Highland Conservation Group, LLC

# New River Highland Mitigation Bank Prospectus
# Grayson County, Virginia

Prepared by:

3B CONSULTING SERVICES LLC
Practical People, Practical Solutions
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**3BCS Project No. 14-21.02**

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## Introduction

### Summary

Highland Conservation Group, LLC, (hereinafter, the "Sponsor") hereby proposes to establish and sponsor the New River Highland Umbrella Mitigation Bank (hereinafter, the "Bank") located in Grayson County, Virginia. This proposal initially calls for the establishment of an approximate 50-acre Bank situated on a single property.

The purpose of the Bank is to provide compensatory stream and wetland mitigation credits to offset unavoidable impacts to streams and wetlands from development projects in the Bank's service area. Such impacts are authorized under Sections 401 and 404 of the Clean Water Act, Section 10 of the Rivers and Harbor Act, and Section 62.1-44.15:20 of the Code of Virginia provided they have met all applicable requirements and are approved by the respective permitting agencies.

The Sponsor intends to develop the bank site contained in this draft prospectus and to add more sites in the future. Therefore, an umbrella instrument is proposed.

### Sponsor and Agent Qualifications

The Bank Sponsor is part of a team carefully assembled with the express purpose of successfully implementing compensatory mitigation. The Sponsor is affiliated with Highland Stone Company, LLC, a construction company that has constructed over 15,000 linear feet of natural stream channel design restoration for its clients in southwestern Virginia. In addition, the Sponsor is affiliated with Pioneer Farms, LLC, whose nursery operation located in southwestern Virginia grows and supplies native hardwood trees and shrubs for reforestation and stream restoration projects throughout the area. The lands comprising the Bank will be purchased and held by another entity affiliated with the Sponsor, Highland Properties, LLC.

3B Consulting Services, LLC (hereinafter, the Agent), has extensive experience in all stages of the mitigation process, from initial site assessment through design and construction oversight. The Agent's staff has designed, permitted and supervised the construction of over ten miles of stream restoration in southwest Virginia.

### Contact Information

Sponsor: Highland Conservation Group, LLC
Mr. Preston Breeding
140 Hilltop Ave.
Lebanon, VA 24266

Agent: 3B Consulting Services, LLC
Mr. Lance DeBord; ldebord@3bcs.com
140 Hilltop Ave.
Lebanon, VA 24266

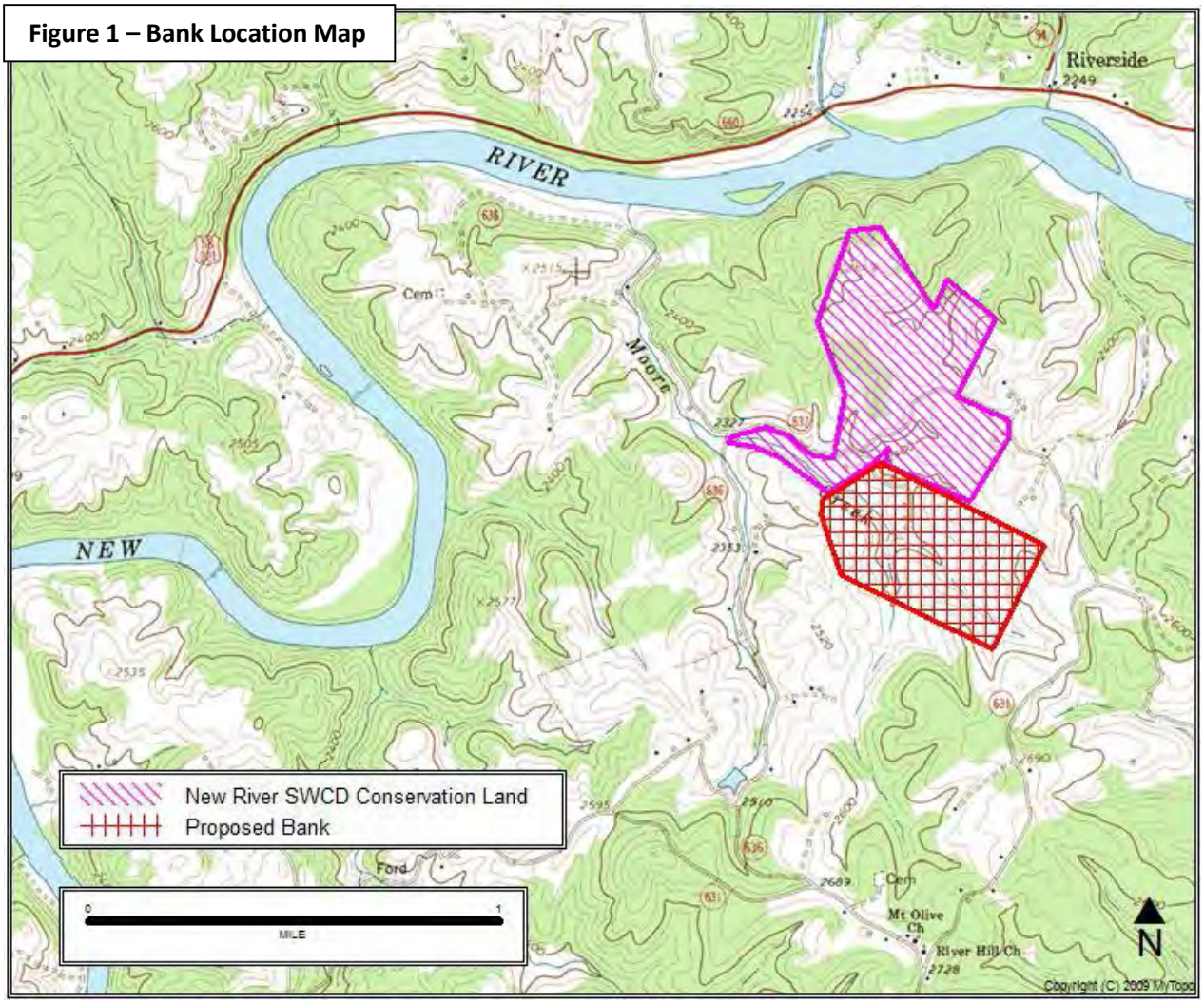
## Bank Site Description

### Location and Current Use

As noted previously, the proposed Bank will initially consist of mitigation on a single tract in Grayson County. Located just south of the New River in the Baywood area and zoned Rural Farm, the tract includes approximately 3,440 linear feet of stream restoration, 2.3 acres of wetland restoration and 0.3 acres of wetland enhancement. Moore Creek and two of its unnamed tributaries are proposed to be restored. The proposed Bank adjoins lands held by the New River Soil & Water Conservation District (NRSWCD) for conservation purposes, including stream preservation/riparian restoration, see Figure 1.

Currently, the tract (approximately 52 acres) is actively grazed. Livestock have access to Moore Creek and its tributaries, which has resulted in severe stream instability issues, including accelerated bank erosion. No conservation programs are currently in place at the site.

**Figure 1 – Bank Location Map**



**Need and Technical Feasibility**

The need for mitigation bank credits in the New River Basin is driven by the lack of operating mitigation banks.

The proposed mitigation work is straightforward stream restoration via natural stream design, riparian cattle exclusion, bioengineering, and riparian planting. The Bank sponsor affiliates and Agent have a well-established history of successfully completing these types of projects.

**Threatened and Endangered Species**

Results from a Virginia Department of Game and Inland Fisheries' Fish and Wildlife Information Service (FWIS) database search are contained in Appendix A. The FWIS database search was conducted for a two mile radius around the Bank property. This search indicated the known or likely presence of 10 state- and/or federally-listed species.

The proposed Bank site has been heavily disturbed by grazing for a considerable period of time, currently provides essentially no riparian habitat, and contributes a considerable amount of sediment to the New River from bank erosion. Therefore, while the proposed Bank may not provide habitat for any rare species at this time, the proposed activities should contribute to an increase in riparian vegetative habitats in the Moore Creek watershed, and should result in an incremental reduction in sediment supply to the New River.

One rare species indicated by the FWIS as potentially present within the search boundary is the bog turtle (*Clemmys muhlenbergii*). This small semi-aquatic turtle inhabits fens, bogs, wet meadows, and emergent wetlands associated with streams and bordered by woodlands, requiring slow moving springs or brooks with soft, highly organic substrate. They prefer shallow water and saturated soils with surface water year round.

While some small, discontinuous pockets of emergent wetland do exist onsite, most of these wetlands are too dry to provide good bog turtle habitat. One small pocket of saturated wetland is found near the confluence of Moore Creek and UTMC-2. However, extremely heavy cattle impacts, along with the fragmented nature of these wetlands have resulted in poor bog turtle habitat at the site.

**Adjacent Conservation Lands**

The proposed Bank adjoins lands held by the NRSWCD, known as the New River Hill Farm. This working farm is operated as a demonstration of proper conservation practices, and livestock have been excluded from all aquatic resources. Riparian buffers have been established on all streams on that property.

NRSWCD staff are in favor of the proposed Bank, as it would not only result in a greater cumulative improvement of the Moore Creek watershed's aquatic resources, but would also provide a demonstration of stream restoration and more extensive riparian restoration practices, nicely complementing their existing conservation programs.

**Existing Conditions**

As previously noted, Moore Creek (which flows into the New River which is approximately one mile downstream) and two of its unnamed tributaries are currently being impacted by heavy cattle grazing on the proposed Bank site. Consequently, the streams are characterized by poor instream habitat, and lateral instability is contributing considerable sediment to downstream reaches.

***Moore Creek***

In addition, a 0.5 acre pond has been constructed on UTMC-2, resulting in approximately 450 linear feet of stream loss.

Overall, the impacted aquatic habitats and heavily grazed pastures that typify the proposed Bank property provide an outstanding opportunity for high ecological uplift from properly implemented and managed holistic restoration.

***UTMC-2 Pond***

**<u>Bank Establishment Measures</u>**

**Mitigation Banking Instrument**

An umbrella Mitigation Banking Instrument establish the Bank. The MBI will include all information required to define credit basis, credit release, and monitoring requirements; as well as specifications for the construction, operation, and maintenance of the bank. The MBI will follow the most recent MBI template and will be in accordance with the Final Mitigation Rule.

**Ownership Arrangements**

Title to the tracts will be held by Highland Properties, LLC, and a permanent deed restriction will be recorded to protect the stream and riparian mitigation areas.

**Stream and Wetland Mitigation Methods and Credits**

Stream Compensation Credits (CC's) and wetland credits will be generated through accepted methods, i.e. USM for streams and acres for wetlands. Stream and riparian buffer restoration, wetland restoration/enhancement and cattle exclusion will be proposed. Stream restoration activities will rely on accepted natural stream channel design methodologies, with an emphasis on bioengineering practices. These methods include the restoration of natural stream dimension, pattern and profile using a reference reach approach. The stream restoration design will also include the evaluation and possible reconfiguration/replacement of the driveway culvert in UTMC-1.

Precise riparian boundaries will be established during the site design, but the intention of the plan is to have 200'-wide buffers on each side of each stream, as property ownership allows, with the exception of reasonable setbacks from the existing house and appurtenant facilities.

Wetland restoration will include grading and eliminating drainage features of the site in a manner that will result in conversion of drained lands into wetlands. It is likely that areas adjacent to Moore Creek contained wetlands historically. Most likely these wetlands have been drained as evidenced by the channelized conditions of Moore Creek and tributary UTMC-1. Wetland areas will be planted with native wetland vegetation including trees, shrubs and herbaceous plants.

Wetland enhancements will entail slight grading and planting to both enhance and expand the existing wetland footprint. Plantings within these areas will be similar to the restoration areas.

The Sponsor intends to develop the first property in two phases with Phase 1 consisting of the restoration of Moore Creek and the northern unnamed tributary (UTMC-1). Phase 1 also includes the wetland restoration and enhancement areas. Phase 2 would consist of removal of the existing pond and restoration of the southern unnamed tributary (UTMC-2). Phasing is discussed more fully in "Anticipated Schedule for Completion" below.

While no Jurisdictional Delineation has yet been reviewed, an approximation of the linear footage available for credit generation at the Bank site is as follows:

**Phase 1***

| Stream Name | Restoration Length | Approximate Compensation Credit |
|---|---|---|
| **Moore Creek** | 1,560 | 2,730 |
| **UTMC-1** | 520 | 780 |
| **Total:** | **2,080** | **3,510** |

**Phase 2**

| Stream Name | Restoration Length | Approximate Compensation Credit |
|---|---|---|
| **UTMC-2**** | 1,360 | 2,540 |
| **Total:** | **1,360** | **2,540** |

**=includes 2.6 acres of wetlands*
***=includes pond removal*

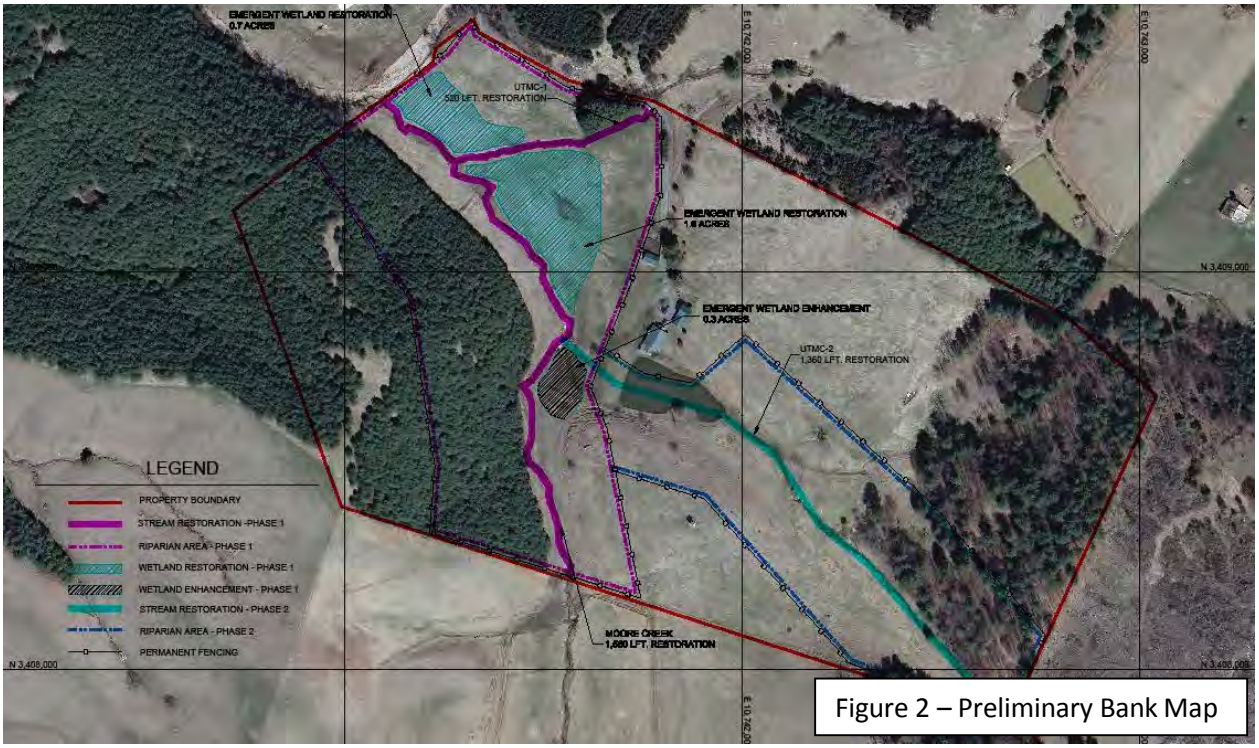



Figure 2 – Preliminary Bank Map

Actual credit determinations will be made in coordination with the Interagency Review Team. The Bank Sponsor reserves the right to adjust credits pending the findings of threatened and endangered species onsite or other onsite resources or improvements. Draft USM crediting forms are contained in Appendix B.

**Geographic Service Area**

The proposed service area of the Bank is the New River watershed, including the Upper New (HUC 05050001) and Lower New (HUC 05050002). The transportation and commercial development industries are predicted to be the primary customers of the Bank.

**Long-term Monitoring and Maintenance**

Title to the lands will be held by Highland Properties, LLC, but the Sponsor will be responsible for the operation, monitoring, and long-term management of the Bank, and the Sponsor will also be the long-term steward.

A long-term monitoring and maintenance plan will be developed as part of the MBI.

**Anticipated Schedule for Completion**

The Sponsor intends to develop the bank and complete all mitigation measures for Phase 1 as soon as practicable upon approval of the bank. The implementation of Phase 2 will be dependent on credit sales from Phase 1.

From a stream stability perspective, Moore Creek (Phase 1) currently stands in great need of restoration, and is contributing considerable sediment to downstream reaches. UTMC-2 (Phase 2) is also unstable, though less so than Moore Creek. However the existing pond serves to capture much of the sediment supplied by the unstable upstream reaches, in spite of the other negative ecological aspects of having an impoundment in place. Due to the current land management practices and stream conditions, it is readily apparent that Phase 1 alone would result in a far greater benefit to the watershed than would Phase 2 alone. Wetland restoration activities would occur during implementation of Phase 1.

By acting as a sediment basin, the pond itself would allow the restoration of Phase 2 without negatively impacting Phase 1. The stream flow in UTMC-2 will be pumped around during dam removal, so implementing Phase 2 after Phase 1 should cause no downstream sedimentation issues.

In addition, the removal of the pond (Phase 2) would be economically impracticable without funding from the credit sales associated with Phase 1. In other words, while Phase 1 would be a standalone project, Phase 2 would not. Similarly, performing all work without phasing would be infeasible due to the uncertain and intermittent demand for credits within the bank service area.

We propose the implementation of the following protective measures in the event that Phase 2 will not be completed:

1. Prior to approval of the Mitigation Banking Instrument, a Professional Engineer will be retained to evaluate the stability of the existing dam structure. If necessary, the engineer will provide a repair/enhancement plan and these recommendations will be implemented as part of Phase 1.
2. Inspection, maintenance, and repair of the impoundment structure will be included in the Long-Term Management Plan for Phase 1.
3. Should the lands comprising Phase 2 be severed from Phase 1, a restrictive covenant will be recorded that specifies maintenance criteria for the dam, as well as requiring insurance or other financial assurances be kept in place for remediation of Phase 1 in event of damage resulting from dam failure.

However, as long as credit sales are successful, we intend to fully implement Phase 2 as soon as necessary to maintain a balance of available credits.

# APPENDIX A-
# FWIS INFORMATION

# VaFWIS Initial Project Assessment Report Compiled on 1/20/2015, 2:31:51 PM

Help

Known or likely to occur within a **2 mile radius around point 36,39,27.0 -81,01,36.9**

in **077 Grayson County, VA**

View Map of Site Location

436 Known or Likely Species ordered by Status Concern for Conservation
(displaying first 26) (26 species with Status* or Tier I** or Tier II** )

| BOVA Code | Status* | Tier** | Common Name | Scientific Name | Confirmed | Database(s) |
|---|---|---|---|---|---|---|
| 050067 | FESE | I | Squirrel, Carolina northern flying | Glaucomys sabrinus coloratus | | BOVA |
| 050068 | FESE | I | Squirrel, Virginia northern flying | Glaucomys sabrinus fuscus | | BOVA |
| 030061 | FTSE | I | Turtle, bog (= Muhlenberg) | Clemmys muhlenbergii | | BOVA,Habitat |
| 040267 | SE | I | Wren, Bewick's | Thryomanes bewickii | | BOVA |
| 070118 | FSSE | II | Crayfish, Big Sandy | Cambarus veteranus | | BOVA |
| 040096 | ST | I | Falcon, peregrine | Falco peregrinus | | BOVA |
| 040293 | ST | I | Shrike, loggerhead | Lanius ludovicianus | | BOVA |
| 060081 | ST | II | Floater, green | Lasmigona subviridis | Yes | BOVA,TEWaters,Habitat,SppObs |
| 060140 | ST | IV | Pistolgrip | Tritogonia verrucosa | | BOVA |
| 040292 | ST | | Shrike, migrant loggerhead | Lanius ludovicianus migrans | | BOVA |
| 050022 | FP | | Bat, northern long-eared | Myotis septentrionalis | | BOVA |
| 100248 | FS | I | Fritillary, regal | Speyeria idalia idalia | | BOVA |
| 040093 | FS | II | Eagle, bald | Haliaeetus leucocephalus | | BOVA |
| 020020 | CC | II | Hellbender, eastern | Cryptobranchus alleganiensis alleganiensis | | BOVA |
| 030012 | CC | IV | Rattlesnake, timber | Crotalus horridus | | BOVA |
| 040372 | | I | Crossbill, red | Loxia curvirostra | | BOVA |
| 040225 | | I | Sapsucker, yellow-bellied | Sphyrapicus varius | | BOVA |
| 040319 | | I | Warbler, black-throated green | Dendroica virens | | BOVA |
| 040306 | | I | Warbler, golden-winged | Vermivora chrysoptera | | BOVA |
| 020078 | | II | Salamander, | Plethodon welleri | | BOVA |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | Weller's | | | |
| 040052 | | II | Duck, American black | Anas rubripes | | BOVA |
| 040213 | | II | Owl, northern saw-whet | Aegolius acadicus | | BOVA |
| 040320 | | II | Warbler, cerulean | Dendroica cerulea | | BOVA |
| 040304 | | II | Warbler, Swainson's | Limnothlypis swainsonii | | BOVA |
| 040266 | | II | Wren, winter | Troglodytes troglodytes | | BOVA |
| 080003 | | II | Snaketail, pygmy | Ophiogomphus howei | | BOVA |

To view **All 436 species** View 436

* FE=Federal Endangered; FT=Federal Threatened; SE=State Endangered; ST=State Threatened; FP=Federal Proposed; FC=Federal Candidate; FS=Federal Species of Concern; CC=Collection Concern

** I=VA Wildlife Action Plan - Tier I - Critical Conservation Need; II=VA Wildlife Action Plan - Tier II - Very High Conservation Need; III=VA Wildlife Action Plan - Tier III - High Conservation Need; IV=VA Wildlife Action Plan - Tier IV - Moderate Conservation Need

Bat Colonies or Hibernacula: **Not Known**

### Anadromous Fish Use Streams

N/A

### Colonial Water Bird Survey

N/A

### Threatened and Endangered Waters ( 1 Reach )

View Map of All Threatened and Endangered Waters

| Stream Name | T&E Waters Species | | | | | | View Map |
|---|---|---|---|---|---|---|---|
| | Highest TE* | BOVA Code, Status*, Tier**, Common & Scientific Name | | | | | |
| New River (05050001) | ST | 060081 | ST | II | Floater, green | Lasmigona subviridis | Yes |

### Managed Trout Streams

N/A

### Bald Eagle Concentration Areas and Roosts

N/A

### Bald Eagle Nests

N/A

## Habitat Predicted for Aquatic WAP Tier I & II Species ( 2 Reaches )

View Map Combined Reaches from Below of Habitat Predicted for WAP Tier I & II Aquatic Species

| Stream Name | Tier Species | | View Map |
|---|---|---|---|
| | Highest TE* | BOVA Code, Status*, Tier**, Common & Scientific Name | |
| Elk Creek (50500011) | ST | 060081 ST II Floater, green Lasmigona subviridis | Yes |
| New River (50500011) | ST | 060081 ST II Floater, green Lasmigona subviridis | Yes |

## Habitat Predicted for Terrestrial WAP Tier I & II Species

| BOVA Code | Status* | Tier** | Common Name | Scientific Name | View Map |
|---|---|---|---|---|---|
| 030061 | FTSE | I | Turtle, bog (= Muhlenberg) | Clemmys muhlenbergii | Yes |

## Public Holdings:

N/A

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PixelSize=64; Anadromous=0.056079; BECAR=0.029134; Bats=0.025603; Buffer=0.193466; County=0.133386; Impediments=0.02492; Init=0.234273; PublicLands=0.052587; SppObs=0.640617; TEWaters=0.080247; TierReaches=0.129416; TierTerrestrial=0.470952; Total=2.133357; Trout=0.058839

# APPENDIX B-
# USM FORMS

# Compensation Crediting Form (Form 3)

**Unified Stream Methodology for use in Virginia**

| Project # | Project Name | Locality | Cowardin Class. | HUC | Date | Reach # | Reach Length |
|---|---|---|---|---|---|---|---|
| 14-21 | New River Highlands Bank | Grayson | | 05050001 | 01-21-15 | 1 | 1560 |

| Name(s) of Evaluator(s) | Steam Name and Information |
|---|---|
| JES | Moore Ck. |

**Restoration:** Includes Priority 1, 2, and 3 restoration activities. Does not include buffer width.

List Reaches that will receive full Restoration:

Total length of Full Restoration: 1560 — Credit per foot: 1 — Project Credits: 1560

*Credits = Stream Length X 1.0*

**Enhancement With Instream Structures:** Addressing Streambank Stability, Grade Control (Vanes, Weirs, Step-Pools), Constructed Riffles

Discuss Length Affected by Instream Structures (justify length):

Length Affected by Instream Structures: — Credit per foot: 0.3 — Project Credits: 0

*Credits = Stream Length X 0.3*

**Enhancement:** Addressing Streambank Stability, Entrenchment Ratios, Access to Floodplain

| | Mitigation Categories | | | | |
|---|---|---|---|---|---|
| | Mechanical Bank Work | | | Biological Bank Work | |
| | Credit Per Length | Pick One Per Length | | May Be Cumulative Per Length | |
| Activities | Habitat Structures | Create Bankfull Bench | Lay Back Banks | Bio-Remediation Techniques | Stream Bank Plantings |
| Credit per foot per bank | 0.1 | 0.15 | 0.1 | 0.1 | 0.09 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Right Bank | Length | | | | | | | 0 | |
| | Credit> | | | | | | | | |
| Left Bank | Length | | | | | | | 0 | |
| | Credit > | | | | | | | | |

| CREDITS | | | |
|---|---|---|---|
| Rt Bank > | 0.00 | Credit | |
| Lt Bank > | 0.00 | *SUM of banks* | 0 |

*Σ(Length X Credit) for all areas (banks done separately)*

**Riparian Areas:** Assess the proposed 100 foot buffer on both banks based on the activity proposed. Enter the percentage of area and the credit below. (Widths of buffer above 100' will be determined below)

| Activities | Buffer Re-establishment (removal of invasives) | Buffer Planting - Heavy | Buffer Planting - Light | Preservation *High Quality, Restoration, Enhancement* | Preservation *Low Quality* | Buffer area not within preservation width |
|---|---|---|---|---|---|---|
| Credit for 0'-100' | 0.4 | 0.38 | 0.29 | 0.14 | 0.07 | 0 |
| Credit for beyond 100' | 0.2 | 0.19 | 0.15 | 0.07 | | 0 |

Calculation of "Goal" riparian buffer for each side (SAR length times 100') >>>> 156,000 square feet

**WITHIN FIRST 100' - Mitigation Categories**

One vegetative community maintained — Subtract 0.03
Two vegetative communities maintained — Subtract 0.06
Ensure the sums of % Riparian Blocks equal 100

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Right Bank | Area # | 1 | 2 | | | | | |
| | Sq. Footage | 156000 | | | | | | |
| | % Area | 100% | 0% | 0% | 0% | 0% | 0% | 100% |
| | Credit> | 0.38 | | | | | | |
| Left Bank | Area # | | | | | | | |
| | Sq. Footage | 91768 | 64232 | | | | | |
| | % Area | 59% | 41% | 0% | 0% | 0% | 0% | 100% |
| | Credit> | 0.38 | 0.14 | | | | | |

| CREDITS | | | |
|---|---|---|---|
| Rt Bank > | 0.38 | Credit | |
| Lt Bank > | 0.28 | 0.33 | 515 |

*Σ(% Area X Credit) for all areas (banks done separately)*
*AVE of credit for banks X length of project*

**Outside First 100' - Mitigation Categories**

One vegetative community maintained — Subtract 0.03
Two vegetative communities maintained — Subtract 0.06

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Right Bank | Area # | | | | | | | |
| | Sq. Footage | 135842 | | | | | | |
| | % Area | 87% | 0% | 0% | 0% | 0% | 0% | 87% |
| | Credit> | 0.19 | | | | | | |
| Left Bank | Area # | | | | | | | |
| | Sq. Footage | 156000 | | | | | | |
| | % Area | 100% | 0% | 0% | 0% | 0% | 0% | 100% |
| | Credit > | 0.07 | | | | | | |

| CREDITS | | | |
|---|---|---|---|
| Rt Bank > | 0.17 | Credit | |
| Lt Bank > | 0.07 | 0.12 | 187 |

*Σ(% Area X Credit) for all areas (banks done separately)*
*AVE of credit for banks X length of project*

**Adjustment Factors:** These factors are applied as a multiplier to length of a reach for which they apply

| Adjustment Factor Categories | | | |
|---|---|---|---|
| Activity | Rare, Threatened, or Endangered Species or Communities | Livestock Exclusion | Watershed Preservation |
| Credit | 0.1 - 0.3 | 0.1 - 0.3 | 0.1 - 0.3 |
| Stream Length Affected | | 1560 | |
| Credit> | | 0.3 | |

*Credits are cumulative and can apply to more than one reach. Each reach can have more than one Adjustment Factors*

Record AF length /credit beneath the AF activity. Provide a narrative explanation of the applicable site conditions that warrant an adjustment and justify the AF credit chosen.

Credits > 468

*ΣLength X Credit) for all areas*

**Total Compensation Credit Provided by Project: 2730**

# Compensation Crediting Form (Form 3)

**Unified Stream Methodology for use in Virginia**

| Project # | Project Name | Locality | Cowardin Class. | HUC | Date | Reach # | Reach Length |
|---|---|---|---|---|---|---|---|
| 14-21 | New River Highlands Bank | Grayson | | 05050001 | 01-21-15 | 1 | 520 |

| Name(s) of Evaluator(s) | Steam Name and Information |
|---|---|
| JES | UTMC-1 |

**Project Credits**

## Restoration: Includes Priority 1, 2, and 3 restoration activities. Does not include buffer width.

Credit per foot: 520

List Reaches that will receive full Restoration:

Total length of Full Restoration: 520 — Credit per foot: 1

*Credits = Stream Length X 1.0*

## Enhancement With Instream Structures: Addressing Streambank Stability, Grade Control (Vanes, Weirs, Step-Pools), Constructed Riffles

Credit per foot

Discuss Length Affected by Instream Structures (justify length):

Length Affected by Instream Structures: — Credit per foot: 0.3 — 0

*Credits = Stream Length X 0.3*

## Enhancement: Addressing Streambank Stability, Entrenchment Ratios, Access to Floodplain

**Mitigation Categories**

| | Mechanical Bank Work | | | Biological Bank Work | |
|---|---|---|---|---|---|
| | Credit Per Length | Pick One Per Length | | May Be Cumulative Per Length | |
| Activities | Habitat Structures | Create Bankfull Bench | Lay Back Banks | Bio-Remediation Techniques | Stream Bank Plantings |
| Credit per foot per bank | 0.1 | 0.15 | 0.1 | 0.1 | 0.09 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Right Bank | Length | | | | | | | 0 | |
| | Credit> | | | | | | | | |
| Left Bank | Length | | | | | | | 0 | |
| | Credit > | | | | | | | | |

| CREDITS | | | |
|---|---|---|---|
| Rt Bank > | 0.00 | Credit | |
| Lt Bank > | 0.00 | *SUM of banks* | 0 |

*Σ(Length X Credit) for all areas (banks done separately)*

## Riparian Areas: Assess the proposed 100 foot buffer on both banks based on the activity proposed. Enter the percentage of area and the credit below. (Widths of buffer above 100' will be determined below)

| Activities | Buffer Re-establishment (removal of invasives) | Buffer Planting - Heavy | Buffer Planting - Light | Preservation *High Quality, Restoration, Enhancement* | Preservation *Low Quality* | Buffer area not within preservation width |
|---|---|---|---|---|---|---|
| Credit for 0'-100' | 0.4 | 0.38 | 0.29 | 0.14 | 0.07 | 0 |
| Credit for beyond 100' | 0.2 | 0.19 | 0.15 | 0.07 | | 0 |

Calculation of "Goal" riparian buffer for each side (SAR length times 100') >>>> 52,000 square feet

**WITHIN FIRST 100' - Mitigation Categories**

One vegetative community maintained — Subtract 0.03

Two vegetative communities maintained — Subtract 0.06

Ensure the sums of % Riparian Blocks equal 100

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Right Bank | Area # | 1 | 2 | | | | | |
| | Sq. Footage | 20712 | | | | | | |
| | % Area | 40% | 0% | 0% | 0% | 0% | 0% | 40% |
| | Credit> | 0.38 | | | | | | |
| Left Bank | Area # | | | | | | | |
| | Sq. Footage | 18188 | | | | | | |
| | % Area | 35% | 0% | 0% | 0% | 0% | 0% | 35% |
| | Credit> | 0.38 | 0.14 | | | | | |

| CREDITS | | | |
|---|---|---|---|
| Rt Bank > | 0.15 | Credit | |
| Lt Bank > | 0.13 | 0.14 | 73 |

*Σ(% Area X Credit) for all areas (banks done separately)*
*AVE of credit for banks X length of project*

**Outside First 100' - Mitigation Categories**

One vegetative community maintained — Subtract 0.03

Two vegetative communities maintained — Subtract 0.06

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Right Bank | Area # | | | | | | | |
| | Sq. Footage | 14469 | | | | | | |
| | % Area | 28% | 0% | 0% | 0% | 0% | 0% | 28% |
| | Credit> | 0.19 | | | | | | |
| Left Bank | Area # | | | | | | | |
| | Sq. Footage | 18788 | | | | | | |
| | % Area | 36% | 0% | 0% | 0% | 0% | 0% | 36% |
| | Credit > | 0.19 | | | | | | |

| CREDITS | | | |
|---|---|---|---|
| Rt Bank > | 0.05 | Credit | |
| Lt Bank > | 0.07 | 0.06 | 31 |

*Σ(% Area X Credit) for all areas (banks done separately)*
*AVE of credit for banks X length of project*

## Adjustment Factors: These factors are applied as a multiplier to length of a reach for which they apply

**Adjustment Factor Categories**

| Activity | Rare, Threatened, or Endangered Species or Communities | Livestock Exclusion | Watershed Preservation |
|---|---|---|---|
| Credit | 0.1 - 0.3 | 0.1 - 0.3 | 0.1 - 0.3 |
| Stream Length Affected | | 520 | |
| Credit> | | 0.3 | |

*Credits are cumulative and can apply to more than one reach. Each reach can have more than one Adjustment Factors*

**Record AF length /credit beneath the AF activity. Provide a narrative explanation of the applicable site conditions that warrant an adjustment and justify the AF credit chosen.**

Credits > 156

*ΣLength X Credit) for all areas*

**Total Compensation Credit Provided by Project: 780**

# Compensation Crediting Form (Form 3)

**Unified Stream Methodology for use in Virginia**

| Project # | Project Name | Locality | Cowardin Class. | HUC | Date | Reach # | Reach Length |
|---|---|---|---|---|---|---|---|
| 14-21 | New River Highlands Bank | Grayson | | 05050001 | 01-21-15 | 1 | 1360 |

| Name(s) of Evaluator(s) | Steam Name and Information |
|---|---|
| JES | UTMC-2 |

**Restoration:** Includes Priority 1, 2, and 3 restoration activities. Does not include buffer width.

List Reaches that will receive full Restoration:

Total length of Full Restoration: 1360 — Credit per foot: 1 — Project Credits: 1360

*Credits = Stream Length X 1.0*

**Enhancement With Instream Structures:** Addressing Streambank Stability, Grade Control (Vanes, Weirs, Step-Pools), Constructed Riffles

Discuss Length Affected by Instream Structures (justify length):

Length Affected by Instream Structures: — Credit per foot: 0.3 — Project Credits: 0

*Credits = Stream Length X 0.3*

**Enhancement:** Addressing Streambank Stability, Entrenchment Ratios, Access to Floodplain

| | Mitigation Categories | | | | |
|---|---|---|---|---|---|
| | Mechanical Bank Work | | | Biological Bank Work | |
| | Credit Per Length | Pick One Per Length | | May Be Cumulative Per Length | |
| Activities | Habitat Structures | Create Bankfull Bench | Lay Back Banks | Bio-Remediation Techniques | Stream Bank Plantings |
| Credit per foot per bank | 0.1 | 0.15 | 0.1 | 0.1 | 0.09 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Right Bank | Length | | | | | | | 0 | |
| | Credit> | | | | | | | | |
| Left Bank | Length | | | | | | | 0 | |
| | Credit > | | | | | | | | |

| CREDITS | | | |
|---|---|---|---|
| Rt Bank > | 0.00 | Credit | |
| Lt Bank > | 0.00 | *SUM of banks* | 0 |

*Σ(Length X Credit) for all areas (banks done separately)*

**Riparian Areas:** Assess the proposed 100 foot buffer on both banks based on the activity proposed. Enter the percentage of area and the credit below. (Widths of buffer above 100' will be determined below)

| Activities | Buffer Re-establishment (removal of invasives) | Buffer Planting - Heavy | Buffer Planting - Light | Preservation *High Quality, Restoration, Enhancement* | Preservation *Low Quality* | Buffer area not within preservation width |
|---|---|---|---|---|---|---|
| Credit for 0'-100' | 0.4 | 0.38 | 0.29 | 0.14 | 0.07 | 0 |
| Credit for beyond 100' | 0.2 | 0.19 | 0.15 | 0.07 | | 0 |

Calculation of "Goal" riparian buffer for each side (SAR length times 100') >>>> 136,000 square feet

**WITHIN FIRST 100' - Mitigation Categories**

One vegetative community maintained — Subtract 0.03
Two vegetative communities maintained — Subtract 0.06
Ensure the sums of % Riparian Blocks equal 100

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Right Bank | Area # | 1 | 2 | | | | | |
| | Sq. Footage | 136000 | | | | | | |
| | % Area | 100% | 0% | 0% | 0% | 0% | 0% | 100% |
| | Credit> | 0.38 | | | | | | |
| Left Bank | Area # | | | | | | | |
| | Sq. Footage | 136000 | | | | | | |
| | % Area | 100% | 0% | 0% | 0% | 0% | 0% | 100% |
| | Credit> | 0.38 | 0.14 | | | | | |

| CREDITS | | | |
|---|---|---|---|
| Rt Bank > | 0.38 | Credit | |
| Lt Bank > | 0.38 | 0.38 | 517 |

*Σ(% Area X Credit) for all areas (banks done separately)*
*AVE of credit for banks X length of project*

**Outside First 100' - Mitigation Categories**

One vegetative community maintained — Subtract 0.03
Two vegetative communities maintained — Subtract 0.06

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Right Bank | Area # | | | | | | | |
| | Sq. Footage | 136000 | | | | | | |
| | % Area | 100% | 0% | 0% | 0% | 0% | 0% | 100% |
| | Credit> | 0.19 | | | | | | |
| Left Bank | Area # | | | | | | | |
| | Sq. Footage | 136000 | | | | | | |
| | % Area | 100% | 0% | 0% | 0% | 0% | 0% | 100% |
| | Credit > | 0.19 | | | | | | |

| CREDITS | | | |
|---|---|---|---|
| Rt Bank > | 0.19 | Credit | |
| Lt Bank > | 0.19 | 0.19 | 258 |

*Σ(% Area X Credit) for all areas (banks done separately)*
*AVE of credit for banks X length of project*

**Adjustment Factors:** These factors are applied as a multiplier to length of a reach for which they apply

| Adjustment Factor Categories | | | |
|---|---|---|---|
| Activity | Rare, Threatened, or Endangered Species or Communities | Livestock Exclusion | Watershed Preservation |
| Credit | 0.1 - 0.3 | 0.1 - 0.3 | 0.1 - 0.3 |
| Stream Length Affected | | 1360 | |
| Credit> | | 0.3 | |

*Credits are cumulative and can apply to more than one reach. Each reach can have more than one Adjustment Factors*

**Record AF length /credit beneath the AF activity. Provide a narrative explanation of the applicable site conditions that warrant an adjustment and justify the AF credit chosen.**

Credits > 408

*ΣLength X Credit) for all areas*

**Total Compensation Credit Provided by Project: 2543**

# APPENDIX C-
# LOCATION MAP & CONCEPTUAL SITE PLAN

BRIERPATCH MT QUADRANGLE
VIRGINIA
TOPOGRAPHIC SERIES

(SPEEDWELL)

(AUSTINVILLE)

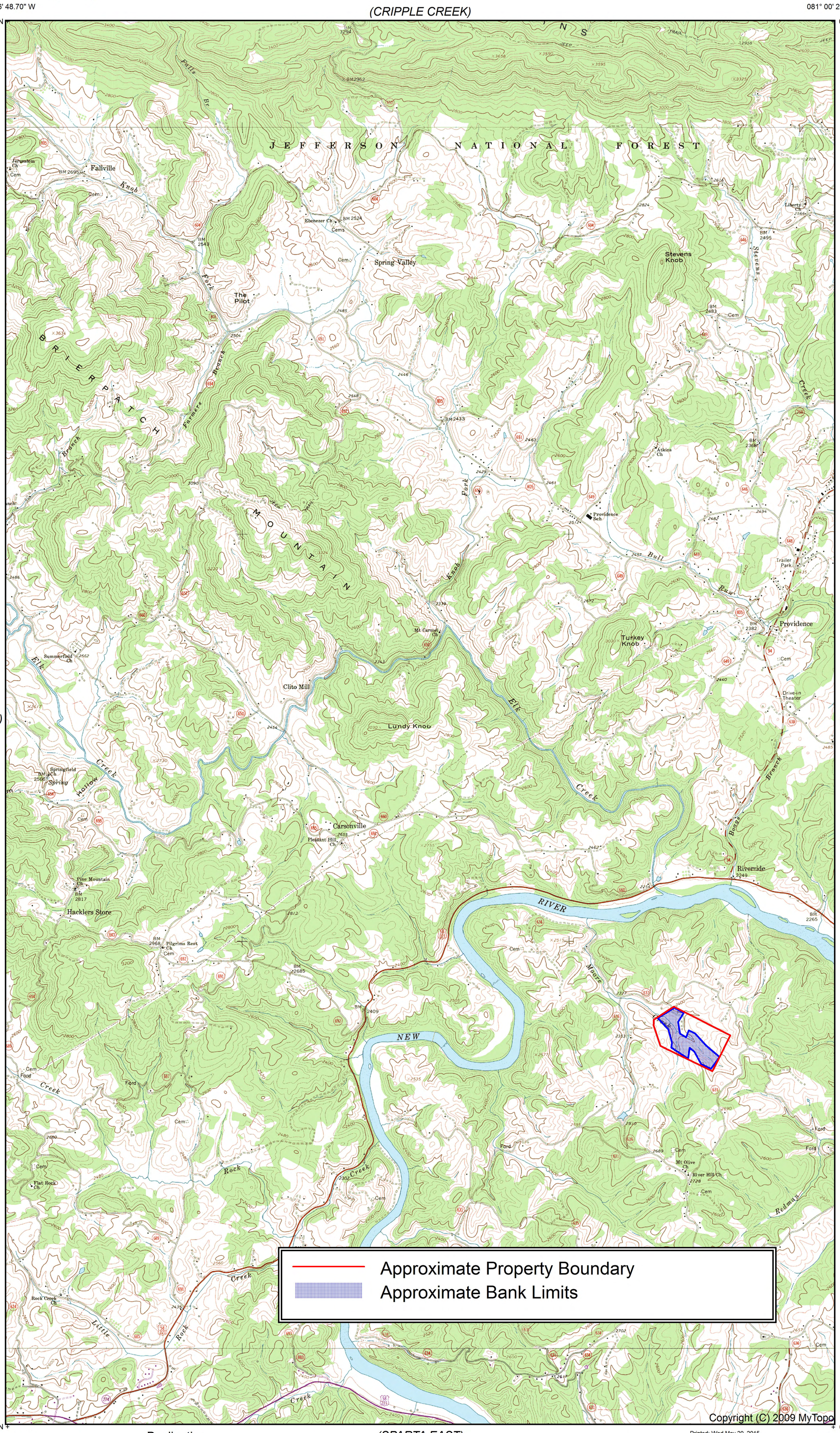
081° 06' 48.70" W

036° 45' 40.13" N

(CRIPPLE CREEK)

081° 00' 26.98" W

036° 45' 40.13" N




036° 37' 02.18" N

081° 06' 48.70" W

(SPARTA EAST)

Printed: Wed May 20, 2015

036° 37' 02.18" N

081° 00' 26.98" W

(SPARTA WEST)

(ELK CREEK)

(GALAX)

(CUMBERLAND KNOB)

Declination

MN GN

GN 0.04° W
MN 7.41° W

SCALE 1:48000

0 1 2
MILES

0 1000 2000 3000 4000 5000
YARDS

0 1 2 3 4
KILOMETERS

CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM 1929

Produced by MyTopo Terrain Navigator
Topography based on USGS 1:24,000 Maps

North American 1983 Datum (NAD83)
Polyconic Projection

To place on the predicted North American 1927 move the projection lines 14M N and 17M E

BRIERPATCH MT, VA
1967

EMERGENT WETLAND RESTORATION
0.7 ACRES

UTMC-1
520 LFT. RESTORATION

EMERGENT WETLAND RESTORATION
1.6 ACRES

EMERGENT WETLAND ENHANCEMENT
0.3 ACRES

UTMC-2
1,360 LFT. RESTORATION

MOORE CREEK
1,560 LFT. RESTORATION

N 3,409,000

N 3,408,000

E 10,741,000

E 10,742,000

E 10,743,000

## LEGEND

- PROPERTY BOUNDARY
- STREAM RESTORATION -PHASE 1
- RIPARIAN AREA - PHASE 1
- WETLAND RESTORATION - PHASE 1
- WETLAND ENHANCEMENT - PHASE 1
- STREAM RESTORATION - PHASE 2
- RIPARIAN AREA - PHASE 2
- PERMANENT FENCING

3B CONSULTING SERVICES LLC
*Practical People, Practical Solutions*

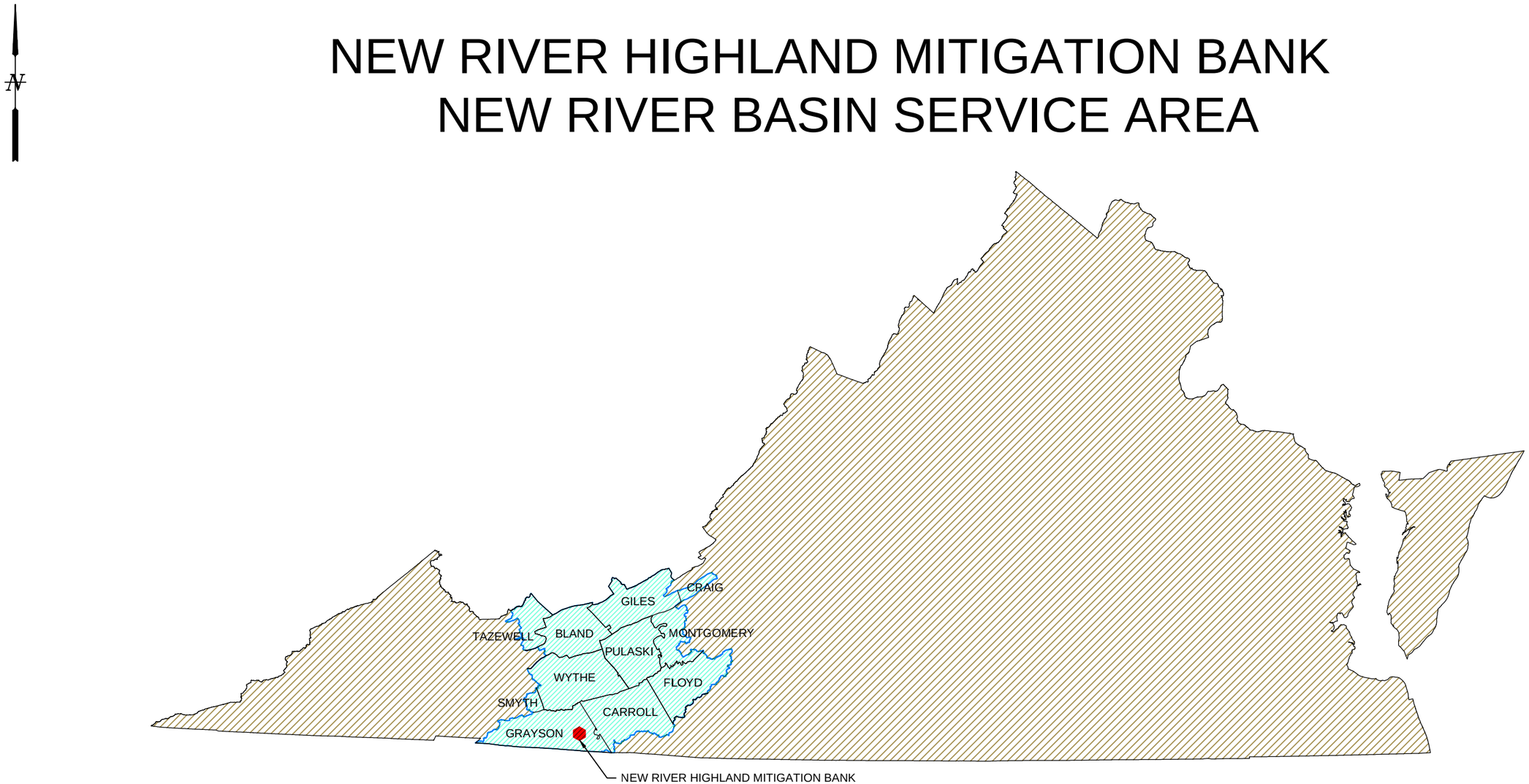
HIGHLAND CONSERVATION GROUP

NEW RIVER HIGHLAND MITIGATION BANK

| | | | |
|---|---|---|---|
| PERMIT NO. | N/A | DATE : | 12/10/15 |
| APPLICATION NO. | N/A | PROJECT NO. | 14-21.02 |
| DESIGNED : | LMD | FILE NAME : | CONCEPTUAL SITE MAP.DWG |
| CHECKED : | LMD | SCALE : | 1" = 200' |
| USGS QUAD: | BRIERPATCH MTN | DRAWING NO. | 1 OF 1 |

CONCEPTUAL SITE MAP

# NEW RIVER HIGHLAND MITIGATION BANK
# NEW RIVER BASIN SERVICE AREA




3B CONSULTING SERVICES LLC
*Practical People, Practical Solutions*

HIGHLAND CONSERVATION GROUP, LLC
NEW RIVER HIGHLAND MITIGATION BANK

| | | | |
|---|---|---|---|
| PERMIT NO. | N/A | DATE : | 12-22-2015 |
| APPLICATION NO. | N/A | PROJECT NO. | 14-21 |
| DESIGNED : | LMD | FILE NAME : | GSA.DWG |
| CHECKED : | LMD | SCALE : | 1" = 200,000' |
| USGS QUAD: | N/A | DRAWING NO. | 1 OF 1 |

GENERAL SERVICE AREA

**Virginia Off-site Mitigation Location Guidelines Checklist**

A. General regulatory requirements and practices:

Project within same 8 digit HUC as impact: **Yes**

Project within same physiographic province as impact: **To be determined. The New River watershed lies within both the Valley and Ridge and Blue Ridge provinces in Virginia.**

Project within an adjoining HUC in same river basin: **The proposed bank site service area includes both the upper and lower New River watersheds within Virginia.**

Project outside of this area: **Not applicable to this bank site. This will be determined in an appropriate 404 permit application that would choose to purchase credits from the approved bank.**

Mitigation is in-kind: **Mitigation credits generated include both stream and wetland credits. It is anticipated that the use of these credits would be in-kind.**

B. Evaluate & Document whether project meets the following criteria

1. Wetland restoration: **Yes**

   Wetland creation: **No**

2. Stream restoration/enhancement: **Yes**

   Stream Preservation: **The stream restoration areas will be preserved in perpetuity; however, no stream preservation credit is being requested.**

   If stream preservation is proposed, is the preservation area exemplary and/or under threat? **Not applicable.**

3. Mitigation sites contiguous or connected to other aquatic areas: **Yes; the mitigation bank site is adjacent to the New River Hill Farm owned by the New River Soil & Water Conservation District. This farm demonstrates the use of agricultural BMP's for water quality. The streams are fenced from livestock.**

4. Current, planned, or foreseeable activities upstream or upgradient of project that may adversely affect mitigation project:

   **Uncertain, the upstream area is currently a working farm.**

   Is there an existing or proposed development upstream of, upslope of, or adjacent to the mitigation project? **No**

   Are there areas upstream of, upslope of, or adjacent to the mitigation project that are zoned or identified for future development in the comprehensive plan, long-range plan, or zoning overlay? **No**

5. Does proposed riparian buffer protection provide greater protection than state or local requirements? **Yes, currently there are no requirements to prevent livestock from entering streams.**

Is proposed riparian buffer a minimum of 100 feet wide on each side of the channel? **Yes.**

6. Are there any easements, liens, rights of way, reserved timber or mineral rights on project site or adjoining lands? **Yes, there is a right-of-way as described in the deed in order to access the property. No other easements, liens, rights-of-way, mineral or timber rights are known to exist.**

7. Is mitigation site consistent with local planning requirements? **Yes, this mitigation will preserve the rural character of the property. The property is zoned rural /agricultural by Grayson County. The surrounding landscape is rural/agricultural lands.**

8. Describe order(s) of streams on project site: **Moore Creek is a 2nd order perennial stream within the mitigation area with two unnamed tributaries that are first order perennial/intermittent streams.**

9. Is recordation of a third party conservation easement proposed for the project? **Yes, the deed restriction template provided by the USACE & DEQ will be used. This deed restriction provides third party rights to the USACE & DEQ to inspect the property to ensure its use complies with the terms of the deed restriction.**

C. Does the project satisfy one or more of the following criteria? If the answer is "Yes" then describe.

1. Does it abut or adjoin an existing reserve or conservation area or create or contribute to a corridor linking existing reserves, conservation areas, or large aquatic systems? **Yes, the New River Soil & Water Conservation District's New River Hill demonstration farm.**

2. Conserve or restore habitat for one or more state or federal-listed species, including critical habitat or Threatened/Endangered Species Waters? **No, the intent is not to create habitat for T&E species; however, as a result of the project it is possible that habitat for the bog turtle could be created.**

3. Conserve or restore habitat for species identified as rare by DCR- Division of Natural Heritage or Species of Greatest Conservation Need in the Virginia Wildlife Action Plan? **No rare species have been identified as using the area.**

4. Conserve or restore aquatic resources or buffers areas identified by DCR- Division of Natural Heritage as rare or imperiled natural communities? **No rare or imperiled communities are known to exist or will be created by the project.**

5. Contribute to improved water quality for identified/designated impaired waters? **While the project may improve overall water quality it is not located within a 303 (d) listed stream.**

6. Remove barriers to fish passage in areas identified by VDGIF as meriting improvement? **No.**

7. Restore, enhance, preserve aquatic resources and/or riparian areas identified as meriting conservation in an approved watershed management plan or conservation plan? **While no known management or conservation plan is known to exist, the NRCS and Soil and water Conservation District had placed a priority on the upstream areas due to its adjacency to the New River Hill Farm.**

8. Conserve/restore the entire watershed upstream of the project site? **No**

9. Remediate inputs of substantial amounts of sediments or remove other pollutants to downstream waters? **Yes. Stream restoration will significantly reduce stream bank erosion from within the project area.**

10. Conserve or restore areas designated by VDGIF as wild trout streams or Anadromous Fish Use Areas? **Moore Creek is not designated as a wild trout stream by VDGIF; however, with it may be possible for wild trout re-establishment to occur after stream restoration activities.**