

NRCS West Virginia

Preliminary Investigation Feasibility Report (PIFR)

Outlet Piney Creek

12-digit HUC 050500040103



May 24, 2024

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Summary

In October 2021, the Beckley Sanitary Board (BSB) of the City of Beckley in Raleigh County, WV, submitted a request to the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) for assistance addressing continued flooding in the Outlet Piney Creek HUC 12 050500040103 watershed on Little Whitestick Creek. BSB specifically requested an examination of current hydrology and hydraulics in the area and recommendations for measures that could reduce flooding.

A previous NRCS watershed project done in partnership with the City of Beckley, the Raleigh County Commission, the Southern Conservation District, and the WV Conservation Agency, titled The Little Whitestick Creek Channel Modification, was completed in 2007. While that project was somewhat successful, the area continues to be subjected to flooding of roadways and parking lots and of structures including local businesses and residences. Since this project was completed in 2007, the BSB has been tasked with managing stormwater runoff in Beckley and is therefore now the sponsor of this new project request.

Project implementation would affect local business owners and their clients, local homeowners and renters, and commuters and travelers who use Rt 16 (Robert C. Byrd Dr.), New River Road, and other neighborhood streets.

The primary PL-566 project purpose is flood prevention, with additional project purposes and resource concerns including watershed protection, public recreation, and agricultural water management.

The project area is in Raleigh County, West Virginia. Beckley is the county seat of Raleigh County, and is a relatively large urban area, with a population of 17,286 residents reported on the 2020 census. Raleigh County had 74,591 residents reported on the 2020 census. With a land area of 9.5 square miles, Beckley has a population density of 1,820 people per square mile, compared to Raleigh County, with an area of 605 square miles and a population density of 123 people per square mile, and to the State of West Virginia, with an area of 24,041 square miles and a population density of 75 people per square mile.

The project is Program 566 compatible because it aims to prevent damage from flooding, further the utilization and disposal of water, and ensure proper utilization of land. The watershed is less than 250,000 acres, and, with a population of less than 50,000, Beckley is considered a rural community based on the USDA definition. In addition, the project has a local sponsor in the BSB.

The project is significant because it has the potential to provide watershed protection and flood prevention within the project area. Disruptions to travel and property damage to businesses and residences due to flooding are recurring in the project area. The project could provide long-term relief with positive impacts to the environment, the economy, and to the residents and business owners in the project area. It has additional significance because the waters of Little Whitestick Creek, Cranberry Creek, and Piney Creek flow to the New River, a National Wild and Scenic River, an American Heritage River, and the centerpiece of the New River Gorge National Park and Preserve. Watershed protection and other authorized project purposes in the tributaries will help ensure the New River will continue to offer recreational opportunities and wildlife habitat for generations to come.

Potential alternatives for addressing the sponsors concerns are the installation of new flood control dams, construction of flood control channel, stream restoration, land treatment, low impact development, a combination of these alternatives, floodplain buyouts, and a no action alternative. The baseline condition without Federal investment is a situation of continued flooding, negatively impacting both the immediate project area and significant waterways downstream. The alternatives that were developed include structural and non-structural measures consisting of land treatment practices and possible construction of new infrastructure.

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 Beckley Sanitary Board (BSB) requested assistance with conducting a Preliminary Investigation and Feasibility Report (PIFR) for a potential watershed project in the Outlet Piney Creek Watershed, Raleigh County, WV , 12-digit HUC (050500040103, Outlet Piney Creek).							
This assistance is authorized under the Watershed Protection and Flood Prevention Act (Public Law 83-566). The BSB is interested in being a sponsor for a watershed project in the watershed and meets the PL 83-566 criteria for a sponsor. Watershed protection, flood protection, public recreation, and agricultural water management would be the likely purposes of a potential watershed project.							
Will the project area exceed 250,000 acres in size? ^{1,2}						<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
If over 250,000 acres, will it be divided into sub-watersheds in one plan?						<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Potential Project Area Size: 28,074 acres							
Will any single structure provide more than 12,500 acre-feet of floodwater detention capacity, or have 25,000 acre-feet of total capacity?						<input type="checkbox"/> YES ³	<input checked="" type="checkbox"/> NO
How many recreational developments will be included in the project area?							
• One development in a project area less than 75,000 acres						<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO
• Two developments in a project area between 75,000 and 150,000 acres						<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
• Three developments in a project area greater than 150,000 acres						<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO
Which authorized purposes will the project address? (Indicate only one purpose as primary):							
				Primary	Other		
• Flood prevention				<input checked="" type="checkbox"/>	<input type="checkbox"/>		
• Watershed Protection				<input type="checkbox"/>	<input checked="" type="checkbox"/>		
• Public Recreation				<input type="checkbox"/>	<input checked="" type="checkbox"/>		
• Public Fish and Wildlife				<input type="checkbox"/>	<input type="checkbox"/>		
• Agricultural Water Management				<input type="checkbox"/>	<input checked="" type="checkbox"/>		
• Municipal or Industrial Water Supply				<input type="checkbox"/>	<input type="checkbox"/>		
• Water Quality Management				<input type="checkbox"/>	<input type="checkbox"/>		
Will the project produce substantial benefits to the general public, to communities, and to groups of landowners?						<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO ³
Can the project be installed by individual or collective landowners under alternative cost-sharing assistance?						<input type="checkbox"/> YES ³	<input checked="" type="checkbox"/> NO
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 operation and maintenance.						<input checked="" type="checkbox"/> YES	<input type="checkbox"/> NO ³
Will the project take place in a Special Designated Area? (if yes, check applicable area below.)						YES	<input type="checkbox"/> NO
Appalachia	<input checked="" type="checkbox"/>	Delaware River Basin	<input type="checkbox"/>	Susquehanna River Basin	<input type="checkbox"/>	Tennessee Valley	

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


Raleigh County had a population of 74,591 people during the 2020 Census. The county seat of Beckley has 17,286, which is the largest population center in the watershed. As per the USDA definition, Beckley is a rural community because it has fewer than 50,000 people. Because Raleigh County is a rural county and Beckley is a rural community, at least 20% of the benefits will meet the agricultural (rural) requirement. Populations potentially benefitting from a project would include agricultural producers, homeowners and renters, travelers and commuters, business owners, and the public.

References:

16 USC 18 - §1002, Definitions

Title 390, NWPM – 506.50 Glossary, MMM. Rural or Rural Communities

Project Overview

Proposed Project Name	Outlet Piney Creek,12-digit HUC 050500040103
State	West Virginia
County	Raleigh County
Congressional District	1st Congressional District
USGS Hydrologic Unit Code (HUC) and Watershed Name	12-digit HUC 050500040103, Outlet Piney Creek 
General Coordinates of the Watershed	Latitude 37.811° , Longitude -81.140°
Potential Project Area - Size	28,074 acres

Project Setting	<p>The Outlet Piney Creek watershed, including Little Whitestick Creek and Cranberry Creek, drain a large part of the city of Beckley, West Virginia. Little Whitestick flows into Cranberry Creek just downstream of Rt 41 and the North Beckley PSD sewage treatment plant. Cranberry Creek then flows into Piney Creek. Piney Creek flows into the New River at McCreery. The New River flows northwest to its confluence with the Gauley River, forming the Kanawha River at Gauley Bridge. The Kanawha flows west to join 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.</p> <p>The total watershed drainage area is 28,074 acres, entirely in Raleigh County, WV.</p> <p>The topography in the watershed ranges from an elevation of 2,600' MSL in the headwaters near Dry Hill and Stanaford to a low point of approximate elevation 1,155' MSL at the confluence of Piney Creek with the New River.</p> <p>The watershed, which lies entirely in MLRA 127, Eastern Allegheny Plateau & Mountains geology, is characterized by mostly flat-lying sedimentary beds. The overall topography is that of a high but strongly dissected plateau sharply cut by the larger streams and less so by smaller tributaries. The rock strata have considerable thickness consisting of sandstone, limestone, and shale.</p> <p>West Virginia has a humid continental climate. South central 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.</p> <p>The jet stream is located near or over the northeast during the winter bringing frequent storm systems to the watershed.</p> <p>Raleigh County, in an average year, receives 43 inches of rain and 46 inches of snow. The average summer high is 80 degrees Fahrenheit in July, and the average winter low is 21 degrees Fahrenheit in January.</p>
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Figure 1: Location of HUC 8 05050004 Lower New River in West Virginia.

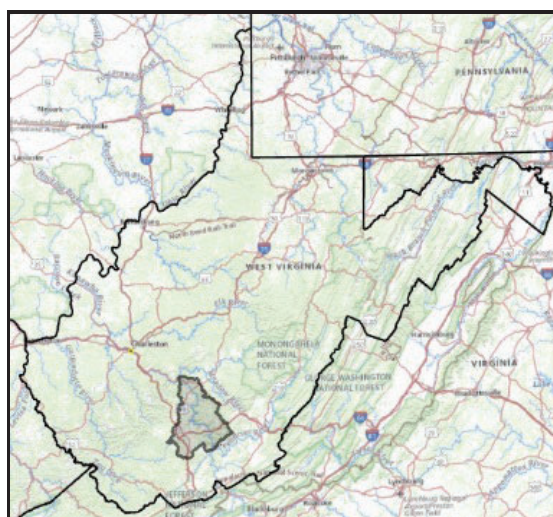


Figure 2: Location of HUC 10 0505000401 Piney Creek within HUC 8 05050004 Lower New River.

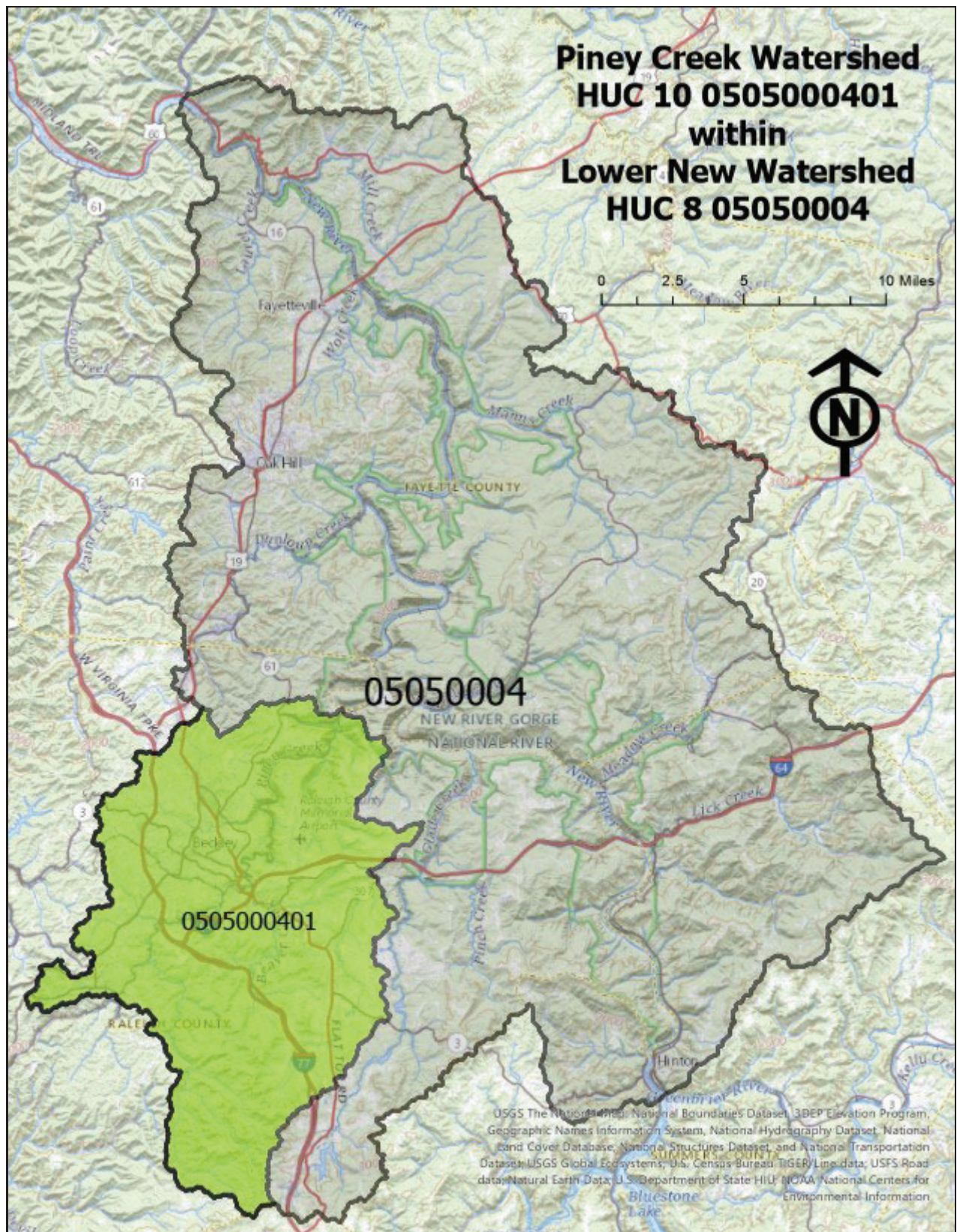


Figure 3: Location of HUC 12 050500040103 Outlet Piney Creek within HUC 10 0505000401 Piney Creek within HUC 8 Lower New River.

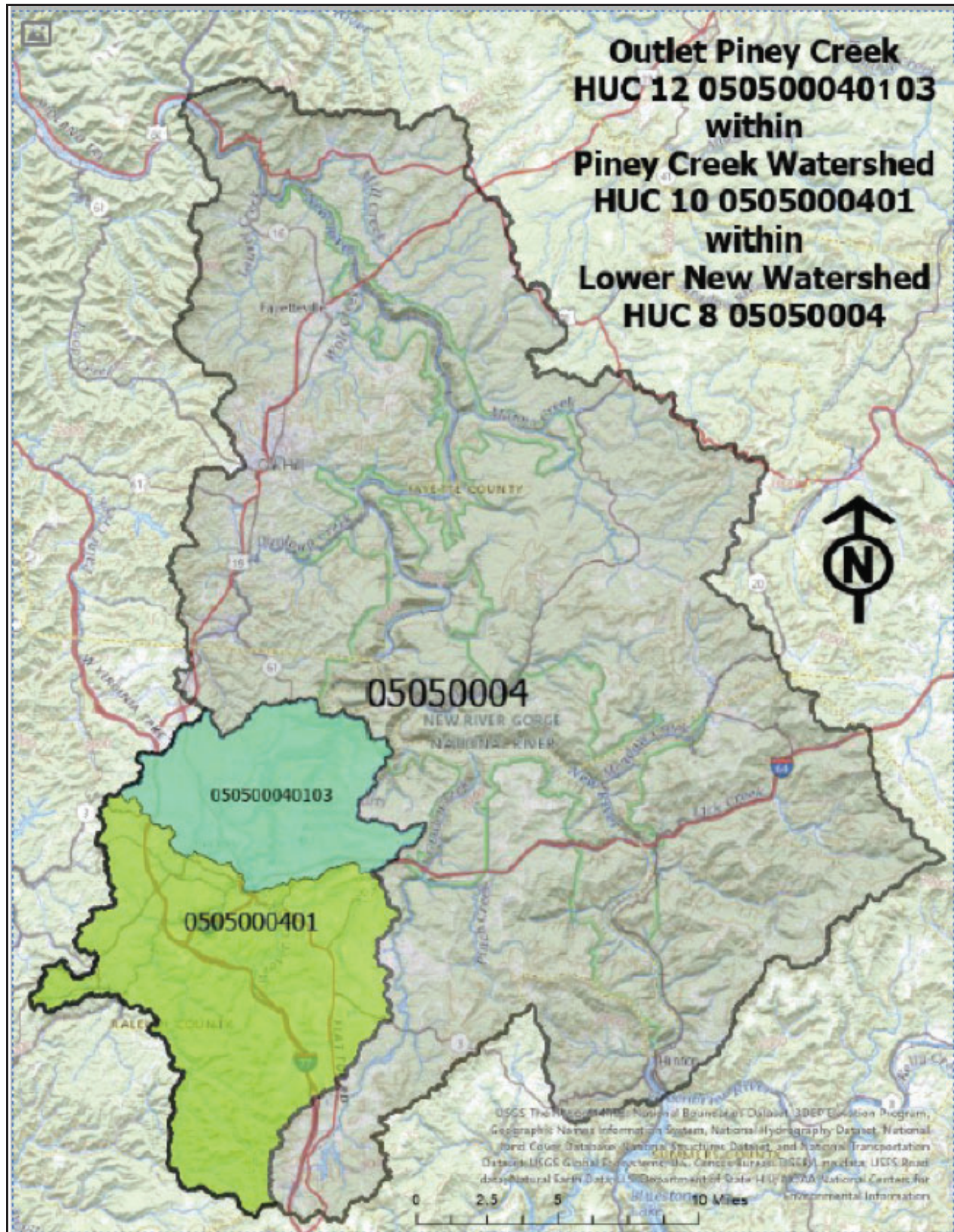
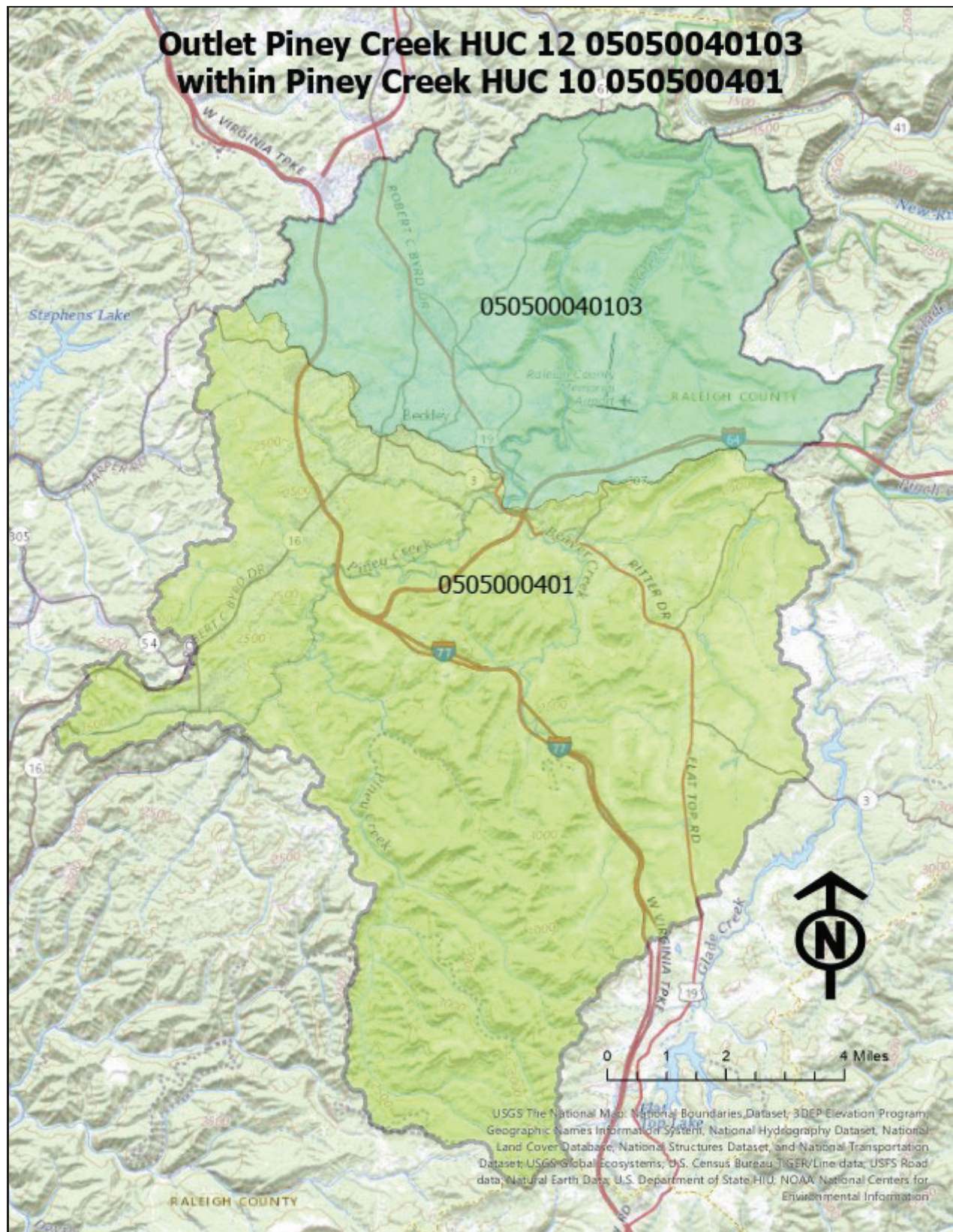











Figure 4: Location of HUC 12 05050040103 Outlet Piney Creek within HUC 10 0505000401 Piney Creek.



Resource Information

Soils	<p>The project area lies within Major Land Resource Area (MLRA) 127, Eastern Alleghany Plateau and Mountains. This MLRA consists of a dissected plateau west of the Alleghany Front. The area is mainly forested and supports high quality hardwood tree species. Steep slopes are dominant. The plateau is underlain by mostly flat-lying alternating beds of sandstone, limestone, coal, and shale. The dominant soil orders are Utisols and Inceptisols. They are generally moderately deep to very deep, excessively drained to poorly drained, and loamy. Small acreages of soils throughout this county are formed in colluvial material and alluvial material making up stream terraces and valleys. The residual parent materials are mostly from interbedded acid shale, siltstone, and sandstone of the Pennsylvanian age, also containing coal seams of varying thickness. Colluvial materials occur on foot slopes below uplands and are underlain mostly by acid sandstone, siltstone, and shale. These materials are medium textured to moderately fine textured and commonly contain small fragments of stone throughout. The older alluvial materials washed from upland soils underlain by acid shale, siltstone, and sandstone are not as common in the area. The textures of these soils are commonly medium to moderately fine textured and are found as terraces along the larger streams.</p> <p>Major resource concerns include sheet and rill erosion, land slippage, subsidence resulting from underground mining, streambank erosion, gullying, surface compaction, and reduced content of organic matter on cropland.</p>																																																												
Water	<p>Piney Creek and several tributaries, including Fat Creek to the east and Cranberry Creek and Little Whitestick Creek to the east, are the main streams in the watershed. Piney Creek meets the New River downstream from the watershed. Upstream from the watershed are HUC 12 050500040102 Headwaters Piney Creek and HUC 12 050500040101 Beaver Creek.</p> <p>The quality of water making up the watershed is affected by nonpoint and point pollution sources. Examples of nonpoint pollution include over fertilization, nonfunctioning or nonexistent septic systems, and erosion from heavy rain and flood events. Point sources would be from industrial facilities, mining locations, larger construction sites, or stormwater runoff in more populated towns. Floodplain scour of adjacent floodplains also increase the sediment load of floodwaters during flood events. The table below shows impairments to the creeks in this watershed. Source: PineyCreekWBP.pdf (wv.gov)</p> <p style="text-align: center;">Streams and Impairments in the Piney Creek Watershed</p> <table><tr><th>TMDL Watershed</th><th>WV Code</th><th>Trout</th><th>Stream Name</th><th>Fe</th><th>Al</th><th>pH</th><th>FC</th><th>BIO</th><th>SED</th></tr><tr><td>Piney Creek</td><td>WVKN-26-A</td><td></td><td>Batoff Creek</td><td>X</td><td>X</td><td>X</td><td></td><td></td><td></td></tr><tr><td>Piney Creek</td><td>WVKN-26-E</td><td></td><td>Cranberry Creek</td><td>X</td><td></td><td></td><td>X</td><td>X</td><td>X</td></tr><tr><td>Piney Creek</td><td>WVKN-26-E-1</td><td></td><td>Little Whitestick Creek</td><td></td><td></td><td></td><td>X</td><td></td><td></td></tr><tr><td>Piney Creek</td><td>WVKN-26-F</td><td></td><td>Beaver Creek</td><td>X</td><td></td><td></td><td>X</td><td>X</td><td></td></tr><tr><td>Piney Creek</td><td>WVKN-26-F-2</td><td></td><td>Little Beaver Creek</td><td></td><td></td><td></td><td>X</td><td>X</td><td></td></tr></table> <p>Notes: Fe is total iron impairment FC is fecal coliform bacteria impairment SED is sediment impairment</p> <p style="text-align: right;">Al is dissolved aluminum impairment BIO is a biological impairment</p>	TMDL Watershed	WV Code	Trout	Stream Name	Fe	Al	pH	FC	BIO	SED	Piney Creek	WVKN-26-A		Batoff Creek	X	X	X				Piney Creek	WVKN-26-E		Cranberry Creek	X			X	X	X	Piney Creek	WVKN-26-E-1		Little Whitestick Creek				X			Piney Creek	WVKN-26-F		Beaver Creek	X			X	X		Piney Creek	WVKN-26-F-2		Little Beaver Creek				X	X	
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Piney Creek	WVKN-26-F-2		Little Beaver Creek				X	X																																																					

Air	The watershed is not in an area recognized for regularly having impaired air quality or any significant air quality issues. Dust and fumes from project activity may temporarily adversely impact these areas.
Plants	The watershed provides for both agricultural crops as well as naturally vegetated forested areas utilized as wildlife habitat. There is one species of plant listed by USFWS as threatened, Virginia Spiraea <i>Spiraea virginiana</i> , but no critical habitat is present within the watershed. See appendix E for more information.
Animals	The watershed is largely forested and has animal resources consisting of game, non-game, and invasive species. There are four bat species and six clam species listed as endangered within the watershed, but no critical habitat is present. See Appendix E for more information.
Energy	This area has various electrical, oil, and gas transmission facilities. Coal mines, both surface and deep mines, are abundant in this part of the state.

Human	<p>Demographics: The 2020 U.S. Census reports the population of Raleigh County at 74,591 and the City of Beckley at 17,286 residents. Approximately 88% of Raleigh County and 73% of Beckley residents are non-Hispanic whites, with African Americans making up approximately 8% of the population of Raleigh County and 17% of the population of Beckley. The population density of Raleigh County is 123 people per square mile, and in Beckley it is 1,856.</p> <p>For the years 2018-2022, per capita income was \$27,724 in Raleigh County and \$29,877 in Beckley, while median household incomes were \$47,975 in Raleigh County and \$41,277 in Beckley. The owner-occupied housing unit rate was 75% in Raleigh County and 59% in Beckley, with median values of owner-occupied housing units approximately \$132,000 and \$135,000 respectively. Median monthly rent was \$819 in Raleigh County and was \$862 in Beckley.</p> <p>For the years 2018-2022, people under age 65 with a disability made up 21.3% of Beckley residents and 18.5% of Raleigh County residents, compared to 13.8% in West Virginia and 8.9% nationally. 20.6% of Raleigh County residents and 23.3% of Beckley residents had a bachelor's degree or higher, compared to 22.7% of state residents and 34.3% nationally.</p> <p>Transportation: Major highways within the project area include US Rt 19/State Rt 41, which run together and cross Little Whitestick Creek approximately 0.25 miles above its confluence with Cranberry Creek. State Rt 16 crosses Little Whitestick Creek approximately 1 mile further upstream and is the location of much of the flooding that spurred BSB to request assistance from NRCS. Interstates 64/77 also cross Little Whitestick Creek in the upper reaches near the intermittent to perennial stream transition point.</p> <p>A long reach of Little Whitestick Creek flows along New River Drive, where several crossings and the proximity of the road to the stream have resulted in repeated flooding of the roadway.</p> <p>Other transportation infrastructure associated with an urban/suburban environment are present throughout the project area, including but not limited to city streets, overhead and buried power and telecommunication lines, and natural gas distribution lines.</p> <p>Recreation: Recreational opportunities within the project area include hiking trails, city parks and playgrounds, and the city pool. The New River Park has playgrounds, a pool, and hiking trails, and while within the project area, is unlikely to be affected by project activity. The Lewis McManus Memorial Honor Rail Trail crosses through the project area and crosses Little Whitestick Creek. Piney Creek is a stocked trout stream. The New River Gorge National Park and Preserve offers a wide range of recreational opportunities.</p>
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Resources of Special Concern

Clean Water Act	Little Whitestick Creek is considered impaired due to fecal coliform bacteria and is listed as a Section 303(d) impaired stream. It is included in a TMDL developed by WV Department of Environmental Protection (DEP) for the New River Watershed approved in 2008. The report indicates that much of the bacteria causing Little Whitestick Creek's impaired status results from failing septic systems in the upper reaches. The implementation of the TMDL will consist of providing public sewer service to unsewered areas, but no specific timeline for such activity in the Little Whitestick Creek headwaters is available.
Clean Air Act	The 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 National Historical Preservation Act (NHPA) of 1966, as amended.
Endangered & Threatened Species	The US Fish and Wildlife Service identifies 13 Federally listed threatened, endangered, or candidate species potentially found in this watershed. According to the USFWS Information for Planning and Consultation (IPaC) regulatory review process, the project "may affect" 3 endangered bat species: gray bat <i>myotis grisescens</i> , Indiana bat <i>myotis sodalist</i> , and northern long-eared bat <i>myotis septentrionalis</i> . Further consultation with USFWS is underway, and time of year restrictions may be placed on some project activity. See Appendix E for a complete USFWS IPaC Species list, determination letters, species survey guidelines, and project design guidelines aimed at minimizing impacts to T&E species.
Environmental Justice	<p>Raleigh County is completely within the Appalachian Region but is not designated as a limited-resource county by USDA. However, it is designated as 'at risk' by the Appalachian Regional Commission, indicating that it is at risk of becoming economically distressed.</p> <p>Reference: https://www.arc.gov/distressed-designation-and-county-economic-status-classification-system/</p> <p>In the Outlet Piney Creek watershed, 23% of people in the watershed are people of color, 43% are low income, and no Indian Tribes are located within the watershed.</p> <p>Reference: EJScreen Community Report (epa.gov)</p>
Essential Fish Habitat	Within the watershed, Piney Creek and Cranberry Creek are considered trout streams. All trout streams in multiple WV counties, including Raleigh County, are designated as "Waters of Special Concern" and as "Critical Resource Waters".

Floodplain Management	<p>In 2006, Raleigh County adopted and started enforcing a floodplain management ordinance that establishes a floodplain administrator for the county, provides minimum standards for construction with a floodplain area, and spells out penalties for violations of the ordinance.</p> <p>FEMA has designated Piney Creek as Zone A and Cranberry Creek as Zone AE.</p>
Invasive Species	<p>Invasive species are found in the watershed. EDDMaps provides a web-based mapping system for documenting invasive species and pest distribution. See Appendix E for complete species lists. Note that the list is for Raleigh County and is not specific to the watershed or project area.</p>
Migratory Birds/Bald & Golden Eagle Protection Act	<p>Migratory birds and eagles utilize the Outlet Piney Creek watershed habitats. There are 12 USFWS listed Birds of Conservation Concern (BCC) in the area. See Appendix E for a complete list.</p>
Natural Areas	<p>Federal: The US Park Service manages the New River Gorge National Park and Preserve. A rugged, whitewater river flowing northward through deep canyons, the New River is among the oldest rivers on the continent. The park encompasses over 70,000 acres of land along the New River, is rich in cultural and natural history, and offers an abundance of scenic and recreational opportunities. Several acres of the NRGNP lie within the watershed.</p> <p>State: With 562-acres, Little Beaver State Park features nearly 20 miles of trails and an 18-acre lake where anglers may fish year-round. Stand up paddle board, kayak, canoe and paddleboat rentals are available seasonally. Park visitors can also enjoy biking, picnicking and camping at Little Beaver. The park is owned and managed by the WV Division of Natural Resources and is located adjacent to the Little White Stick Watershed.</p>
Prime and Unique Farmlands	<p>Within the HUC 12 Outlet Piney Creek watershed, there are 1,865 acres of Prime Farmland, which accounts for 7% of land in the watershed. Additionally, there are 3,833 acres of Farmland of Local Importance and 7,697 acres of Farmland of Statewide Importance (see Figure 5). There are no farmland protection boards actively conserving land in the watershed.</p>
Riparian Area	<p>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 forested or utilized as agricultural, urban, or residential purposes.</p>
Scenic Beauty	<p>The New River Gorge is a unique area of scenic beauty that lies partially within the watershed, though not within the project area. Other areas of the watershed are typical of the Appalachian Plateau physiographic province.</p>

Wetlands	<p>Within the HUC 12 Outlet Piney Creek watershed, there are 3,364 acres of wetland, consisting of 4 acres of Freshwater Emergent Wetlands, 34 acres of Freshwater Forested/Shrub Wetlands, 74 acres of Freshwater Pond, and 3,252 acres of Riverine (see Figure 6).</p> <p><i>Reference: US Fish and Wildlife Service National Wetlands Inventory.</i></p>
Wild and Scenic Rivers	<p>The lower New River, including the confluence with Piney Creek, was designated as a National Wild and Scenic River in 1978.</p>

Figure 5: Outlet Piney Creek watershed Farmland Inventory map.

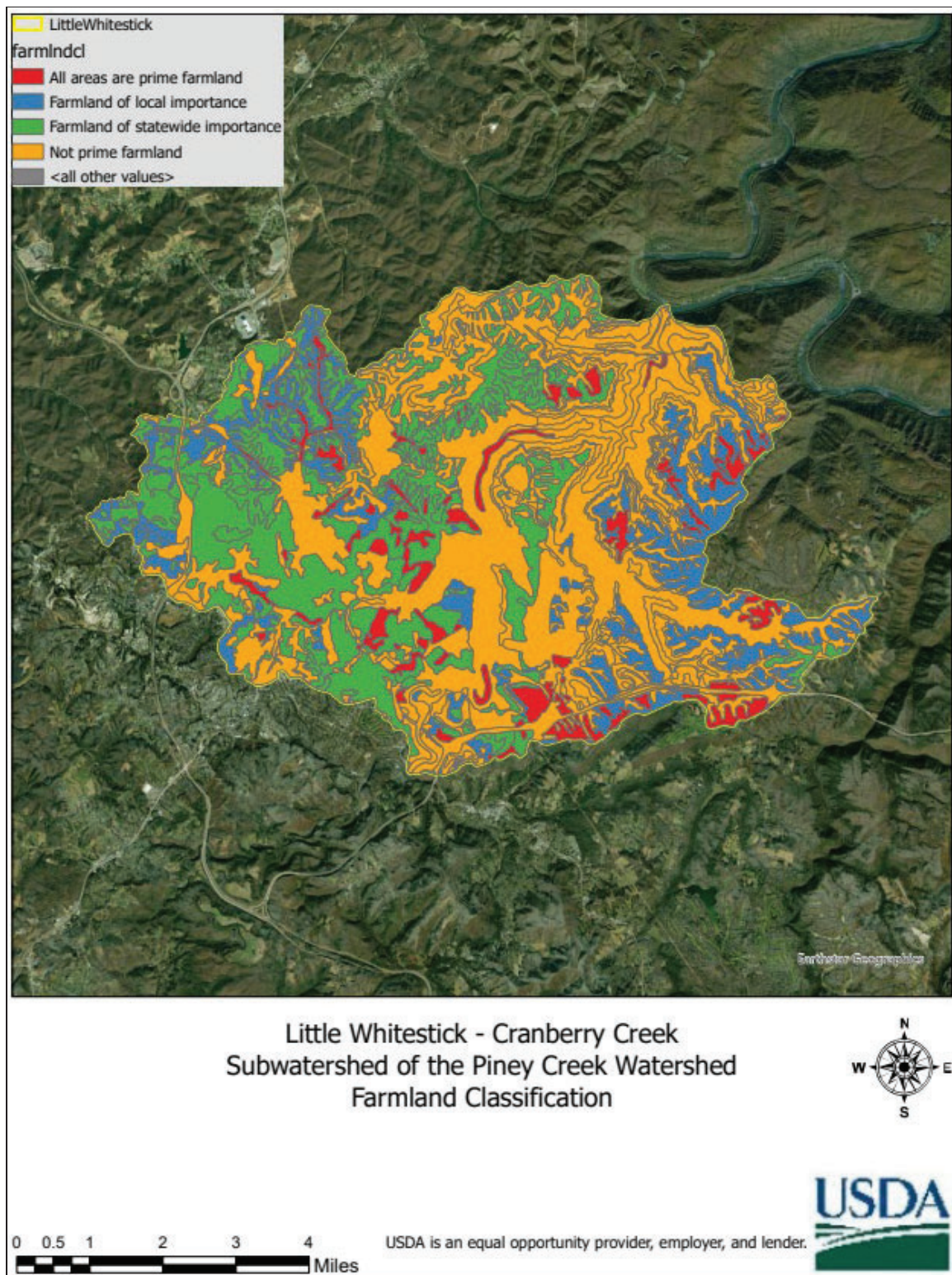
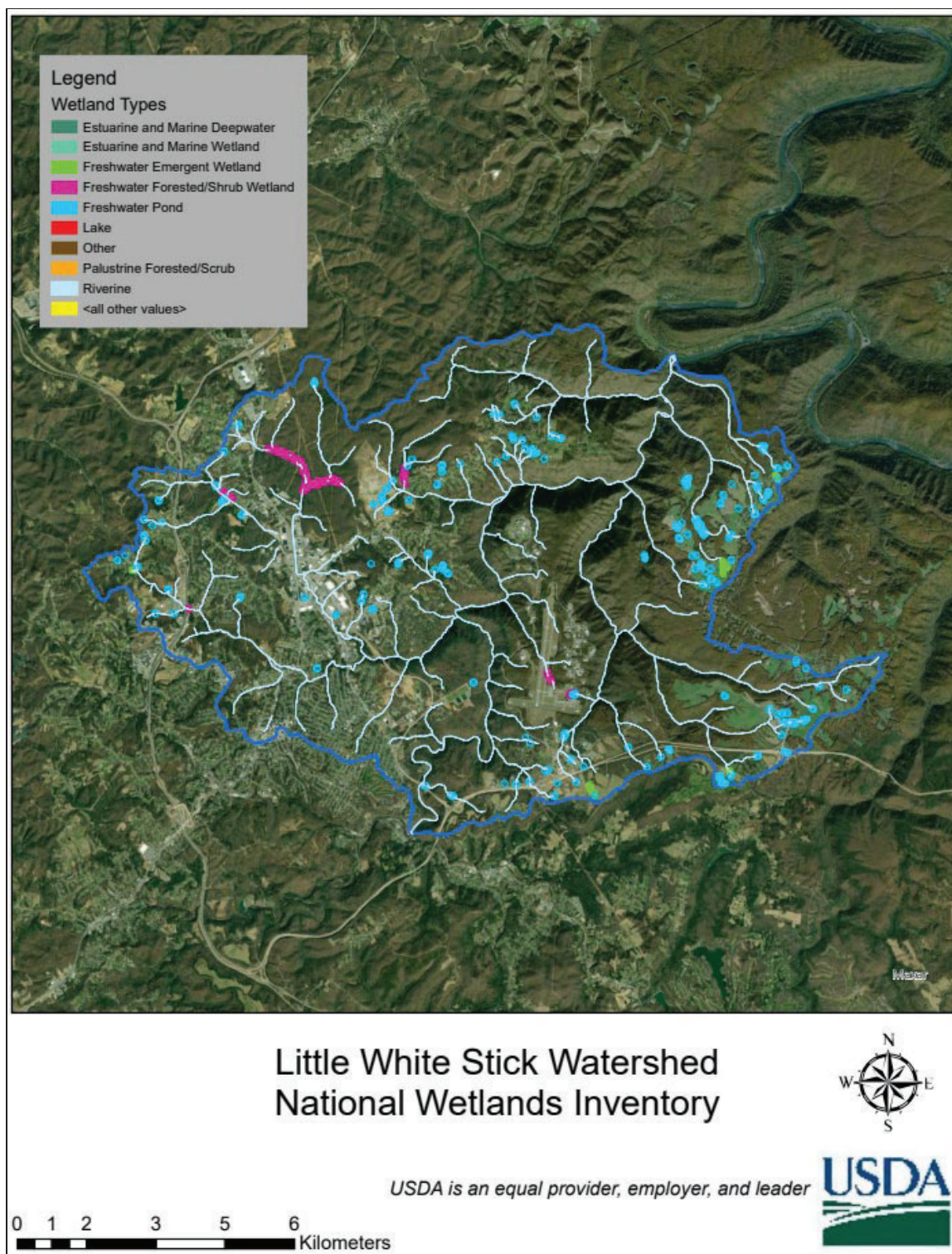


Figure 6: Outlet Piney Creek watershed US FSW National Wetland Inventory map.



Proposed Project Purpose and Need Statement

The purpose of the proposed project is to address resource concerns in the Outlet Piney Creek Watershed where landowners and municipalities in flood prone areas are experiencing repeated flooding. It is anticipated that the PL 566 primary project purposes will be flood prevention, with watershed protection, public recreation, public fish and wildlife management, and water quality management as additional objectives.

The current condition of the stream and floodplain has resulted in flood risk to roadways and parking lots of local businesses, residential and commercial structures, and to utility infrastructure within the project area.

BSB has documented flooding on Little Whitestick Creek along Robert C. Byrd Dr (WV State Rt 16). Nuisance flooding multiple times per year affects roadways, parking lots, and businesses between the intersections with Ewart Avenue and New River Drive.

BSB also has documented flooding in the upper reaches of Little Whitestick Creek in the area of Pikeview Drive and the Pikeview Manor Apartments.

Additionally, BSB had documented flooding complaints from residents on an unnamed tributary of Little Whitestick Creek along Nebraska Avenue include 9 documented instances of basement flooding or sewer overflows in the 1990s, 5 instances in the 2000s, 5 instances in the 2010s, and 3 instances since 2020, including most recently in February of 2023.

There is a need for additional flood protection, watershed protection, and reduction of erosion and sediment from streambanks. The Outlet Piney Creek Watershed was the subject of a PL-83-566 project in the 1980s, which is still providing benefits to the watershed. There are opportunities to increase flood protection and improve other resource concerns in the watershed.

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 Outlet Piney Creek Watershed contains water resources concerns and opportunities that offer the potential for a watershed project that achieves this Federal Objective.

The 2014 Comprehensive Plan Update for the City of Beckley identifies the New River Drive corridor along Little Whitestick Creek as the city's only remaining large area for development. Land along Little Whitestick Creek and New River Drive is proposed for community housing developments, which will incorporate natural areas and a network of hiking and biking trails. Therefore, in addition to flood prevention and watershed protection, this project would serve economic benefits for the community.

Resources	Concerns	Opportunities
Water	<ul style="list-style-type: none">FloodingImpact of excessive nutrients on surface waters	<ul style="list-style-type: none">Reduce flood impactsProtect, improve water qualityReduce erosion and sedimentImprove farming profitabilityEnhance recreationImprove nutrient management at farming operations
Soil	<ul style="list-style-type: none">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.	<ul style="list-style-type: none">Reduce impacts to soils and improve soil health
Air	<ul style="list-style-type: none">No air quality issues present	<ul style="list-style-type: none">Monitor state air data for potential issues
Plant	<ul style="list-style-type: none">Lack of plant species diversity and presence of invasive species.	<ul style="list-style-type: none">Increase of plant diversity with the establishment of native regionally appropriate species.
Animals	<ul style="list-style-type: none">Lack of game and non-game species diversity and habitat diversity	<ul style="list-style-type: none">Provide appropriate game and non-game habitat.
Energy	<ul style="list-style-type: none">Potential damage to energy infrastructure from flooding	<ul style="list-style-type: none">Efficiencies in energy use
Human	<ul style="list-style-type: none">Decreasing population due to diminishing living standardsLabor shortages and declining tax base	<ul style="list-style-type: none">Improvements to quality of life

Recreation	<ul style="list-style-type: none"> • Disparate recreational access • Underutilization of water-based recreation potential 	<ul style="list-style-type: none"> • Increase accessibility to recreation for local residents • Increased water recreation opportunities that help overcome historical barriers to water-based recreation for aging and disabled populations • Continued stewardship of pristine trout streams. Improvement of trout streams that have streambank erosion or other impairments
Environmental Justice	<ul style="list-style-type: none"> • Flooding of low-income neighborhoods • Declining tax revenues for towns 	<ul style="list-style-type: none"> • Overcome barriers to economic and human development
Cultural Resources / Historic Properties	<ul style="list-style-type: none"> • Full range of archaeological sites (Paleo-Indian to recent past) and historic properties eligible for listing on the National Registry of Historic Places 	<ul style="list-style-type: none"> • Tribal and SHPO consultation

State, Tribal, Federal Stakeholder Engagement

Notification letters were sent out to the West Virginia State Historic Preservation Office, Southern Conservation District, Catawba Indian Nation, Cherokee Nation, Eastern Band of Cherokee Indians, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and the West Virginia Conservation Agency. 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 National Historical Preservation Act (NHPA) of 1966, as amended.

Potential Alternatives

During the PIFR process, broad categories of 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.

Alternatives	Possible Positive Impacts and Effects	Possible Adverse Impacts and Effects
Alt 1 - No work	<ul style="list-style-type: none"> -No new costs to taxpayers or sponsors -no new maintenance requirements 	<ul style="list-style-type: none"> -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	<ul style="list-style-type: none"> -Increased flood protection -recreation opportunities -water supply, rural, ag, municipal, & industrial -aquatic habitat -short term construction jobs -Increased federal investment into local infrastructure -increased public safety -possible power generation capabilities included -ag water management 	<ul style="list-style-type: none"> -Loss of private land through condemnation/easements -Loss of local tax base -Loss of farmland and/or terrestrial habitat -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 style="list-style-type: none"> -Increased flood protection in more urban areas -short term construction jobs -increased federal investment into 	<ul style="list-style-type: none"> -Loss of private land through condemnation/easements -long term maintenance burden on sponsors

	<p>local infrastructure</p> <ul style="list-style-type: none"> -reduce significant risk to loss of life -provide maintenance easements alongside the constructed channel thus prohibiting future development in these areas and protecting existing urban wildlife habitat 	<ul style="list-style-type: none"> -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 - Stream Restoration	<ul style="list-style-type: none"> -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 	<ul style="list-style-type: none"> -no flood protection -requires a fenced and maintained riparian area for cattle exclusion -possible loss of pasture due to fencing
Alt 5 - Land Treatment	<ul style="list-style-type: none"> -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 	<ul style="list-style-type: none"> -no flood protection -no public works project(s)

Alt 6 - Green Infrastructure/Low Impact Development	<ul style="list-style-type: none"> -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 	<ul style="list-style-type: none"> -funds needed for maintenance -minor loss of land -maintenance burden on landowners/sponsors -increased cost of development
Alt 7 - Land Treatment, Stream Restoration, Rehab, Repair, Channelization, Green Infrastructure, New Structures	<ul style="list-style-type: none"> -combination of all of the above -huge amount of federal money provided -several years of construction jobs -improved flood protection, water quality, recreation, & water supply -improved productivity on ag and forest land 	<ul style="list-style-type: none"> -combination of all of the above -large amount of cost share required from local sponsors -maintenance cost and burden increases
Alt 8- Floodplain Buyout, flood proofing affected homes, relocation of homes	<ul style="list-style-type: none"> -Elimination of threat to life and property. -Floodplain converted to nature conservatory including wetlands. -Increased wildlife habitat. -Enhanced learning and recreational opportunities 	<ul style="list-style-type: none"> -Relocation of cemeteries and/or 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.

While all of the potential alternatives listed may not be carried forward for full analysis, this table should document that there are one or more reasonable alternatives that may be analyzed during the full planning process.

Potential Effects of Proposed Alternatives

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 + Human		
	Alt 1 – No Federal Action Description: The sponsor does not implement measures using federal funds	Alt 2 – Federal Action: Description: Combination of measures using federal funds
Soil	-	+
Water	-	+
Air	0	0
Plants	-	+
Animals	-	+
Energy	0	0
Human	-	+
Clean Air Act	0	0
Clean Water Act/Waters of the U.S.	0	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	*

Facilitating Factors

- The BSB is willing to work with NRCS and each other to see the project through completion.
- The existence of the Little Whitestick-Cranberry Creek Project demonstrates the public benefits that are possible from an NRCS watershed project.
- The watershed has been an area of interest for many years and flooding remains a prominent concern.

Obstructing Factors

- Maintenance of the existing watershed project has been the responsibility of the 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 agricultural 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 BSB is ready, willing, and able to sponsor a potential watershed project in the Little Whitestick-Cranberry Creek Watershed. They meet the PL 83-566 sponsorship criteria for this potential watershed project. BSB has completed the WS-4, PIFR Sponsor Declaration form. A summary of the sponsor responses is included below. The completed WS-4 - PIFR Sponsor Declaration is included in Appendix B.

<i>Sponsor Will:</i>	Assist in Planning	Land Rights / Eminent Domain	Local Cost Share	O/M Funds	Permits	Land Treatment
Beckley Sanitary Board	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.

Potential Cooperating Agencies

Agency	Contact Information	Type of Involvement
US Army Corps of Engineers	USACE – Huntington District Planning Division Regulatory 502 8 th Street Huntington, WV 25701 (304) 399-5211	Regulatory [X]
		Informed [X]
		Prepare permits or letters of permission document [X]
		Provide input [X]
US Fish and Wildlife Services	USFWS 6263 Appalachian Highway Davis, WV 26260 501-513-4470 FW5_WVFO@fws.gov	Regulatory [X]
		Informed [X]
		Prepare permits or letters of permission document [X]
		Provide input [X]
West Virginia Department of Environment Protection (WVDEP)	WVDEP 601 57th Street SE Charleston, WV 25304 (304) 926-0499	Regulatory [X]
		Informed [X]
		Prepare permits or letters of permission document [X]
		Provide input [X]
USDA Farm Service Agency	USDA-FSA 1550 Earl Core Road Morgantown, WV 26505 (304) 284-4800	Regulatory []
		Informed [X]
		Prepare permits or letters of permission document []
		Provide input []
West Virginia Historic Preservation Office (WVSHPO)	WVSHPO Capitol Complex 1900 Kanawha Boulevard, East Charleston, WV 25305-0300 (304) 558-0220	Regulatory [X]
		Informed [X]
		Prepare permits or letters of permission document [X]
		Provide input [X]

Potential Stakeholders

Stakeholder	Role	Resources	Contribution
Beckley Sanitary Board	Co-Sponsor	Cost-share funds	For Plan/EA attain permits and assists with Public Scoping Meetings, Mailings, and overall administration of the project.
Southern Conservation District	Co-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, Section 408 review	Technical Reviews, Wetlands-Waters of the U.S. Jurisdiction	Permitting, technical review
Catawba Indian Nation – Chief - Bill Harris	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Catawba Indian Nation – Cultural Division Program Manager - Caitlin Rogers	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Catawba Indian Nation - Tribal Historic Preservation Officer and Catawba Cultural Center Executive Director - Dr. Wenonah G. Haire	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Cherokee Nation - Tribal Historic Preservation Officer - Elizabeth Toombs	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Eastern Band of Cherokee Indians - Principal Chief - Richard Sneed	Permit- Cultural Review	Review of Project APE	Permit for Project APE
Eastern Band of Cherokee Indians - Tribal Historic Preservation Specialist - Russell Townsend	Permit- Cultural Review	Review of Project APE	Permit for Project APE
West Virginia Historic Preservation Office (WVSHPO)	Permit- Cultural Review	Review of Project APE	Permit for Project APE
WVDEP	Permits	Review for Permits	Review for Permits

Notifications

Entity/Agency	Method and Date Notified
Governor (WV)	Letter, 5/15/2024
US Fish and Wildlife Service	Email, 4/19/2023
US Army Corps of Engineers	Email, 4/19/2023
Catawba Indian Nation	Mail, 8/1/2023
Cherokee Nation	Mail, 8/1/2023

Estimated Project Implementation Timeline

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

Planning Start*	October	2025
Planning End*	October	2028 (36 months typically)
Design Start*	December	2028
Design End*	December	2030 (24 months typically)
Construction Start*	March	2030
Construction End*	November	2033 (~42 months typically)

**Dependent on funding*

Recommendation

This preliminary investigation and feasibility report has been completed and submitted for approval to:

Jon Bourdon, West Virginia State Conservationist.

By:

Name: Christi Hicks Title: Assistant State Conservationist - Water Resources Date: May 28, 2024

Organization: Natural Resources Conservation Service (NRCS)

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

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

Preparers Signature: Signature: **HANNAH THACKER** Digitally signed by HANNAH THACKER
Date: 2024.05.29 13:47:37
-04'00' Date: _____

State Watershed Operations Signature: **CHRISTI HICKS** Digitally signed by CHRISTI HICKS
Date: 2024.05.30 10:11:20
-04'00' Date: 5/30/2024

Program Manager:

State Technical Lead (SRC, SCE, Other): Signature: **JEFFREY BARR** Digitally signed by JEFFREY BARR
Date: 2024.06.10 08:55:39
-04'00' Date: _____

	Not Recommended for Planning Funding
X	Accepted and Recommended for Planning Funding

State Conservationist: Signature: **JON BOURDON** Digitally signed by JON BOURDON
Date: 2024.05.31 08:05:10
-04'00' Date: _____

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



BECKLEY SANITARY BOARD

October 25, 2021

Mr. Jon Bourdon
State Conservationist
USDA-NRCS
1550 Earl L. Core Road, Suite 200
Morgantown, WV 26505

RE: Little Whitestick Creek Channel Modification - Request for Assistance

Dear Mr. Bourdon,

The Little Whitestick Creek Channel Modification was completed in 2007 as part of a NRCS watershed project that was sponsored by the City of Beckley, Raleigh County Commission, Southern Conservation District and WV Conservation Agency. This area continues to be subjected to nuisance flooding of roadways and parking lots a few times a year and occasionally some local businesses have been impacted with structure flooding. The roadway flooding disrupts commerce within the city, ties up and disrupts the ability of first responders.

Since 2007, the Beckley Sanitary Board has been tasked with managing stormwater runoff in the Greater Beckley area and implementing measures required in the City of Beckley Municipal Separate Storm Sewer System (MS4) NPDES permit. BSB has invested over \$2.5 million for stormwater capital projects within the Little Whitestick Creek watershed. The City of Beckley – Beckley Sanitary Board requests assistance identifying additional modifications that could help reduce instances of flooding in this area. If possible, we would like NRCS engineering staff to examine the current hydrology and hydraulics of the project area and recommend additional measures that can be taken to reduce flooding in the vicinity of the Little Whitestick flood control channel.

Thank you in advance for considering this project. We appreciate any help NRCS can provide to reduce flooding and its negative impact to public safety, life, and property in our community.

Sincerely,

Jeremiah Johnson
General Manager
Beckley Sanitary Board

CC: Mayor Robert Rappold, City of Beckley
Billy Michael, Raleigh County Commission
Marty Walker-Owen, Southern Conservation District/WVC

November 5, 2021

Jimmy Bramblett
Deputy Chief for Programs
Conservation Planning and Program Delivery
Natural Resources Conservation Service
Washington, D.C. 20250

Dear Chief Bramblett:

We request Federal assistance to complete a Preliminary Investigation Feasibility Report for a Watershed Plan in Raleigh County 0505000401 Piney Creek. The project would examine the current hydrology and hydraulics of the Little Whitestick Creek Channel Modification project area with the goal of developing additional recommendations to reduce flooding in the vicinity of the Little Whitestick flood control channel. The Little Whitestick Creek Channel Modification was part of a NRCS watershed project that was completed in 2007 to address flooding of roadways, parking lots, and local businesses, however the area continues to be subjected to flooding multiple times a year. We are requesting \$58,560.00 for NRCS time costs and \$218,140.00 for the AE contractor, totaling \$276,700.00 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

Copy: Donny Dodd, Water Resources Planning Specialist, NRCS, Beckley, WV
Andy Deichert, State Conservation Engineer, NRCS, Morgantown, WV

Appendix B.

PIFR Sponsor Declaration Forms

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

**Form Number: WS-4
Version 2021-03-04**

State: WV County: Raleigh Watershed: LITTLE WHITE STICK CREEK

Project Name: LITTLE WHITE STICK CREEK

Sponsor's Name:	BECKLEY SANITARY BOARD		
Sponsor's Mailing Address:	301 S Heber Street Beckley WV 25801		
Contact Name:	<u>Teremina Johnson</u>	Phone:	<u>304-256-1760</u>
Title:	<u>General Manager</u>	Email:	<u>jjohnson@beckleysanitaryboard.org</u>
Sponsor Website:	<u>beckleysanitaryboard.org</u>		

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 Little White stick 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 Little White Stick 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 Little White Stick Creek Watershed located in Raleigh County.

SPONSOR WIL

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

**Form Number: WS-4
Version 2021-03-04**

State: WV County: Raleigh Watershed: Little Whitestick Creek

Project Name: LITTLE WHITESTICK CREEK WATERSHED

- Assist in the locally led planning effort: YES X NO
- Obtain needed land rights including the use of power of eminent domain, if necessary: YES X NO
- Provide local cost-share funds and/or in-kind services to provide the required portion of total project costs: YES X NO
- Provide Funds for continuing Operation and Maintenance actions: YES X NO
- Obtain required permits and approvals at Sponsor cost: YES X NO
- Provide leadership to help ensure adequate conservation land treatment measures are maintained on at least 50% of the watershed area above retention reservoirs: N/A X YES NO
- 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: YES X NO

Authorized Representative of Sponsor

Name (printed): Jeremiah Johnson Title: General Manager

Signature:  Date: 10-19-2022

Appendix C.

Preliminary Environmental Evaluation (CPA 52)

Sediment transported to surface water	Resources would continue to be degraded. Frequent flooding will continues to scour streambanks, increasing sedimentation within streams and reducing channel capacity.	<input type="checkbox"/>	Increased flood control and holding capacity would decrease sediment loading within streams and reduce flooding impacts on stream bank erosion due to reduced flows.	<input type="checkbox"/>	Channelization would reduce streambank erosion and sedimentation by protecting adjacent streambanks.	<input type="checkbox"/>
Sedimentation caused by erosion in the uplands of the watershed negatively impact Little Whitestick 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.		NOT meet PC		NOT meet PC		NOT meet PC
Nutrients transported to surface water	Continued degradation of the resource without any federal action.	<input type="checkbox"/>	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.	<input type="checkbox"/>	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.	<input type="checkbox"/>
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.		NOT meet PC		NOT meet PC		NOT meet PC

F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	I. (continued)					
	No Action		Alternative 1		Alternative 2	
	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 would not be impacted with no action.	<input type="checkbox"/>	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.	<input type="checkbox"/>	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.	<input type="checkbox"/>
Air quality is not a resource concern within the watershed						
PLANTS						
Plant structure and composition	Agricultural crops and wildlife habitat would continue to be impacted by flooding.	<input type="checkbox"/>	Agricultural crops and wildlife habitat would be enhanced from a reduction in flooding and decrease in sedimentation.	<input type="checkbox"/>	Agricultural crops and wildlife habitat would be enhanced from a reduction in flooding and decrease in sedimentation.	<input type="checkbox"/>
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.						
ANIMALS						
Terrestrial habitat for wildlife and invertebrates	Wildlife will continue to be temporarily displaced during flood events. Changing vegetation along stream banks due to flood damage will continue to support invasive species over native, thus reducing the quality of wildlife habitat, food and shelter.	<input type="checkbox"/>	Displacement of wildlife due to excessive flooding within the watershed would likely decrease. Habitat that supports this wildlife would be less likely to be disturbed and thus reduce the spread of invasive species. Terrestrial habitat would be disturbed in the short term due to construction.	<input type="checkbox"/>	Channelization could result in a loss of riparian areas in some locations, but provide wildlife habitat in more urban areas through the removal of structures along the stream and future protection of the areas through conservation easements.	<input type="checkbox"/>
Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 10 threatened, endangered, or candidate species found in the watershed.						

Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively affecting aquatic fish and invertebrate species habitat.	Continued degradation of the resources with continued sedimentation in the stream negatively impacting aquatic invertebrate habitat.	<input type="checkbox"/> 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.	<input type="checkbox"/> 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.	<input type="checkbox"/> NOT meet PC
ENERGY						
No resource concern identified	No effect	<input type="checkbox"/> NOT meet PC	Hydroelectric power generation could be included as an element in the design of the structures to provide clean energy to the region.	<input type="checkbox"/> NOT meet PC	No effect	<input type="checkbox"/> NOT meet PC
This area has various electrical, oil, and gas transmission facilities. Coal mines, both surface and deep mines, are abundant in this part of the state.						
Human Economic and Social 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.	Agricultural landowners, residents, local businesses, transportation systems, and emergency services will continued to be negatively affected by continued flooding.		Installation of additional structures would increase flood protection of the counties' residences and business. It would also provide the opportunity for rural water supply, recreation opportunities, and a short term creation of jobs during construction.		Channelization would increase flood protection in more urban areas, create short term jobs during construction, and reduce significant risk to loss of life, however it may only reduce flooding from higher frequency storm events.	
Special Environmental Concerns: Environmental Laws, Executive Orders, policies, etc.						
In Section "G" complete and attach Environmental Procedures Guide Sheets for documentation as applicable. Items with a "•" may require a federal permit or consultation/coordination between the lead agency and another government agency. In these cases, effects may need to be determined in consultation with another agency. Planning and practice implementation may proceed for practices not involved in consultation.						
G. Special Environmental Concerns (Document existing/benchmark conditions)	J. Impacts to Special Environmental Concerns					
	No Action		Alternative 1		Alternative 2	
	Document all impacts (Attach Guide Sheets as applicable)	✓ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	✓ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	✓ if 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.	No Effect	<input type="checkbox"/>	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.	<input type="checkbox"/>	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.	<input type="checkbox"/>
•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. Ephemeral, intermittent, and perennial streams and certain wetlands will be considered as waters of the US. Mitigation for unavoidable impacts should be expected under Sec. 404 of the Clean Water Act.	No Effect	<input type="checkbox"/>	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 also be required.	<input type="checkbox"/>	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 also be required.	<input type="checkbox"/>

<p>●Coastal Zone Management <i>Guide Sheet</i></p> <p>There are no costal zones present in or near the watershed.</p>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>
<p>Coral Reefs <i>Guide Sheet</i></p> <p>There are no coral reefs present in or near the watershed.</p>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>
<p>●Cultural Resources / Historic Properties <i>Guide Sheet</i></p> <p>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 National Historical Preservation Act (NHPA) of 1966, as amended.</p>	No Effect	<input type="checkbox"/>	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	<input type="checkbox"/>	May Affect Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.	<input type="checkbox"/>
<p>●Endangered and Threatened Species <i>Guide Sheet</i></p> <p>There is a total of 10 Federally listed threatened, endangered, or candidate species potentially found in this watershed listed by 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 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.</p>	No action may have the potential to negatively impact federally listed aquatic species through continued sedimentation and habitat destruction.	<input type="checkbox"/>	May Affect The structural alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.	<input type="checkbox"/>	May Affect The structural alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.	<input type="checkbox"/>
<p>Environmental Justice <i>Guide Sheet</i></p> <p>Raleigh 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 that local economies is not strong.</p> <p>Raleigh County is predominately white with 88.6% of the population designated as such. Slightly over 8% are black. The poverty rate is 21.8%, which is much higher compared to 11.6% nationally and 16.8% for WV.</p>	No Effect	<input type="checkbox"/>	No Effect No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.	<input type="checkbox"/>	No Effect No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.	<input type="checkbox"/>

<p>●Essential Fish Habitat Guide Sheet This area is not designated as Essential Fish Habitat.</p>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect</p>	<input type="checkbox"/>
<p>Floodplain Management Guide Sheet Raleigh county has a major risk of flooding over the next few decades.</p>	<p>No Effect Continued risk of flooding.</p>	<input type="checkbox"/>	<p>May Affect This alternative will result in the protection of the floodplain due to decreased flooding impacts.</p>	<input type="checkbox"/>	<p>May Affect This alternative will result in the protection of the floodplain due to decreased flooding impacts</p>	<input type="checkbox"/>
<p>Invasive Species Guide Sheet Invasive species are found in the watershed.</p>	<p>No Effect Continued expansion on invasive species.</p>	<input type="checkbox"/>	<p>May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.</p>	<input type="checkbox"/>	<p>May Affect Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.</p>	<input type="checkbox"/>
<p>●Migratory Birds/Bald and Golden Eagle Protection Act Guide Sheet Migratory birds and eagles utilize the Little Whitestick 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.</p>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.</p>	<input type="checkbox"/>	<p>No Effect Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.</p>	<input type="checkbox"/>
<p>Natural Areas Guide Sheet Federal: New River Gorge National Park covers portions of the watershed. State: Little Beaver State Park is located adjacent to the watershed.</p>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect</p>	<input type="checkbox"/>
<p>Prime and Unique Farmlands Guide Sheet Presently there are 1,865 acres of Prime Farmland, which accounts for 7% of land in the study area. Additionally, there are 3,833 acres of Farmland of Local Importance and 7,697 acres of Farmland of Statewide Importance. There are no farmland protection boards actively conserving land in the watershed.</p>	<p>No Effect Continued potential threat to loss of prime farm land from streambank erosion.</p>	<input type="checkbox"/>	<p>No Effect Alternative would provide protection of prime farmland through the reduction of streambank erosion.</p>	<input type="checkbox"/>	<p>No Effect Alternative would provide protection of prime farmland through the reduction of streambank erosion.</p>	<input type="checkbox"/>
<p>Riparian Area Guide Sheet 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.</p>	<p>No Effect Continued degradation of riparian land as streambanks erode and invasive species dominate regrowth.</p>	<input type="checkbox"/>	<p>May Affect There are riparian areas present in or near the project area and may have the potential to be impacted.</p>	<input type="checkbox"/>	<p>May Affect There are riparian areas present in or near the project area and may have the potential to be impacted.</p>	<input type="checkbox"/>
<p>Scenic Beauty Guide Sheet The New River Gorge is a unique area of scenic beauty that lies partially within the Little White Stick Watershed. Other areas of the watershed are typical of the Appalachian Plateau physiographic province.</p>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province.</p>	<input type="checkbox"/>	<p>No Effect Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province.</p>	<input type="checkbox"/>

<p>●Wetlands <i>Guide Sheet</i></p> <p>There are 3,364 acres of wetlands within the Little White Stick Watershed which consist of the following: 4 acres of Freshwater Emergent Wetlands; 34 acres of Freshwater Forested/Shrub Wetlands; 74 acres of Freshwater Pond; and 3,252 acres of Riverine.</p>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Action is not likely to negatively impact any wetlands in the watershed.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Action is not likely to negatively impact any wetlands in the watershed.</p>	<input type="checkbox"/>
<p>●Wild and Scenic Rivers <i>Guide Sheet</i></p> <p>All trout streams in Raleigh County are designated as "Waters of Special Concern." The New River is designated as a National River (National Parks and Recreation Act of 1978 as amended). In accordance with the WV Natural Stream Preservation Act (WVNSPA) the New River from its confluence with the Greenbrier River to the confluence with the Gauley River is protected from activities that would impound, divert, or flood the body of water.</p>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect</p>	<input type="checkbox"/>
<p>K. Other Agencies and Broad Public Concerns</p>	<p><i>No Action</i></p>	<p><i>Alternative 1</i></p>	<p><i>Alternative 2</i></p>			
<p>Easements, Permissions, Public Review, or Permits Required and Agencies Consulted.</p>	<p>None</p>	<p>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 may also be required.</p>	<p>New Flood Control Channel-Channelization work in more heavily populated areas of the watershed to increase flood protection.</p>			
<p>Cumulative Effects Narrative (Describe the cumulative impacts considered, including past, present and known future actions regardless of who performed the actions)</p>	<p>Absent the proper and increased application of conservation practices, cumulative effects will likely lead to continued environmental degradation.</p>	<p>Installation of new flood control dams would increase flood protection for the community, provide recreational opportunities, and potentially supply water and energy. There would be increase burden on local sponsors for maintenance and cost share would be required from the sponsor.</p>	<p>Channelization of streams would increase flood protection for the more urban sections of the community. There would be increase burden on local sponsors for maintenance and cost share would be required from the sponsor.</p>			
<p>L. Mitigation (Record actions to avoid, minimize, and compensate)</p>	<p>None</p>	<p>Mitigation would likely be required for the length of streams impacted by construction of new impoundments. Vegetation will be established on disturbed areas immediately following construction to a vegetative plan developed conjunction with NRCS and local sponsors.</p>	<p>Mitigation could be required for the length of streams impacted by the channel. Vegetation will be established on disturbed areas immediately following construction to a vegetative plan developed conjunction with NRCS and local sponsors.</p>			
<p>M. Preferred Alternative</p>	<p>✓ preferred alternative</p> <p>Supporting reason</p>	<p><input type="checkbox"/></p> <p>Installation of additional flood control dams in the watershed to increase flood protection.</p>	<p><input type="checkbox"/></p> <p>Installation of flood control channel in more heavily populated areas in the watershed to increase flood protection.</p>			
<p>N. Context (Record context of alternatives analysis)</p>		<p>local</p>	<p>local</p>	<p>local</p>		
<p>The significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.</p>						

U.S. Department of Agriculture Natural Resources Conservation Service ENVIRONMENTAL EVALUATION WORKSHEET		NRCS-CPA-52 11/2019		A. Client Name: Beckley Sanitary Board			
				B. Conservation Plan ID # (as applicable): Outlet Piney Creek Program Authority (optional): PL-566			
D. Client's Objective(s) (purpose): The purpose of this project is to provide watershed protection and agricultural water management by reducing flood water damages, erosion and sedimentation loading in the Outlet Piney Creek Watershed.		C. Identification # (farm, tract, field #, etc. as required): Outlet Piney Creek, Raleigh County, WV 12-digit HUC (050500040103, Outlet Piney Creek)					
E. Need for Action: 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 completed watershed projects are either past their service life or have been reclassified as high hazard dams.		H. Alternatives					
		Alternative 3 ✓ if RMS <input type="checkbox"/>		Alternative 4 ✓ if RMS <input type="checkbox"/>			
		Natural Stream Restoration would restore the stream and riparian habitat to its natural function. Watershed Protection and Flood Prevention Act funding in conjunction with traditional Farm Bill programs, such as EQIP or NWQI, would focus technical and financial assistance to install practices typically associated with natural stream restoration.		Land Treatment- Conservation practice installation across all landuses to prevent soil loss, improve wildlife habitat, and improve water quality. Watershed Protection and Flood Prevention Act funding in conjunction with traditional Farm Bill programs, such as EQIP or NWQI, would focus technical and financial assistance to install practices typical for the region.			
				Green Infrastructure/Low Impact Development- Adaptation of practices such as wetland management/creation, rain gardens, pervious concrete, and tree plantings to assist the watershed in its capacity to handle flood waters. Technical and/or financial assistance could be available through Conservation Technical 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					
		Alternative 3		Alternative 4		Alternative 5	
		Amount, Status, Description <i>(Document both short and long term impacts)</i>	✓ if does NOT meet PC	Amount, Status, Description <i>(Document both short and long term impacts)</i>	✓ if does NOT meet PC	Amount, Status, Description <i>(Document both short and long term impacts)</i>	✓ if does NOT meet PC
SOIL							
Sheet and rill erosion Sedimentation caused by erosion in the uplands of the watershed negatively impact Little Whitestick Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further flood damages.		No effect to upland erosion. Sedimentation caused by stream bank erosion would be decreased by the stabilization of streambanks.	<input type="checkbox"/> NOT meet PC	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.	<input type="checkbox"/> NOT meet PC	Reduction in soil erosion from reduced velocities of water conveyance during high rain events.	<input type="checkbox"/> NOT meet PC
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. Flooding is a threat to property, access to utilities, emergency services, transportation, agricultural land, and crops.		Natural stream restoration could increase the channel's capacity to hold flood waters.	<input type="checkbox"/> NOT meet PC	Proper management of upland slopes would reduce erosion and sedimentation in the stream. sedimentation. This would allow the stream to maintain its capacity and thus reduce flooding impacts.	<input type="checkbox"/> NOT meet PC	Flooding would be mitigated through installation of green infrastructure by increasing the water holding capacity and natural functions of wetlands and installation of rain gardens. The infrastructure would reduce damages caused by flash flood events.	<input type="checkbox"/> NOT meet PC

Sediment transported to surface water Sedimentation caused by erosion in the uplands of the watershed negatively impact Little Whitestick 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.	There would be a reduction in sediments entering the watershed. Water quality would be beneficially effected and result in more outdoor recreation opportunities.	<input type="checkbox"/>	There would be a reduction in sediments in the watershed. Water quality would be beneficially effected and result in more outdoor recreation opportunities.	<input type="checkbox"/>	Reduction in sediment entering the watershed due to reduced velocities of water conveyance during high rain events.	<input type="checkbox"/>
		NOT meet PC		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.	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.	<input type="checkbox"/>	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.	<input type="checkbox"/>	Enhancements and installation of wetlands and other green infrastructure can reduce nutrients transported to surface water within the local watershed	<input type="checkbox"/>
		NOT meet PC		NOT meet PC		NOT meet PC
F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	I. (continued)					
	Alternative 3		Alternative 4		Alternative 5	
	Amount, Status, Description <i>(Document both short and long term impacts)</i>	<input type="checkbox"/> √ if does NOT meet PC	Amount, Status, Description <i>(Document both short and long term impacts)</i>	<input type="checkbox"/> √ if does NOT meet PC	Amount, Status, Description <i>(Document both short and long term impacts)</i>	<input type="checkbox"/> √ if does NOT meet PC
AIR						
No resource concern identified	No effect	<input type="checkbox"/>	Localized odors and particulate matter concerns could be addressed through conservation practices such as Waste Storage Facilities or Windbreaks/Shelterbelts.	<input type="checkbox"/>	No effect	<input type="checkbox"/>
Air quality is not a resource concern within the watershed		NOT meet PC		NOT meet PC		NOT meet PC
PLANTS						
Plant structure and composition	Improved riparian areas will provide more naturally occurring plant species. Fencing streams and restoration of riparian areas could result in a loss of pasture or crop land.	<input type="checkbox"/>	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.	<input type="checkbox"/>	Plant structure and composition would be improved through the installation of green infrastructure- wetlands, rain gardens, tree plantings, etc.	<input type="checkbox"/>
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.		NOT meet PC		NOT meet PC		NOT meet PC
ANIMALS						
Terrestrial habitat for wildlife and invertebrates	Terrestrial habitat would be improved through the creation of riparian areas.	<input type="checkbox"/>	Terrestrial wildlife habitat would be improved through proper livestock grazing in pastures, invasive species control across all landuses, and implementation of forest stand improvement in woodlands.	<input type="checkbox"/>	Terrestrial habitat would be improved through the installation of green infrastructure- wetlands, rain gardens, tree plantings, etc.	<input type="checkbox"/>
Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 10 threatened, endangered, or candidate species found in the watershed.		NOT meet PC		NOT meet PC		NOT meet PC

Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively affecting aquatic fish and invertebrate species habitat.	Aquatic habitat would be improved by installing practices return the streambed to a more natural value and function.	<input type="checkbox"/> 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.	<input type="checkbox"/> 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 installation of wetlands.	<input type="checkbox"/> NOT meet PC
ENERGY						
No resource concern identified	No effect	<input type="checkbox"/> NOT meet PC	No effect	<input type="checkbox"/> NOT meet PC	Existing structures could be retrofitted for hydroelectricity production.	<input type="checkbox"/> NOT meet PC
This area has various electrical, oil, and gas transmission facilities. Coal mines, both surface and deep mines, are abundant in this part of the state.						
Human Economic and Social 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.	While this alternative does not provide substantial, additional protection from flooding and risk of loss of life, it would create opportunities for increased outdoor recreation that is associated with healthy streams. Implementation of this alternative would likely reduce erosion, sedimentation, and flooding of roads and bridges, resulting in increased safety for the public and reduction in maintenance activates. There would also be less disruptions to regular traffic, as well as emergency vehicles.		While this alternative does not provide substantial, additional protection from flooding and risk of loss of life, it would create opportunities for increased outdoor recreation that is associated with healthy streams. Implementation of this alternative would likely reduce erosion, sedimentation, and flooding of roads and bridges, resulting in increased safety for the public and reduction in maintenance activates. There would also be less disruptions to regular traffic, as well as emergency vehicles.		This alternative would provide a reduction of damages from flash flooding events resulting in loss of life and transportation disruptions.	
Special Environmental Concerns: Environmental Laws, Executive Orders, policies, etc.						
In Section "G" complete and attach Environmental Procedures Guide Sheets for documentation as applicable. Items with a "●" may require a federal permit or consultation/coordination between the lead agency and another government agency. In these cases, effects may need to be determined in consultation with another agency. Planning and practice implementation may proceed for practices not involved in consultation.						
G. Special Environmental Concerns (Document existing/benchmark conditions)	J. Impacts to Special Environmental Concerns					
	Alternative 3		Alternative 4		Alternative 5	
	Document all impacts (Attach Guide Sheets as applicable)	✓ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	✓ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	✓ if 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.	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.	<input type="checkbox"/>	No Effect Land treatment practices are not likely to negatively effect air quality.	<input type="checkbox"/>	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.	<input type="checkbox"/>
●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. Ephemeral, intermittent, and perennial streams and certain wetlands will be considered as waters of the US. Mitigation for unavoidable impacts should be expected under Sec. 404 of the Clean Water Act.	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 also be required.	<input type="checkbox"/>	No Effect Land treatment practices are not likely to negatively effect Waters of the US.	<input type="checkbox"/>	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.	<input type="checkbox"/>

<p>●Coastal Zone Management <i>Guide Sheet</i></p> <p>There are no coastal zones present in or near the watershed.</p>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>
<p>Coral Reefs <i>Guide Sheet</i></p> <p>There are no coral reefs present in or near the watershed.</p>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>
<p>●Cultural Resources / Historic Properties <i>Guide Sheet</i></p> <p>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 National Historical Preservation Act (NHPA) of 1966, as amended.</p>	<p>May Affect</p> <p>Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.</p>	<input type="checkbox"/>
<p>●Endangered and Threatened Species <i>Guide Sheet</i></p> <p>There is a total of 10 Federally listed threatened, endangered, or candidate species potentially found in this watershed listed by 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 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.</p>	<p>May Affect</p> <p>This alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>This alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Conservation practices will be evaluated on a plan by plan basis through the Interagency Coordinator Tool and all required avoidance strategies will be followed.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>This alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.</p>	<input type="checkbox"/>
<p>Environmental Justice <i>Guide Sheet</i></p> <p>Raleigh 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 that local economies is not strong.</p> <p>Raleigh County is predominately white with 88.6% of the population designated as such. Slightly over 8% are black. The poverty rate is 21.8%, which is much higher compared to 11.6% nationally and 16.8% for WV.</p>	<p>May Affect</p> <p>No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.</p>	<input type="checkbox"/>		<input type="checkbox"/>

<p>●Essential Fish Habitat <i>Guide Sheet</i></p> <p>This area is not designated as Essential Fish Habitat.</p>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>
<p>Floodplain Management <i>Guide Sheet</i></p> <p>Raleigh county has a major risk of flooding over the next few decades.</p>	<p>May Affect</p> <p>Floodplain management would be a consideration during the design process of natural stream restoration and would likely be benefited.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Land treatment practices are not likely to negatively effect flood plains. Annual flooding would likely be reduced to the decreased sedimentation of the stream.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Annual flooding would likely be reduced to the decreased sedimentation of the stream and increase water holding capacities in wetlands and rain gardens.</p>	<input type="checkbox"/>
<p>Invasive Species <i>Guide Sheet</i></p> <p>Invasive species are found in the watershed.</p>	<p>May Affect</p> <p>Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>Invasive species occur within the watershed and would be controlled through scheduled land treatment activates on privately owned or operated lands.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.</p>	<input type="checkbox"/>
<p>●Migratory Birds/Bald and Golden Eagle Protection Act <i>Guide Sheet</i></p> <p>Migratory birds and eagles utilize the Little Whitestick 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.</p>	<p>No Effect</p> <p>Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.</p>	<input type="checkbox"/>
<p>Natural Areas <i>Guide Sheet</i></p> <p>Federal: New River Gorge National Park covers portions of the watershed. State: Little Beaver State Park is located adjacent to the watershed.</p>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>
<p>Prime and Unique Farmlands <i>Guide Sheet</i></p> <p>Presently there are 1,865 acres of Prime Farmland, which accounts for 7% of land in the study area. Additionally, there are 3,833 acres of Farmland of Local Importance and 7,697 acres of Farmland of Statewide Importance. There are no farmland protection boards actively conserving land in the watershed.</p>	<p>No Effect</p> <p>Conversion of prime and unique farmlands is not anticipated with this alternative.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Conversion of prime and unique farmlands is not anticipated with this alternative.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Conservation of prime and unique farmlands is not anticipated with this alternative.</p>	<input type="checkbox"/>
<p>Riparian Area <i>Guide Sheet</i></p> <p>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.</p>	<p>May Affect</p> <p>Riparian areas will be enhanced as part of this alternative.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>Riparian areas will be enhanced as part of this alternative.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>Riparian areas will be enhanced as part of this alternative.</p>	<input type="checkbox"/>
<p>Scenic Beauty <i>Guide Sheet</i></p> <p>The New River Gorge is a unique area of scenic beauty that lies partially within the Little White Stick Watershed. Other areas of the watershed are typical of the Appalachian Plateau physiographic province.</p>	<p>No Effect</p> <p>Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province.</p>	<input type="checkbox"/>

<p>●Wetlands <i>Guide Sheet</i></p> <p>There are 3,364 acres of wetlands within the Little White Stick Watershed which consist of the following: 4 acres of Freshwater Emergent Wetlands; 34 acres of Freshwater Forested/Shrub Wetlands; 74 acres of Freshwater Pond; and 3,252 acres of Riverine.</p>	<p>No Effect</p> <p>Action is not likely to negatively impact any wetlands in the watershed.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Action is not likely to negatively affect any wetlands in the watershed.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>Action is likely to have a positive impact on wetlands.</p>	<input type="checkbox"/>
<p>●Wild and Scenic Rivers <i>Guide Sheet</i></p> <p>All trout streams in Raleigh County are designated as "Waters of Special Concern." The New River is designated as a National River (National Parks and Recreation Act of 1978 as amended). In accordance with the WV Natural Stream Preservation Act (WVNSPA) the New River from its confluence with the Greenbrier River to the confluence with the Gauley River is protected from activities that would impound, divert, or flood the body of water.</p>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect</p>	<input type="checkbox"/>
<p>K. Other Agencies and Broad Public Concerns</p>	<p><i>Alternative 3</i></p>	<p><i>Alternative 4</i></p>	<p><i>Alternative 5</i></p>			
<p>Easements, Permissions, Public Review, or Permits Required and Agencies Consulted.</p>	<p>Implementation of natural stream restoration structures must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins.</p>	<p>No easements or permits are likely to be needed. Installation of all land treatment practices will comply with all applicable local, state, and federal laws. Any required permits will be obtained prior to construction.</p>	<p>Implementation of all infrastructure must comply with all applicable local, state, and federal laws. Compliance will require permits and must be obtained before construction begins.</p>			
<p>Cumulative Effects Narrative (Describe the cumulative impacts considered, including past, present and known future actions regardless of who performed the actions)</p>	<p>Natural stream restoration would benefit the overall health of the stream and provide additional outdoor recreational opportunities. When applied through out the watershed, the cumulative effects would reduce the impacts of flooding.</p>	<p>Income stability for landowners and farmers in the area, water quality improvements, and improvements to overall environmental health when practices are applied within the same region on many farms. The implementation would cumulatively reduce the impacts of flooding.</p>	<p>Green Infrastructure would benefit the over health of the stream and reduce impacts of flash flooding.</p>			
<p>L. Mitigation (Record actions to avoid, minimize, and compensate)</p>	<p>None</p>	<p>None</p>	<p>None</p>			
<p>M. Preferred Alternative</p>	<p>✓ preferred alternative</p>	<input type="checkbox"/>	<input type="checkbox"/>			
	<p>Supporting reason</p>	<p>Natural stream restoration would benefit the overall health of the stream.</p>	<p>Implementation of conservation practices to prevent upland erosion causing sediment loading of the water ways.</p>	<p>Reduced impacts of flash flooding and improvement of stream health.</p>		
<p>N. Context (Record context of alternatives analysis)</p>		<p>local</p>	<p>local</p>	<p>local</p>		
<p>The significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.</p>						

U.S. Department of Agriculture Natural Resources Conservation Service		NRCS-CPA-52 11/2019		A. Client Name: Beckley Sanitary Board	
ENVIRONMENTAL EVALUATION WORKSHEET				B. Conservation Plan ID # (as applicable): Outlet Piney Creek Program Authority (optional): PL-566	
				C. Identification # (farm, tract, field #, etc. as required): Outlet Piney Creek, Raleigh County, WV 12-digit HUC (050500040103, Outlet Piney Creek)	
D. Client's Objective(s) (purpose): The purpose of this project is to provide watershed protection and agricultural water management by reducing flood water damages, erosion and sedimentation loading in the Outlet Piney Creek Watershed.					
E. Need for Action: 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 completed watershed projects are either past their service life or have been reclassified as high hazard dams.		H. Alternatives			
		Alternative 6 ✓ if RMS <input type="checkbox"/>		Alternative 7 ✓ if RMS <input type="checkbox"/>	
		Combination of all alternatives- Land Treatment, Stream Restoration, Rehab, Repair, Channelization, Green Infrastructure, and New Structures. Strategic installation of a combination of all practices and structures evaluated in other alternatives could more fully address concerns associated with flooding, erosion and sedimentation, water quality, recreation, and water supply. Technical and financial assistance would be focused in the area through the Watershed Protection and Flood Prevention Act as well as traditional Farm Bill programs such as CTA, EQIP and NWQI, along with funding and in kind services provided by local sponsors		Floodplain buyout, flood proofing affected homes, or relocation of homes- Address repetitive flood damage to properties by removing homes from the floodplain or add flood proofing measures. Homes removed from the floodplain would address resource concerns associated with flooding, erosion and sedimentation, water quality, recreation, and water supply. Homes removed would be replaced with conservation practices to reestablish natural habitat. Technical and financial assistance would be focused in the area through the Watershed Protection and Flood Prevention Act as well as traditional Farm Bill programs. Flood proofing would occur outside of agency assistance.	
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			
		Alternative 6			
		Amount, Status, Description <i>(Document both short and long term impacts)</i>	✓ if does NOT meet PC <input type="checkbox"/>	Amount, Status, Description <i>(Document both short and long term impacts)</i>	✓ if does NOT meet PC <input type="checkbox"/>
		<i>(Document both short and long term impacts)</i>		<i>(Document both short and long term impacts)</i>	
SOIL					
Sheet and rill erosion		Strategic installation of flood 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.	<input type="checkbox"/>	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.	<input type="checkbox"/>
Sedimentation caused by erosion in the uplands of the watershed negatively impact Little Whitestick Creek and its tributaries. Sediment loading contributes to reduced channel capacity, further exasperating flood damages.		NOT meet PC		NOT meet PC	NOT meet PC
WATER					
Ponding and flooding		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 dams and rain gardens/wetlands.	<input type="checkbox"/>	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce sedimentation of streams to allow more capacity during flood events and allow for more water retention and controlled flow from flood control dams and rain gardens/wetlands.	<input type="checkbox"/>
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. Flooding is a threat to property, access to utilities, emergency services, transportation, agricultural land, and crops.		NOT meet PC		NOT meet PC	NOT meet PC

Sediment transported to surface water	Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure would reduce sediment loads in waterways.	<input type="checkbox"/> NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce sediment loads in waterways.	<input type="checkbox"/> NOT meet PC		<input type="checkbox"/> NOT meet PC
Sedimentation caused by erosion in the uplands of the watershed negatively impact Little Whitestick 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.						
Nutrients transported to surface water	Strategic installation of flood control structures, land treatment practices, natural stream restoration and green infrastructure nutrient transportation to waterways	<input type="checkbox"/> NOT meet PC	Installation of flood control structures on homes and land treatment practices on bought out lots would reduce nutrient transportation to waterways.	<input type="checkbox"/> NOT meet PC		<input type="checkbox"/> NOT meet PC
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.						
F. Resource Concerns and Existing/ Benchmark Conditions (Analyze and record the existing/benchmark conditions for each identified concern)	I. (continued)					
	Alternative 6					
	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 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.	<input type="checkbox"/> 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.	<input type="checkbox"/> NOT meet PC		<input type="checkbox"/> NOT meet PC
Air quality is not a resource concern within the watershed.						
PLANTS						
Plant structure and composition	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.	<input type="checkbox"/> NOT meet PC	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.	<input type="checkbox"/> NOT meet PC		<input type="checkbox"/> NOT meet PC
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.						
ANIMALS						
Terrestrial habitat for wildlife and invertebrates	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 infrastructure, and creation/enhancement of wetlands. Displacement of wildlife and destruction of habitat due to flooding would be significantly reduced.	<input type="checkbox"/> NOT meet PC	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 infrastructure, and creation/enhancement of wetlands. Displacement of wildlife and destruction of habitat due to flooding would be significantly reduced.	<input type="checkbox"/> NOT meet PC		<input type="checkbox"/> NOT meet PC
Game and non-game species of wildlife are found within the watershed, however habitat is not ideal. There are 10 threatened, endangered, or candidate species found in the watershed.						

Aquatic habitat for fish and other organisms Sedimentation and nutrients are negatively affecting aquatic fish and invertebrate species habitat.	The effects of sedimentation on aquatic wildlife would be significantly controlled with a strategic implementation of all alternatives previously evaluated.	<input type="checkbox"/> 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	<input type="checkbox"/> NOT meet PC		<input type="checkbox"/> NOT meet PC
ENERGY						
No resource concern identified This area has various electrical, oil, and gas transmission facilities. Coal mines, both surface and deep mines, are abundant in this part of the state.	Hydroelectric power generation could be included as an element in the design of the structures to provide clean energy to the region.	<input type="checkbox"/> NOT meet PC	Applicants that would choose to participate in a floodplain buyout would decrease energy use in the area.	<input type="checkbox"/> NOT meet PC		<input type="checkbox"/> NOT meet PC
Human Economic and Social 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.	Strategic planning and installation of all previously evaluated alternatives would increase flood protection of the counties' residences and business. It would also provide the opportunity for rural water supply, recreation opportunities, and a short term creation of jobs during construction. Over all watershed and stream health would be improved.		Installation of flood control structures on homes and land treatment practices on bought out lots would increase flood protection of the counties' residences and business. It would also provide recreation opportunities and a short term creation of jobs during construction. Over all watershed and stream health would be improved.			
Special Environmental Concerns: Environmental Laws, Executive Orders, policies, etc.						
In Section "G" complete and attach Environmental Procedures Guide Sheets for documentation as applicable. Items with a "•" may require a federal permit or consultation/coordination between the lead agency and another government agency. In these cases, effects may need to be determined in consultation with another agency. Planning and practice implementation may proceed for practices not involved in consultation.						
G. Special Environmental Concerns (Document existing/benchmark conditions)	J. Impacts to Special Environmental Concerns					
	Alternative 6					
	Document all impacts (Attach Guide Sheets as applicable)	✓ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	✓ if needs further action	Document all impacts (Attach Guide Sheets as applicable)	✓ if needs 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 appropriate air quality regulatory agency for verification.	<input type="checkbox"/>	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.	<input type="checkbox"/>		<input type="checkbox"/>
•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 perennial streams and certain wetlands will be considered as waters of the US. Mitigation for unavoidable impacts should be expected under Sec. 404 of the Clean Water Act.	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 also be required.	<input type="checkbox"/>	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 also be required.	<input type="checkbox"/>		<input type="checkbox"/>

<p>●Coastal Zone Management <i>Guide Sheet</i></p> <p>There are no coastal zones present in or near the watershed.</p>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Coral Reefs <i>Guide Sheet</i></p> <p>There are no coral reefs present in or near the watershed.</p>	<p>No Effect</p>	<input type="checkbox"/>	<p>No Effect</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>●Cultural Resources / Historic Properties <i>Guide Sheet</i></p> <p>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 National Historical Preservation Act (NHPA) of 1966, as amended.</p>	<p>May Affect</p> <p>Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>Consultation with Tribal Nations, West Virginia State Historic Preservation Office (SHPO), and other interested parties will be conducted in according to Section 106 of the National Historical Preservation Act (NHPA) of 1966, as amended.</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>●Endangered and Threatened Species <i>Guide Sheet</i></p> <p>There is a total of 10 Federally listed threatened, endangered, or candidate species potentially found in this watershed listed by 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 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.</p>	<p>May Affect</p> <p>The structural alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>The structural alternative is not expected to create an adverse impact to threatened, endangered, or rare species. Federal, state, and local wildlife agencies will be consulted prior to construction.</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p>Environmental Justice <i>Guide Sheet</i></p> <p>Raleigh 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 that local economies is not strong.</p> <p>Raleigh County is predominately white with 88.6% of the population designated as such. Slightly over 8% are black. The poverty rate is 21.8%, which is much higher compared to 11.6% nationally and 16.8% for WV.</p>	<p>No Effect</p> <p>No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>No negative impacts are anticipated. The project would benefit historically underserved residents, landowners, and communities.</p>	<input type="checkbox"/>	<input type="checkbox"/>

<p>●Essential Fish Habitat Guide Sheet</p> <p>This area is not designated as Essential Fish Habitat.</p>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>		<input type="checkbox"/>
<p>Floodplain Management Guide Sheet</p> <p>Raleigh county has a major risk of flooding over the next few decades.</p>	<p>May Affect</p> <p>This alternative will result in the protection of floodplains due to the decreased impacts of flooding.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>This alternative will result in the protection of floodplains due to the decreased impacts of flooding.</p>	<input type="checkbox"/>		<input type="checkbox"/>
<p>Invasive Species Guide Sheet</p> <p>Invasive species are found in the watershed.</p>	<p>May Affect</p> <p>Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>Invasive species occur within the watershed. Care would be taken not to introduce invasive species in disturbed areas.</p>	<input type="checkbox"/>		<input type="checkbox"/>
<p>●Migratory Birds/Bald and Golden Eagle Protection Act Guide Sheet</p> <p>Migratory birds and eagles utilize the Little Whitestick 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.</p>	<p>No Effect</p> <p>Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Actions will not result in intentional or unintentional take of any migratory bird, nest, or egg.</p>	<input type="checkbox"/>		<input type="checkbox"/>
<p>Natural Areas Guide Sheet</p> <p>Federal: New River Gorge National Park covers portions of the watershed. State: Little Beaver State Park is located adjacent to the watershed.</p>	No Effect	<input type="checkbox"/>	No Effect	<input type="checkbox"/>		<input type="checkbox"/>
<p>Prime and Unique Farmlands Guide Sheet</p> <p>Presently there are 1,865 acres of Prime Farmland, which accounts for 7% of land in the study area. Additionally, there are 3,833 acres of Farmland of Local Importance and 7,697 acres of Farmland of Statewide Importance. There are no farmland protection boards actively conserving land in the watershed.</p>	<p>No Effect</p> <p>Alternative would provide protection of prime farmland through the reduction of streambank erosion, sheet and rill erosion, and sedimentation of streams.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>Alternative would provide protection of prime farmland through the reduction of streambank erosion, sheet and rill erosion, and sedimentation of streams.</p>	<input type="checkbox"/>		<input type="checkbox"/>
<p>Riparian Area Guide Sheet</p> <p>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.</p>	<p>May Affect</p> <p>Riparian areas would be enhanced through the installation of natural stream restoration, land treatment programs, and green infrastructure.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>Riparian areas would be enhanced through the installation of natural stream restoration, land treatment programs, and green infrastructure.</p>	<input type="checkbox"/>		<input type="checkbox"/>
<p>Scenic Beauty Guide Sheet</p> <p>The New River Gorge is a unique area of scenic beauty that lies partially within the Little White Stick Watershed. Other areas of the watershed are typical of the Appalachian Plateau physiographic province.</p>	<p>No Effect</p> <p>Action is not likely to negatively affect the scenic beauty of the area or alter the unique landscapes of the Appalachian Plateau physiographic province.</p>	<input type="checkbox"/>	<p>No Effect</p> <p>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.</p>	<input type="checkbox"/>		<input type="checkbox"/>

<p>●Wetlands Guide Sheet</p> <p>There are 3,364 acres of wetlands within the Little White Stick Watershed which consist of the following: 4 acres of Freshwater Emergent Wetlands; 34 acres of Freshwater Forested/Shrub Wetlands; 74 acres of Freshwater Pond; and 3,252 acres of Riverine.</p>	<p>May Affect</p> <p>Alternative would enhance the values and functions of wetlands and surrounding ecosystems.</p>	<input type="checkbox"/>	<p>May Affect</p> <p>Alternative would enhance the values and functions of wetlands and surrounding ecosystems.</p>	<input type="checkbox"/>		<input type="checkbox"/>
<p>●Wild and Scenic Rivers Guide Sheet</p> <p>All trout streams in Raleigh County are designated as "Waters of Special Concern." The New River is designated as a National River (National Parks and Recreation Act of 1978 as amended). In accordance with the WV Natural Stream Preservation Act (WVNSPA) the New River from its confluence with the Greenbrier River to the confluence with the Gauley River is protected from activities that would impound, divert, or flood the body of water.</p>	<p>No Effect</p>	<input checked="" type="checkbox"/>	<p>No Effect</p>	<input type="checkbox"/>		<input type="checkbox"/>
<p>K. Other Agencies and Broad Public Concerns</p>	<p><i>Alternative 6</i></p>	<p><i>Alternative 7</i></p>				
<p>Easements, Permissions, Public Review, or Permits Required and Agencies Consulted.</p>	<p>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 may also be required.</p>	<p>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 may also be required.</p>				
<p>Cumulative Effects Narrative (Describe the cumulative impacts considered, including past, present and known future actions regardless of who performed the actions)</p>	<p>Strategic installation of all previously evaluated alternatives across the watershed will improve the areas overall resilience to flooding and improve quality of life for the ecosystems and the residents.</p>	<p>Strategic installation of flood control structures on homes and land treatment practices on bought out lots across the watershed will improve the areas overall resilience to flooding and improve quality of life for the ecosystems and the</p>				
<p>L. Mitigation (Record actions to avoid, minimize, and compensate)</p>	<p>Mitigation would likely be required for the length of streams impacted. Vegetation will be established on disturbed areas immediately following construction to a vegetative plan developed conjunction with NRCS and local sponsors.</p>	<p>Mitigation would likely be required for the length of streams impacted. Vegetation will be established on disturbed areas immediately following construction to a vegetative plan developed conjunction with NRCS and local sponsors.</p>				
<p>M. Preferred Alternative</p>	<p>✓ preferred alternative</p> <p>Supporting reason</p>	<input type="checkbox"/> <p>Installation of various flood control and land treatment practices will provide a holistic approach to flood resiliency.</p>	<input type="checkbox"/> <p>Installation of various flood control and land treatment practices will provide a holistic approach to flood resiliency.</p>	<input type="checkbox"/>		
<p>N. Context (Record context of alternatives analysis)</p>		<p>local</p>	<p>local</p>			
<p>The significance of an action must be analyzed in several contexts such as society as a whole (human, national), the affected region, the affected interests, and the locality.</p>						

O. To the best of my knowledge, the data shown on this form is accurate and complete:

In the case where a non-NRCS person (e.g. a TSP) assists with planning they are to sign the first signature block and then NRCS is to sign the second block to verify the information's accuracy.

Signature (TSP if applicable)
JULIE STUTLER Digitally signed by JULIE STUTLER Date: 2022.10.11 14:36:04 -04'00'
Signature (NRCS)

Title
Outreach Coordinator Level 3 Certified Planner
Title

Date
10/11/2022
Date

If preferred alternative is not a federal action where NRCS has control or responsibility and this NRCS-CPA-52 is shared with someone other than the client then indicate to whom this is being provided.

The following sections are to be completed by the Responsible Federal Official (RFO)

NRCS is the RFO if the action is subject to NRCS control and responsibility (e.g., actions financed, funded, assisted, conducted, regulated, or approved by NRCS). These actions do not include situations in which NRCS is only providing technical assistance because NRCS cannot control what the client ultimately does with that assistance and situations where NRCS is making a technical determination (such as Farm Bill HEL or wetland determinations) not associated with the planning process.

P. Determination of Significance or Extraordinary Circumstances

To answer the questions below, consider the severity (intensity) of impacts in the contexts identified above. Impacts may be both beneficial and adverse. A significant effect may exist even if the Federal agency believes that on balance the effect will be beneficial. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

If you answer ANY of the below questions "yes" then contact the State Environmental Liaison as there may be extraordinary circumstances and significance issues to consider and a site specific NEPA analysis may be required.

Yes No

☐ ☒

• Is the preferred alternative expected to cause significant effects on public health or safety?

☐ ☒

• Is the preferred alternative expected to significantly affect unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas?

☐ ☒

• Are the effects of the preferred alternative on the quality of the human environment likely to be highly controversial?

☐ ☒

• Does the preferred alternative have highly uncertain effects or involve unique or unknown risks on the human environment?

☐ ☒

• Does the preferred alternative establish a precedent for future actions with significant impacts or represent a decision in principle about a future consideration?

☐ ☒

• Is the preferred alternative known or reasonably expected to have potentially significant environment impacts to the quality of the human environment either individually or cumulatively over time?

☒ ☐

• Will the preferred alternative likely have a significant adverse effect on ANY of the special environmental concerns? Use the Evaluation Procedure Guide Sheets to assist in this determination. This includes, but is not limited to, concerns such as cultural or historical resources, endangered and threatened species, environmental justice, wetlands, floodplains, coastal zones, coral reefs, essential fish habitat, wild and scenic rivers, clean air, riparian areas, natural areas, and invasive species.

☐ ☒

• Will the preferred alternative threaten a violation of Federal, State, or local law or requirements for the protection of the environment?

Q. NEPA Compliance Finding (check one)		
The preferred alternative:		Action required
<input type="checkbox"/>	1) is not a federal action where the agency has control or responsibility.	Document in "R.1" below. No additional analysis is required
<input type="checkbox"/>	2) is a federal action ALL of which is categorically excluded from further environmental analysis AND there are no extraordinary circumstances as identified in Section "P" .	Document in "R.2" below. No additional analysis is required
<input type="checkbox"/>	3) is a federal action that has been sufficiently analyzed in an existing Agency state, regional, or national NEPA document and there are no predicted <u>significant adverse environmental effects or extraordinary circumstances</u> .	Document in "R.1" below. No additional analysis is required.
<input type="checkbox"/>	4) is a federal action that has been sufficiently analyzed in another Federal agency's NEPA document (EA or EIS) that addresses the proposed NRCS action and its' effects and has been formally adopted by NRCS . NRCS is required to prepare and publish its own Finding of No Significant Impact for an EA or Record of Decision for an EIS when adopting another agency's EA or EIS document. (Note: This box is not applicable 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
<input checked="" type="checkbox"/>	5) is a federal action that has NOT been sufficiently analyzed or may involve predicted significant adverse environmental effects or extraordinary circumstances and may require an EA or EIS.	Contact the State Environmental Liaison. Further NEPA analysis required.

R. Rationale Supporting the Finding	
R.1 Findings Documentation	
R.2 Applicable Categorical Exclusion(s) (more than one may apply) 7 CFR Part 650 <i>Compliance With NEPA</i> , subpart 650.6 <i>Categorical Exclusions</i> states prior to determining that a proposed action is categorically excluded under paragraph (d) of this section, the proposed action must meet six sideboard criteria. See NECH 610.116.	

I have considered the effects of the alternatives on the Resource Concerns, Economic and Social Considerations, Special Environmental Concerns, and Extraordinary Circumstances as defined by Agency regulation and policy and based on that made the finding indicated above.

S. Signature of Responsible Federal Official:

JON BOURDON

Digitally signed by JON BOURDON
Date: 2024.05.31 08:05:41 -04'00'

Signature

Title

Date

Additional notes

Appendix D.

Forecasted NRCS Staffing Needs

Little White Stick Creek 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

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						
<i>Economic & Social Assessment</i>						
Collect Population Demographics					15	2
Identify effects to public health & safety					16	2
Identify effects 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 project	2	2	2	2	2	2
Final economic and social assessment					60	6
<i>Archaeological & Historic Assessment</i>						
Literature review				240		10
Coordination with State Historic Preservation Officer				80		6
Final archaeological and historic assessment				350		10
<i>Geologic Assessment & Engineering Assessment</i>						
Review existing geologic investigations		20	20			
Engineering Surveys		80	80			
Evaluate condition of existing structures		30	30			
Final geologic assessment and engineering assessment		100	100			
Total	6	236	236	676	234	52

Little White Stick Creek Staffing Needs

Phase 4 -Analyze Resource Data

Develop resource existing conditions

Economic & Social Assessment

Quantify onsite/offsite damages

Economics and social effects (future without project condition)

Archaeological & Historic Assessment

Geologic Assessment & Engineering Assessment

Determine geologic investigation needs

Review existing hydrology /hydraulic models

Determine watershed conditions (CN, Tc, rainfall)

Run preliminary hydraulics

Develop hydrologic model for watershed

Run hydrologic models

Total

Planner	Engineer	Engineer	Biologist	Economist	Admin Asst
20	20	20	20	20	6
				100	6
				40	6
			16		
	40	40			
	40	40			
	80	80			
	40	40			
	60	60			
	60	60			
20	340	340	36	160	18

Phase 5 -Formulate Alternatives

Analysis of initial alternatives

Document alternatives eliminated from detailed study

Document reasonable alternatives

Identify permits, licenses, other entitlements required

Define mitigation strategies

Determine project costs for each alternative

Final plan of work

Final initial alternatives report

Total

10	12	12	8	8	10
10	12	12	10	10	10
4	4	4	4	4	2
8	6	6	10	10	4
	22	22			4
8	4	4	4	4	2
50	50	50	50	50	10
90	110	110	86	86	42

Little White Stick Creek Staffing Needs

Phase 6 -Evaluate Alternatives

Summary & comparison of alternatives
 Evaluate environmental resources
 Geology
 Foundation & slope stability
 Sedimentation
 Hydrology & Hydraulics
 Run hydrologic models
 Breach inundation study
 Develop floodplain maps
 Economics
 Determine economic benefits for each alternative
 Trend analysis for alternatives
 Claculate average annual damages
 Calculate benefit cost ratio
 Detremine National Economic Efficiency plan
 Final summary & comparison of alternative table
 Final environmental consequences narrative

	Planner	Engineer	Engineer	Biologist	Economist	Admin Asst
	12	12	12	12	12	4
	30			30		2
		20	20			4
		40	40			8
		110	110			20
		150	150			20
		120	120			20
					80	10
					10	2
					20	2
					6	
					6	
					180	20
	100			100		20
Total	142	452	452	142	314	132

Phase 7 -Make Decisions

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
 Repsonse NWMC and SLO review
 Repsonse to HQ National Programmatic review
 Complete plan

	24	20	20	20	20	4
	100	40	40	40	40	10
	20	10	10	10	10	2
	30	30	30	30	30	4
Total	174	100	100	100	100	20

*Little White Stick Creek Staffing Needs,
assuming NRCS will conduct work with own staff*

	Planner	Engineer	Engineer	Bilologist	Economist	Admin Asst	
<i>Total Hours</i>	1096	1498	1498	1300	1186	368	
<i>Hourly Rate (includes overhead)</i>	\$120.00	\$100.00	\$100.00	\$100.00	\$100.00	\$75.00	TOTAL COST
<i>Total Cost</i>	\$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[?] and their critical habitats are managed by the [Ecological Services Program](#) of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[?]).

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

Additional information on endangered species data is provided [below](#).

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

 THUMBNAILS

 LIST

 SPECIES GUIDELINES ▾

Mammals

NAME	STATUS
<div>Gray Bat</div> <div>Myotis grisescens</div> <div>Wherever found</div>	Endangered
<div>Indiana Bat CH Myotis sodalis</div> <div>Wherever found</div>	Endangered
<div>Northern Long-eared Bat</div> <div>Myotis septentrionalis</div> <div>Wherever found</div>	Threatened

Clams

NAME	STATUS
<div>Fanshell</div> <div>Cyprogenia stegaria</div> <div>Wherever found</div>	Endangered
<div>Northern Riffleshell</div> <div>Epioblasma rangiana</div> <div>Wherever found</div>	Endangered
<div>Pink Mucket (pearlymussel)</div> <div>Lampsilis abrupta</div> <div>Wherever found</div>	Endangered

Spectaclecase (mussel) Cumberlandia monodonta Wherever found	Endangered
--	------------

Tubercled Blossom (pearlymussel) Epioblasma torulosa torulosa	Endangered
--	------------

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found	Candidate

Flowering Plants

NAME	STATUS
Virginia Spiraea 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.

There are no critical habitats at this location.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[?] and the Bald and Golden Eagle Protection Act[?].

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

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

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

■ THUMBNAILS

☰ LIST

📅 PROBABILITY OF PRESENCE SUMMARY

NAME / LEVEL OF CONCERN

BREEDING SEASON

BREEDING SEASON

Bald Eagle

[Haliaeetus leucocephalus](#)

[Non-BCC Vulnerable](#)

Breeds Sep 1 to Aug 31

Black-billed Cuckoo

[Coccyzus erythrophthalmus](#)

[BCC Rangewide \(CON\)](#)

Breeds May 15 to Oct 10

Black-capped Chickadee

[Poecile atricapillus praticus](#)

[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 <i>Dendroica cerulea</i> <u>BCC Rangewide (CON)</u>	Breeds Apr 27 to Jul 20
Chimney Swift <i>Chaetura pelagica</i> <u>BCC Rangewide (CON)</u>	Breeds Mar 15 to Aug 25
Eastern Whip-poor-will <i>Antrostomus vociferus</i> <u>BCC Rangewide (CON)</u>	Breeds May 1 to Aug 20
Golden Eagle <i>Aquila chrysaetos</i> <u>Non-BCC Vulnerable</u>	Breeds elsewhere
Golden-winged Warbler <i>Vermivora chrysoptera</i> <u>BCC Rangewide (CON)</u>	Breeds May 1 to Jul 20
Kentucky Warbler <i>Oporornis formosus</i> <u>BCC Rangewide (CON)</u>	Breeds Apr 20 to Aug 20
Prairie Warbler <i>Dendroica discolor</i> <u>BCC Rangewide (CON)</u>	Breeds May 1 to Jul 31
Red-headed Woodpecker <i>Melanerpes erythrocephalus</i> <u>BCC Rangewide (CON)</u>	Breeds May 10 to Sep 10
Rusty Blackbird <i>Euphagus carolinus</i> <u>BCC - BCR</u>	Breeds elsewhere
Wood Thrush <i>Hylocichla mustelina</i> <u>BCC Rangewide (CON)</u>	Breeds May 10 to Aug 31

Listing status

The [Endangered Species Act \(ESA\)](#) 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 Threatened and Endangered Species in West Virginia

Federally Endangered Species		Critical Habitat	Year Listed	
Indiana bat	<i>Myotis sodalis</i>	Y	1967	
gray bat (accidental)	<i>Myotis grisescens</i>		1976	
Pink mucket pearlymussel	<i>Lampsilis abrupta</i>		1976	
Virginia big-eared bat	<i>Corynorhinus townsendii virginianus</i>	Y	1979	
running buffalo clover *	<i>Trifolium stoloniferum</i>		1987	
harperella	<i>Ptilimnium nodosum</i>		1988	
shale barren rockcress	<i>Arabis serotina</i>		1989	
fanshell	<i>Cyprogenia stegaria</i>		1990	
purple cat's paw pearlymussel	<i>Epioblasma obliquata obliquata</i>		1990	
northeastern bulrush *	<i>Scirpus ancistrochaetus</i>		1991	
northern riffleshell	<i>Epioblasma torulosa rangiana</i>		1993	
clubshell	<i>Pleurobema clava</i>		1993	
James spiny mussel	<i>Pleurobema collina</i>		1998	
snuffbox	<i>Epioblasma triquetra</i>		2012	
rayed bean	<i>Villosa fabalis</i>		2012	
spectaclecase	<i>Cumberlandia monodonta</i>		2012	
sheepnose	<i>Plethobasus cyphus</i>		2012	
Diamond Darter	<i>Crystallaria cincotta</i>	Y	2013	
Guyandotte River crayfish	<i>Cambarus veteranus</i>	proposed	2016	
rusty patched bumble bee	<i>Bombus affinis</i>		2017	
Candy Darter	<i>Etheostoma osburni</i>	proposed	2018	
tubercled-blossom pearly mussel	<i>Epioblasma torulosa torulosa</i>	extirpated		
Federally Threatened Species		Critical Habitat	4(d) rule	Year Listed
flat-spired three-toothed land snail	<i>Triodopsis platysayoides</i>			1978
Madison Cave isopod	<i>Antrolana lira</i>	Y		1982
small whorled pogonia	<i>Isotria medeoloides</i>			1982
Cheat Mountain salamander	<i>Plethodon nettingi</i>			1989
Virginia spiraea	<i>Spiraea virginiana</i>			1990
northern long-eared bat	<i>Myotis septentrionalis</i>		Y	2015
Big Sandy crayfish	<i>Cambarus callainus</i>	proposed		2016
eastern black rail (accidental)	<i>Laterallus jamaicensis jamaicensis</i>		Y	2020
Species Propopsed for Listing		Critical Habitat	Status	Year Listed
round hickorynut	<i>Obovaria subrotunda</i>	Y	Thr.	2020
longsolid	<i>Fusconaia subrotunda</i>	Y	Thr.	2020

* Proposed for delisting

Revised: 30 September 2020

Invasive species examples:

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

• **Purple loosestrife**- an incredibly invasive 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.



Garlic mustard



Spotted knapweed

• **Japanese knotweed and sachaline knotweed**- two stout, perennial clonal herbs 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 native grassland communities.

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.

❖ **Native Shrubs 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 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 make recommendations.

Who is helping?

• The **West Virginia Invasive Species Working 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.



West Virginia Division of Natural Resources
in cooperation with:
West Virginia Garden Clubs, Inc.
West Virginia Native Plant Society

Cover photos: Background image of Japanese knotweed by Jill M. Swearingen, USGS National Park Service; www.forestimages.org and Purple loosestrife (inset) by Linda Huggen, USGS Forest Service; www.forestimages.org

Wildlife Diversity Program

Wildlife Resources
West Virginia Division of Natural Resources

P.O. Box 67
Elkins, WV 26241
(304) 637-0245
Fax: (304) 637-0250

It is the policy of the Division of Natural Resources to provide its facilities, services, programs, and employment opportunities to all persons without regard to sex, race, age, religion, national origin or ancestry, disability, or other protected group status.

10M 4/06

WVDNR WILDLIFE RESOURCES SECTION

Invasive Plants of West Virginia



www.wvdnr.gov



Kudzu

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.

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 ecosystem processes and natural areas, and displaced native species.

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 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) and Janet Marinelli (Brooklyn Botanic Garden), point out in their handbook, *Invasive Plants: Weeds of the Global Garden*:



Still grass overtaking an interior mud-flat wetland at Ohio River Island.

"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 of gradual change over

We value Natural Areas!

Natural areas are generally areas of limited development where naturally occurring, functioning ecosystems are supporting the greatest amount of natural biological 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, animals, and fungi. The natural communities themselves are often rare enough or of such quality that society recognizes the value of conserving them.



Loosestrife infestation.

• 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 natural communities.

Native stock plants are available

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

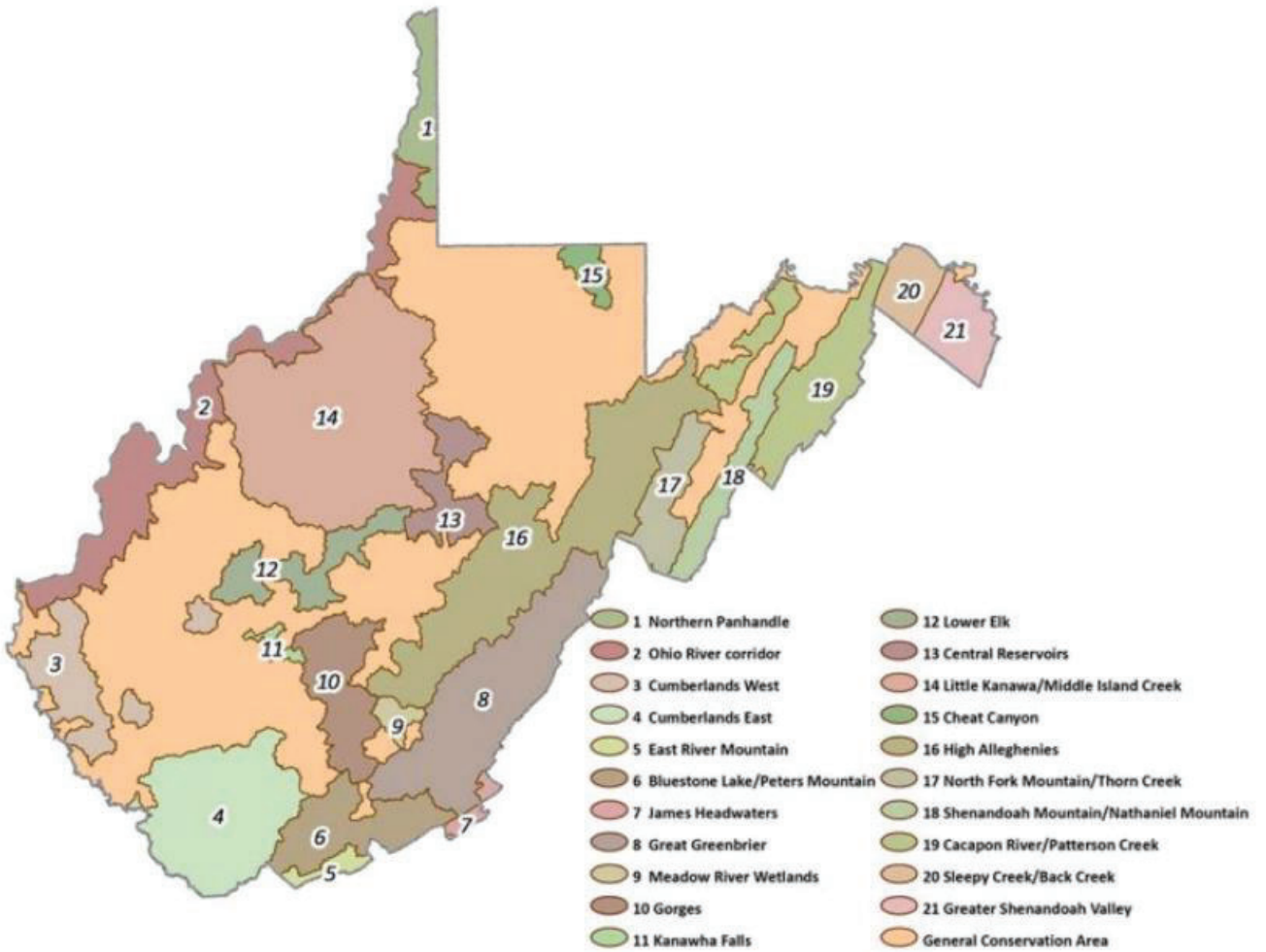


Joe-Pye weed, a valuable native

[InvasivePlants.indd \(wvdnr.gov\)](#)

[listed species cheat sheet.xlsx \(wvdnr.gov\)](#)

WVDNR Conservation Focus Areas



[WV DNR Conservation Focus Areas](#)

Species of Greatest Conservation Need Found In Little White Stick Watershed

Common Name	Scientific Name	Name Category	G Rank	S Rank
A Hahniid Spider	<i>Calymmaria persica</i>	Invertebrate Animal	GNR	SH
Allegheny Mountain Dusky Salamander	<i>Desmognathus ochrophaeus</i>	Vertebrate Animal	G5	S4
Bald Eagle	<i>Haliaeetus leucocephalus</i>	Vertebrate Animal	G5	S3BS3N
Black-bellied Salamander	<i>Desmognathus quadramaculatus</i>	Vertebrate Animal	G5	S3
Black-billed Cuckoo	<i>Coccyzus erythrophthalmus</i>	Vertebrate Animal	G5	S2B
Chimney Swift	<i>Chaetura pelagica</i>	Vertebrate Animal	G4G5	S3B
Cumberland Plateau Salamander	<i>Plethodon kentucki</i>	Vertebrate Animal	G4	S3
Diana Fritillary	<i>Speyeria diana</i>	Invertebrate Animal	G2	S2
Early Hairstreak	<i>Erora laeta</i>	Invertebrate Animal	G2G3	S2
Eastern Box Turtle	<i>Terrapene carolina carolina</i>	Vertebrate Animal	G5T5	S5
Eastern Meadowlark	<i>Sturnella magna</i>	Vertebrate Animal	G5	S3BS2N
Eastern Whip-poor-will	<i>Antrostomus vociferus</i>	Vertebrate Animal	G5	S3B
Field Sparrow	<i>Spizella pusilla</i>	Vertebrate Animal	G5	S3BS3N
Fowler's Toad	<i>Anaxyrus fowleri</i>	Vertebrate Animal	G5	S5
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	Vertebrate Animal	G5	S3B
Green Salamander	<i>Aneides aeneus</i>	Vertebrate Animal	G3G4	S3
Horned Lark	<i>Eremophila alpestris</i>	Vertebrate Animal	G5	S2BS2N
Jefferson Salamander	<i>Ambystoma jeffersonianum</i>	Vertebrate Animal	G4	S2
Large-seed Forget-me-not	<i>Myosotis macrosperma</i>	Vascular Plant	G5	S3
Lovely Vallonia	<i>Vallonia pulchella</i>	Invertebrate Animal	G5	S3
Northern Black Racer	<i>Coluber constrictor constrictor</i>	Vertebrate Animal	G5T5	S5
Northern Dusky Salamander	<i>Desmognathus fuscus</i>	Vertebrate Animal	G5	S5
Northern Ring-neck Snake	<i>Diadophis punctatus edwardsii</i>	Vertebrate Animal	G5T5	S5
Northern Slimy Salamander	<i>Plethodon glutinosus</i>	Vertebrate Animal	G5	S5
Northern Spring Salamander	<i>Gyrinophilus porphyriticus porphyriticus</i>	Vertebrate Animal	G5T5	S5
Queen Snake	<i>Regina septemvittata</i>	Vertebrate Animal	G5	S4
Red-headed Woodpecker	<i>Melanerpes erythrocephalus</i>	Vertebrate Animal	G5	S3BS3N
Reflexed Flatsedge	<i>Cyperus refractus</i>	Vascular Plant	G5	S2S3
Rock Skullcap	<i>Scutellaria saxatilis</i>	Vascular Plant	G3G4	S2
Rough Greensnake	<i>Opheodrys aestivus</i>	Vertebrate Animal	G5	S2
Sable Clubtail	<i>Gomphus rogersi</i>	Invertebrate Animal	G4	S1
Sculptured Dome	<i>Ventridens collisella</i>	Invertebrate Animal	G4	S3
Seal Salamander	<i>Desmognathus monticola</i>	Vertebrate Animal	G5	S5
Shining Willow	<i>Salix lucida ssp. lucida</i>	Vascular Plant	G5T5	S1
Smooth Greensnake	<i>Opheodrys vernalis</i>	Vertebrate Animal	G5	S5
Smooth Hedge-nettle	<i>Stachys tenuifolia</i>	Vascular Plant	G5	S3
Summer Sedge	<i>Carex aestivalis</i>	Vascular Plant	G4	S3S4
Tennessee Pondweed	<i>Potamogeton tennesseensis</i>	Vascular Plant	G2G3	S2
Thinleaf Mountainmint	<i>Pycnanthemum montanum</i>	Vascular Plant	G3G5	SH
Two-flower Melicgrass	<i>Melica mutica</i>	Vascular Plant	G5	S2
Virginia Mallow	<i>Sida hermaphrodita</i>	Vascular Plant	G3	S3
White-m Hairstreak	<i>Parrhasius m-album</i>	Invertebrate Animal	G5	S3
Winged-loosestrife	<i>Lythrum alatum var. alatum</i>	Vascular Plant	G5T5	S2
Wood Thrush	<i>Hylocichla mustelina</i>	Vertebrate Animal	G4	S3B

Definitions for interpreting NatureServe's global (range-wide) conservation status ranks can be found at the following:

[Statutes](#) | [NatureServe Explorer](#)

Nonindigenous Aquatic Species

Specimen ID	Date Reported	Species	New Area
1680066	11/30/2021	monoecious hydrilla <i>Hydrilla verticillata</i> (monoecious)	County: Raleigh (WV) Drainage: Lower New (05050004)

Invasive Species

Animals:

Common Name	Scientific Name
pig (feral), wild boar at large	<i>Sus scrofa</i> (feral type)
wandering broadhead planarian	<i>Bipalium adventitium</i>

Diseases:

Common Name	Scientific Name
butternut canker	<i>Ophiognomonia clavignenti-juglandacearum</i>
chestnut blight or canker	<i>Cryphonectria parasitica</i>
cucurbit downy mildew	<i>Pseudoperonospora cubensis</i>
dogwood anthracnose	<i>Discula destructiva</i>
oak wilt	<i>Bretziella fagacearum</i>
rose rosette disease (RRD)	<i>Emaravirus RRD</i>
white pine blister rust	<i>Cronartium ribicola</i>

Insects:

Common Name	Scientific Name
brown marmorated stink bug	<i>Halyomorpha halys</i>
common pine shoot beetle, larger pine shoot beetle	<i>Tomicus piniperda</i>
emerald ash borer	<i>Agrilus planipennis</i>
hemlock woolly adelgid	<i>Adelges tsugae</i>
Japanese beetle	<i>Popillia japonica</i>
multicolored Asian lady beetle	<i>Harmonia axyridis</i>
southern pine beetle	<i>Dendroctonus frontalis</i>
spongy moth (formerly gypsy moth)	<i>Lymantria dispar</i>

Plants:

Common Name	Scientific Name
alfalfa	<i>Medicago sativa</i>
alfalfa	<i>Medicago sativa</i> ssp. <i>sativa</i>
alsike clover	<i>Trifolium hybridum</i>
American burnweed	<i>Erechtites hieraciifolius</i>
Amur honeysuckle	<i>Lonicera maackii</i>
annual bluegrass	<i>Poa annua</i>
annual sowthistle	<i>Sonchus oleraceus</i>
apple-of-Peru	<i>Nicandra physalodes</i>
Asiatic dayflower	<i>Commelina communis</i>

Common Name	Scientific Name
asparagus	<i>Asparagus officinalis</i>
autumn olive	<i>Elaeagnus umbellate</i>
bald brome	<i>Bromus racemosus</i>
barnyardgrass	<i>Echinochloa crus-galli</i>
big chickweed	<i>Cerastium fontanum ssp. vulgare</i>
bigroot morning-glory	<i>Ipomoea pandurata</i>
birdsfoot trefoil	<i>Lotus corniculatus</i>
birdsrape mustard	<i>Brassica rapa</i>
bittersweet nightshade	<i>Solanum dulcamara</i>
bittersweets	<i>Celastrus spp.</i>
black knapweed	<i>Centaurea nigra</i>
black locust	<i>Robinia pseudoacacia</i>
black medic	<i>Medicago lupulina</i>
black mustard	<i>Brassica nigra</i>
bouncingbet	<i>Saponaria officinalis</i>
bristlegrass	<i>Setaria spp.</i>
broadleaf dock	<i>Rumex obtusifolius</i>
broomsedge bluestem	<i>Andropogon virginicus</i>
brown knapweed	<i>Centaurea jacea</i>
buckhorn plantain	<i>Plantago lanceolata</i>
buckwheat	<i>Fagopyrum esculentum</i>
bull thistle	<i>Cirsium vulgare</i>
bush honeysuckles (exotic)	<i>Lonicera spp.</i>
butterflybush	<i>Buddleja davidii</i>
Callery pear (Bradford pear)	<i>Pyrus calleryana</i>
Canada bluegrass	<i>Poa compressa</i>
Canada thistle	<i>Cirsium arvense</i>
Canadian horseweed	<i>Erigeron canadensis</i>
chicory	<i>Cichorium intybus</i>
Chinese yam	<i>Dioscorea polystachya</i>
colonial bentgrass	<i>Agrostis capillaris</i>
coltsfoot	<i>Tussilago farfara</i>
common burdock, lesser burdock	<i>Arctium minus</i>
common chickweed	<i>Stellaria media</i>
common chickweed	<i>Stellaria pallida</i>
common cornsalad	<i>Valerianella locusta</i>
common crupina	<i>Crupina vulgaris</i>
common dandelion	<i>Taraxacum officinale ssp. officinale</i>
common mallow	<i>Malva neglecta</i>
common mouse-ear chickweed	<i>Cerastium fontanum</i>
common mullein	<i>Verbascum Thapsus</i>
common periwinkle	<i>Vinca minor</i>
common pokeweed	<i>Phytolacca americana</i>
common purslane	<i>Portulaca oleracea</i>
common selfheal	<i>Prunella vulgaris</i>

Common Name	Scientific Name
common speedwell	<i>Veronica officinalis</i>
common St. Johnswort	<i>Hypericum perforatum</i>
common teasel	<i>Dipsacus fullonum</i>
common velvetgrass	<i>Holcus lanatus</i>
common vetch	<i>Vicia sativa</i>
common viper's bugloss, blueweed	<i>Echium vulgare</i>
corn chamomile	<i>Anthemis arvensis</i>
corn cockle	<i>Agrostemma githago</i>
corn gromwell	<i>Buglossoides arvensis</i>
corn speedwell	<i>Veronica arvensis</i>
crack willow	<i>Salix fragilis</i>
creeping bentgrass	<i>Agrostis stolonifera</i>
creeping buttercup	<i>Ranunculus repens</i>
creeping yellow loosestrife, creeping Jenny	<i>Lysimachia nummularia</i>
curly dock	<i>Rumex crispus</i>
curly dock	<i>Rumex crispus ssp. crispus</i>
cutleaf evening-primrose	<i>Oenothera laciniata</i>
cutleaf teasel	<i>Dipsacus laciniatus</i>
dandelion	<i>Taraxacum officinale</i>
Deptford pink	<i>Dianthus armeria</i>
dog rose	<i>Rosa canina</i>
dotted smartweed	<i>Persicaria punctata</i>
eastern poison-ivy	<i>Toxicodendron radicans</i>
eastern redcedar	<i>Juniperus virginiana</i>
eastern white pine	<i>Pinus strobus</i>
elecampane	<i>Inula helenium</i>
English ivy	<i>Hedera helix</i>
European privet	<i>Ligustrum vulgare</i>
everlasting peavine	<i>Lathyrus latifolius</i>
field horsetail	<i>Equisetum arvense</i>
field pennycress	<i>Thlaspi arvense</i>
field pepperweed	<i>Lepidium campestre</i>
field thistle	<i>Cirsium discolor</i>
foxglove	<i>Digitalis purpurea</i>
fragrant waterlily	<i>Nymphaea odorata</i>
garden vetch	<i>Vicia sativa ssp. nigra</i>
garlic mustard	<i>Alliaria petiolate</i>
germander speedwell	<i>Veronica chamaedrys</i>
giant chickweed	<i>Myosoton aquaticum</i>
giant ragweed	<i>Ambrosia trifida</i>
goosegrass	<i>Eleusine indica</i>
greater celandine	<i>Chelidonium majus</i>
green bristlegrass	<i>Setaria viridis var. viridis</i>
green foxtail	<i>Setaria viridis</i>
ground ivy	<i>Glechoma hederacea</i>

Common Name	Scientific Name
hairy cat's ear	<i>Hypochaeris radicata</i>
hairy galinsoga	<i>Galinsoga quadriradiata</i>
hairy vetch	<i>Vicia villosa</i>
hedge bindweed	<i>Calystegia sepium</i>
hedge mustard	<i>Sisymbrium officinale</i>
hemp dogbane	<i>Apocynum cannabinum</i>
henbit	<i>Lamium amplexicaule</i>
hop clover	<i>Trifolium aureum</i>
horsenettle	<i>Solanum carolinense</i>
houndstongue	<i>Cynoglossum officinale</i>
ivyleaf morning-glory	<i>Ipomoea hederacea</i>
Japanese barberry	<i>Berberis thunbergia</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
Japanese knotweed	<i>Reynoutria japonica</i>
Japanese stiltgrass	<i>Microstegium vimineum</i>
jimsonweed	<i>Datura stramonium</i>
johnsongrass	<i>Sorghum halepense</i>
Kentucky bluegrass	<i>Poa pratensis</i>
kudzu	<i>Pueraria montana var. lobata</i>
ladysthumb	<i>Persicaria maculosa</i>
lambsquarters	<i>Chenopodium album</i>
large crabgrass	<i>Digitaria sanguinalis</i>
large hop clover	<i>Trifolium campestre</i>
lesser swinecress	<i>Coronopus didymus</i>
little starwort	<i>Stellaria graminea</i>
Lombardy poplar	<i>Populus nigra</i>
longleaf groundcherry	<i>Physalis longifolia</i>
longstalk cranesbill	<i>Geranium columbinum</i>
marsh dayflower	<i>Murdannia keisak</i>
marsh-pepper smartweed	<i>Persicaria hydropiper</i>
meadow fescue	<i>Festuca pratensis</i>
meadow hawkweed	<i>Hieracium caespitosum</i>
Mexican fireweed	<i>Bassia scoparia</i>
mexicantea	<i>Dysphania ambrosioides</i>
mile-a-minute vine, Asiatic tearthumb	<i>Persicaria perfoliata</i>
mimosa	<i>Albizia julibrissin</i>
Morrow's honeysuckle	<i>Lonicera morrowii</i>
moth mullein	<i>Verbascum blattaria</i>
motherwort	<i>Leonurus cardiaca</i>
mouse-eared hawkweed	<i>Pilosella officinarum</i>
multiflora rose	<i>Rosa multiflora</i>
narrow-leaved cattail	<i>Typha angustifolia</i>
narrowleaf bittercress	<i>Cardamine impatiens</i>
nipplewort	<i>Lapsana communis</i>
northern white cedar	<i>Thuja occidentalis</i>

Common Name	Scientific Name
orchardgrass	<i>Dactylis glomerata</i>
oriental bittersweet	<i>Celastrus orbiculatus</i>
Oriental lady's thumb	<i>Persicaria longiseta</i>
Oriental lady's thumb	<i>Polygonum posumbu</i>
osage-orange	<i>Maclura pomifera</i>
oxeye daisy	<i>Leucanthemum vulgare</i>
pale yellow iris, yellow flag iris	<i>Iris pseudacorus</i>
paper-mulberry	<i>Broussonetia papyrifera</i>
perennial ryegrass	<i>Lolium perenne</i>
perennial ryegrass	<i>Lolium perenne ssp. perenne</i>
periwinkle	<i>Vinca spp.</i>
perilla mint	<i>Perilla frutescens</i>
periwinkle	<i>Vinca spp.</i>
pitted morning-glory	<i>Ipomoea lacunosa</i>
plumeless thistle	<i>Carduus spp.</i>
poison hemlock	<i>Conium maculatum</i>
prickly lettuce	<i>Lactuca serriola</i>
princesstree	<i>Paulownia tomentosa</i>
privet	<i>Ligustrum spp.</i>
prostrate knotweed	<i>Polygonum aviculare</i>
purple cudweed	<i>Gamochaeta purpurea</i>
purple deadnettle	<i>Lamium purpureum</i>
purple loosestrife	<i>Lythrum salicaria</i>
quackgrass	<i>Elymus repens</i>
Queen Anne's lace, wild carrot	<i>Daucus carota</i>
rabbitfoot clover	<i>Trifolium arvense</i>
red clover	<i>Trifolium pratense</i>
red fescue	<i>Festuca rubra</i>
red sorrel	<i>Rumex acetosella</i>
redtop	<i>Agrostis gigantea</i>
reed canarygrass	<i>Phalaris arundinacea</i>
rice flatsedge	<i>Cyperus iria</i>
rock dandelion	<i>Taraxacum erythrospermum</i>
roughstalk bluegrass	<i>Poa trivialis</i>
Scots pine	<i>Pinus sylvestris</i>
sensitive partridgepea	<i>Chamaecrista nictitans</i>
shepherd's-purse	<i>Capsella bursa-pastoris</i>
silvery cinquefoil	<i>Potentilla argentea</i>
small carpetgrass, joint-head grass	<i>Arthraxon hispidus</i>
small hop clover	<i>Trifolium dubium</i>
smallseed falseflax	<i>Camelina microcarpa</i>
smooth hawksbeard	<i>Crepis capillaris</i>
southern catalpa	<i>Catalpa bignonioides</i>
spanishneedles	<i>Bidens bipinnata</i>
sparrow vetch	<i>Vicia tetrasperma</i>

Common Name	Scientific Name
spiny amaranth	<i>Amaranthus spinosus</i>
spiny plumeless thistle	<i>Carduus acanthoides</i>
spiny sowthistle	<i>Sonchus asper</i>
spotted knapweed	<i>Centaurea stoebe ssp. micranthos</i>
spotted spurge	<i>Euphorbia maculate</i>
spotted waterhemlock	<i>Cicuta maculate</i>
spring whitlowgrass	<i>Draba verna</i>
star-of-Bethlehem	<i>Ornithogalum umbellatum</i>
sticky chickweed	<i>Cerastium glomeratum</i>
sulfur cinquefoil	<i>Potentilla recta</i>
sweet autumn virginsbower	<i>Clematis terniflora</i>
sweet cherry	<i>Prunus avium</i>
sweet vernalgrass	<i>Anthoxanthum odoratum</i>
sweetbriar	<i>Rosa rubiginosa</i>
tall buttercup	<i>Ranunculus acris</i>
tall fescue	<i>Festuca arundinacea</i>
tall lettuce	<i>Lactuca canadensis</i>
tall morning-glory	<i>Ipomoea purpurea</i>
tall oatgrass	<i>Arrhenatherum elatius</i>
tawny daylily	<i>Hemerocallis fulva</i>
thymeleaf sandwort	<i>Arenaria serpyllifolia</i>
thymeleaf speedwell	<i>Veronica serpyllifolia</i>
thymeleaf speedwell	<i>Veronica serpyllifolia ssp. serpyllifolia</i>
timothy	<i>Phleum pratense</i>
tree-of-heaven	<i>Ailanthus altissima</i>
true forget-me-not	<i>Myosotis scorpioides</i>
water speedwell	<i>Veronica anagallis-aquatica</i>
watercress	<i>Nasturtium officinale</i>
waterpurslane	<i>Ludwigia palustris</i>
weeping lovegrass	<i>Eragrostis curvula</i>
weeping willow	<i>Salix x sepulcralis</i>
white clover	<i>Trifolium repens</i>
white cockle	<i>Silene latifolia ssp. alba</i>
white mulberry	<i>Morus alba</i>
white mustard	<i>Sinapis alba</i>
white poplar	<i>Populus alba</i>
white willow	<i>Salix alba</i>
wild garlic	<i>Allium vineale</i>
wild onion	<i>Allium canadense</i>
willowleaf lettuce	<i>Lactuca saligna</i>
wine raspberry	<i>Rubus phoenicolasius</i>
woodland bittercress	<i>Cardamine flexuosa</i>
yellow bedstraw	<i>Galium verum</i>
yellow fieldcress	<i>Rorippa sylvestris</i>
yellow nutsedge	<i>Cyperus esculentus</i>

Common Name	Scientific Name
yellow rocket	<i>Barbarea vulgaris</i>
yellow sweet-clover	<i>Melilotus officinalis</i>
yellow toadflax	<i>Linaria vulgaris</i>
yellow woodsorrel	<i>Oxalis stricta</i>

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)