 25

Breeds May 1 to Aug 20

Breeds elsewhere

Breeds May 1 to Jul 20

Breeds Apr 20 to Aug 20

Breeds May 1 to Jul 31

Breeds May 10 to Sep 10

Breeds elsewhere

Breeds May 10 to Aug 31

# Listing status

The <u>Endangered Species Act (ESA)</u> and the guidance and policies of the U.S. Fish and Wildlife Service (Service) define many categories of listing statuses for species. As a general rule, IPaC uses the term "listed species" to generically refer to species that may belong to any of the categories.

### Endangered (E)

Any species which is in danger of extinction throughout all or a significant portion of its range. Endangered species are protected by the take prohibitions of section 9 under the ESA.

### Threatened (T)

Any species which is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Threatened species are protected by the take prohibitions of section 9, consistent with any protective regulations finalized under section 4(d) of the ESA.

### Candidate (C)

Any species for which the Service has sufficient information on its biological status and threats to propose it as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. Candidate species are not protected by the take prohibitions of section 9 of the ESA.

### Proposed endangered (PE)

Any species the Service has determined is in danger of extinction throughout all or a significant portion of its range and the Service has proposed a draft rule to list as endangered. Proposed endangered species are not protected by the take prohibitions of section 9 of the ESA until the rule to list is finalized. Under section 7(a)(4) of the ESA, federal agencies must confer with the Service if their action will jeopardize the continued existence of a proposed species.

### Proposed threatened (PT)

Any species the Service has determined is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and the Service has proposed a draft rule to list as threatened. Proposed threatened species are not protected by the take prohibitions of section 9, consistent with any protective regulations finalized under section 4(d) of the ESA, until the rule to list is finalized. Under section 7(a)(4) of the ESA, federal agencies must confer with the Service if their action will jeopardize the continued existence of a proposed species.

# Similarity of Appearance, Endangered (SAE)

Any species listed as endangered due to similarity of appearance with another species that is listed as endangered. Species listed under a similarity of appearance are not biologically endangered and are not subject to section 7 consultation. Listing by similarity of appearance depends on the degree of difficulty law enforcement personnel would have in distinguishing the species from an endangered species and where the additional threat posed to the endangered species by the similarity of appearance. Species listed under a similarity of appearance may be protected by the take prohibitions of section 9 under the ESA, where they overlap with the listed entity they were listed to protect.

# Similarity of Appearance, Threatened (SAT)

Any species listed as threatened due to similarity of appearance with another species that is listed as threatened. Species listed under a similarity of appearance are not biologically endangered and are not subject to section 7 consultation. Listing by similarity of appearance depends on the degree of difficulty law enforcement personnel would have in distinguishing the species from a threatened species and where the additional threat posed to the threatened species by the similarity of appearance. Species listed under a similarity of appearance may be protected by the take prohibitions of section 9 under the ESA, where they overlap with the listed entity they were listed to protect.

### Proposed Similarity of Appearance, Endangered (PSAE)

Any species proposed for listing as endangered due to similarity of appearance with another species that is listed as endangered, but a final rule to list has not yet been published. Species proposed for listing under a similarity of appearance are not biologically endangered and are not subject to section 7 consultation. Listing by similarity of appearance depends on the degree of difficulty law enforcement personnel would have in distinguishing the species from an endangered species and where the additional threat posed to the endangered species by the similarity of appearance. Proposed similarity of appearance are not protected by the take prohibitions of section 9 of the ESA until the rule is finalized.

### Proposed Similarity of Appearance, Threatened (PSAT)

Any species proposed for listing as threatened due to similarity of appearance with another species that is listed as threatened, but a final rule to list has not yet been published. Species proposed for listing under a similarity of appearance are not biologically threatened and are not subject to section 7 consultation. Listing by similarity of appearance depends on the degree of difficulty law enforcement personnel would have in distinguishing the species from a threatened species and where the additional threat posed to the threatened species by the similarity of appearance. Proposed threatened species are not protected by the take prohibitions of section 9 of the ESA until the rule is finalized.

# Emergency listing, Endangered (EmE)

Any species for which the Secretary of the Department of the Interior (Secretary) has determined it is at significant immediate risk of survival and publishes an emergency listing as endangered. The emergency listing is temporary (240 days). During this time the Service evaluates the species under standard listing protocols. Emergency-listed endangered species are afforded all the protections afforded by the ESA.

### Emergency listing, Threatened (EmT)

Any species for which the Secretary has determined it is at significant immediate risk of survival and publishes an emergency listing as threatened. The emergency listing is temporary (240 days). During this time the Service evaluates the species under standard listing protocols. Emergency-listed threatened species are protected by the take prohibitions of section 9, consistent with any protective regulations finalized under section 4(d) of the ESA.

### Experimental population, Essential (EXPE)

A population that has been established within its historical range under section 10(j) of the ESA to aid recovery of the species. The Service has determined an essential population is necessary for the continued existence of the species. Essential experimental populations are treated as threatened species and afforded all the protections afforded to threatened species by the ESA.

### Experimental population, Non-essential (EXPN)

A population that has been established within its historical range under section 10(j) of the ESA to aid recovery of the species. The Service has determined a non-essential population is not necessary for the continued existence of the species. For the purposes of consultation, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land (require consultation under 7(a)(2) of the ESA) and as a proposed species on private land (no section 7(a)(2) requirements, but Federal agencies must not jeopardize their existence (section 7(a)(4))).

### Proposed experimental population, Essential (PEXPE)

A population that has been proposed for establishment within its historical range under section 10(j) of the ESA to aid recovery of the species. The Service has proposed an essential population is necessary for the continued existence of the species. Proposed essential experimental populations will be treated as threatened species and afforded all the protections afforded to threatened species by the ESA when finalized. Prior to a final designation under section 10(j) of the ESA, proposed experimental populations do not require consultation under section 7(a)(2) of the ESA and are not protected by the take prohibitions of section 9. Federal agencies must confer with the Service for any actions that may jeopardize the continued existence of proposed species.

# Proposed experimental population, Non-essential (PEXPN)

A population that has been proposed for establishment within its historical range under section 10(j) of the ESA to aid recovery of the species. The Service has determined a non-essential population is not necessary for the continued existence of the species. Once finalized, for the purposes of consultation, non-essential experimental populations are treated as threatened species on National Wildlife Refuge and National Park land (require consultation under 7(a)(2) of the ESA) and as a proposed species on private land (no section 7(a)(2) requirements, but Federal agencies must not jeopardize their existence (section 7(a)(4))). Federal agencies must confer with the Service for any actions that may jeopardize the continued existence of proposed species.

Birds of Conservation Concern (BBC) Bird Conservation Region (BBR) Continental United States and Alaska (CON) USFWS Information for Planning and Consultation tool (IPac)

(https://ipac.ecosphere.fws.gov/location and upload shapefile of watershed)

(https://ipac.ecosphere.fws.gov/status/list)

Federally Endangered SpeciesCritical HabitatListedIndiana batMyotis grössecnsY1967Pink mucket pearlymusselLampsilis abrupta1976Pink mucket pearlymusselCarynorhinus townsendii virginianusY1979harperellaPtilimnium nodosumY1987harperellaPtilimnium nodosum1988shale barren rockcressArabis seratina1980fanshellCyprogenia stegaria1990purple cat's paw pearlymusselEpioblasma obliquata obliquata1990northeen riffleshellPleurobema clava1993clubshellPleurobema clava1993alames spinymusselPleurobema clava2012rayed beanVillosa fabalis2012rayed beanVillosa fabalis2012spectaclecaseCurystallaria cincottaYOutandotte River crayfishCarbarus veteranusproposedGuyandotte River crayfishCambarus veteranusproposedfat-spired three-toothed land snailTridopsis platysayoides1978Madison Cave isopodAntrolana liraY1987Madison Cave isopodAntrolana liraY1982Virgina spiraeaSpiraea virginianaY1982James spinymusselPlethobasus cryphys2012rayed beanVillosa fabalis2017Guyandotte River crayfishCambarus veteranusproposedCriticalY1982fat-spired three-toothed land snailTridopsis platysayoides	-			773	Year
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	longsolid	Fusconaia subrotunda	Y	Thr.	2020

### Federally Threatened and Endangered Species in West Virginia

\* Proposed for delisting

Revised: 30 September 2020

#### Invasive species examples:

• Garlic mustard. • Garlic mustard, Japanese honeysuckle and kudzu- invaders of moist forest edges, even those without disturbance.

an incredibly invasive exotic now blanketing exotic now blanketing emergent wetlands along the Ohio River, and increasing along other major rivers throughout the state. In some cases

it replaces native vegetation, threatens rare plant species, and destroys small wetlands.

Mile-a-minute- a spiny vine found climbing 10-20 feet into trees, often smothering native shrubs and shading out herbaceous plants along the Ohio River and rivers in the Eastern Panhandle.

Jana

knotweed and sachaline

knotweed- two stout, perennial clonal herbs that

cional nerbs that can out-compete all other vegetation in certain areas.

•Spotted knapweed, barren brome and tree of heaven- invaders of shale barrens, limestone glades and barrens, and

nd barrens, and ative grassland ommunities



Purple loosestrife

What can you do?

Become aware of the differences between native and non-native plants and the potential for invasive species to damage native ecosystems. The following items are available from the WVDNR:

Checklist of the Vascular Flora of West Virginia, a checklist of the native and naturalized vascular plants of the state.

Anative Strubs in Wildlife Landscaping, a series of information sheets about the use of 50 native shrubs in wildlife planting, produced by the West Virginia Native Plant Society and the West Virginia Wildlife Diversity program.

A list of companies within the mid-Atlantic region from which alternative native stock can be purchased.

· Evaluate in advance the wisdom of introducing non-native plants into our state

 Minimize habitat disturbance in natural areas. reducing the chance for invasion by non-native aggressive plants.

· In extreme cases, consider the eradication In extreme cases, consider the eradication of highly problematic non-native invasive plant species, but carefully consider the potential consequences on the entire ecosystem and the likelihood of success. In less severe cases, try to minimize the impact of the invasive plant on the natural area.

 Help educate individuals of the seriousness of the problem and explore the use of native plant species in the management of public lands.

 If you find an unfamiliar plant and it appears to be spreading, have it identified by your local extension agent. If it is a potential invader, members of the WV Invasive Species Working Group will conduct an assessment and mal recommendations.

### Who is helping?

 The West Virginia Invasive Species Working Gro Group, an inclusive statewide group whose mission is to facilitate communication and collaboration for the prevention or reduction of the negative impacts of invasive species. The West Virginia Native Plant Society

encourages nurserymen to cultivate plants native to West Virginia that could be used in conservation and ornamental projects throughout the state as alternatives to non native invasive plant species.

 The West Virginia Garden Club, Inc., the West Virginia Native Plant Society and the WV Division of Natural Resources jointly produced this brochure.

 The West Virginia Native Plant Society and the West Virginia Natural Heritage Program have developed informative presentations about invasive plants. Please contact the DNR Elkins office (*below*) to arrange a presentation.

• Several organizations sponsor workshops on identifying problematic plant species.

We value Natural Areas!

Natural areas are generally areas of limited development volere naturally occurring, functioning cosystems are supporting the greatest annount of natural hiological diversity the nonliving resources (soil, sunlight, minerals, etc.) of that area can support.

•Healthy natural areas have seemingly endless interrelationships among the living and non-living parts of their ecosystems. Life thrives in such areas!

Natural areas often support rare, threatened and endangered species of plants, aminals, and fungi. The natural communities themselves are often rare enoughor of such quality that society recognizes the value of conserving them



by Jil M. Swearinger, USL

est Virginia Division of Natural Resources

in cooperation with: West Virginia Garden Clubs, Inc. /est Virginia Native Plant Society



It is the policy of the Division of Natural R to provide its faciliti rvices, programs, and ployment opportunitie d to sex, race, age 1054 4/0





#### What are non-native invasive plants?

People have been moving Earth's plants from place to place for centuries. Many of the exotic plants we have introduced to our landscape by intention or accident have been beneficial to us and have had no unfortunate ecological impacts on natural communities. But a small percentage have spread from where they first became established, and have become serious threats to wetlands, shale barrens, prairies, glades and other rare ecosystems. ecosystems

ecosystems. Invasive plants often get started in areas disturbed by such human activities as road and trail building, timbering, mining, and other activities that remove native vegetation, disturb the soil, or dramatically change the amount of sunlight or moisture that reaches the land. From such situations, a relatively small number of invasive species have moved into natural areas. These species have reproduced rapidly, forming stands that exclude nearly all other plant species. In the worst cases, they radically altered areas, and displaced native species. Concerned citizens have long been

Concerned citizens have long been sounding alarms about the effects of pollution and misuse of land on our native plant and animal communities.

Recently, increasing concern has been expressed that non-native plant species are invading and changing natural areas. These aggressive "weeds" are non-native invasive aggressive "weeds" are non-native invasive plants, sometimes referred to as exotic pest plants

#### How do they differ from native species?

Generally, the native plant species of West Virginia are those that were part of plant communities when North America was first settled by Europeans. Change in plant communities is a natural part of life. As Dr. John Randall (The Nature Conservancy) an Janet Marinelli (Brooklyn Botanic Garden), point out in their handbook, *Invasive Plants:* Weeds of the Global Garden: cv) and

"New species move in as the climate changes and as soils build up and become richer, or erode and become less fertile.

In the normal course of events, the arrival of new species may be the result of a single catastrophic event like a hurricane, or thousands of years. Humans have vastly accelerated the movement of plants, carrying thousands of thousands of species that could not have crossed natural barriers like occans, mountain ranges and deserts, to new areas.



•Natural areas are valuable parts of the global landscape from which future generations can continue to learn about ecological processes. Areas such as Cranberry Glades, Cranesville Swamp, shale barrens, limestone glades and riverine marshes are a few West Virginia examples.

.....

Non-native invasive plant species, in numerous examples around the world, have reduced available habitat for native species and/or eliminated associated native species altogether. This process has the potential to significantly reduce natural biological diversity.

#### What challenges are there in controlling invasive plants?

### The number of non-native invasive plant species in West Virginia is rising

Approximately 600 species, nearly 25% of vascular plants found in West Virginia outside of cultivation, are non-native. Each year, ecologists become more aware of the number of invasive plant species within the state and the threats they pose to

### Native stock plants are available

natural communities

Many agencies and private



Many agencies and private landowners are using native alternatives for conservation purposes, and many West Virginia nurseries sell variaties derived from local communities to be sold as alternatives to exotic species.

InvasivePlants.indd (wvdnr.gov)

listed species cheat sheet.xlsx (wvdnr.gov)



of gradual change over

Mile-a-minute Species that have flourished and spread on their own, only after people transported them across barriers they could not otherwise surmount, are considered non-natives. In many areas these plants have overwhelmed the native plants and animals."

### **WVDNR Conservation Focus Areas**



WV DNR Conservation Focus Areas

# Species of Greatest Conservation Need Found In Knapp Creek Watershed

Common Name	Scientific Name	Name Category	G Rank	S Rank
a hahniid spider	Calymmaria virginica	Invertebrate Animal	G1	S1
Alder Flycatcher	Empidonax alnorum	Vertebrate Animal	G5	S3B
Allegheny Mountain Dusky Salamander	Desmognathus ochrophaeus	Vertebrate Animal	G5	S4
Allegheny Woodrat	Neotoma magister	Vertebrate Animal	G3G4	S3
American Eel	Anguilla rostrata	Vertebrate Animal	G4	S2
American Kestrel	Falco sparverius	Vertebrate Animal	G5	S3BS3N
Appalachia Bellytooth	Gastrodonta fonticula	Invertebrate Animal	G3G4	S2
Appalachia Darter	Percina gymnocephala	Vertebrate Animal	G4	S2
Appalachian Cottontail	Sylvilagus obscurus	Vertebrate Animal	G4	S2
Appalachian Sedge	Carex appalachica	Vascular Plant	G4	S3
Appalachian Thorn	Carychium clappi	Invertebrate Animal	G5	S4
Bald Eagle	Haliaeetus leucocephalus	Vertebrate Animal	G5	S3BS3N
Balsam Globe	Mesodon aff. andrewsae	Invertebrate Animal	G5	S3
Bashful Bulrush	Trichophorum planifolium	Vascular Plant	G4G5	S1
Bear Creek Slitmouth	Stenotrema simile	Invertebrate Animal	G2	S2
Bidentate Dome	Ventridens coelaxis	Invertebrate Animal	G3	S1
Bigmouth Buffalo	Ictiobus cyprinellus	Vertebrate Animal	G5	S1
Black Buffalo	Ictiobus niger	Vertebrate Animal	G5	S2
Black Striate Snail	Striatura ferrea	Invertebrate Animal	G5	S3
Black Vulture	Coragyps atratus	Vertebrate Animal	G5	S4BS4N
Black-billed Cuckoo	Coccyzus erythropthalmus	Vertebrate Animal	G5	S2B
Blackburnian Warbler	Setophaga fusca	Vertebrate Animal	G5	S3B
Black-throated Blue Warbler	Setophaga caerulescens	Vertebrate Animal	G5	S3B
Blue-winged Warbler	Vermivora cyanoptera	Vertebrate Animal	G5	S3B
Blunt Mountainmint	Pycnanthemum muticum	Vascular Plant	G5	S1
Brilliant Granule Snail	Guppya sterkii	Invertebrate Animal	G5	S5
Bristled Slitmouth Snail	Stenotrema barbatum	Invertebrate Animal	G5	S3
Broad-winged Hawk	Buteo platypterus	Vertebrate Animal	G5	S3B
Bronze Pinecone Snail	Strobilops aeneus	Invertebrate Animal	G5	SNR
Brown Bullhead	Ameiurus nebulosus	Vertebrate Animal	G5	S2
Brown Creeper	Certhia americana	Vertebrate Animal	G5	S3BS4N
Brush Creek Threetooth	Triodopsis juxtidens robinae	Invertebrate Animal	G5T1	S1
Budded Threetooth	Triodopsis tennesseensis	Invertebrate Animal	G4	S3
Bullhead Minnow	Pimephales vigilax	Vertebrate Animal	G5	S2
Bush's Sedge	Carex bushii	Vascular Plant	G4	S2S3
Butternut	Juglans cinerea	Vascular Plant	G3	S2
Canada Warbler	Cardellina canadensis	Vertebrate Animal	G5	S3B
Canadian Yew	Taxus canadensis	Vascular Plant	G5	S2S3
Candy Darter	Etheostoma osburni	Vertebrate Animal	G3	S1
Carter Threetooth	Triodopsis anteridon	Invertebrate Animal	G3	S3
Central Appalachian Montane Small-	Liriodendron tulipifera - Pinus	International	G3	S2
Stream Floodplain Forest	strobus - (Tsuga canadensis) /	Vegetation		
	Carpinus caroliniana /	Classification - Natural		
Cerulean Warbler	Amphicarpaea bracteata Forest Setophaga cerulea	Vertebrate Animal	G4	S2B
Chain Pickerel	Esox niger	Vertebrate Animal	G5	S3
Changeable Mantleslug	Megapallifera mutabilis	Invertebrate Animal	G5	SNR
Channel Darter	Percina copelandi	Vertebrate Animal	G4	S2S3
Cheat Mountain Salamander	Plethodon nettingi	Vertebrate Animal	G1G2	S235
Cheat Threetooth	Triodopsis platysayoides	Invertebrate Animal	G1	S1
Cherrystone Drop	Hendersonia occulta	Invertebrate Animal	G1 G4	S3
Chimney Swift	Chaetura pelagica	Vertebrate Animal	G5	S3B

Common Name	Scientific Name	Name Category	G Rank	S Rank
Cliff Swallow	Petrochelidon pyrrhonota	Vertebrate Animal	G5	S3B
Club Supercoil	Paravitrea bellona	Invertebrate Animal	G1	S1
Common Black-bellied Salamander	Desmognathus quadramaculatus	Vertebrate Animal	G5	S3
Common Mudpuppy	Necturus maculosus maculosus	Vertebrate Animal	G5	S1
Common Wormsnake	Carphophis amoenus	Vertebrate Animal	G5	S3
Cumberland Plateau Salamander	Plethodon kentucki	Vertebrate Animal	G4	S3
Dimple Supercoil	Paravitrea capsella	Invertebrate Animal	G1	S1
Dusky Darter	Percina sciera	Vertebrate Animal	G5	S3
Dwarf Anemone	Anemone quinquefolia var. minima	Vascular Plant	G5T3	S2
Eastern Copperhead	Agkistrodon contortrix	Vertebrate Animal	G5	S5
Eastern Meadowlark	Sturnella magna	Vertebrate Animal	G5	S3BS2N
Eastern Spadefoot	Scaphiopus holbrookii	Vertebrate Animal	G5	S1
Eastern Spotted Skunk	Spilogale putorius	Vertebrate Animal	G4	S2
Eastern Whip-poor-will	Antrostomus vociferus	Vertebrate Animal	G5	S3B
Engelmann's Spikerush	Eleocharis engelmannii	Vascular Plant	G4G5	S1
Epling's Hedge-nettle	Stachys eplingii	Vascular Plant	G1G2	S1
Fat Hive Snail	Euconulus polygyratus	Invertebrate Animal	G5	S1
Field Sparrow	Spizella pusilla	Vertebrate Animal	G5	S3BS3N
Fine-ribbed Striate Snail	Striatura milium	Invertebrate Animal	G5	S3
Flat Bladetooth Snail	Patera appressa	Invertebrate Animal	G5	S4
Flat Dome Snail	Ventridens suppressus	Invertebrate Animal	G5	S3
Forest Disc Snail	Discus whitneyi	Invertebrate Animal	G5	S2
Fowler's Toad	Bufo fowleri	Vertebrate Animal	G5	S3
Fraudulent Slitmouth	Stenotrema macgregori	Invertebrate Animal	GNR	S2
Ghost Shiner	Notropis buchanani	Vertebrate Animal	G5	S3
Glossy Dome	Ventridens acerra	Invertebrate Animal	G4	S2
Golden Dome	Ventridens arcellus	Invertebrate Animal	G4	S3
Goldeye	Hiodon alosoides	Vertebrate Animal	G5	S1
Green Floater	Lasmigona subviridis	Invertebrate Animal	G3	S2
Green Heron	Butorides virescens	Vertebrate Animal	G5	S3B
Green Salamander	Aneides aeneus	Vertebrate Animal	G3G4	S3
Greenbrier Coil	Helicodiscus villosus	Invertebrate Animal	G1	S1
Greenbrier River Crayfish	Cambarus smilax	Invertebrate Animal	G2	S2
Hairy-fruit Sedge	Carex trichocarpa	Vascular Plant	G4	S1
Hellbender	Cryptobranchus alleganiensis	Vertebrate Animal	G3	S2
Heller's Gayfeather	Liatris helleri	Vascular Plant	GNR	S1S2
High-spire Column Snail	Columella simplex	Invertebrate Animal	G5	S5
Hill Glyph	Glyphyalinia cumberlandiana	Invertebrate Animal	G4	S3
Inland Slitmouth	Stenotrema stenotrema	Invertebrate Animal	G5	SNR
Iroquois Vallonia Snail	Vallonia excentrica	Invertebrate Animal	G5	S3
Jefferson Salamander	Ambystoma jeffersonianum	Vertebrate Animal	G4	S2
Kanawha Minnow	Phenacobius teretulus	Vertebrate Animal	G3G4	S1
Kanawha Sculpin	Cottus kanawhae	Vertebrate Animal	G4	S2
Longtail Salamander	Eurycea longicauda	Vertebrate Animal	G5	S5
Louisiana Waterthrush	Parkesia motacilla	Vertebrate Animal	G5	S3B
Lovely Vallonia Snail	Vallonia pulchella	Invertebrate Animal	G5	S3
Marbled Salamander	Ambystoma opacum	Vertebrate Animal	G5	S4
Midland Mud Salamander	Pseudotriton montanus diastictus	Vertebrate Animal	G5T5	S1
Milne's Looper Moth	Euchlaena milnei	Invertebrate Animal	G2G4	S1
Mountain Chorus Frog	Pseudacris brachyphona	Vertebrate Animal	GNR	S4
Mountain Parsley	Taenidia montana	Vascular Plant	G3	S3
New River Crayfish	Cambarus chasmodactylus	Invertebrate Animal	G4	S3
New River Shiner	Notropis scabriceps	Vertebrate Animal	G4	S2
North American Porcupine	Erethizon dorsatum	Vertebrate Animal	G5	S3

Common Name	Scientific Name	Name Category	G Rank	S Rank
Northern Dusky Salamander	Desmognathus fuscus	Vertebrate Animal	G5	S5
Northern Dusky Salamander	Desmognathus fuscus fuscus	Vertebrate Animal	G4	S2
Northern Goshawk	Accipiter gentilis	Vertebrate Animal	G5	S1BS1N
Northern Red Salamander	Pseudotriton ruber ruber	Vertebrate Animal	G5T5	S3
Northern Ring-necked Snake	Diadophis punctatus edwardsii	Vertebrate Animal	G5T5	S5
Northern Saw-whet Owl	Aegolius acadicus	Vertebrate Animal	G5	S2BS2N
Northern Spring Salamander	Gyrinophilus porphyriticus	Vertebrate Animal	G5T5	S5
	porphyriticus			
Northern Two-lined Salamander	Eurycea bislineata	Vertebrate Animal	G5	S5
Northern Waterthrush	Parkesia noveboracensis	Vertebrate Animal	G5	
Orangespotted Sunfish	Lepomis humilis	Vertebrate Animal	G5	S1
Osprey	Pandion haliaetus	Vertebrate Animal	G5	S2B
Paddlefish	Polyodon spathula	Vertebrate Animal	G4	S1
Pale Duckweed	Lemna valdiviana	Vascular Plant	G5	S3
Pine Siskin	Spinus pinus	Vertebrate Animal	G5	
Porter's Reedgrass	Calamagrostis porteri	Vascular Plant	G4	S3S4
Prairie Warbler	Setophaga discolor	Vertebrate Animal	G5	S3B
Pretty Sedge	Carex woodii	Vascular Plant	G4	S3S4
Pubescent Sedge	Carex hirtifolia	Vascular Plant	G5	S3
Purple Clematis	Clematis occidentalis var.	Vascular Plant	G5T5	S2
	occidentalis			
Purple Fringeless Orchid	Platanthera peramoena	Vascular Plant	G5	S2
Red Crossbill	Loxia curvirostra	Vertebrate Animal	G5	S2BS2N
Red-headed Woodpecker	Melanerpes erythrocephalus	Vertebrate Animal	G5	S3BS3N
Ribbed Striate Snail	Striatura exigua	Invertebrate Animal	G5	S2
Ridge-and-valley Slitmouth	Stenotrema edvardsi	Invertebrate Animal	G4G5	S3
River Carpsucker	Carpiodes carpio	Vertebrate Animal	G5	S3
River Darter	Percina shumardi	Vertebrate Animal	G5	S1
River Redhorse	Moxostoma carinatum	Vertebrate Animal	G4	S3
River Shiner	Notropis blennius	Vertebrate Animal	G5	S2
Roan Mountain Sedge	Carex roanensis	Vascular Plant	G3	S2
Rock Skullcap	Scutellaria saxatilis	Vascular Plant	G3G4	S2
Roundleaf Sundew	Drosera rotundifolia var. rotundifolia	Vascular Plant	G5T5	S3
Rusty-patched Bumble Bee	Bombus affinis	Invertebrate Animal	G2	S1
Sculptured Dome	Ventridens collisella	Invertebrate Animal	G4	S3
Seal Salamander	Desmognathus monticola	Vertebrate Animal	G5	S5
Sealed Globelet Snail	Mesodon mitchellianus	Invertebrate Animal	G4	S3
Shagreen Snail	Inflectarius inflectus	Invertebrate Animal	G5	S2
Shale Barren Bindweed	Calystegia spithamaea ssp. spithamaea	Vascular Plant	G4G5T4T5	S4
Shale Barren Buckwheat	Eriogonum allenii	Vascular Plant	G4	S2
Shoal Chub	Macrhybopsis hyostoma	Vertebrate Animal	G5	S2 S2
Silver Chub	Macrhybopsis storeriana	Vertebrate Animal	G5	S3
Silver Lamprey	Ichthyomyzon unicuspis	Vertebrate Animal	G5	S2S3
Slimy Salamander	Plethodon glutinosus	Vertebrate Animal	G5	S5
Small Whorled Pogonia	Isotria medeoloides	Vascular Plant	G2G3	S1
Smooth Button	Mesomphix perlaevis	Invertebrate Animal	G4G5	S3
Smooth Greensnake	Opheodrys vernalis	Vertebrate Animal	G5	S5
Smooth Rose	Rosa blanda	Vascular Plant	G5	S2
Southeastern Tigersnail	Anguispira strongylodes	Invertebrate Animal	G5	
Southern Appalachian Montane Northern	Quercus rubra - Quercus montana	International	G4	
Red Oak - Chestnut Oak Forest	- Magnolia (acuminata, fraseri) /	Vegetation	- · ·	
	Acer pensylvanicum Forest	Classification - Natural		
Southern Redbelly Dace	Chrosomus erythrogaster	Vertebrate Animal	G5	S2S3

Common Name	Scientific Name	Name Category	G Rank	S Rank
Southern Rock Vole	Microtus chrotorrhinus	Vertebrate Animal	G5T3	S2
	carolinensis			
Split-tooth Dome	Ventridens virginicus	Invertebrate Animal	G4	S3
Spotted Sandpiper	Actitis macularius	Vertebrate Animal	G5	S2B
Spruce Knob Threetooth	Triodopsis picea	Invertebrate Animal	G3	S3
Sticky Golden-rod	Solidago simplex ssp. randii var.	Vascular Plant	G5T3	S2
	racemosa			
Striped Whitelip	Webbhelix multilineata	Invertebrate Animal	G5	S1
Suboval Ambersnail	Catinella vermeta	Invertebrate Animal	G5	S3
Suckermouth Minnow	Phenacobius mirabilis	Vertebrate Animal	G5	S3
Swainson's Thrush	Catharus ustulatus	Vertebrate Animal	G5	S3B
Swainson's Warbler	Limnothlypis swainsonii	Vertebrate Animal	G4	S3B
Swamp Lousewort	Pedicularis lanceolata	Vascular Plant	G5	S2
Swordleaf Phlox	Phlox buckleyi	Vascular Plant	G2G3	S2
Temperate Coil Snail	Helicodiscus shimeki	Invertebrate Animal	G4G5	S2
Tennessee Pondweed	Potamogeton tennesseensis	Vascular Plant	G2G3	S2
Tessellated Darter	Etheostoma olmstedi	Vertebrate Animal	G5	S1S2
The Starry Campion Moth	Hadena ectypa	Invertebrate Animal	G3G4	S1
Thin-lip Vallonia Snail	Vallonia perspectiva	Invertebrate Animal	G4G5	S3
Tight Coil	Helicodiscus notius	Invertebrate Animal	G5	S5
Timber Rattlesnake	Crotalus horridus	Vertebrate Animal	G4	S3
Tonguetied Minnow	Exoglossum laurae	Vertebrate Animal	G4	S2
Upland Chorus Frog	Pseudacris feriarum	Vertebrate Animal	G5	S3
Variable Vertigo Snail	Vertigo gouldii	Invertebrate Animal	G5	
Veery	Catharus fuscescens	Vertebrate Animal	G5	S3B
Velvet Wedge Snail	Xolotrema denotatum	Invertebrate Animal	G5	SNR
Vesper Sparrow	Pooecetes gramineus	Vertebrate Animal	G5	S2BS2N
Virginia Bladetooth	Patera panselenus	Invertebrate Animal	G3	S4
Wehrle's Salamander	Plethodon wehrlei	Vertebrate Animal	G4	S4
White Alumroot	Heuchera alba	Vascular Plant	G2Q	S2
White Monkshood	Aconitum reclinatum	Vascular Plant	G3G4	S3
White Pine - Oak / Heath Forest	Pinus strobus - Quercus alba -	International	G4	S4
	Quercus prinus / Amelanchier	Vegetation		
	arborea / Vaccinium pallidum -	<b>Classification - Natural</b>		
	(Kalmia latifolia) Forest			
White-spotted Slimy Salamander	Plethodon cylindraceus	Vertebrate Animal	G5	S5
Winding Mantleslug	Philomycus flexuolaris	Invertebrate Animal	G5	SNR
Wood Thrush	Hylocichla mustelina	Vertebrate Animal	G4	S3B
Woodland Box Turtle	Terrapene carolina carolina	Vertebrate Animal	G5T5	S5
Yellow-breasted Chat	Icteria virens	Vertebrate Animal	G5	S3B

Definitions for interpreting NatureServe's global (range-wide) conservation status ranks can be found at the following: <u>Statuses | NatureServe Explorer</u>

# **Nonindigenous Aquatic Species**

None (Data taken from USGS NAS Alert System on a county level)

https://nas.er.usgs.gov/AlertSystem/default.aspx

### **Invasive Species**

### Animals:

Common Name	Scientific Name
pig (feral), wild boar at large	Sus scrofa (feral type)

### **Diseases:**

Common Name	Scientific Name
beech bark disease	Neonectria faginata
butternut canker	Ophiognomonia clavigignenti-juglandacearum
chestnut blight or canker	Cryphonectria parasitica
dogwood anthracnose	Discula destructive
oak wilt	Bretziella fagacearum
rose rosette disease (RRD)	Emaravirus RRD
white pine blister rust	Cronartium ribicola

### Insects:

Common Name	Scientific Name
bark beetle	Hylastes opacus
brown marmorated stink bug	Halyomorpha halys
common pine shoot beetle, larger pine shoot beetle	Tomicus piniperda
elm leafminer	Kaliofenusa ulmi
hemlock woolly adelgid	Adelges tsugae
Japanese beetle	Popillia japonica
larch sawfly	Pristiphora erichsonii
maple petiole borer	Caulocampus acericaulis
mile-a-minute weevil	Rhinoncomimus latipes
mountain-ash sawfly	Pristiphora geniculata
multicolored Asian lady beetle	Harmonia axyridis
southern pine beetle	Dendroctonus frontalis
spongy moth (formerly gypsy moth)	Lymantria dispar
spruce beetle	Dendroctonus rufipennis

### **Plants:**

Common Name	Scientific Name
alfalfa	Medicago sativa
alfalfa	Medicago sativa ssp. sativa
American burnweed	Erechtites hieraciifolius
American mannagrass	Glyceria grandis var. grandis

Common Name	Scientific Name
Amur honeysuckle	Lonicera maackii
annual bluegrass	Poa annua
annual honesty	Lunaria annua
annual ragweed	Ambrosia artemisiifolia var. elatior
annual sowthistle	Sonchus oleraceus
Asiatic dayflower	Commelina communis
asparagus	Asparagus officinalis
autumn olive	Elaeagnus umbellate
bald brome	Bromus racemosus
barnyardgrass	Echinochloa crus-galli
beaked dodder	Cuscuta rostrata
big chickweed	Cerastium fontanum ssp. vulgare
birdsfoot trefoil	Lotus corniculatus
birdsrape mustard	Brassica rapa
bittersweet nightshade	Solanum dulcamara
black knapweed	Centaurea nigra
black locust	Robinia pseudoacacia
black medic	Medicago lupulina
bladder campion	Silene vulgaris
bluebuttons, field scabious	Knautia arvensis
Boston ivy	Parthenocissus tricuspidata
bouncingbet	Saponaria officinalis
bristlegrass	Setaria spp.
broadleaf dock	Rumex obtusifolius
broadleaf plantain	Plantago major
broomsedge bluestem	Andropogon virginicus
brown knapweed	Centaurea jacea
buckhorn plantain	Plantago lanceolata
buckwheat	Fagopyrum esculentum
bulbous buttercup	Ranunculus bulbosus
bull thistle	Cirsium vulgare
burcucumber	Sicyos angulatus
bush honeysuckles (exotic)	Lonicera spp.
Canada bluegrass	Poa compressa
Canada thistle	Cirsium arvense
Canadian horseweed	Erigeron canadensis
catnip	Nepeta cataria
cheatgrass, downy brome	Bromus tectorum
chicory	Cichorium intybus
clover dodder	Cuscuta epithymum
colonial bentgrass	Agrostis capillaris
coltsfoot	Tussilago farfara

Common Name	Scientific Name
common buckthorn, European buckthorn	Rhamnus cathartica
common burdock, lesser burdock	Arctium minus
common chickweed	Stellaria media
common chickweed	Stellaria pallida
common cocklebur	Xanthium strumarium
common cornsalad	Valerianella locusta
common dandelion	Taraxacum officinale ssp. officinale
common duckweed	Lemna minor
common flax	Linum usitatissimum
common horse chestnut	Aesculus hippocastanum
common mallow	Malva neglecta
common mouse-ear chickweed	Cerastium fontanum
common mullein	Verbascum Thapsus
common periwinkle	Vinca minor
common pokeweed	Phytolacca americana
common purslane	Portulaca oleracea
common ragweed	Ambrosia artemisiifolia
common selfheal	Prunella vulgaris
common speedwell	Veronica officinalis
common St. Johnswort	Hypericum perforatum
common tansy	Tanacetum vulgare
common teasel	Dipsacus fullonum
common velvetgrass	Holcus lanatus
common vetch	Vicia sativa
common viper's bugloss, blueweed	Echium vulgare
common yarrow	Achillea millefolium
corn chamomile	Anthemis arvensis
corn cockle	Agrostemma githago
corn gromwell	Buglossoides arvensis
corn speedwell	Veronica arvensis
creeping bentgrass	Agrostis stolonifera
creeping yellow loosestrife, creeping Jenny	Lysimachia nummularia
curly dock	Rumex crispus
curly dock	Rumex crispus ssp. crispus
cutleaf blackberry	Rubus laciniatus
cutleaf evening-primrose	Oenothera laciniata
cutleaf teasel	Dipsacus laciniatus
cypress spurge	Euphorbia cyparissias
dames rocket	Hesperis matronalis
dandelion	Taraxacum officinale
Deptford pink	Dianthus armeria
dog mustard	Erucastrum gallicum

Common Name	Scientific Name
dotted smartweed	Persicaria punctata
dwarf snapdragon	Chaenorhinum minus
dwarf violet iris	Iris verna
eastern poison-ivy	Toxicodendron radicans
eastern redcedar	Juniperus virginiana
eastern white pine	Pinus strobus
elecampane	Inula helenium
English ivy	Hedera helix
European privet	Ligustrum vulgare
European red raspberry	Rubus idaeus
European sticktight	Lappula squarrosa
European vervain	Verbena officinalis
everlasting peavine	Lathyrus latifolius
field dodder	Cuscuta pentagona
field horsetail	Equisetum arvense
field pennycress	Thlaspi arvense
field pepperweed	Lepidium campestre
field thistle	Cirsium discolor
fiveangled dodder	Cuscuta pentagona var. pentagona
garden vetch	Vicia sativa ssp. nigra
garlic mustard	Alliaria petiolate
giant knotweed	Reynoutria sachalinensis
giant ragweed	Ambrosia trifida
giantseed goosefoot	Chenopodium simplex
goosegrass	Eleusine indica
grassy arrowhead	Sagittaria graminea
greater celandine	Chelidonium majus
green bristlegrass	Setaria viridis var. viridis
green foxtail	Setaria viridis
ground ivy	Glechoma hederacea
hairy bittercress	Cardamine hirsuta
hairy cat's ear	Hypochaeris radicata
hairy galinsoga	Galinsoga quadriradiata
hairy vetch	Vicia villosa
hedge bindweed	Calystegia sepium
hedge mustard	Sisymbrium officinale
hemp dogbane	Apocynum cannabinum
henbit	Lamium amplexicaule
hollyhock	Alcea rosea
hop clover	Trifolium aureum
horsenettle	Solanum carolinense
houndstongue	Cynoglossum officinale

Common Name	Scientific Name
Japanese barberry	Berberis thunbergia
Japanese clover	Kummerowia striata
Japanese hedge-parsley, erect hedgeparsley	Torilis japonica
Japanese honeysuckle	Lonicera japonica
Japanese knotweed	Reynoutria japonica
Japanese spiraea	Spiraea japonica
Japanese stiltgrass	Microstegium vimineum
Kentucky bluegrass	Poa pratensis
Korean lespedeza	Kummerowia stipulacea
Kummerowia	Kummerowia spp.
ladysthumb	Persicaria maculosa
lambsquarters	Chenopodium album
large crabgrass	Digitaria sanguinalis
large hop clover	Trifolium campestre
largeseed dodder	Cuscuta indecora
leafy spurge	Euphorbia esula
lemon balm	Melissa officinalis
little starwort	Stellaria graminea
longleaf groundcherry	Physalis longifolia
longstalk cranesbill	Geranium columbinum
low cudweed	Gnaphalium uliginosum
marsh-pepper smartweed	Persicaria hydropiper
meadow fescue	Festuca pratensis
meadow hawkweed	Hieracium caespitosum
meadow salsify	Tragopogon lamottei
mile-a-minute vine, Asiatic tearthumb	Persicaria perfoliata
mimosa	Albizia julibrissin
Morrow's honeysuckle	Lonicera morrowii
moth mullein	Verbascum blattaria
motherwort	Leonurus cardiaca
mouse-eared hawkweed	Pilosella officinarum
mugwort	Artemisia vulgaris
multiflora rose	Rosa multiflora
musk mallow	Malva moschata
musk thistle, nodding thistle	Carduus nutans
narrow-leaved cattail	Typha angustifolia
northern catalpa	Catalpa speciosa
northern white cedar	Thuja occidentalis
Norway maple	Acer platanoides
Norway spruce	Picea abies
orange hawkweed	Pilosella aurantiaca
orchardgrass	Dactylis glomerata

Common Name	Scientific Name
oriental bittersweet	Celastrus orbiculatus
Oriental lady's thumb	Persicaria longiseta
oxeye daisy	Leucanthemum vulgare
pale dock	Rumex altissimus
pale smartweed	Polygonum lapathifolium
pale yellow iris, yellow flag iris	Iris pseudacorus
paradise apple	Malus pumila
peppermint	Mentha x piperita
periwinkle	Vinca spp.
piedmont bedstraw	Cruciata pedemontana
pineapple-weed	Matricaria discoidea
plumeless thistle	Carduus spp.
poison hemlock	Conium maculatum
poison-sumac	Toxicodendron vernix
prickly lettuce	Lactuca serriola
princess-feather	Persicaria orientalis
princesstree	Paulownia tomentosa
prostrate knotweed	Polygonum aviculare
purple crown-vetch	Securigera varia
purple cudweed	Gamochaeta purpurea
purple deadnettle	Lamium purpureum
purple loosestrife	Lythrum salicaria
purpleosier willow	Salix purpurea
quackgrass	Elymus repens
Queen Anne's lace, wild carrot	Daucus carota
red clover	Trifolium pratense
red fescue	Festuca rubra
red sorrel	Rumex acetosella
redroot pigweed	Amaranthus retroflexus
redtop	Agrostis gigantea
reed canarygrass	Phalaris arundinacea
rose of Sharon	Hibiscus syriacus
roughstalk bluegrass	Poa trivialis
Russian thistle	Salsola tragus
salad burnet	Sanguisorba minor
Scots pine	Pinus sylvestris
sensitive partridgepea	Chamaecrista nictitans
sericea lespedeza	Lespedeza cuneata
sheep fescue	Festuca trachyphylla
shepherd's-purse	Capsella bursa-pastoris
showy fly honeysuckle, Bell's honeysuckle	Lonicera x bella
silvery cinquefoil	Potentilla argentea

Common Name	Scientific Name
small hop clover	Trifolium dubium
smooth bedstraw	Galium mollugo
smooth brome	Bromus inermis
smooth hawksbeard	Crepis capillaris
sour cherry	Prunus cerasus
spearmint	Mentha spicata
spiny plumeless thistle	Carduus acanthoides
spiny sowthistle	Sonchus asper
splitlip hempnettle	Galeopsis bifida
spotted knapweed	Centaurea stoebe ssp. micranthos
spotted spurge	Euphorbia maculate
spotted waterhemlock	Cicuta maculate
spring whitlowgrass	Draba verna
stinging nettle	Urtica dioica
stinkgrass	Eragrostis cilianensis
stinking chamomile	Anthemis cotula
sulfur cinquefoil	Potentilla recta
sweet autumn virginsbower	Clematis terniflora
sweet vernalgrass	Anthoxanthum odoratum
sweetwilliam	Dianthus barbatus
tall buttercup	Ranunculus acris
tall fescue	Festuca arundinacea
tall lettuce	Lactuca canadensis
tall oatgrass	Arrhenatherum elatius
Tatarian honeysuckle	Lonicera tatarica
tawny daylily	Hemerocallis fulva
teasel	Dipsacus spp.
thoroughwort pennycress	Microthlaspi perfoliatum
thymeleaf sandwort	Arenaria serpyllifolia
thymeleaf speedwell	Veronica serpyllifolia
timothy	Phleum pratense
toothed spurge	Euphorbia dentata
tree-of-heaven	Ailanthus altissima
tumble mustard	Sisymbrium altissimum
Virginia pepperweed	Lepidium virginicum
wallflower mustard	Erysimum cheiranthoides
watercress	Nasturtium officinale
waterpurslane	Ludwigia palustris
white campion	Silene latifolia
white clover	Trifolium repens
white cockle	Silene latifolia ssp. alba
white horehound	Marrubium vulgare

Common Name	Scientific Name
white mulberry	Morus alba
white poplar	Populus alba
wild buckwheat	Fallopia convolvulus
wild mustard	Sinapis arvensis
wild onion	Allium canadense
wild parsnip	Pastinaca sativa
woodland strawberry	Fragaria vesca
woodland strawberry	Fragaria vesca ssp. vesca
yellow alyssum	Alyssum alyssoides
yellow foxtail	Setaria pumila
yellow nutsedge	Cyperus esculentus
yellow rocket	Barbarea vulgaris
yellow sweet-clover	Melilotus officinalis
yellow toadflax	Linaria vulgaris
yellow woodsorrel	Oxalis stricta

Data taken from EDDMaps status of invasive species report on a county level. (www.eddmaps.org/)

# **Essential Fish Habitat**

None for WV Data taken from National Oceanic and Atmospheric Administration (NOAA). (https://habitat.noaa.gov/appa/efhmapper/?page=page\_3)