



*Commonwealth of Virginia*

**VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY**

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April 6, 2023

Mr. Michael Liberati  
Corteva Environmental Remediation  
974 Centre Road, Building 735  
Wilmington, DE 19805

**VIA ELECTONIC MAIL**

**Re: 2021 Leaf-on and Leaf-off Maintenance Inspections  
Former DuPont Waynesboro Site AOC 4  
Waynesboro, Virginia  
EPA ID# VAD003114832**

Dear Mr. Liberati:

This letter acknowledges the receipt and review of the 2021 Leaf-on Maintenance Inspection and 2021 Leaf-off Maintenance Inspection Memorandums dated November 9, 2022 and November 8, 2022 submitted to the Virginia Department of Environmental Quality, Office of Remediation Programs (VDEQ) by AECOM on behalf of Corteva Agriscience. The memorandums document bank management inspection activities that occurred during that time.

VDEQ has no comments. If you have any questions, you may contact me at 540-209-3663 or by email at [William.jordan@deq.virginia.gov](mailto:William.jordan@deq.virginia.gov).

Sincerely,

A handwritten signature in cursive script that reads "W. Calvin Jordan".

W. Calvin Jordan  
Corrective Action Project Manager  
Office of Remediation Programs

cc: DuPont Waynesboro Correspondence File  
Bill Reese, Rich Judge, AECOM  
Graham Simmerman, VRO VDEQ  
Jacqueline Morrison, US EPA

## Memorandum

To Michael Liberati, Corteva Environmental Remediation  
Nancy Grosso, Corteva Environmental Remediation Page 1 of 7

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CC Kristy Hoffman, AECOM

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Subject South River BMA - 2021 Leaf-Off Maintenance Inspection  
Former DuPont Waynesboro Site, Area of Concern 4

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From Joshua Collins, AECOM  
Bill Reese, AECOM

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Date November 8, 2022

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This memorandum summarizes the 2021 Leaf-off Maintenance Inspections (maintenance inspection) for Constitution Park, City Shops, Allied Ready Mix, Shiloh Baptist Church, and North Park completed Bank Management Areas (BMAs), conducted from Dec. 6<sup>th</sup> – 8<sup>th</sup>, 2021. Inspection activities were conducted as specified in the scope described in the Maintenance Plan and included as Appendix M of the Basis of Design Report, Phase 1A BMAs, South River AOC 4 (Anchor QEA et al., 2016). The purpose of the inspections is to identify potential BMA maintenance needs, focusing on vegetative development, bank stability, and the integrity of the installed bank remediation features.

Additional attachments to this memorandum include maintenance inspection field sheets, photographic logs and Cap Area Inspection Records for each BMA as follows:

- Attachment A – Constitution Park BMA
- Attachment B – City Shops BMA
- Attachment C – Allied Ready Mix BMA
- Attachment D – Shiloh Baptist Church BMA
- Attachment E – North Park BMA

### **FINDINGS**

#### **Constitution Park**

The 2021 leaf-off maintenance inspection conducted at the Constitution Park BMA documented largely stable bank conditions. Heavy pedestrian traffic particularly along improvised access paths and along the toe of slope is limiting vegetation establishment but does not appear to be affecting the overall integrity of the bank treatment. Erosion control fabric and coir logs are mostly decomposed as designed.

A brief summary of findings is provided below; complete details of the maintenance inspection including maintenance inspection field sheets, photographic logs and the Cap Area Inspection Record are provided in Attachment A.

#### ***Vegetation***

- Planted native vegetation was present throughout the BMA and is becoming further established over time. Live stakes which were reinstalled in the spring/summer of 2019 were minimally established; herbaceous plugs installed at the same time are

continuing to establish where not impacted by foot traffic. There are still several large areas of bank where there is little to no vegetation established, leaving the bank vulnerable to erosion.

- Coverage of Japanese knotweed (*Fallopia japonica*) is prevalent throughout the BMA. These were established from small, localized patches after treatment in 2019; these areas will continue to be monitored and treated as needed with concentrated treatments.

### ***Stability***

- Consistent bank angles were documented, as constructed, throughout the BMA.
- Paths from extensive foot traffic accessing the bank and along the toe of slope were noted and appear to be limiting vegetation establishment especially along the toe of the slope. Limited areas of localized scour were documented.
- New at-risk tree at 00+450' leaning over the water with bark stripped at lower portion of trunk.

### ***Installed Features***

- Erosion control fabric was decomposed throughout most of the BMA as designed and will continue to become part of the detrital layer and will no longer be monitored moving forward .
- Rock toe features were intact, with increased sediment deposition filling in the interstices.
- Large woody debris (LWD) were stable, and anchor chains were intact.
- Coir logs were degraded as designed, particularly in areas of increased foot traffic along toe.
- The installed gravel access path is being utilized by the public but shows signs of wear with significant exposure of geocell present.
- Minimal scour and undercutting along the bottom steps of the constructed staircase from high water events

### **City Shops**

The maintenance inspection conducted at the City Shops BMA documented stable conditions throughout the BMA with minimal change compared to the previous leaf-on inspection conducted in June (AECOM, 2021b). Vegetation community is robust and thriving and bank stabilization features are intact and functioning as intended.

A brief summary of findings is provided below; complete details of the maintenance inspection including field sheets, photographic logs and the Cap Area Inspection Record are provided in Attachment B.

### ***Vegetation***

- The upper portions of the bank exhibited dense stands of native grasses, planted saplings and shrubs throughout the BMA.
- A small sycamore was documented leaning over the water at 00+500'. Many at-risk trees continue to be noted in the non-remediated section.

- Small patches of invasive Japanese knotweed are present throughout the BMA. The knotweed was previously treated with herbicide in Fall 2019 and will continue to be monitored and treated, as necessary.

***Stability***

- River banks generally maintained a consistent bank angle throughout the BMA as constructed, with no sign of surface erosion, scour, or undercutting at the toe of slope within the remediated portions of the BMA.
- There was no evidence of recent erosion or “at-risk” trees (e.g. trees that may no longer be stable due to erosion) within the remediated areas.
- An area of erosion upstream from the remedial footprint shows signs of significant scour, minimally vegetated bank, and extensive exposed at-risk tree roots; this area will continue to be monitored to identify potential impacts to the adjacent, downstream BMAs.

***Installed Features***

- Erosion control fabric was intact throughout the BMA and is beginning to degrade as designed. It will become part of the detrital layer over time and will no longer be monitored moving forward.
- The installed rock toe was intact and is continuing to show evidence of desired sediment deposition throughout.
- Previous inspections documented two installed LWD features that were displaced from their original positions at the City Shops BMA; they are currently stable and continue to be within the remedial project area. They will continue to be monitored and corrective actions will be implemented if warranted.

***Allied Ready Mix***

With little exception, the findings of the maintenance inspection conducted at the Allied Ready Mix BMA documented stable conditions throughout the BMA with minimal change compared to the previous leaf-on inspection conducted in June (AECOM, 2021c). Vegetative cover throughout the BMA is largely fully established with extensive natural recruitment occurring and very limited Japanese knotweed present.

A brief summary of findings is provided below; complete details of the maintenance inspection including field sheets, photographic logs and the Cap Area Inspection Record are provided in Attachment C.

***Vegetation***

- Robust growth of planted native vegetation and natural recruitment along the stone toe was noted throughout the BMA.
- Live stakes and plantings continue to become established with at least 50% survival; however, replacement live stakes planted in the spring/summer of 2019 show limited growth. Overall vegetation growth throughout bank is robust and well established.

***Stability***

- As built riverbank angles remained unchanged and consistent bank angles were maintained throughout the BMA as constructed.
- There were no “at-risk” trees (e.g. trees that may no longer be stable due to erosion) within the remediated portions of the BMA; however, one tree on the upper bank on

the other side of the access road snapped in half and is partially situated in the river and down the bank.

- Heavy foot traffic was noted along the upstream portion of the reach, particularly around location 00+00.
- Heavy erosion continues to be present downstream of the last remediated section of the BMA. The downstream terminus of the bank treatment will continue to be monitored for signs of back cutting, which may undermine the integrity of the bank.

### ***Installed Features***

- The stone toe was intact throughout the BMA, with sediment deposition filling in the interstices providing substrate for natural recruitment of native plant species.
- Rip rap fortified outfall culverts, the Steel Run confluence, and the bank abutment remain intact and functioning as designed.

### **Shiloh Baptist Church**

The maintenance inspection conducted at the Shiloh Baptist Church BMA documented stable conditions throughout the bank. Herbaceous vegetation is largely established with substantial bank cover (AECOM, 2021d); however, live stakes and other plantings are minimally established in most areas.

A brief summary of findings is provided below; complete details of the maintenance inspection including field sheets, photographic logs and the Cap Area Inspection Record are provided in Attachment D.

### ***Vegetation***

- Shrubs, and saplings are minimally established throughout bank. Live stakes are planted high on the bank above the rock toe and are not establishing.
- Large trees left in place during remediation along the BMA appear to be healthy and show no signs of stress.

### ***Stability***

- Consistent bank slopes were documented throughout the BMA with no indication of any changes from the as-built condition.
- Bank failure that occurred during late summer 2020 at section 00+550' to 00+650' and was repaired is stable; vegetation is establishing throughout that section of the repaired bank.
- There was no scour documented along the toe of slope, and there is no longer evidence of erosion from surface water runoff.
- At-risk trees (e.g. trees that may no longer be stable due to erosion) were not identified within the remediated areas.

### ***Installed Features***

- The installed rock toe was intact and showed no indication of movement.
- The armor-flex reinforced stormwater drain outlet at 00+350 was intact.
- The two corrugated plastic drainpipes installed under the Greenway below the Shiloh Baptist Church that divert stormwater away from the church and to the rock toe are damaged and may require corrective action when Greenway is paved.

### **North Park**

The inspection documented relatively stable conditions in the upstream and downstream portions of the BMA. In the downstream portion of the BMA where areas of exposed geocell and erosion was repaired, the bank is maintaining stability and vegetation is establishing since the leaf-on inspection (AECOM, 2021e). Live stakes and plantings are largely unestablished.

A brief summary of findings is provided below; complete details of the maintenance inspection including field sheets, photographic logs and the Cap Area Inspection Record are provided in Attachment E.

### ***Vegetation***

- Live stakes, shrubs, saplings, and seeded areas are minimally established at this time. Live stakes, especially in the upstream section of the BMA are planted high on the bank above the rock toe and are not establishing. Herbaceous vegetation is establishing throughout bank.
- Large trees left in place during remediation along the BMA appear to be healthy and show no signs of stress.

### ***Stability***

- Consistent bank slopes were documented throughout the BMA with no indication of any changes from the as-built condition.
- There was no scour documented along the toe of slope. Minimal erosion is evident throughout remediated bank, except for the non-remediated section which shows substantial erosion and at-risk vegetation with exposed roots.
- At-risk trees (e.g. trees that may no longer be stable due to erosion) were not identified within the remediated areas, but were present in the non-remediated area.

### ***Installed Features***

- The installed rock toe was largely intact. In the downstream remediated section, several cobbles from the rock toe below the walking path connecting the two staircases, were displaced or moved into the river. Displacement of the rock toe will continue to be monitored.
- The two staircases along the downstream portion of the BMA are intact with minimal erosion and scour under the bottom steps from high water. The kayak launch ramp along the first upstream staircase is intact.
- The walking path along the toe between the two staircases is intact with some erosion from high water events that has moved the stone dust top layer of the path exposing the larger grade blue stone beneath.
- The geocell present within the repaired bank area is no longer visible with intact erosion control fabric and established vegetation.

## **RECOMMENDATIONS**

Overall, stable conditions were documented at each BMA, with increased vegetation growth following restoration. Localized areas of erosion and exposed geocell should continue to be monitored for further degradation during the next maintenance inspection. Invasive species control efforts for Japanese knotweed have been helpful in slowing the recolonization of knotweed throughout the BMAs and should be continued as necessary until native vegetation communities become are well established.

## REFERENCES

AECOM 2021a. Constitution Park BMA - 2020 Leaf-on Maintenance Inspection, Former DuPont Waynesboro Site, Area of Concern 4. June 2020.

AECOM 2021b. City Shops BMA - 2020 Leaf-on Maintenance Inspection, Former DuPont Waynesboro Site, Area of Concern 4. June 2020.

AECOM 2021c. Allied Ready Mix BMA – 2020 Leaf-on Maintenance Inspection, Former DuPont Waynesboro Site, Area of Concern 4. June 2020.

AECOM 2021d. Shiloh Baptist Church BMA – 2020 Leaf-on Maintenance Inspection, Former Dupont Waynesboro Site, Area of Concern 4. June 2020.

AECOM 2021e. North Park BMA – 2020 Leaf-on Maintenance Inspection, Former Dupont Waynesboro Site, Area of Concern 4. June 2020.

Anchor QEA, AECOM, and E.I. du Pont de Nemours and Company. 2016. Basis of Design Report, Phase 1A Bank Management Areas, South River Area of Concern 4. September 2016.

Attachment A  
Constitution Park BMA



Attachment A - Table 1  
 2021 Leaf-off Maintenance Inspection Log  
 Constitution Park BMA  
 Former DuPont Waynesboro Site, Area of Concern 4


Station (ft) <sup>1</sup>	Station Photo #s	Undercutting			Exposed Roots		At Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection (Y/N)
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) <sup>2</sup>	Notes	Exposed Roots (L/M/H) <sup>3</sup>	Notes	At Risk Trees Present (Y/N) <sup>4</sup>	Notes	Rock Toe/LWD (Y/N) <sup>5</sup>	Geocell (Y/N) <sup>6</sup>	Erosion Control Fabric (Y/N) <sup>6</sup>	Notes	Scour Present (Y/N) <sup>7</sup>	Notes	
00 - 25	1, 2	30	N (see notes)	Lower bank: ~20 degrees Upper bank: ~55 degrees	L	No woody plants adjacent to edge of water	N	No trees adjacent to edge of water	NA	NA	NA	Geocell partially exposed along foot path	Y	Low presence of scour 5' upstream of 00 - 25. Slight erosion at waters edge	N
00 + 00	3, 4	40	N (see notes)	Lower bank: ~30 degrees Upper bank: ~55 degrees	NA	Live stakes not visible. 40% vegetation cover	N	No trees adjacent to edge of water	NA	Y	N	Geocell partially exposed below constructed gravel river access and along footpath; erosion control fabric deteriorated; Coir logs deteriorated.	Y	New second footpath. Geocell 20% exposed below constructed gravel river access. Erosion due to foot traffic. Undercutting present.	Y (no erosion control fabric visible, erosion has worsened, new second footpath)
00 + 50	5, 6	45	Y	Lower 3' of bank toe level	NA	20-30% invasive species cover. Live stakes not visible. 50% vegetation cover	N	No trees adjacent to edge of water. At-risk sycamore 20 ft downstream	NA	Y	Y	Geocell partially exposed where erosion control fabric deteriorating; Erosion control fabric torn at toe of slope and 70% exposed; Coir log deteriorated.	N	Evidence of foot traffic along the toe of slope	N
00 + 100	7, 8	40	N (see notes)	Lower bank ~10 degrees (rock toe); Upper bank ~45 degrees	NA	Live stakes not visible. 80% vegetation cover	N	No at-risk trees present	Y (rock toe)	N	Y	Rock toe along bank and constructed river access steps intact with undercutting under bottom steps. Erosion control fabric visible on side of steps	N	Sediment deposition adjacent to rock toe boulders	Y (No geocell visible, erosion control fabric visible)
00 + 150	9, 10, 11	45	N (see notes)	Lower bank <5 degrees (rock toe); Upper bank ~45 degrees	NA	Native vegetation predominantly present; Live stakes not visible; new footpath present. 95% vegetation cover	N	No trees adjacent to edge of water	Y (LWD and Rock toe)	N	N	Geocell partially exposed on bottom 1/2 of bank. Continue monitoring sediment deposition and accumulation of detrital layer.	Y	Silt filling in behind LWD and in boulders; scour at toe of bank	Y (No geocell or erosion control fabric visible in section - but visible just downstream)
00 + 200	12	55	Y		NA	Small patches of invasive vegetation present; live stakes minimally established. 75% vegetation cover	N	No trees adjacent to edge of water	NA	Y	Y	Geocell visible along lower bank, coir logs deteriorated,	Y	Evidence of foot traffic along the toe of slope, along coir logs; minimal scour along toe	Y (Geocell still exposed, but less than before. Increased undercutting)
00 + 250	13, 14	55	Y		NA	Patches of invasive vegetation present; Live stakes 20% established. 60% vegetation cover	N	No trees adjacent to edge of water	NA	Y	Y	Geocell exposed at toe below newly installed fabric. Erosion control fabric intact but exposed and above waterline; Coir logs decomposing as designed; foot traffic along toe of slope	Y	Localized scour present around exposed geocell	Y (Undercutting and new animal burrow by toe - burrowed through geocell)
00 + 300	15	70	Y		NA	Minimal vegetation present; live stakes 30% established. 40% vegetation cover	N	No trees adjacent to edge of water	NA	Y	Y	Geocell partially exposed on lower 1/2 of bank. Continue monitoring sediment deposition and accumulation of detrital layer.	Y	Scour at toe	Y (scour)
00 + 350	16, 17, 18, 19	70	Y		NA	Native vegetation present; live stakes 30% established. 20% vegetation cover	N	No trees adjacent to edge of water	NA	Y	Y	Geocell partially exposed on lower 1/2 of bank. Continue monitoring sediment deposition and accumulation of detrital layer. Foot traffic along toe of slope; geocell exposed around base of tree downstream	Y	Minimal scour present	N
00 + 400	20	60	Y		NA	Native vegetation present along top of bank with small patches of invasive knoeweed at toe of slope; live stakes 20% established. 40% vegetation cover	N	No at-risk trees present	NA	N	Y	Erosion control fabric exposed around tree.	Y	Slight scour present	Y (no geocell exposed)
00 + 450	21, 22	50	Y		NA	Minimal vegetation present; live stakes 20% established. 20% vegetation cover	Y	New at-risk tree present leaning over water, bark stripped from portion of trunk	NA	N	Y	Erosion control fabric exposed along toe of bank	Y	Undercutting	Y (New at-risk tree, cracking and leaning over water)
00 + 500	23, 24	40	Y	The bank design has a decreased vertical bank height (~4") compared to upstream monitoring stations	NA	Native vegetative present with patches of the invasive knoeweed; live stakes 30% established. 60% vegetation cover	N	No trees adjacent to edge of water	NA	Y	N	Geocell minimally exposed	Y	Undercutting	Y (Undercutting present)
00 + 525	25, 26	15	Y		NA	Predominantly native vegetation cover; live stakes 30% established. 60% vegetation cover	N	No trees adjacent to edge of water	NA	N	Y	Geocell minimally exposed near toe of bank; erosion control fabric degraded	N		N

Notes:


1. Inspection station is described as the distance (feet) upstream (-) or downstream (+) from the start of the BMA (00); for example, Station 00 + 50' is 50 feet downstream from the start of the BMA
2. A significant deviation from continuous bank slope or break in grade may be used as an indicator of undercutting; consistent bank grade is evaluated as Y (yes) or N (no)
3. The extent to which roots are exposed may provide a relative measure of the magnitude of apparent erosion; extent of exposed roots is evaluated as L (low), M (moderate), H (high), or NA (not applicable- no exposed roots)
4. At-risk trees (i.e., trees that lean towards the river) typically have a greater potential to fall into the river and dislodge the bank soil and erosion-control products immediately around and above the tree; presence of at-risk trees is evaluated as Y (yes) or N (no)
5. Installed rock (toe and large woody debris (LWD)) features are monitored to ensure that they are anchored and determine whether material has sloughed, or been eroded, or moved downstream; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
6. Installed geocell and erosion control fabric are monitored to ensure that they are intact and determine whether material is exposed or visible; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
7. The presence of local scour is assessed at the toe and center of the bank, per inspection station, as well as approximately 25 feet upstream and downstream of the start and end of the BMA; the presence of scour is evaluated as Y (yes) or N (no)

# South River Photolog Constitution Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 01		<b>Location:</b> 00 – 25'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> West			
<b>Description:</b> Lower bank ~20°; upper bank ~55°; no woody plants or trees adjacent to edge of water; moderate erosion at water's edge.			


<b>Photo Number:</b> 02		<b>Location:</b> 00 – 25'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> Start of remediated bank - geocell exposed along foot path; some scour upstream of 00 – 25'.			

# South River Photolog Constitution Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 03		<b>Location:</b> 00 + 00'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> West			
<b>Description:</b> Lower bank ~30°; upper bank ~55°; live stakes not visible; 40% vegetation cover; no trees adjacent to edge of water; coir logs deteriorated; no erosion control fabric visible; moderate erosion mid to lower bank; new footpath; undercutting present.			


<b>Photo Number:</b> 04		<b>Location:</b> 00 + 00'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> West			
<b>Description:</b> Geocell slightly exposed below constructed gravel river access and along footpath; erosion control fabric deteriorated; erosion due to foot traffic.			

# South River Photolog Constitution Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 05		<b>Location:</b> 00 + 50'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> West			
<b>Description:</b> ~45° lower 3' of bank toe level; 20-30% invasive species cover; 50% vegetation cover; no trees adjacent to edge of water; at-risk sycamore 20 feet downstream.			


<b>Photo Number:</b> 06		<b>Location:</b> 00 + 50'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> West			
<b>Description:</b> Geocell minimally exposed where erosion control fabric deteriorating; evidence of foot traffic along the toe of slope.			


**South River Photolog  
Constitution Park BMA  
Bank Monitoring Memo**

<b>Photo Number: 07</b>		<b>Location: 00 + 100'</b>
<b>Date: 12/8/2021</b>		
<b>Direction: West</b>		
<b>Description:</b> Lower bank ~10°; upper bank ~45°; live stakes not visible; 80% vegetation cover; no at-risk trees present; sediment deposition adjacent to rock toe boulders.		


<b>Photo Number: 08</b>		<b>Location: 00 + 100'</b>
<b>Date: 12/8/2021</b>		
<b>Direction: West</b>		
<b>Description:</b> Rock toe along bank and constructed river access steps intact with undercutting under bottom steps; erosion control fabric visible on side of steps.		


# South River Photolog Constitution Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 09		<b>Location:</b> 00 + 150'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> West			
<b>Description:</b> Lower bank ~5°; upper bank ~45°; native vegetation predominantly present; live stakes not visible; 95% vegetation cover; no trees adjacent to edge of water; new footpath present.			


<b>Photo Number:</b> 10		<b>Location:</b> 00 + 150'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> Downstream view of bank remediation; significant geocell exposure along bank (~50 feet across bank by 3-4' height).			

# South River Photolog Constitution Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 11		<b>Location:</b> 00 + 150'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> Southwest			
<b>Description:</b> Upstream view of bank remediation; silt filling in rock toe; some scour at toe of bank.			

<b>Photo Number:</b> 12		<b>Location:</b> 00 + 200'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> West			
<b>Description:</b> ~55° bank angle; small patches of invasive vegetation present; 75% vegetation cover; geocell visible; evidence of foot traffic along the toe of slope; minimal scour along toe.			


# South River Photolog Constitution Park BMA Bank Monitoring Memo


<b>Photo Number:</b> 13		<b>Location:</b> 00 + 250'
<b>Date:</b> 12/8/2021		
<b>Direction:</b> West		
<b>Description:</b> ~55° bank angle; patches of invasive vegetation present; live stakes 20% established; 60% vegetation cover; no trees adjacent to edge of water.		

<b>Photo Number:</b> 14		<b>Location:</b> 00 + 250'
<b>Date:</b> 12/8/2021		
<b>Direction:</b> West		
<b>Description:</b> Geocell partially exposed at toe below newly installed fabric; foot traffic along toe of slope; some localized scour present around exposed geocell.		





# South River Photolog Constitution Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 15		<b>Location:</b> 00+300'
<b>Date:</b> 12/8/2021		
<b>Direction:</b> West		
<b>Description:</b> ~70° bank angle; minimal vegetation present; live stakes 30% established; 40% vegetation cover; geocell partially exposed along lower half of bank; localized scour at toe.		

<b>Photo Number:</b> 16		<b>Location:</b> 00+350'
<b>Date:</b> 12/8/2021		
<b>Direction:</b> West		
<b>Description:</b> ~70° bank angle; minimal vegetation present; live stakes 30% established; 40% vegetation cover; geocell partially exposed; no trees adjacent to edge of water.		


# South River Photolog Constitution Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 17		<b>Location:</b> 00+350'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> Downstream view of bank remediation; scour at toe.			


<b>Photo Number:</b> 18		<b>Location:</b> 00+350'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> Southwest			
<b>Description:</b> Upstream view of bank remediation; minimal vegetation cover; geocell partially exposed; scour at toe.			


# South River Photolog Constitution Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 19		<b>Location:</b> 00+350'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> West			
<b>Description:</b> Geocell exposed across mid- to lower bank face.			

<b>Photo Number:</b> 20		<b>Location:</b> 00+400'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> West			
<b>Description:</b> ~60° bank angle; native vegetation present along top of bank with small patches of invasive knotweed at toe of slope; live stakes 20% established; 40% vegetation cover; erosion control fabric exposed around tree and degraded; slight scour present.			

# South River Photolog Constitution Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 21		<b>Location:</b> 00+450'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> West			
<b>Description:</b> ~50° bank angle; minimal vegetation present; live stakes 20% established; 20% vegetation cover.			


<b>Photo Number:</b> 22		<b>Location:</b> 00+450'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> Southwest			
<b>Description:</b> Upstream view of bank remediation; at-risk tree present, bark stripped from portion of trunk; moderate undercutting at toe.			


# South River Photolog Constitution Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 23		<b>Location:</b> 00+500'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> West			
<b>Description:</b> ~40° bank angle; native vegetative present with patches of invasive knotweed; live stakes 30% established; 60% vegetation cover; geocell minimally exposed; minimal undercutting at toe.			

<b>Photo Number:</b> 24		<b>Location:</b> 00+500'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> Downstream view of bank remediation; no trees adjacent to edge of water; geocell minimally exposed.			

# South River Photolog Constitution Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 25		<b>Location:</b> 00+525'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> West			
<b>Description:</b> ~15° bank angle; predominantly native vegetation cover; live stakes 30% established; 60% vegetation cover; no trees adjacent to edge of water.			

<b>Photo Number:</b> 26		<b>Location:</b> 00+525'	
<b>Date:</b> 12/8/2021			
<b>Direction:</b> Southwest			
<b>Description:</b> Upstream view of bank remediation; geocell minimally exposed near toe of bank; erosion control fabric degraded.			

**Attachment A - Waynesboro Off-Site Cap Areas**

**Inspection Record Sheet**

**Maintenance Plan**

Location and property owner name: <b>Constitution Park BMA</b>		
<b>Item</b>	<b>Status/Maintenance Needs</b>	<b>Repairs Needed?</b>
Access Roads	NA	NA
Trails	Stairs, greenway, and gravel path intact, but showing wear. Several new trails down to the river. Undercutting on bottom steps of constructed staircase and around trails.	1
Drainage Structures	Drainage structures intact	1
Outfall Structures	Outfall structures intact	1
Rip-Rap Protection	Rip-rap intact	1
Cap System Vegetative Cover	Native vegetation cover establishing, several access paths with trampled vegetation along toe of slope and down bank. Small patches of invasive knotweed still exist. Live stakes are less than 20% established. Continue to manage invasive knotweed and bare spots around banks	2
Cap System Geosynthetics	Localized areas of scour on mid- to lower portion of bank face around Station 00+350. Continue to monitor for sediment deposition/increased detrital layer.	1
Cap System Slope Stability	Slope is generally consistent and stable	1
Cap System Subsidence	None	1
Fencing and Gates	Fencing intact	1

Notes:

1. Functioning properly; no repairs needed
2. Repairs needed (describe why, what, and where), but not time critical
3. Time critical repair needed (describe what and where)

Comments:

Inspected by: Bill Storm and Sarah Bartle

Date: Dec 8, 2021

Attachment B  
City Shops BMA



Attachment B - Table 1  
2021 Leaf-off Maintenance Inspection Log  
City Shops BMA  
Former DuPont Waynesboro Site, Area of Concern 4

Station (ft) <sup>1</sup>	Station Photo #s	Undercutting			Exposed Roots		At Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection (Y/N)
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) <sup>2</sup>	Notes	Exposed Roots (L /M /H) <sup>3</sup>	Notes	At Risk Trees Present (Y/N) <sup>4</sup>	Notes	Rock Toe/LWD (Y/N) <sup>5</sup>	Geocell exposed (Y/N) <sup>6</sup>	Erosion Control Fabric exposed (Y/N) <sup>6</sup>	Notes	Scour Present (Y/N) <sup>7</sup>	Notes	
00 - 25	1, 2	85	Y		H	High quantity of exposed roots on the bank; 25% vegetated; grasses establishing by rock toe base	Y	At risk trees present	NA	NA	NA		Y	Scour present throughout	N
00 + 00	3	70	N (see notes)	Beginning of first remediation area. Lower bank; ~60 degrees Upper bank; ~80 degrees	N	No woody plants adjacent to edge of water; vegetation fully established; grasses establishing by rock toe base	N	No woody plants adjacent to edge of water	Y	N	N		Y	Some scour present from rock toe to mid bank upstream of remediation	N
00 + 50	4, 5	45	Y		N	Predominantly native vegetation along top of rock toe; vegetation fully established; grasses establishing by rock toe base	N	No woody plants adjacent to edge of water	Y (LWD and Rock toe)	N	N	Rock toe intact; LWD intact; sediment filling behind LWD	N	No scour present along rock toe	N
00 + 100	6	45	Y		N	Predominantly native vegetation along top of rock toe; flood debris on rock toe; vegetation fully established; grasses establishing by rock toe base	N	No woody plants adjacent to edge of water	Y (LWD and Rock toe)	N	N	Rock toe intact; LWD intact	N	No scour present along rock toe	N
00 + 150	7	45	Y		NA	Predominantly native vegetation along top of rock toe; flood debris on rock toe; vegetation fully established; grasses establishing by rock toe base	N	No woody plants adjacent to edge of water	Y (LWD and Rock toe)	N	N	Rock toe intact; LWD intact	N	No scour present along rock toe	N
00 + 200	8	45	Y		NA	Predominantly native vegetation along top of rock toe; flood debris on rock toe; vegetation fully established; grasses establishing by rock toe base	N	No woody plants adjacent to edge of water	Y	N	N	Rock stairs and gate present on upper half of bank	N	No scour present along rock toe; outfall pipe present within rock toe	N
00 + 250	9	45	Y		NA	Predominantly native vegetation along top of rock toe; flood debris on rock toe; vegetation fully established; grasses establishing by rock toe base	N	No woody plants adjacent to edge of water	Y (LWD and Rock toe)	N	N	Rock toe intact; LWD intact	N	No scour present along rock toe	Y (Geocell no longer visible)
00 + 300	10	45	Y		NA	Predominantly native vegetation along top of rock toe; flood debris on rock toe; vegetation fully established; grasses establishing by rock toe base	Y	Smallest old growth sycamore appears dead. Tree leaning heavily over water at 80 degree angle.	Y (LWD and Rock toe)	N	N	Rock toe intact; LWD intact	N	No scour present along rock toe	Y (tree close to falling over into water)
00 + 350	11, 12, 13	45	Y		NA	Vegetation largely absent following outfall repair	N	No at risk trees present	Y (LWD and Rock toe)	N	N	Outfall pipe repaired 10/2020 with 12" diameter pipe; rock toe replaced around pipe	N	Scour present from storm drain disturbance	N
00 + 400	14	45	Y		NA	Predominantly native vegetation along top of rock toe; vegetation fully established; flood debris on rock toe	N	No at risk trees present	Y (LWD and Rock toe)	N	Y	Erosion control fabric exposed on upper bank by Posted tree; Rock toe intact; upstream LWD has shifted and is parallel with another piece of installed LWD downstream of 00 +400'	Y	No scour present along rock toe; two outfall pipes present within rock toe	Y (Geocell no longer visible)
00 + 450	15	45	Y		NA	Native vegetation along top of rock toe; vegetation fully established; some large trees present	N	No at risk trees present	Y (LWD and Rock toe)	N	Y	Erosion control fabric exposed at top of bank and around tree bases; Rock toe intact;	N	No scour present along rock toe	N
00 + 500	16, 17, 18	45	Y	End of first remediation area	NA	Native vegetation along top of rock toe; vegetation fully established; some large trees present	Y	Small sycamore on midbank leaning over river at 45 degrees.	Y	N	N	Rock toe intact	N	No scour present along rock toe	Y (at-risk tree. Erosion fabric no longer visible)

Attachment B - Table 1  
 2021 Leaf-off Maintenance Inspection Log  
 City Shops BMA  
 Former DuPont Waynesboro Site, Area of Concern 4


00 + 550	19	70	Y	Start of unremediated area. Significant bank erosion and undercutting	H	Lower bank consists mostly of exposed roots	Y	Several large trees with exposed roots hanging over the river	NA	NA	NA	Section was not remediated	Y	Entire lower bank shows large amounts of scour	N
00 + 600	20	75	Y	Significant bank erosion and undercutting	H	Lower bank consists mostly of exposed roots	Y	Many exposed roots along the lower bank	NA	NA	NA	Section was not remediated	Y	Entire lower bank shows large amounts of scour	N
00 + 650	21, 22	85	Y	Very significant bank erosion and undercutting	H	Bank consists mostly of exposed roots	Y	At risk trees present along the upper bank.	NA	NA	NA	Section was not remediated	Y	Entire bank shows large amounts of scour	N
00 + 700	23	90	Y	Very significant bank erosion and undercutting. End of unremediated area	H	Bank consists mostly of exposed roots	Y	At risk trees present along the upper bank.	NA	NA	NA	Section was not remediated	Y	Entire bank shows large amounts of scour	N
00 + 750	24, 25, 26	90	N (see notes)	Beginning of second remediated area. Upstream bank; ~90 degrees, downstream bank; ~45 degrees	M	Upper bank upstream of the remediation consists mostly of exposed roots; vegetation established above rock toe	Y	At risk trees present upstream of rock toe	Y	N	N	Beginning of second remediated section; Rock toe intact	Y	Large amounts of scour above rock toe	N
00 + 800	27	40	Y		NA	Planted vegetation well established above rock toe	N	No at risk trees present	Y (LWD and Rock toe)	N	N	Rock toe intact; LWD intact	N	No scour present along rock toe	N
00 + 850	28, 29, 30	25	N (see notes)	Lower bank; ~25 degrees Upper bank; ~30 degrees	NA	Planted vegetation well established above rock toe	N	No at risk trees present	N (LWD) Y (Rock toe)	N	N	Rock toe intact; LWD moved from its installed position. The root ball side of the installed LWD has pivoted downstream from its original position and is now angled into the river.	N	No scour present along rock toe	Y (Erosion control fabric no longer visible)
00 + 880	31, 32	20	Y		NA	Planted vegetation well established above rock toe	N	No woody plants adjacent to edge of water	Y (Rock toe)	N	N	Rock toe intact; sediment filling around shifted LWD	N	No scour present along rock toe and lower bank	Y (Erosion control fabric no longer visible)

**Notes:**

- 1, Inspection station is described as the distance (feet) upstream (-) or downstream (+) from the start of the BMA (00); for example, Station 00 + 50' is 50 feet downstream from the start of the BMA
- 2, A significant deviation from continuous bank slope or break in grade may be used as an indicator of undercutting; consistent bank grade is evaluated as Y (yes) or N (no)
- 3, The extent to which roots are exposed may provide a relative measure of the magnitude of apparent erosion; extent of exposed roots is evaluated as L (low), M (moderate), H (high), or NA (not applicable- no exposed roots)
- 4, At-risk trees (i.e., trees that lean towards the river) typically have a greater potential to fall into the river and dislodge the bank soil and erosion-control products immediately around and above the tree; presence of at-risk trees is evaluated as Y (yes) or N (no)
- 5, Installed rock toe and large woody debris (LWD) features are monitored to ensure that they are anchored and determine whether material has sloughed, or been eroded, or moved downstream; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
- 6, Installed geocell and erosion control fabric are monitored to ensure that they are intact and determine whether material is exposed or visible; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
- 7, The presence of local scour is assessed at the toe and center of the bank, per inspection station, as well as approximately 25 feet upstream and downstream of the start and end of the BMA; the presence of scour is evaluated as Y (yes) or N (no)

Grey shaded cells from 00+550 to 00+700 are portions of the bank that were not remediated.

Photo Number: 01		Location: 00-25'	
Date: 12/7/2021			
Direction: Northwest			
Description: Upstream of remediated area; ~85° bank angle; high quantity of exposed roots; 25% vegetated; scour present.			

Photo Number: 02		Location: 00-25'	
Date: 12/7/2021			
Direction: Northeast			
Description: Downstream view of start of remediated area; grasses establishing by rock toe; at risk trees present; scour present at toe.			

South River Photolog  
City Shops BMA  
Bank Monitoring Memo


Photo Number: 03		Location: 00+00'	
Date: 12/7/2021			
Direction: Northwest			
<p>Description: Start of remediated area; lower bank ~60°; upper bank ~80°; no woody plants adjacent to edge of water; vegetation fully established and grasses establishing by rock toe; no woody plants adjacent to edge of water; some scour present from rock toe to mid bank upstream of remediation.</p>			

Photo Number: 04		Location: 00+50'	
Date: 12/7/2021			
Direction: Northwest			
<p>Description: ~45° bank angle; predominantly native vegetation above rock toe; vegetation fully established; grasses establishing in rock toe; no woody plants adjacent to edge of water.</p>			

Photo Number: 05		Location: 00+50'	
Date: 12/7/2021			
Direction: Northeast			
Description: Downstream view of bank remediation; rock toe intact; LWD intact; sediment filling behind LWD.			


Photo Number: 06		Location: 00+100'	
Date: 12/7/2021			
Direction: Northwest			
Description: ~45° bank angle; predominantly native vegetation above rock toe; flood debris on rock toe; vegetation fully established; grasses establishing in rock toe; no woody plants adjacent to edge of water; LWD intact.			

Photo Number: 07		Location: 00+150'	
Date: 12/7/2021			
Direction: Northwest			
<p>Description: ~45° bank angle; predominantly native vegetation above rock toe; flood debris on rock toe; vegetation fully established; grasses establishing in rock toe; no woody plants adjacent to edge of water; rock toe intact; LWD intact.</p>			


Photo Number: 08		Location: 00+200'	
Date: 12/7/2021			
Direction: Northwest			
<p>Description: ~45° bank angle; predominantly native vegetation; flood debris on top of rock toe; vegetation fully established and grasses establishing in rock toe; no woody plants adjacent to edge of water; stairs and gate intact; outfall intact.</p>			

Photo Number: 09		Location: 00+250'	
Date: 12/7/2021			
Direction: Northwest			
<p><b>Description:</b> ~45° bank angle; predominantly native vegetation above rock toe; flood debris on rock toe; vegetation fully established; grasses establishing in rock toe; no woody plants adjacent to edge of water; rock toe intact; LWD intact.</p>			


Photo Number: 10		Location: 00+300'	
Date: 12/7/2021			
Direction: Northwest			
<p><b>Description:</b> ~45° bank angle; predominantly native vegetation; flood debris along top of rock toe; vegetation fully established and grasses establishing in rock toe; smallest old growth sycamore appears dead; at risk tree present; rock toe intact; LWD intact.</p>			

Photo Number: 11		Location: 00+350'	
Date: 12/7/2021			
Direction: Northwest			
Description: ~45° bank angle; sparse vegetation after outfall repair - outfall pipe repaired 10/2020 with 12" diameter pipe; no at- risk trees present; rock toe replaced around pipe; scour present from storm drain disturbance.			


Photo Number: 12		Location: 00+350'	
Date: 12/7/2021			
Direction: Southwest			
Description: Upstream view of bank remediation; sparse vegetation; no at-risk trees present.			



Photo Number: 13		Location: 00+350'	
Date: 12/7/2021			
Direction: Northeast			
Description: Downstream view of bank remediation; no at-risk trees present.			


Photo Number: 14		Location: 00+400'	
Date: 12/7/2021			
Direction: Northwest			
Description: ~45° bank angle; predominantly native vegetation with flood debris on top of intact rock toe; vegetation fully established; no at-risk trees present; erosion control fabric exposed on upper bank; upstream LWD shifted and is parallel to downstream LWD; outfall pipes intact.			


Photo Number: 15		Location: 00+450'	
Date: 12/7/2021			
Direction: Northwest			
Description: ~45° bank angle; native vegetation above rock toe; vegetation fully established; no at-risk trees present; erosion control fabric exposed at top of bank and around tree bases; rock toe intact.			



Photo Number: 16		Location: 00+500'	
Date: 12/7/2021			
Direction: Northwest			
Description: ~45° bank angle; end of 1 <sup>st</sup> remediated section; native vegetation above rock toe; vegetation fully established; small at- risk sycamore on mid- bank; rock toe intact.			

Photo Number: 17		Location: 00+500'	
Date: 12/7/2021			
Direction: Southeast			
Description: Upstream view of the end of the 1 <sup>st</sup> remediated section; vegetation fully established; rock toe intact.			

Photo Number: 18		Location: 00+500'	
Date: 12/7/2021			
Direction: Northeast			
Description: Downstream view of the end of the 1 <sup>st</sup> remediated section; significant erosion and scour; at-risk trees present.			

South River Photolog  
City Shops BMA  
Bank Monitoring Memo


Photo Number: 19		Location: 00+550'	
Date: 12/7/2021			
Direction: Northwest			
Description: Non-remediated area; ~70° bank angle; significant bank erosion and undercutting; high density of exposed roots; several large at-risk; significant scour lower bank.			


Photo Number: 20		Location: 00+600'	
Date: 12/7/2021			
Direction: Northwest			
Description: Non-remediated area; ~75° bank angle; significant bank erosion and undercutting; high density of exposed roots; significant scour lower bank.			

Photo Number: 21		Location: 00+650'	
Date: 12/7/2021			
Direction: Northwest			
Description: Non-remediated area; ~85° bank angle; significant bank erosion and undercutting; high density of exposed roots; at-risk trees present along the upper bank; significant scour.			



Photo Number: 22		Location: 00+650'	
Date: 12/7/2021			
Direction: Northwest			
Description: Non-remediated area; significant bank erosion and undercutting; high density of exposed roots; at-risk trees present along the upper bank.			

Photo Number: 23		Location: 00+700'	
Date: 12/7/2021			
Direction: Northwest			
Description: Non-remediated area; ~90° bank angle; significant bank erosion and undercutting; high density of exposed roots; at-risk trees present along the upper bank; significant scour.			

Photo Number: 24		Location: 00+750'	
Date: 12/7/2021			
Direction: Northwest			
Description: Start of 2 <sup>nd</sup> remediated area; upstream (non-remediated) bank ~90°; downstream (remediated) bank ~45°; vegetation established above rock toe.			

Photo Number: 25		Location: 00+750'	
Date: 12/7/2021			
Direction: Southeast			
Description: Upstream view of the non-remediated area; at-risk trees present upstream; upstream of the remediation has high density of exposed roots.			

Photo Number: 26		Location: 00+750'	
Date: 12/7/2021			
Direction: Northeast			
Description: Downstream view of the start of the 2 <sup>nd</sup> remediated section; LWD intact; rock toe intact; scour above rock toe.			

South River Photolog  
City Shops BMA  
Bank Monitoring Memo



Photo Number: 27		Location: 00+800'	
Date: 12/7/2021			
Direction: Northwest			
Description: ~40° bank angle; vegetation established above rock toe; no at-risk trees present; rock toe intact; LWD intact.			

Photo Number: 28		Location: 00+850'	
Date: 12/7/2021			
Direction: Northwest			
Description: lower bank ~25°; upper bank ~30°; vegetation established above rock toe; no at-risk trees present.			



South River Photolog  
City Shops BMA  
Bank Monitoring Memo




Photo Number: 29	Location: 00+850'
Date: 12/7/2021	
Direction: Southeast	
Description: Upstream view of remediated bank; rock toe intact; LWD intact; vegetation established.	

Photo Number: 30	Location: 00+850'
Date: 12/7/2021	
Direction: Northeast	
Description: Downstream view of remediated bank; rock toe intact; LWD shifted downstream from its original position and is angled into the river.	

South River Photolog  
City Shops BMA  
Bank Monitoring Memo

Photo Number: 31	Location: 00+880'
Date: 12/7/2021	
Direction: Northwest	
Description: ~20° bank angle; vegetation established above rock toe; no woody plants adjacent to edge of water; rock toe intact; LWD shifted downstream from its original position and is angled into the river; sediment deposition behind shifted LWD.	

Photo Number: 32	Location: 00+880'
Date: 12/7/2021	
Direction: Southeast	
Description: Upstream view of remediated bank; sediment deposition around shifted LWD.	

**Attachment B - Waynesboro Off-Site Cap Areas**

**Inspection Record Sheet**

**Maintenance Plan**

Location and property owner name: <b>City Shops BMA</b>		
<b>Item</b>	<b>Status/Maintenance Needs</b>	<b>Repairs Needed?</b>
Access Roads	NA	NA
Trails	Stairs intact	1
Drainage Structures	Drainage structures intact	1
Outfall Structures	Daylighted outfall pipe replaced with 12" diameter pipe and rock toe around outfall still intact	1
Rip-Rap Protection	Rip-rap intact	1
Cap System Vegetative Cover	Plantings healthy and have been effective in preventing the colonization of invasive plants. The cap system is primarily covered in vegetation.	1
Cap System Geosynthetics	Cap system intact	1
Cap System Slope Stability	Slope is consistent and stable along remediation	1
Cap System Subsidence	None observed	1
Fencing and Gates	Fencing and gates intact	1

Notes:

1. Functioning properly; no repairs needed
2. Repairs needed (describe why, what, and where), but not time critical
3. Time critical repair needed (describe what and where)

Comments:

LWD shifted downstream at 400' and 880' remains intact

Inspected by: Bill Storm and Sarah Bartle

Date: Dec 7, 2021

Attachment C  
Allied Ready Mix BMA


Attachment C - Table 1  
2021 Leaf-off Maintenance Inspection log  
Allied Ready Mix BMA  
Former DuPont Waynesboro Site, Area of Concern 4

Station (ft) <sup>1</sup>	Station Photo #s	Undercutting			Exposed Roots		At Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection (Y/N)
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) <sup>2</sup>	Notes	Exposed Roots (L/M/H) <sup>3</sup>	Notes	At Risk Trees Present (Y/N) <sup>4</sup>	Notes	Rock Toe/LWD (Y/N) <sup>5</sup>	Geocell exposed (Y/N) <sup>6</sup>	Erosion Control Fabric exposed (Y/N) <sup>6</sup>	Notes	Scour Present (Y/N) <sup>7</sup>	Notes	
00 + 20	1, 2	20	Y		NA	No woody vegetation established adjacent to water; native herbaceous vegetation fully established	N	No woody plants adjacent to edge of water	NA	NA	NA	No fabric or geocell installed; upstream of remediation	Y	Heavy foot traffic present along bank	N
00 + 00	3	45	Y	Start of first remediation section	NA	Few live stakes observed; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	Y	Heavy foot traffic present along bank; sand deposition above rock toe	Y (Erosion control fabric and geocell no longer exposed)
00 + 50	4	50	Y		NA	Few live stakes observed; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Scour present where fabric is torn; sand deposition at toe of bank.	Y (Erosion control fabric and geocell no longer exposed)
00 + 100	5, 6	50	Y		NA	Few live stakes observed; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N		Y (Erosion control fabric and geocell no longer exposed)
00 + 150	7	50	Y		NA	Live stakes 60% established; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Sand deposition at toe of bank.	Y (Erosion control fabric no longer exposed)
00 + 200	8	50	Y		NA	Live stakes 70% established; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Sand deposition at toe of bank.	N
00 + 250	9	50	Y		NA	Live stakes 60% established; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Sand deposition at toe of bank.	N
00 + 300	10	40	Y		NA	Few live stakes observed; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact; Footpath	N	Sand deposition at toe of bank.	N
00 + 350	11	40	Y		NA	No live stakes observed; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Sand deposition at toe of bank.	N
00 + 400	12	50	Y		NA	No live stakes observed; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact; outfall drainage structure intact	N	Sand deposition at toe of bank.	N
00 + 450	13	50	Y		NA	No live stakes observed; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	no exposure	N	Sand deposition at toe of bank.	N
00 + 500	14	40	Y		NA	No live stakes observed; native herbaceous vegetation fully established	N	No at-risk trees present; new LWD from upper bank tree snapping in half	Y(Rock Toe)	N	N	Rock toe intact	N	Sand deposition at toe of bank and above rock toe.	Y (New LWD across bank and into the water a few feet)
00 + 550	15, 16	30	N	Lower bank; ~20 degrees Upper bank; ~40 degrees	NA	No live stakes observed; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Sand deposition at toe of bank. Significant debris on plateau between lower and upper bank due to flooding	Y (Significant debris on plateau between lower and upper bank due to flooding; plateau between banks is much more pronounced)
00 + 600	17	30	N	Lower bank; ~20 degrees Upper bank; ~40 degrees	NA	No live stakes observed; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Sand deposition at toe of bank. Significant debris on plateau between lower and upper bank due to flooding	Y (Significant debris on plateau between lower and upper bank due to flooding; plateau between banks is much more pronounced)
00 + 650	18	30	N	Lower bank; ~20 degrees Upper bank; ~40 degrees	NA	Live stakes 20% established; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Sand deposition at toe of bank. Significant debris on plateau between lower and upper bank due to flooding	Y (Significant debris on plateau between lower and upper bank due to flooding; plateau between banks is much more pronounced)
00 + 700	19, 20, 21	30	N	Lower bank; ~20 degrees Upper bank; ~40 degrees	NA	Live stakes 20% established; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Sand deposition at toe of bank. Significant debris on plateau between lower and upper bank due to flooding	Y (Significant debris on plateau between lower and upper bank due to flooding; plateau between banks is much more pronounced)
00 + 750	22	30	N	End of first remediation section Lower bank; ~20 degrees Upper bank; ~40 degrees	NA	No live stakes observed; native herbaceous vegetation fully established	N	No at-risk trees present in remediated area	Y(Rock Toe)	N	N	Rock toe intact	N	Sand deposition at toe of bank. Significant debris on plateau between lower and upper bank due to flooding	Y (Significant debris on plateau between lower and upper bank due to flooding; plateau between banks is much more pronounced)
00 + 1250	23, 24, 25	20	N	Start of second remediation section Non-remediated upstream section; ~80 degrees Remediated section; ~40 degrees	H	Exposed roots just upstream of remediated bank; native herbaceous vegetation fully established	Y	One large at risk tree just upstream of remediated bank	Y(Rock Toe)	N	N	Entirely rip rap portion of bank; remediation downstream	N	scour upstream of remediated section	N
00 + 1300	26	20	Y	Fortified tributary channel	NA	No exposed roots; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Entirely rip rap portion of bank	N		N
00 + 1350	27	50	Y		NA	Live stakes 20% established; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N		N
00 + 1400	28, 29	80	Y		NA	Live stakes 50% established; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N		N
00 + 1450	30	80	Y		NA	Live stakes 50% established; native herbaceous vegetation fully established	N	No at-risk trees present	Y(Rock Toe)	N	N	No exposure; Rip rap fortified bank abutment intact	N		N
00 + 1500	31, 32, 33	90	Y	End of second remediation section; Bank heavily undercut downstream of remediation	H	Severe root exposure downstream of remediated bank; native herbaceous vegetation fully established	Y	High density of at risk trees downstream of remediated bank	NA	NA	NA	No fabric or geocell installed; downstream of remediation	Y	Heavy erosion present downstream of remediated BMA	N

**Notes:**


- 1, Inspection station is described as the distance (feet) upstream (-) or downstream (+) from the start of the BMA (00); for example, Station 00 + 50' is 50 feet downstream from the start of the BMA
- 2, A significant deviation from continuous bank slope or break in grade may be used as an indicator of undercutting; consistent bank grade is evaluated as Y (yes) or N (no)
- 3, The extent to which roots are exposed may provide a relative measure of the magnitude of apparent erosion; extent of exposed roots is evaluated as L (low), M (moderate), H (high), or NA (not applicable- no exposed roots)
- 4, At-risk trees (i.e., trees that lean towards the river) typically have a greater potential to fall into the river and dislodge the bank soil and erosion-control products immediately around and above the tree; presence of at-risk trees is evaluated as Y (yes) or N (no)
- 5, Installed rock toe and large woody debris (LWD) features are monitored to ensure that they are anchored and determine whether material has sloughed, or been eroded, or moved downstream; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
- 6, Installed geocell and erosion control fabric are monitored to ensure that they are intact and determine whether material is exposed or visible; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
- 7, The presence of local scour is assessed at the toe and center of the bank, per inspection station, as well as approximately 25 feet upstream and downstream of the start and end of the BMA; the presence of scour is evaluated as Y (yes) or N (no)

## South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 01		<b>Location:</b> 00-20'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> ~20° bank angle; no woody plants adjacent to edge of water; upstream of remediation; heavy foot traffic along bank is evident.			


<b>Photo Number:</b> 02		<b>Location:</b> 00-20'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> East			
<b>Description:</b> Downstream view from non-remediated section; no woody vegetation established adjacent to water; native herbaceous vegetation fully established.			

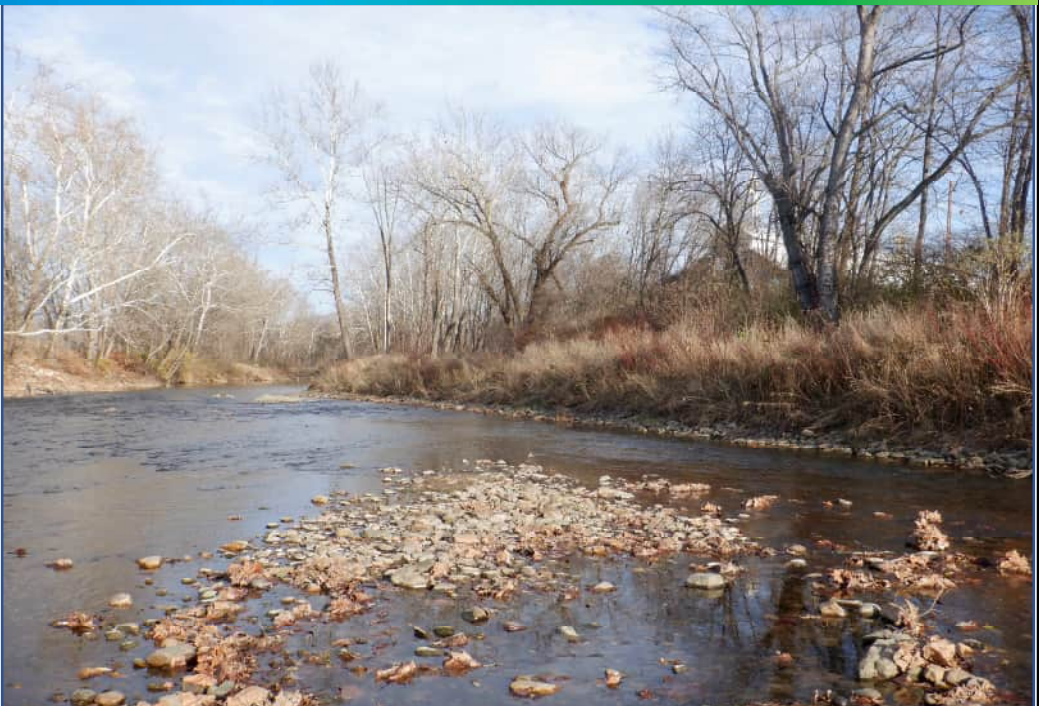
# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 03	<b>Location:</b> 00+00'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Southeast	
<b>Description:</b> ~45° bank angle; start of remediated bank; few live stakes observed; native vegetation fully established; no at-risk trees present; rock toe intact with sand deposition; trampled vegetation associated with foot traffic along bank.	

<b>Photo Number:</b> 04	<b>Location:</b> 00+50'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Southeast	
<b>Description:</b> ~50° bank angle; few live stakes observed; vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank.	

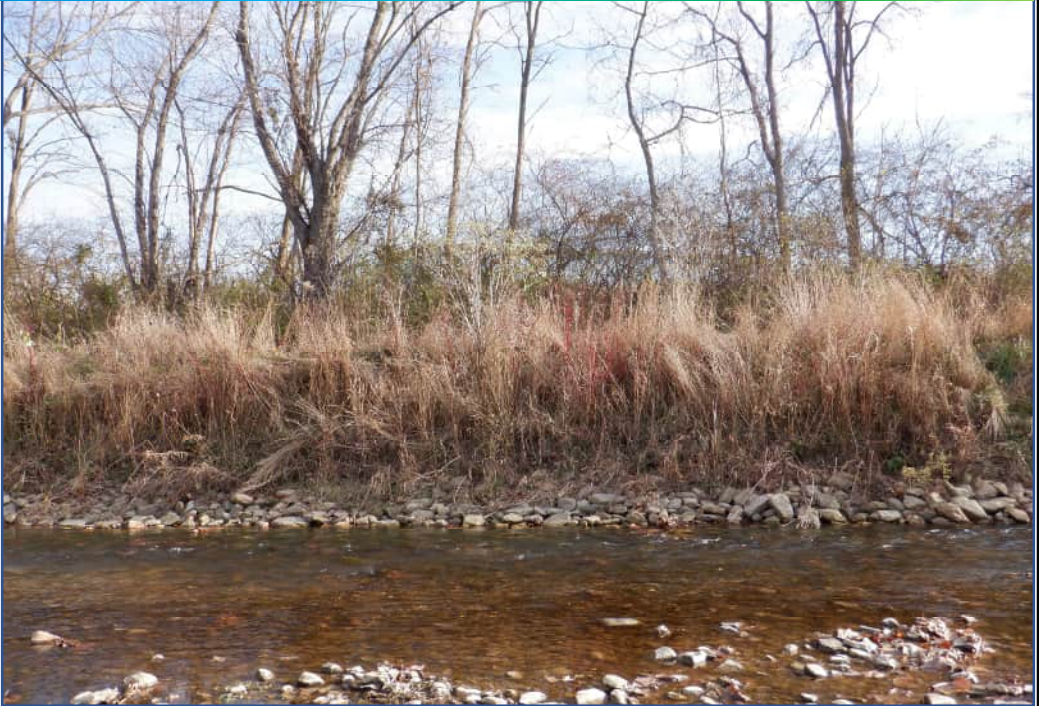
# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 05		<b>Location:</b> 00+100'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> ~50° bank angle; few live stakes observed; herbaceous vegetation fully established; no at-risk trees present; rock toe intact.			

<b>Photo Number:</b> 06		<b>Location:</b> 00+100'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> East			
<b>Description:</b> Downstream view of remediated bank; vegetation fully established; no at-risk trees present.			



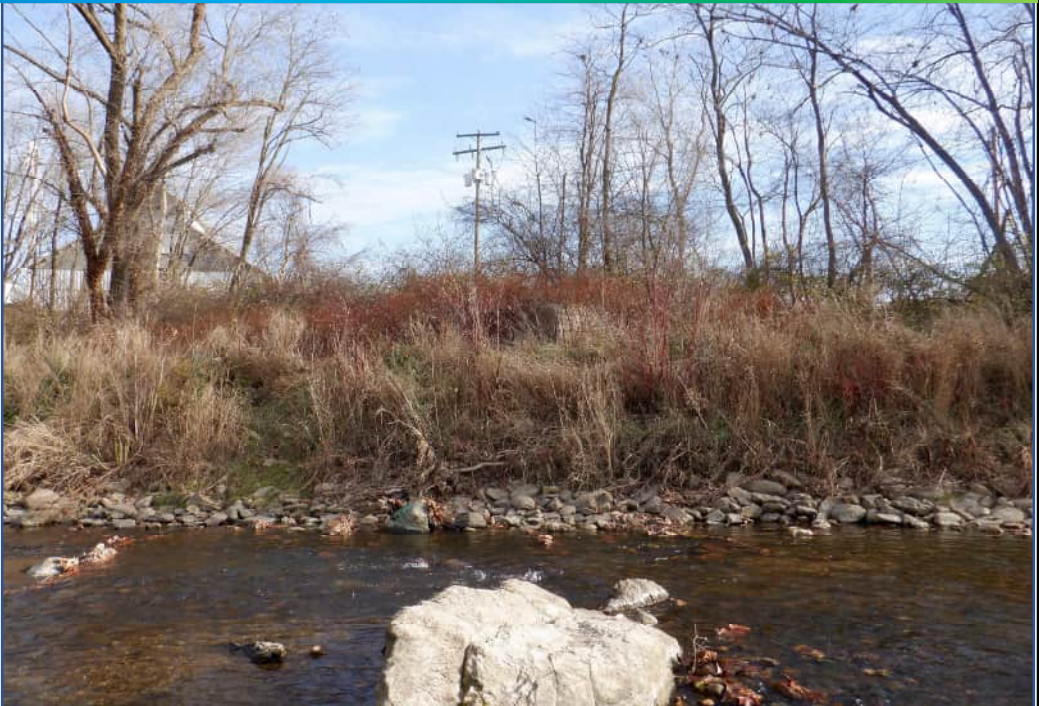
# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 07		<b>Location:</b> 00+150'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> ~50° bank angle; live stakes 60% established; herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank.			


<b>Photo Number:</b> 08		<b>Location:</b> 0+200'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> ~50° bank angle; live stakes 70% established; herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank.			

# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 09		<b>Location:</b> 00+250'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> ~50° bank angle; live stakes 60% established; herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank.			


<b>Photo Number:</b> 10		<b>Location:</b> 00+300'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> ~40° bank angle; few live stakes observed; herbaceous vegetation fully established; no at-risk trees present; rock toe intact; footpath present; sand deposition at toe of bank.			

# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 11	<b>Location:</b> 00+350'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Southeast	
<b>Description:</b> ~40° bank angle; no live stakes observed; herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank.	

<b>Photo Number:</b> 12	<b>Location:</b> 00+400'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Southeast	
<b>Description:</b> ~50° bank angle; no live stakes observed; herbaceous vegetation fully established; no at-risk trees present; rock toe intact; outfall drainage structure intact; sand deposition at toe of bank.	


# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 13		<b>Location:</b> 00+450'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> ~50° bank angle; no live stakes observed; herbaceous vegetation fully established; no at-risk trees present; sand deposition at toe of bank.			

<b>Photo Number:</b> 14		<b>Location:</b> 00+500'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> ~40° bank angle; no live stakes observed; herbaceous vegetation fully established; no at-risk trees present; new LWD from snapped tree from upper bank; rock toe intact; sand deposition at toe of bank and above rock toe.			

# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 15		<b>Location:</b> 00+550'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> Lower bank ~20°; upper bank ~40°; no live stakes observed; herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank.			


<b>Photo Number:</b> 16		<b>Location:</b> 00+550'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> East			
<b>Description:</b> Downstream view of remediated bank; debris on plateau above rock toe due to flooding; plateau above rock toe becoming more pronounced.			


South River Photolog  
 Allied Ready Mix BMA  
 Bank Monitoring Memo

<b>Photo Number:</b> 17 <span style="float: right;"><b>Location:</b> 00+600'</span>	
<b>Date:</b> 12/7/2021 <hr/> <b>Direction:</b> Southeast <hr/> <b>Description:</b> Lower bank ~20°; upper bank ~40°; no live stakes observed; herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank; debris on plateau above rock toe from flooding; plateau above rock toe more pronounced.	

<b>Photo Number:</b> 18 <span style="float: right;"><b>Location:</b> 00+650'</span>	
<b>Date:</b> 12/7/2021 <hr/> <b>Direction:</b> Southeast <hr/> <b>Description:</b> Lower bank ~20°; upper bank ~40°; live stakes 20% established; herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank; debris on plateau above rock toe from flooding; plateau is much more pronounced.	


# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 19		<b>Location:</b> 00+700'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> Lower bank ~20°; upper bank ~40°; live stakes 20% established; herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sand deposition at toe of bank.			

<b>Photo Number:</b> 20		<b>Location:</b> 00+700'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> East			
<b>Description:</b> Downstream view of remediated bank; herbaceous vegetation fully established; no at-risk trees present.			


# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

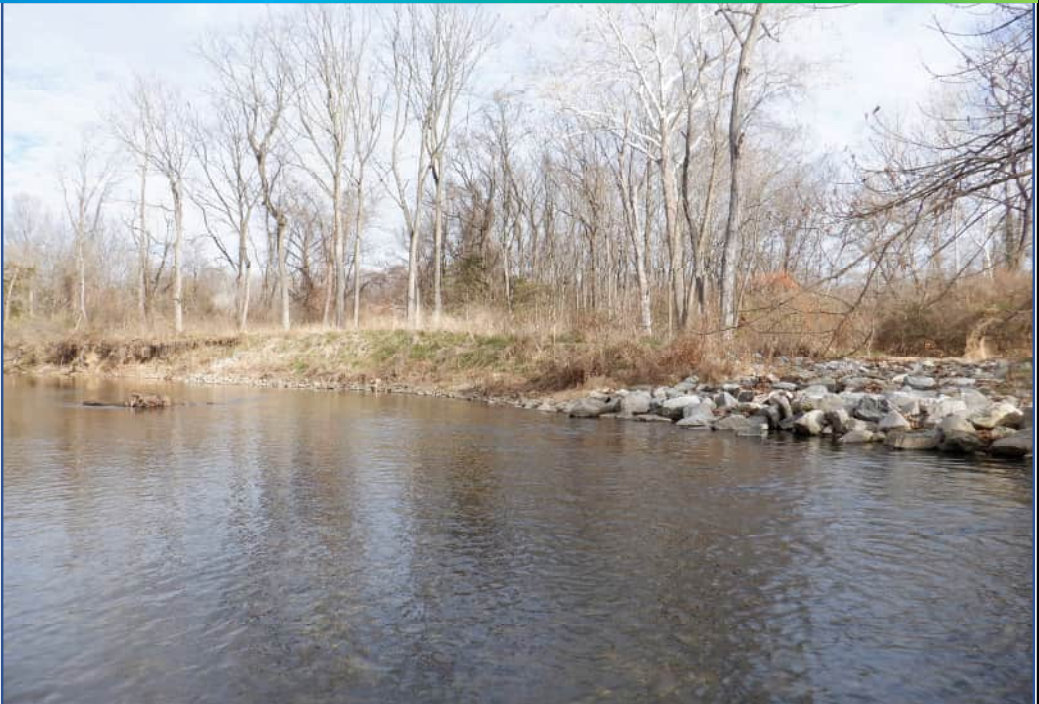
<b>Photo Number:</b> 21		<b>Location:</b> 00+700'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> South			
<b>Description:</b> Upstream view of remediated bank; herbaceous vegetation fully established; no at-risk trees present; rock toe intact; sediment deposition at toe of bank.			

<b>Photo Number:</b> 22		<b>Location:</b> 00+750'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> End of 1 <sup>st</sup> remediated section; lower bank ~20°; upper bank ~40°; no live stakes observed; herbaceous vegetation fully established; no at-risk trees in remediated area; rock toe intact; sediment deposition at toe of bank.			




# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 23		<b>Location:</b> 00+1250'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Southeast		
<b>Description:</b> Start of 2 <sup>nd</sup> remediated section; bank angle non-remediated upstream section ~80°; remediated section ~40°; exposed roots just upstream of remediated bank; herbaceous vegetation fully established; one large at-risk tree upstream of remediated bank.		


<b>Photo Number:</b> 24		<b>Location:</b> 00+1250'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> East		
<b>Description:</b> Downstream view of start of 2 <sup>nd</sup> remediated bank; entirely rip rap portion of bank; remediation downstream.		


# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 25		<b>Location:</b> 00+1250'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> South			
<b>Description:</b> Upstream view from start of 2 <sup>nd</sup> remediated bank; scour upstream of remediated section.			

<b>Photo Number:</b> 26		<b>Location:</b> 00+1300'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> ~20° bank angle; fortified tributary channel; no exposed roots; herbaceous vegetation fully established around channel; no at-risk trees present; entirely rip rap portion of bank.			


# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 27		<b>Location:</b> 00+1350'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> ~50° bank angle; live stakes 20% established; herbaceous vegetation fully established; no at-risk trees present; rock toe intact.			

<b>Photo Number:</b> 28		<b>Location:</b> 00+1400'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> ~80° bank angle; live stakes 50% established; herbaceous vegetation fully established; no at-risk trees present; rock toe intact.			

# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 29		<b>Location:</b> 00+1400'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> East			
<b>Description:</b> Downstream view of remediated bank; herbaceous vegetation fully established; no at-risk trees present; rock toe intact.			

<b>Photo Number:</b> 30		<b>Location:</b> 00+1450'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Southeast			
<b>Description:</b> ~80° bank angle; live stakes 50% established; herbaceous vegetation fully established; no at-risk trees present; rip rap bank abutment intact.			

# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

<b>Photo Number:</b> 31		<b>Location:</b> 00+1500'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Southeast		
<b>Description:</b> ~90° bank angle; end of 2 <sup>nd</sup> remediated section; herbaceous vegetation established; significant erosion present downstream of remediated BMA.		

<b>Photo Number:</b> 32		<b>Location:</b> 00+1500'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> East		
<b>Description:</b> Downstream view of end of 2 <sup>nd</sup> remediated section; bank heavily undercut downstream of remediation; severe root exposure downstream of remediated bank; high density of at-risk trees downstream of remediated bank.		

# South River Photolog Allied Ready Mix BMA Bank Monitoring Memo

**Photo Number:** 33

**Location:** 00+1500'

**Date:** 12/7/2021

**Direction:** South

**Description:**  
Upstream view of  
remediated bank;  
herbaceous  
vegetation  
established; rock toe  
intact.



**Attachment C - Waynesboro Off-Site Cap Areas**

**Inspection Record Sheet**

**Maintenance Plan**

Location and property owner name: <b>Allied Ready Mix BMA</b>		
<b>Item</b>	<b>Status/Maintenance Needs</b>	<b>Repairs Needed?</b>
Access Roads	Some washout of gravel access road near fortified tributary channel	1
Trails	Some improvised civilian pathways present near upstream and downstream portions of BMA	1
Drainage Structures	Drainage structures intact	1
Outfall Structures	Outfall structures intact	1
Rip-Rap Protection	Rip-rap intact	1
Cap System Vegetative Cover	Live stakes installed in spring of 2019, some have established along the bank others are gone; native vegetation has covered all the erosion control fabric, particularly in the downstream portion of the BMA	1
Cap System Geosynthetics	Erosion control fabric is not exposed in any areas and vegetation appears healthy and established.	1
Cap System Slope Stability	Slope is generally consistent and stable along BMA; heavy erosion present downstream of secondary remediated BMA.	1
Cap System Subsidence	No cap system subsidence observed	1
Fencing and Gates	Fencing and gates intact.	1

Notes:

1. Functioning properly; no repairs needed
2. Repairs needed (describe why, what, and where), but not time critical
3. Time critical repair needed (describe what and where)

Comments:

Inspected by: Bill Storm and Sarah Bartle

Date: Dec 7, 2021

Attachment D  
Shiloh Baptist Church BMA




Attachment D - Table 1  
 2021 Leaf-off Maintenance Inspection Log  
 Shiloh Baptist Church BMA  
 Former DuPont Waynesboro Site, Area of Concern 4

Station (R) <sup>1</sup>	Station Photo #s	Undercutting			Exposed Roots		At Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection (Y/N)
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) <sup>2</sup>	Notes	Exposed Roots (L/M/H) <sup>3</sup>	Notes	At Risk Trees Present (Y/N) <sup>4</sup>	Notes	Rock Toe/LWD (Y/N) <sup>5</sup>	Geocell exposed (Y/N) <sup>6</sup>	Erosion Control Fabric exposed (Y/N) <sup>6</sup>	Notes	Scour Present (Y/N) <sup>7</sup>	Notes	
00 - 25	1	30	N	Level shelf mid bank but grade above and below are the same	M	Some vegetation; exposed roots along bank; access pathways present; vegetation 50% cover	N	No at-risk trees present	NA	NA	NA	Upstream of remediation	Y	Minimal scour present	N
00 + 00	2	45	Y		M	Live stakes and plantings minimally established; minimal grasses established; vegetation 75% cover	Y	Small trees adjacent to edge of water	Y(Rock Toe)	N	N	No exposure; culvert just upstream of remediation	Y	Evidence of sediment deposition in rock toe under concrete by culvert	N
00 + 50	3, 4, 5	65	Y		N	Live stakes and plantings removed from bank by someone; minimal grasses established; vegetation 95% cover	N	No trees adjacent to edge of water	Y(Rock Toe)	N	N	No exposure; rock toe intact	N	Evidence of sediment deposition in rock toe	N
00 + 100	6	50	N	Lower bank; ~40 degrees Upper bank; ~60 degrees	N	Live stakes and plantings removed from bank by someone; minimal grasses established; vegetation 95% cover	N	No trees adjacent to edge of water	Y(Rock Toe)	N	N	No exposure; rock toe intact; footpath present	N	Evidence of sediment deposition in rock toe	N
00 + 150	7, 8	50	N	Lower bank; ~40 degrees Upper bank; ~60 degrees Above GW; ~50 degrees	N	Live stakes and plantings removed from bank by someone; minimal grasses established; vegetation 95% cover	N	No trees adjacent to edge of water	Y(Rock Toe)	N	N	Evidence of surface water runoff above GW	N	Evidence of sediment deposition in rock toe	Y (Erosion control fabric no longer visible)
00 + 200	9	50	Y	Lower bank; ~40 degrees Upper bank; ~50 degrees Above GW; ~50 degrees	N	Vegetation 95% cover	N	No trees adjacent to edge of water	Y(Rock Toe)	N	N	No exposure; footpath present; rock toe intact; plastic corrugated pipe exposed on bank above GW	N	Evidence of sediment deposition in rock toe	N
00 + 250	10, 11	55	N	Lower bank; ~45 degrees Upper bank; ~65 degrees Above GW; ~70 degrees	N	Native herbaceous vegetation establishing; plantings installed above and below GW intact; 40% of area above GW is exposed; vegetation 95% cover otherwise	N	No trees adjacent to edge of water	Y(Rock Toe)	Y	Y		N	Evidence of sediment deposition in rock toe	Y (Geocell exposed above Greenway)
00 + 300	12	65	N	Lower bank; ~45 degrees Upper bank; ~80 degrees Above GW; ~70 degrees	N	Plantings intact but some missing above GW; live stakes not established some grass cover; vegetation 90% cover	N	No trees adjacent to edge of water	Y(Rock Toe)	Y	Y	Erosion control fabric and Geocell exposed above the GW; drainage pipe across GW cut; rock toe intact; GW intact; Geocell also exposed on lower bank just downstream	N	Evidence of sediment deposition in rock toe	Y (Geocell exposed above Greenway)
00 + 350	13, 14, 15	50	Y		N	Plantings intact downstream of culvert and grasses establishing upstream of culvert; live stakes not establishing; vegetation 95% cover	N	No trees adjacent to edge of water	Y(Rock Toe)	N	N	Entirely riprap; large plastic corrugated pipe and Armorflex mat installed and intact;	N	Gravel deposition at outfall	N
00 + 400	16	50	N	Lower bank; ~45 degrees Upper bank; ~50 degrees	N	Live stakes and plantings not establishing; some grasses established; vegetation 95% cover	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Evidence of sediment deposition in rock toe	N
00 + 450	17, 18	50	N	Lower bank; ~45 degrees Upper bank; ~55 degrees	N	Live stakes and plantings not establishing; some grasses established; vegetation and tree growth in rock toe; vegetation 95% cover	N	No trees adjacent to edge of water	Y(Rock Toe)	N	N	Rock toe intact; Some evidence of erosion from runoff from Riverside Drive.	N	Evidence of sediment deposition in rock toe	Y (Erosion control fabric no longer visible)
00 + 500	19	55	N	Lower bank; ~45 degrees Upper bank; ~65 degrees	N	Installed live stakes and plantings not establishing; vegetation 70% cover	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Evidence of sediment deposition in rock toe	Y (Erosion control fabric no longer visible)
00 + 550	20, 21, 22	65	N	Lower bank; ~60 degrees Upper bank; ~70 degrees	N	Reseeded grasses not establishing on failed bank section; vegetation 20% cover; 80% dead grass	N	No trees adjacent to edge of water	Y(Rock Toe)	N	N	Rock toe intact; repaired bank intact	N	Evidence of sediment deposition in rock toe	Y (Erosion control fabric no longer visible; grasses no longer established)
00 + 600	23	70	Y		N	Reseeded grasses not establishing on failed bank section; 30% cover; 70% dead grass	N	No trees adjacent to edge of water	Y(Rock Toe)	N	N	Rock toe intact	N	Evidence of sediment deposition in rock toe	Y (Erosion control fabric no longer visible; grasses no longer established)
00 + 650	24	65	N	Lower bank; ~60 degrees Upper bank; ~70 degrees; end of repaired section	N	Installed live stakes and plantings not establishing; thick mats of dead grasses; vegetation 80% cover; bank 20% exposed - more exposed just upstream in repaired area	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Evidence of sediment deposition in rock toe	Y (Vegetation establishing throughout bank)
00 + 700	25	65	Y		N	Installed live stakes and plantings not establishing; thick mats of dead grasses; vegetation 80% cover	N	No trees adjacent to edge of water	Y(Rock Toe)	N	N	Rock toe intact; erosion and foot traffic by memorial on side of GW	N	Evidence of sediment deposition in rock toe	N
00 + 750	26	60	Y		N	Live stakes and plantings not established; grasses established; vegetation 95% cover	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Evidence of sediment deposition in rock toe	N
00 + 800	27	65	Y		N	Live stakes and plantings not established; grasses established; vegetation 80% cover	N	No trees adjacent to edge of water	Y(Rock Toe)	N	N	Rock toe intact; couch on top of bank	N	Evidence of sediment deposition in rock toe	N
00 + 850	28	65	Y		N	Live stakes and plantings not established; grasses established; vegetation 95% cover	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Evidence of sediment deposition in rock toe	N
00 + 900	29, 30, 31	70	Y		N	Live stakes and plantings not established; grasses established; vegetation 75% cover	N	No trees adjacent to edge of water	Y(Rock Toe)	N	N	Rock toe intact	N	Evidence of sediment deposition in rock toe	N
00 + 950	32	65	N	Lower bank; ~70 degrees Upper bank; ~60 degrees	N	Grasses established along upper bank; vegetation 90% cover	N	No at-risk trees present	Y(Rock Toe)	N	N	Rock toe intact	N	Evidence of sediment deposition in rock toe	N
00 + 975	33, 34, 35	60	Y	End of remediation	N	Grasses established along upper bank; vegetation 90% cover	Y	Exposed roots and at risk trees present downstream of remediation	Y(Rock Toe)	N	N	Rock toe intact	Y	Evidence of sediment deposition; scour present downstream of remediation	N


Notes:  
 1. Inspection station is described as the distance (feet) upstream (-) or downstream (+) from the start of the BMA (00); for example, Station 00 + 50' is 50 feet downstream from the start of the BMA  
 2. A significant deviation from continuous bank slope or break in grade may be used as an indicator of undercutting; consistent bank grade is evaluated as Y (yes) or N (no)  
 3. The extent to which roots are exposed may provide a relative measure of the magnitude of apparent erosion; extent of exposed roots is evaluated as L (low), M (moderate), H (high), or NA (not applicable - no exposed roots)  
 4. At-risk trees (i.e., trees that lean towards the river) typically have a greater potential to fall into the river and dislodge the bank soil and erosion control products immediately around and above the tree; presence of at-risk trees is evaluated as Y (yes) or N (no)  
 5. Installed rock toe and large woody debris (LWD) features are monitored to ensure that they are anchored and determine whether material has sloughed, or been eroded, or moved downstream; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable - no installed features to monitor)  
 6. Installed geocell and erosion control fabric are monitored to ensure that they are intact and determine whether material is exposed or visible; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable - no installed features to monitor)  
 7. The presence of local scour is assessed at the toe and center of the bank, per inspection station, as well as approximately 25 feet upstream and downstream of the start and end of the BMA; the presence of scour is evaluated as Y (yes) or N (no)

## South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo

<b>Photo Number:</b> 01	<b>Location:</b> 00-25'
<b>Date:</b> 12/6/2021	
<b>Direction:</b> West	
<b>Description:</b> Upstream of remediation; ~ 30° bank angle; moderate vegetation, 50% cover; exposed roots along bank; access pathways present; no at-risk trees present; minimal scour present.	


<b>Photo Number:</b> 02	<b>Location:</b> 00+00'
<b>Date:</b> 12/6/2021	
<b>Direction:</b> West	
<b>Description:</b> ~ 45° bank angle; live stakes and plantings minimally established; vegetation establishing, 75% cover; small trees adjacent to edge of water; culvert intact; sediment deposition in rock toe.	

## South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo

<b>Photo Number:</b> 03	<b>Location:</b> 00+50'
<b>Date:</b> 12/6/2021	
<b>Direction:</b> West	
<b>Description:</b> ~ 65° bank angle; live stakes and plantings previously removed from bank; vegetation establishing, 95% cover; no trees adjacent to edge of water; rock toe intact; sediment deposition in rock toe.	


<b>Photo Number:</b> 04	<b>Location:</b> 00+50'
<b>Date:</b> 12/6/2021	
<b>Direction:</b> Southwest	
<b>Description:</b> Upstream view of remediated bank; rock toe intact; sediment deposition in rock toe.	

**South River Photolog  
Shiloh Baptist Church BMA  
Bank Monitoring Memo**

<b>Photo Number:</b> 05		<b>Location:</b> 00+50'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> North			
<b>Description:</b> Downstream view of remediated bank; rock toe intact; herbaceous vegetation establishing.			


<b>Photo Number:</b> 06		<b>Location:</b> 00+100'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> lower bank ~40°; upper bank ~60°; live stakes and plantings previously removed from bank; vegetation establishing, 95% cover; no trees adjacent to edge of water; rock toe intact; footpath present; sediment deposition in rock toe.			


### South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo

<b>Photo Number:</b> 07		<b>Location:</b> 00+150'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> lower bank ~40°; upper bank ~60°; above greenway ~60°; live stakes and plantings removed from bank; vegetation establishing, 95% cover; no trees adjacent to edge of water; sediment deposition in rock toe.			


<b>Photo Number:</b> 08		<b>Location:</b> 00+150'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> Evidence of surface water runoff above greenway; live stakes and plantings removed from bank; vegetation establishing; erosion control fabric no longer visible.			


## South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo

<b>Photo Number:</b> 09		<b>Location:</b> 00+200'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> lower bank ~40°; upper bank ~60°; above greenway ~60°; vegetation establishing, 95% cover; footpath present; rock toe intact; plastic corrugated pipe exposed on bank above greenway; sediment deposition in rock toe.			


<b>Photo Number:</b> 10		<b>Location:</b> 00+250'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> lower bank ~45°; upper bank ~65°; above greenway ~70°; vegetation establishing; no trees adjacent to edge of water; sediment deposition in rock toe.			


**South River Photolog  
Shiloh Baptist Church BMA  
Bank Monitoring Memo**

<b>Photo Number:</b> 11	<b>Location:</b> 00+250'
<b>Date:</b> 12/6/2021	
<b>Direction:</b> West	
<p><b>Description:</b> Herbaceous vegetation establishing; plantings installed above and below greenway intact; 40% of bank above greenway exposed; geocell minimally exposed above greenway.</p>	

<b>Photo Number:</b> 12	<b>Location:</b> 00+300'
<b>Date:</b> 12/6/2021	
<b>Direction:</b> West	
<p><b>Description:</b> lower bank ~45°; upper bank ~80°; above greenway ~70°; plantings intact; live stakes not established; vegetation establishing, 90% cover; erosion control fabric and geocell exposed above greenway; corrugated pipe above greenway damaged; rock toe intact with sediment deposition.</p>	


**South River Photolog  
Shiloh Baptist Church BMA  
Bank Monitoring Memo**


<b>Photo Number:</b> 13		<b>Location:</b> 00+350'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> ~ 65° bank angle; live stakes not establishing; vegetation establishing; 95% cover; no trees adjacent to edge of water; large plastic corrugated pipe and Armorflex mat intact; gravel deposition at outfall.			

<b>Photo Number:</b> 14		<b>Location:</b> 00+350'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> South			
<b>Description:</b> Upstream view of remediated bank; vegetation establishing; rock toe intact.			




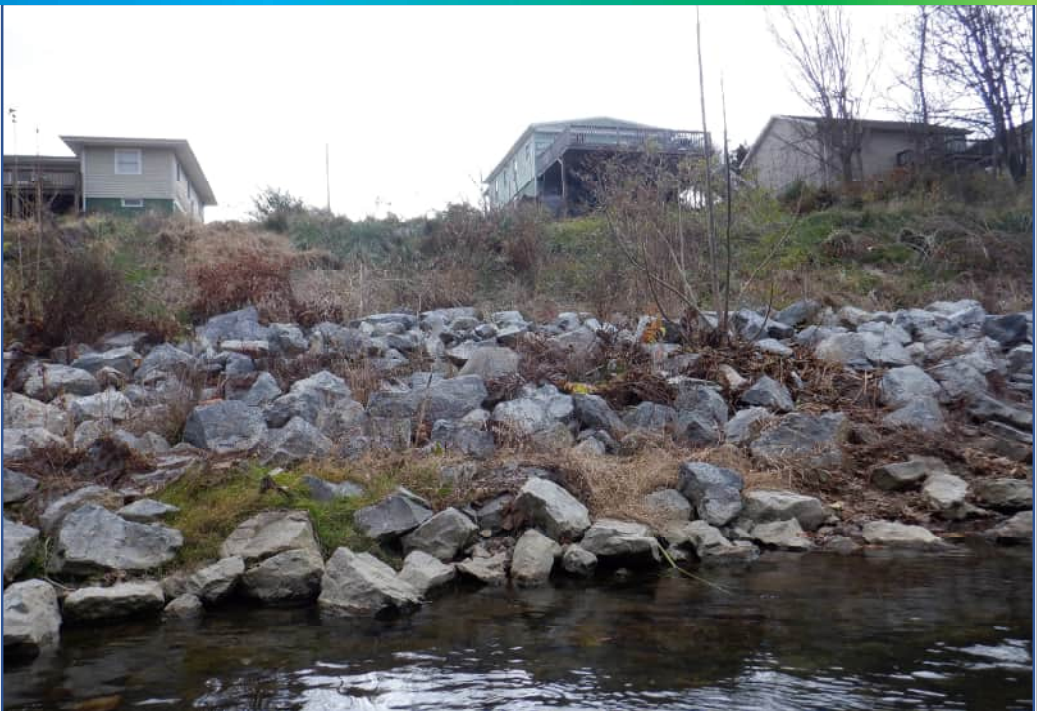
## South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo

<b>Photo Number:</b> 15	<b>Location:</b> 00+350'
<b>Date:</b> 12/6/2021	
<b>Direction:</b> North	
<b>Description:</b> Downstream view of remediated bank; plantings intact; vegetation establishing; rock toe intact.	


<b>Photo Number:</b> 16	<b>Location:</b> 00+400'
<b>Date:</b> 12/6/2021	
<b>Direction:</b> West	
<b>Description:</b> lower bank ~45°; upper bank ~50°; live stakes and plantings not establishing; vegetation establishing, 95% cover; no at-risk trees present; rock toe intact; sediment deposition in rock toe.	


**South River Photolog  
Shiloh Baptist Church BMA  
Bank Monitoring Memo**

<b>Photo Number:</b> 17		<b>Location:</b> 00+450'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> lower bank ~45°; upper bank ~55°; live stakes and plantings not establishing; vegetation establishing, 95% cover; sapling growth in rock toe; rock toe intact.			


<b>Photo Number:</b> 18		<b>Location:</b> 00+450'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> Some evidence of erosion from runoff from Riverside Drive; sediment deposition in rock toe; sapling and grasses establishing in rock toe.			


**South River Photolog  
Shiloh Baptist Church BMA  
Bank Monitoring Memo**

<p><b>Photo Number:</b> 19 <span style="float: right;"><b>Location:</b> 00+500'</span></p>	
<p><b>Date:</b> 12/6/2021</p> <hr/> <p><b>Direction:</b> West</p> <hr/> <p><b>Description:</b> lower bank; ~45°; upper bank; ~65°; installed live stakes and plantings not establishing; vegetation establishing, 70% cover; no at-risk trees present; rock toe intact; sediment deposition in rock toe.</p>	

<p><b>Photo Number:</b> 20 <span style="float: right;"><b>Location:</b> 00+550'</span></p>	
<p><b>Date:</b> 12/6/2021</p> <hr/> <p><b>Direction:</b> West</p> <hr/> <p><b>Description:</b> lower bank; ~60°; upper bank; ~70°; reseeded grasses not establishing on repaired bank section; vegetation 20% cover; no trees adjacent to edge of water; rock toe intact; repaired bank intact; sediment deposition in rock toe.</p>	

**South River Photolog  
Shiloh Baptist Church BMA  
Bank Monitoring Memo**

<b>Photo Number:</b> 21	<b>Location:</b> 00+550'
<b>Date:</b> 12/6/2021	
<b>Direction:</b> South	
<b>Description:</b> Upstream view of remediated bank; vegetation establishing; rock toe intact.	

<b>Photo Number:</b> 22	<b>Location:</b> 00+550'
<b>Date:</b> 12/6/2021	
<b>Direction:</b> North	
<b>Description:</b> Downstream view of remediated bank; reseeded grasses not establishing repaired bank section; vegetation 20% cover; rock toe intact.	


## South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo

<b>Photo Number:</b> 23		<b>Location:</b> 00+600'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> ~ 70° bank angle; reseeded grasses not establishing on repaired bank section; 30% cover; no trees adjacent to edge of water; rock toe intact; sediment deposition in rock toe.			


<b>Photo Number:</b> 24		<b>Location:</b> 00+650'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> lower bank ~60°; upper bank ~70°; end of repaired section; installed live stakes and plantings not establishing; vegetation 80% cover; no at-risk trees present; rock toe intact with evidence of sediment deposition.			

**South River Photolog  
Shiloh Baptist Church BMA  
Bank Monitoring Memo**

<b>Photo Number: 25</b>		<b>Location: 00+700'</b>	
<b>Date: 12/6/2021</b>			
<b>Direction: West</b>			
<b>Description:</b> ~ 65° bank angle; installed live stakes and plantings not establishing; 80% vegetation cover; no trees adjacent to edge of water; rock toe intact; sediment deposition in rock toe.			


<b>Photo Number: 26</b>		<b>Location: 00+750'</b>	
<b>Date: 12/6/2021</b>			
<b>Direction: West</b>			
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; rock toe intact; sediment deposition in rock toe.			


**South River Photolog  
Shiloh Baptist Church BMA  
Bank Monitoring Memo**

<b>Photo Number: 27</b>		<b>Location: 00+800'</b>	
<b>Date: 12/6/2021</b>			
<b>Direction: West</b>			
<b>Description:</b> ~ 65° bank angle; live stakes and plantings not established; 80% vegetation cover; no trees adjacent to edge of water; rock toe intact; sofa dumped on top of bank along greenway; sediment deposition in rock toe.			

<b>Photo Number: 28</b>		<b>Location: 00+850'</b>	
<b>Date: 12/6/2021</b>			
<b>Direction: West</b>			
<b>Description:</b> ~ 65° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; rock toe intact; sediment deposition in rock toe.			


# South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo


<b>Photo Number:</b> 29		<b>Location:</b> 00+900'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> ~ 70° bank angle; live stakes and plantings not established; 75% vegetation cover; no trees adjacent to edge of water; rock toe intact; sediment deposition in rock toe.			

<b>Photo Number:</b> 30		<b>Location:</b> 00+900'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> South			
<b>Description:</b> Upstream view of remediated bank; live stakes and plantings not established; vegetation establishing; rock toe intact.			




# South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo

<b>Photo Number:</b> 31		<b>Location:</b> 00+900'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> North			
<b>Description:</b> Downstream view of remediated bank; live stakes and plantings not established; vegetation establishing; rock toe intact; sediment deposition in rock toe.			


<b>Photo Number:</b> 32		<b>Location:</b> 00+950'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> lower bank ~70°; upper bank ~60°; 90% vegetation cover; no at-risk trees present; rock toe intact; sediment deposition in rock toe.			

# South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo

<b>Photo Number:</b> 33		<b>Location:</b> 00+975'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> West			
<b>Description:</b> ~ 60° bank angle; end of remediation; 90% vegetation cover; rock toe intact; sediment deposition in rock toe.			

<b>Photo Number:</b> 34		<b>Location:</b> 00+975'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> South			
<b>Description:</b> Upstream view of remediated bank; grasses establishing; rock toe intact.			

# South River Photolog Shiloh Baptist Church BMA Bank Monitoring Memo

<b>Photo Number:</b> 35		<b>Location:</b> 00+975'	
<b>Date:</b> 12/6/2021			
<b>Direction:</b> North			
<b>Description:</b> Downstream view from end of remediated bank; exposed roots and at-risk trees present downstream of remediation; scour present in non-remediated section.			

## Attachment D - Waynesboro Off-Site Cap Areas

### Inspection Record Sheet

#### Maintenance Plan

Location and property owner name: <b>Shiloh Baptist Church BMA</b>		
Item	Status/Maintenance Needs	Repairs Needed?
Access Roads	NA	NA
Trails	Road intact. Greenway construction not started	1
Drainage Structures	Two drainage structures intact. Corrugated drainage pipe buried beneath Greenway damaged at margins and should be reviewed/repared when greenway trail is paved.	2
Outfall Structures	Outfall structures intact	1
Rip-Rap Protection	Rip-rap intact	1
Cap System Vegetative Cover	Plantings and live stakes not established. Vegetative cover establishing. Live stakes not establishing and are planted high on bank above rock toe. Monitor vegetation establishment	2
Cap System Geosynthetics	Erosion control fabric and geocell minimally exposed on bank above Greenway by church property.	1
Cap System Slope Stability	Slope is consistent and stable along remediation. Section of bank from 00+550'-00+650' that failed late summer 2020 was repaired and seeded; grasses not establishing.	1
Cap System Subsidence	None observed	1
Fencing and Gates	Fencing and gates intact.	1

**Notes:**

1. Functioning properly; no repairs needed
2. Repairs needed (describe why, what, and where), but not time critical
3. Time critical repair needed (describe what and where)

Comments: vegetation establishing but need to add shrub and saplings to cover with regular watering. Failed section becoming established with herbaceous vegetation.

Inspected by: Bill Storm and Sarah Bartle

Date: Dec 6, 2020

Attachment E  
North Park BMA

Attachment E - Table 1  
 2021 Leaf-Off Maintenance Inspection Log  
 North Park BMA  
 Former DuPont Waynesboro Site, Area of Concern 4

Station (ft) <sup>2</sup>	Station Photo #s	Undercutting			Exposed Roots		At Risk Trees		Installed Stabilization Features Intact				Local Scour		Overall Change Since Previous Inspection (Y/N)
		Approximate Bank Angle (Degrees)	Consistent Grade (Y/N) <sup>2</sup>	Notes	Exposed Roots (L / M / H) <sup>2</sup>	Notes	At Risk Trees Present (Y/N) <sup>2</sup>	Notes	Rock Toe/LWD (Y/N) <sup>2</sup>	Geocell exposed (Y/N) <sup>2</sup>	Erosion Control Fabric exposed (Y/N) <sup>2</sup>	Notes	Scour Present (Y/N) <sup>2</sup>	Notes	
00 - 25	1, 2, 3	70	Y	vertical drop at toe	H	undercut bank with exposed roots	N	no woody vegetation	NA	NA	NA	Upstream of remediation.	Y	Minimal scour present; bank undercut	N
00 + 00	4, 5, 6	60	Y	Start of 1st remediated section.	N/A	no woody vegetation; live stakes and plantings not established; vegetation 60% cover	N	no at-risk trees present	Y (rock toe)	N	Y	Footpath at edge of remediation, erosion control fabric 40% exposed, but deteriorating. Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 50	7	60	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 70% cover	N	no at-risk trees present	Y (rock toe)	N	Y	erosion control fabric 40% exposed around trees, but deteriorating. Rock toe intact; coir log deteriorated.	N	Fine sediment deposition	Y (Vegetation establishing)
00 + 100	8, 9, 10	60	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation growing in rock toe; vegetation 70% cover	N	no at-risk trees present	Y (rock toe)	N	Y	erosion control fabric minimally exposed, but deteriorating. Rock toe intact; coir log deteriorated.	N	Moderate sediment deposition	Y (Vegetation establishing)
00 + 150	11	60	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 80% cover	N	tree on upper bank by GW bank damaged	Y (rock toe)	N	N	Rock toe intact; coir log slumping and deteriorated.	N	Moderate sediment deposition	Y (Vegetation establishing)
00 + 200	12	60	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 95% cover	N	trees present mid bank	Y (rock toe)	N	N	Rock toe intact; coir log deteriorated.	N	Moderate sediment deposition	Y (Vegetation establishing)
00 + 250	13	60	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 90% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 300	14	70	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 350	15	65	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 70% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 400	16	40	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 80% cover	N	trees near rock toe in good condition	Y (rock toe)	N	N	Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 450	17	40	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 70% cover	N	no at-risk trees present	Y (rock toe)	N	Y	Erosion control fabric 15% exposed, but deteriorating. Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 500	18	50	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 60% cover	N	no at-risk trees present	Y (rock toe)	N	Y	erosion control fabric 30% exposed, but deteriorating. Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 550	19	50	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 60% cover	N	no at-risk trees present	Y (rock toe)	N	Y	erosion control fabric 20% exposed, but deteriorating. Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 600	20	60	Y		N/A	no woody vegetation; live stakes and plantings not established; significant erosion and no vegetation below coir log; vegetation 70% cover.	N	one tree near GW in good condition	Y (rock toe)	N	Y	erosion control fabric 10% exposed, but deteriorating. Rock toe intact; coir log deteriorated but highly visible - significant erosion between coir log and top of rock toe.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 650	21, 22, 23	50	Y		N/A	no woody vegetation; live stakes and plantings not established; significant erosion and no vegetation below coir log; vegetation 60% cover	N	one tree above rock toe in good condition	Y (rock toe)	N	Y	erosion control fabric 10% exposed, but deteriorating. Rock toe intact; coir log deteriorated but highly visible - significant erosion between coir log and top of rock toe.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 700	24	50	Y		N/A	no woody vegetation; live stakes and plantings not established; significant erosion and no vegetation below coir log; vegetation 30% cover - noticeably bare compared to surrounding area	N	one tree near GW has damaged bark	Y (rock toe)	N	Y	erosion control fabric 20% exposed, but deteriorating. Rock toe intact; coir log deteriorated but highly visible - significant erosion between coir log and top of rock toe.	N	Minimal sediment deposition	Y (Vegetation partially established, significant bare areas)
00 + 750	25	40	Y		N/A	no woody vegetation; live stakes and plantings not established; significant erosion and no vegetation below coir log; vegetation 60% cover	N	no at-risk trees present	Y (rock toe)	N	Y	erosion control fabric 10% exposed, but deteriorating. Rock toe intact; coir log deteriorated but highly visible - significant erosion between coir log and top of rock toe.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 800	26	50	Y		N/A	no woody vegetation; live stakes and plantings not established; significant erosion and no vegetation below coir log; vegetation 40% cover	N	no at-risk trees present	Y (rock toe)	N	Y	Erosion control fabric 10% exposed, but deteriorating. Rock toe intact; coir log deteriorated but highly visible - significant erosion between coir log and top of rock toe.	N	Minimal sediment deposition	Y (vegetation partially established, significant bare areas)
00 + 850	27	20	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 80% cover	N	group of 4 trees near top of bank in good condition	Y (rock toe)	N	N	Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 900	28	20	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 80% cover	N	tree in good condition	Y (rock toe)	N	N	Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 950	29	30	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 90% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 1000	30	30	Y		N/A	no woody vegetation; live stakes and plantings not established; vegetation 90% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 1050	31, 32, 33	45	Y	End of first remediation area	N/A	no woody vegetation; live stakes and plantings not established; vegetation 90% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact; coir log deteriorated.	N	Minimal sediment deposition	Y (Vegetation establishing)

Attachment E - Table 1  
 2021 Leaf-Off Maintenance Inspection Log  
 North Park BMA  
 Former DuPont Waynesboro Site, Area of Concern 4

00 + 1100	34	45	Y	start of non-remediated section	M	grass adjacent to water's edge; shrubs mid and upper bank; vegetation 70% cover	N	no at-risk trees present	N/A	N/A	N/A	minimal undercutting at toe of bank	N	Minimal scour at end of remediation	Y (Plants established)
00 + 1150	35, 36	45	Y		M	grass adjacent to water's edge; shrubs mid and upper bank; vegetation 80% cover	N	one tree mid bank in good condition	N/A	N/A	N/A	minimal undercutting at toe of bank	N	no scour	N
00 + 1200	37	45	Y		M	sparse grasses at toe; shrubs on upper bank; vegetation 50% cover	N	3 trees mid bank in good condition	N/A	N/A	N/A	minimal undercutting at toe of bank; LWD present	N	no scour	N
00 + 1250	38, 39	55	N	Lower bank ~70 degrees Upper bank ~45 degrees	M	no vegetation at toe; woody vegetation on mid and upper bank; vegetation 30% cover	N	one tree mid bank in good condition	N/A	N/A	N/A	wooden steps present from top of bank to mid bank then a mostly vertical drop from scour and erosion at the base of steps	Y	Scour present at base of wooden steps	N
00 + 1300	40	45	Y		H	no vegetation at toe; woody vegetation on mid and upper bank; exposed roots on one tree at toe; vegetation 30% cover	Y	1 tree at toe and 1 at mid bank; tree mid bank appears to be dead	N/A	N/A	N/A	significant undercutting mostly at tree at toe of bank	Y	some scour at exposed roots at toe of bank	N
00 + 1350	41	45	Y		H	woody vegetation at water's edge; entire bank shows exposed roots; vegetation 40% cover	N	1 tree at toe and 3 at mid bank in good condition	N/A	N/A	N/A	undercutting at bank toe	N	no scour	N
00 + 1400	42	45	Y		H	highly exposed roots throughout bank; bank covered with woody vegetation; sparse grasses at toe; vegetation 40% cover	N	one tree mid bank in good condition	N/A	N/A	N/A	bank undercutting at base of toe	N	no scour	N
00 + 1450	43	50	Y		H	exposed roots throughout bank; bank covered with woody vegetation; sparse grasses at toe; vegetation 40% cover	N	one tree mid bank in good condition	N/A	N/A	N/A	bank undercutting at base of toe	Y	minimal scour	N
00 + 1500	44	60	Y	end of non-remediated section	M	no vegetation mid bank to toe; shrubs mid bank to top with exposed roots; vegetation 40% cover	N	1 tree at toe and 1 on upper bank in good condition	N/A	N/A	N/A	Footpath; minimal undercutting at tree roots at toe of bank	Y	minimal scour at exposed tree roots at toe	N
00 + 1550'	45, 46, 47	60	N	start of 2nd section of bank remediation; lower bank ~50 degrees upper bank ~ 75 degrees	N/A	Vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	Y	erosion control fabric 20% exposed; rock toe intact; significant undercutting, with large exposed root, and bare ground just upstream of remediated section.	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 1600'	48	50	Y		N/A	live stakes and plantings not established; vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact	N	Minimal sediment deposition	Y (Vegetation establishing)
00 + 1650'	49, 50, 51	45	Y		N/A	live stakes and plantings not established; vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	Y	erosion control fabric 5% exposed; kayak launch and steps intact ; path not level, gravel dust eroded away revealing larger blue gravel, small boulders tumbled into water	N	Minimal sediment deposition	Y (Vegetation establishing; erosion control fabric mostly covered, small boulders tumbled into water, path eroding)
00 + 1700'	52, 53, 54	50	Y		N/A	live stakes and plantings not established; vegetation 95% cover	N	group of 4 trees above gravel walking path in good condition	Y (rock toe)	N	Y	erosion control fabric mat 10% exposed; rock toe intact; walking path above rock toe; path slanted, gravel dust eroded away revealing larger blue gravel, small boulders tumbled into water	N	Minimal sediment deposition	Y (Vegetation establishing; erosion control fabric mostly covered, small boulders tumbled into water, path eroding)
00 + 1750'	55	50	Y		N/A	live stakes and plantings not established; vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact; walking path above rock toe; path slanted, gravel dust eroded away revealing larger blue gravel, small boulders tumbled into water	N	Minimal sediment deposition	Y (Vegetation establishing; erosion control fabric mostly covered, small boulders tumbled into water, path eroding)
00 + 1800'	56, 57, 58	50	Y		N/A	live stakes and plantings not established; vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact; walking path above rock toe; path slanted, gravel dust eroded away revealing larger blue gravel, small boulders tumbled into water	N	Minimal sediment deposition	Y (Vegetation establishing; erosion control fabric mostly covered, small boulders tumbled into water, path eroding)
00 + 1850'	59	40	Y		N/A	live stakes and plantings not established; vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact; walking path above rock toe, gravel dust visible, small boulders tumbled into water	N	Minimal sediment deposition	Y (Vegetation establishing; no erosion control fabric and geocell exposed; small boulders tumbled into water)
00 + 1900'	60, 61, 62	45	Y		N/A	live stakes and plantings not established; vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	N	Constructed wooden staircase intact; walking path above rock toe; gravel dust eroded away revealing larger blue gravel, small boulders tumbled into water	N	Minimal sediment deposition	Y (Vegetation establishing; no erosion control fabric and geocell exposed; small boulders tumbled into water)
00 + 1950'	63	60	Y		N/A	live stakes and plantings not established; vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	N	concrete outfall pipe above rock toe intact; rock toe intact	N	Minimal sediment deposition	Y (Vegetation establishing; no erosion control fabric or geocell exposed)
00 + 2000'	64	60	Y		N/A	live stakes and plantings not established; vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact	N	Minimal sediment deposition	Y (Vegetation establishing; no erosion control fabric or geocell exposed)
00 + 2050'	65	60	Y		N/A	live stakes and plantings not established; vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact	N	Minimal sediment deposition	Y (Vegetation establishing; no erosion control fabric or geocell exposed)
00 + 2100'	66	60	Y		N/A	live stakes and plantings not established; vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	Y	erosion control fabric minimally exposed above rock toe; rock toe intact	N	Minimal sediment deposition	Y (Vegetation establishing; no geocell exposed)
00 + 2150'	67	60	Y		N/A	live stakes and plantings not established; vegetation 95% cover	N	no at-risk trees present	Y (rock toe)	N	N	Rock toe intact	N	Minimal sediment deposition	Y (Vegetation establishing; new footpath; no erosion control fabric or geocell exposed)
00 + 2200'	68, 69, 70	60	Y		N/A	live stakes and plantings not established; vegetation 95% cover	Y	one tree mid bank in good condition	Y (rock toe)	N	N	Rock toe intact	N	Minimal sediment deposition	Y (Vegetation establishing; no erosion control fabric or geocell exposed)

Attachment E - Table 1  
 2021 Leaf-Off Maintenance Inspection Log  
 North Park BMA  
 Former DuPont Waynesboro Site, Area of Concern 4


00 + 2250'	71	60	Y	end of 2nd remediated section	N/A	live stakes and plantings not established; vegetation 95% cover	Y	one tree mid bank in good condition	Y (rock toe)	N	N	Footpath at end of remediation; rock toe intact; higher rock toe in this section.	N	Minimal sediment deposition	Y (Vegetation establishing; no erosion control fabric or geocell exposed)
00 + 2300'	72	65	N	start of non-remediated section; lower bank ~90 degrees upper bank ~40 degrees	H	woody vegetation throughout bank; medium exposed roots mid to lower bank; sparse vegetation	N	no at-risk trees present	N/A	N/A	N/A	bank undercutting	N	no scour	N
00 + 2350'	73, 74, 75	65	N	lower bank ~90 degrees upper bank ~40 degrees	H	woody vegetation mid to upper bank; highly exposed roots; no vegetation established adjacent to water's edge	Y	several trees on upper bank in good condition, trees at risk leaning above rock toe	N/A	N/A	N/A	significant bank undercutting from mid to lower bank	Y	scour mid to lower bank by exposed roots	N
00 + 2380'	76, 77, 78	65	N	lower bank ~90 degrees upper bank ~40 degrees	M	woody vegetation throughout bank; medium exposed roots mid to lower bank; sparse vegetation	y	several trees on upper bank in good condition; roots severely exposed	N/A	N/A	N/A	minimal undercutting at toe of bank	Y	minimal scour at toe of slope	N
North Park	79, 80	N/A	N/A	largely flat	N/A	large trees present across greenspace in North Park in good condition; vegetation minimally established in greenspace; plantings present	N	no at-risk trees present	N/A	N/A	N/A	erosion control fabric highly exposed (50-90%) within North Park; Greenway intact and ready for pavement; some ruts along GW from vehicles	N	N/A	N


**Notes:**

1. Inspection station is described as the distance (feet) upstream (-) or downstream (+) from the start of the BMA (00); for example, Station 00 + 50' is 50 feet downstream from the start of the BMA
2. A significant deviation from continuous bank slope or break in grade may be used as an indicator of undercutting; consistent bank grade is evaluated as Y (yes) or N (no)
3. The extent to which roots are exposed may provide a relative measure of the magnitude of apparent erosion; extent of exposed roots is evaluated as L (low), M (moderate), H (high), or NA (not applicable- no exposed roots)
4. At-risk trees (i.e., trees that lean towards the river) typically have a greater potential to fall into the river and dislodge the bank soil and erosion-control products immediately around and above the tree; presence of at-risk trees is evaluated as Y (yes) or N (no)
5. Installed rock toe and large woody debris (LWD) features are monitored to ensure that they are anchored and determine whether material has sloughed, or been eroded, or moved downstream; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
6. Installed geocell and erosion control fabric are monitored to ensure that they are intact and determine whether material is exposed or visible; these installed features are evaluated as Y (yes, intact), N (no, not intact), or NA (not applicable- no installed features to monitor)
7. The presence of local scour is assessed at the toe and center of the bank, per inspection station, as well as approximately 25 feet upstream and downstream of the start and end of the BMA; the presence of scour is evaluated as Y (yes) or N (no)




# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 01	<b>Location:</b> 00-25'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> Upstream of remediation; ~ 70° bank angle; vertical drop at toe; undercut bank with exposed roots; minimal scour present.	


<b>Photo Number:</b> 02	<b>Location:</b> 00-25'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> North	
<b>Description:</b> Downstream view of start of remediated section; rock toe intact.	


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 03	<b>Location:</b> 00-25'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> West	
<b>Description:</b> Upstream view of non-remediated bank; undercut bank with exposed roots; upstream of remediation; minimal scour present; bank undercut.	

<b>Photo Number:</b> 04	<b>Location:</b> 00+00'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> Start of 1 <sup>st</sup> remediated section; ~ 60° bank angle; live stakes and plantings not established; 60% vegetation cover; no at-risk trees present; footpath at edge of remediation; erosion control fabric 40% exposed and deteriorating.	

# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 05	<b>Location:</b> 00+00'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> North	
<b>Description:</b> Downstream view of 1 <sup>st</sup> remediated section; rock toe intact; coir logs deteriorated; minimal sediment deposition; vegetation establishing.	


<b>Photo Number:</b> 06	<b>Location:</b> 00+00'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> Rock toe intact; minimal sediment deposition; beaver swimming along rock toe.	

**South River Photolog  
North Park BMA  
Bank Monitoring Memo**

<b>Photo Number:</b> 07		<b>Location:</b> 00+50'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 70% vegetation cover; no at-risk trees present; erosion control fabric 40% exposed around trees and deteriorating; rock toe intact; coir logs deteriorated; fine sediment deposition; vegetation establishing.			

<b>Photo Number:</b> 08		<b>Location:</b> 00+100'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; vegetation establishing in rock toe; 70% vegetation cover; no at-risk trees present.			

# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 09		<b>Location:</b> 00+100'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> West			
<b>Description:</b> Upstream view of remediated area; erosion control fabric minimally exposed and deteriorating; rock toe intact; coir logs deteriorated; moderate sediment deposition; vegetation establishing.			


<b>Photo Number:</b> 10		<b>Location:</b> 00+100'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> North			
<b>Description:</b> Downstream view of remediated area; erosion control fabric minimally exposed and deteriorating; rock toe intact; coir logs deteriorated; moderate sediment deposition; vegetation establishing.			


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 11		<b>Location:</b> 00+150'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 80% vegetation cover; tree on upper bank has damaged bark; rock toe intact; coir log slumping and deteriorated; moderate sediment deposition; vegetation establishing.			


<b>Photo Number:</b> 12		<b>Location:</b> 00+200'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 95% vegetation cover; trees present mid bank; rock toe intact; coir logs deteriorated; moderate sediment deposition; vegetation establishing..			

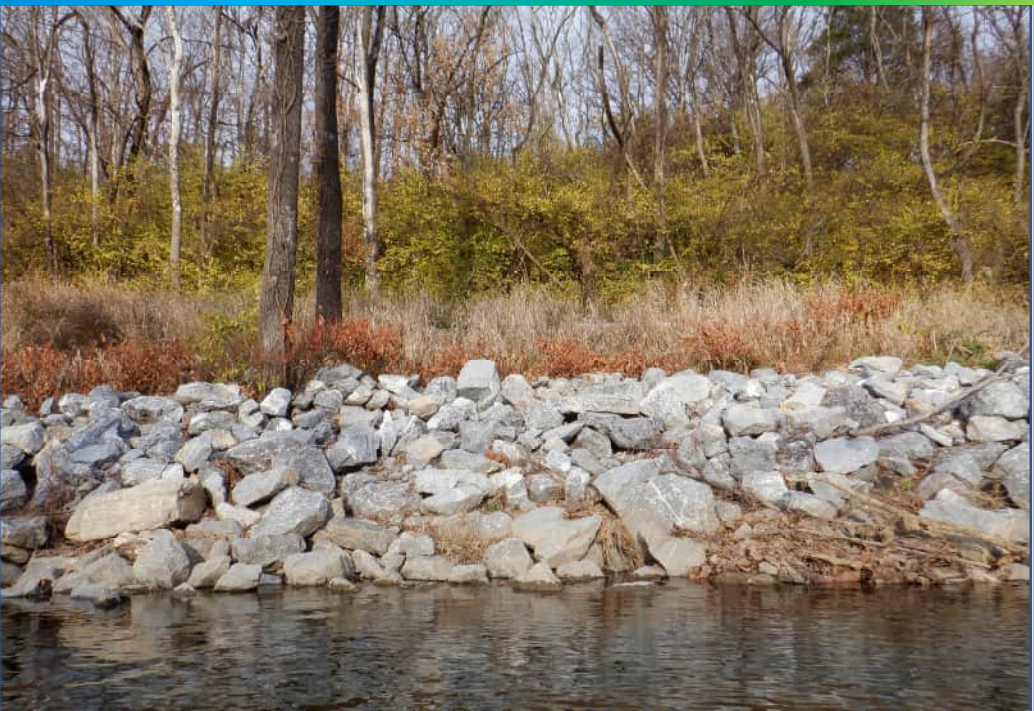
# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 13	<b>Location:</b> 00+250'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 90% vegetation cover; no at-risk trees present; rock toe intact; coir log deteriorated; minimal sediment deposition; vegetation establishing.	

<b>Photo Number:</b> 14	<b>Location:</b> 00+300'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 70° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; rock toe intact; coir log deteriorated; minimal sediment deposition; vegetation establishing.	


# South River Photolog North Park BMA Bank Monitoring Memo

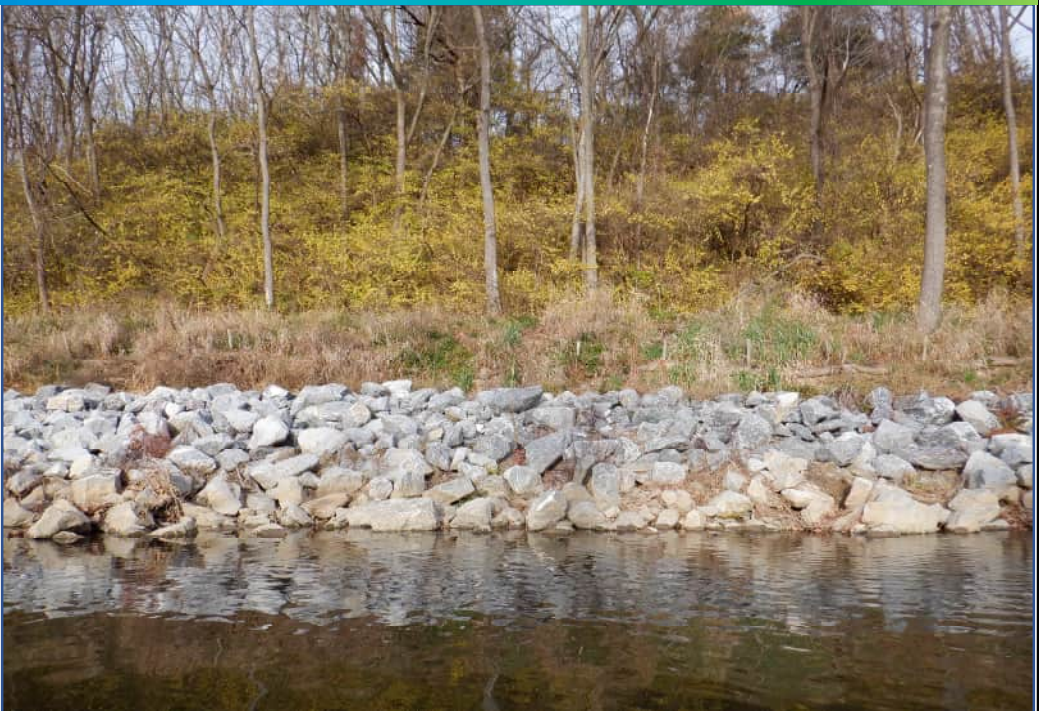
<b>Photo Number:</b> 15	<b>Location:</b> 00+350'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 65° bank angle; no woody vegetation; live stakes and plantings not established; 70% vegetation cover; no at-risk trees present; rock toe intact; coir log deteriorated; minimal sediment deposition; vegetation establishing.	

<b>Photo Number:</b> 16	<b>Location:</b> 00+400'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 40° bank angle; live stakes and plantings not established; 80% vegetation cover; trees near rock toe in good condition; rock toe intact; coir log deteriorated; minimal sediment deposition; vegetation establishing.	




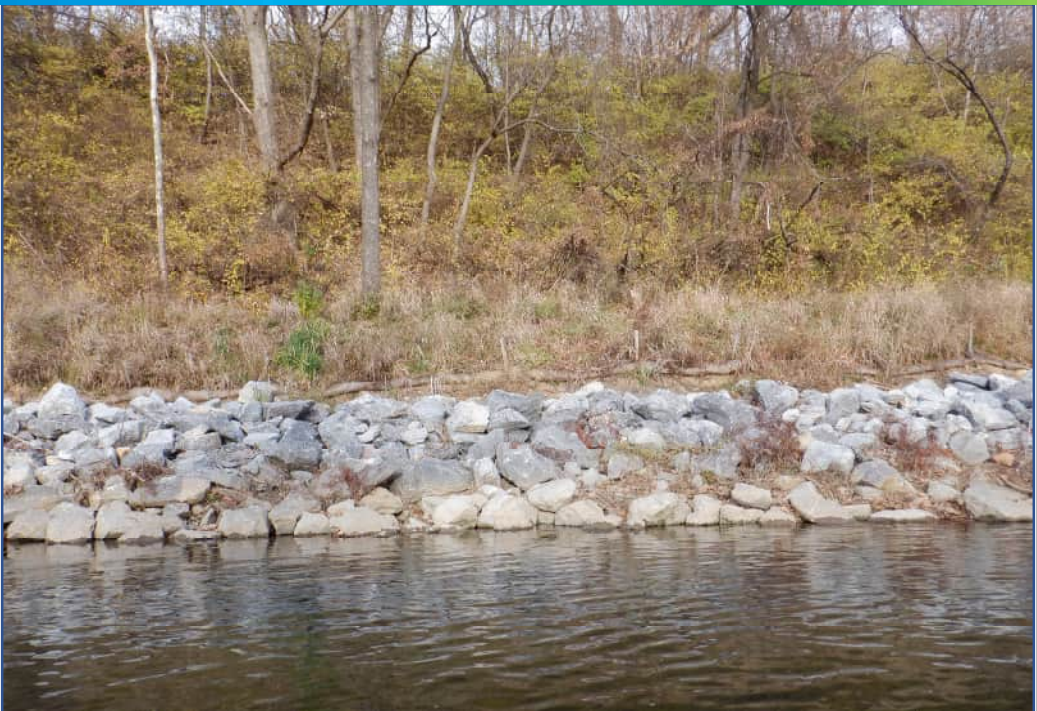
# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 17	<b>Location:</b> 00+450'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 40° bank angle; live stakes and plantings not established; 70% vegetation cover; no at-risk trees present; erosion control fabric 15% exposed and deteriorating; rock toe intact; coir log deteriorated; minimal sediment deposition; vegetation establishing.	


<b>Photo Number:</b> 18	<b>Location:</b> 00+500'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 50° bank angle; live stakes and plantings not established; 60% vegetation cover; no at-risk trees present; erosion control fabric 30% exposed and deteriorating; rock toe intact; coir log deteriorated; minimal sediment deposition; vegetation establishing.	


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 19	<b>Location:</b> 00+550'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 50° bank angle; live stakes and plantings not established; 60% vegetation cover; no at-risk trees present; erosion control fabric 20% exposed and deteriorating; rock toe intact; coir logs deteriorated; minimal sediment deposition; vegetation establishing.	


<b>Photo Number:</b> 20	<b>Location:</b> 00+600'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 70% vegetation cover; tree present in good condition; erosion control fabric 10% exposed; significant erosion between coir log and top of intact rock toe; minimal sediment deposition; vegetation establishing.	

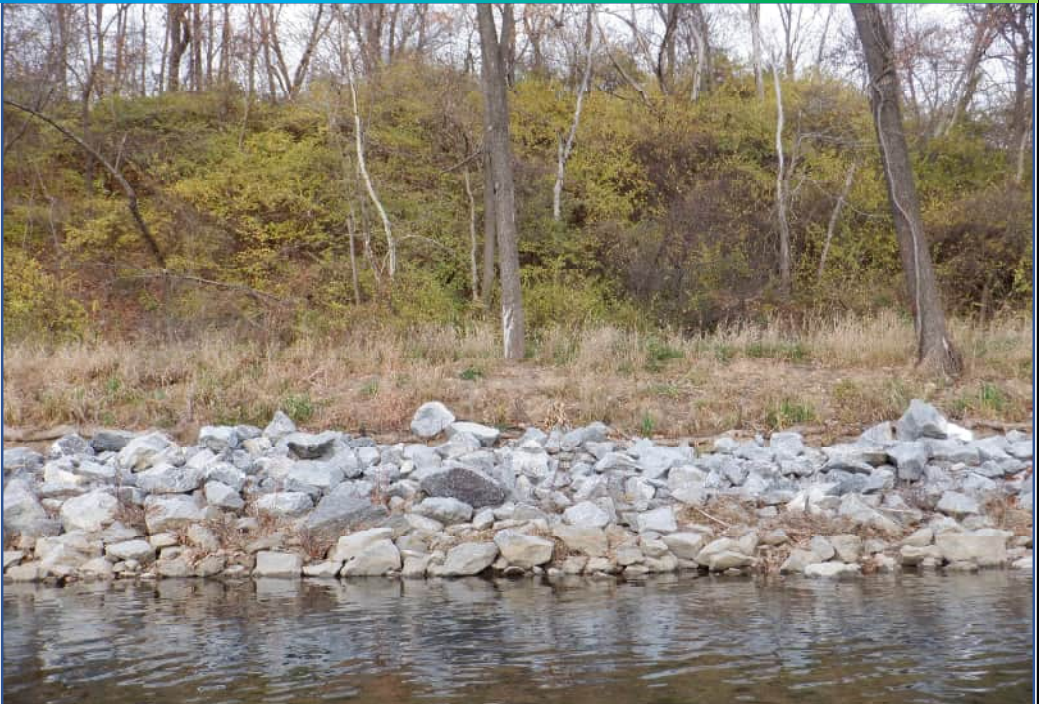
# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 21		<b>Location:</b> 00+650'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 50° bank angle; live stakes and plantings not established; significant erosion and no vegetation below coir log; 60% vegetation cover; one tree above rock toe in good condition; minimal sediment deposition; vegetation establishing.			


<b>Photo Number:</b> 22		<b>Location:</b> 00+650'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> North			
<b>Description:</b> Downstream view of remediated bank; rock toe intact; vegetation establishing.			


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 23		<b>Location:</b> 00+650'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> West		
<b>Description:</b> Upstream view of remediated bank; rock toe intact; vegetation establishing.		

<b>Photo Number:</b> 24		<b>Location:</b> 00+700'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Northwest		
<b>Description:</b> ~ 50° bank angle; significant erosion and no vegetation below deteriorated coir log; 30% vegetation cover; tree near greenway has damaged bark; erosion control fabric deteriorating; rock toe intact; minimal sediment deposition.		


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 25		<b>Location:</b> 00+750'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 40° bank angle; live stakes and plantings not established; significant erosion and no vegetation below coir log; 60% vegetation cover; no at-risk trees present; erosion control fabric 10% exposed and deteriorating; minimal sediment deposition; vegetation establishing.			


<b>Photo Number:</b> 26		<b>Location:</b> 00+800'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 50° bank angle; live stakes and plantings not established; significant erosion and no vegetation below deteriorated coir log; 40% vegetation cover; no at-risk trees present; erosion control fabric 10% exposed and deteriorating; rock toe intact; minimal sediment deposition.			


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 27		<b>Location:</b> 00+850'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 20° bank angle; live stakes and plantings not established; 80% vegetation cover; group of 4 trees near top of bank in good condition; rock toe intact; coir logs deteriorated; minimal sediment deposition; vegetation establishing.			


<b>Photo Number:</b> 28		<b>Location:</b> 00+900'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 20° bank angle; live stakes and plantings not established; 80% vegetation cover; no at-risk trees; rock toe intact; coir log deteriorated; minimal sediment deposition; vegetation establishing.			

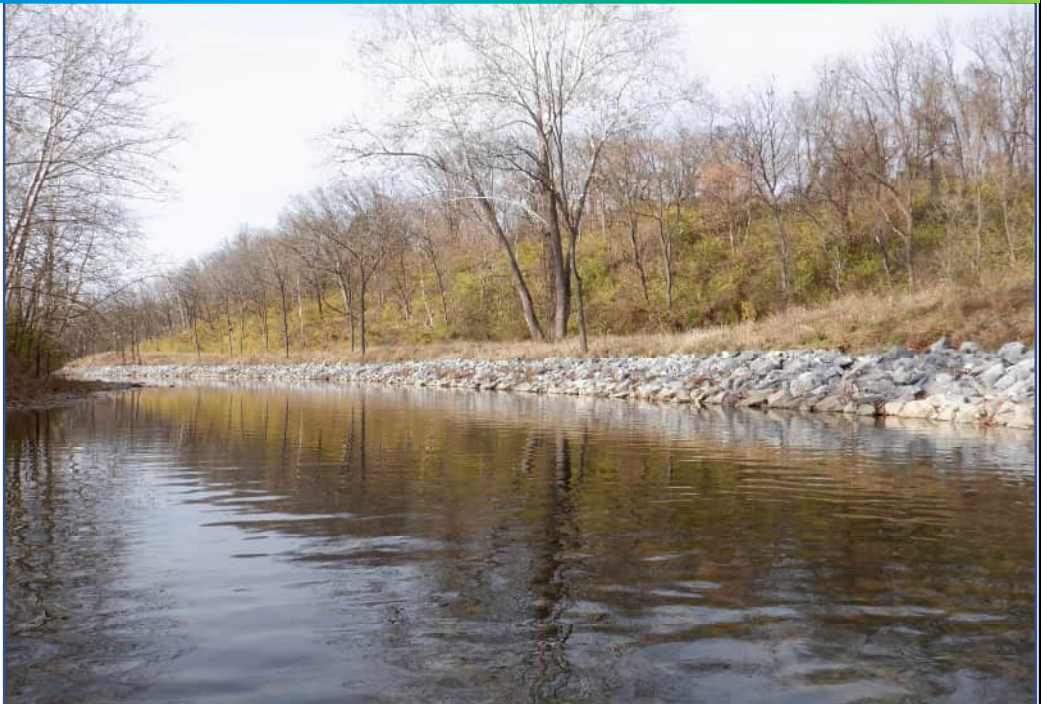
# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 29	<b>Location:</b> 00+950'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 30° bank angle; live stakes and plantings not established; 90% vegetation cover; no at-risk trees present; rock toe intact; coir log deteriorated; minimal sediment deposition; vegetation establishing.	

<b>Photo Number:</b> 30	<b>Location:</b> 00+1000'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 30° bank angle; live stakes and plantings not established; 90% vegetation cover; no at-risk trees present; rock toe intact; coir log deteriorated; minimal sediment deposition; vegetation establishing.	


# South River Photolog North Park BMA Bank Monitoring Memo


<b>Photo Number:</b> 31		<b>Location:</b> 00+1050'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Northwest		
<b>Description:</b> ~ 45° bank angle; end of 1 <sup>st</sup> remediated section; live stakes and plantings not established; 90% vegetation cover; no at-risk trees present; rock toe intact; coir logs deteriorated; minimal sediment deposition; vegetation establishing.		

<b>Photo Number:</b> 32		<b>Location:</b> 00+1050'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> West		
<b>Description:</b> Upstream view of remediated bank; live stakes and plantings not established; no at-risk trees present; vegetation establishing.		





# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 33		<b>Location:</b> 00+1050'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> North		
<b>Description:</b> Upstream view from end of first remediated bank.		

<b>Photo Number:</b> 34		<b>Location:</b> 00+1100'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Northwest		
<b>Description:</b> Non-remediated section; ~ 45° bank angle; grasses adjacent to water's edge; shrubs mid and upper bank; 70% vegetation cover; no at-risk trees present; minimal undercutting at toe of bank; minimal scour at end of remediation.		

# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 35		<b>Location:</b> 00+1150'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> Non-remediated section; ~ 45° bank angle; grasses adjacent to water's edge; shrubs mid and upper bank; 80% vegetation cover; one tree mid bank in good condition; fallen tree now LWD; minimal undercutting at toe of bank; no scour.			

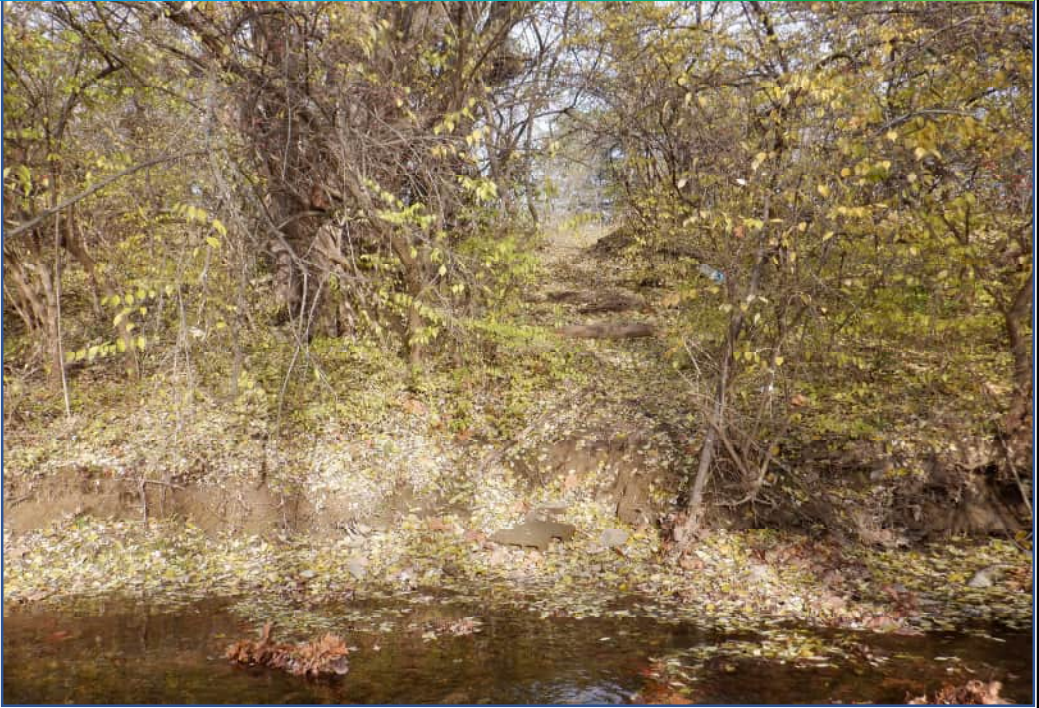
<b>Photo Number:</b> 36		<b>Location:</b> 00+1150'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> Non-remediated section; fallen tree providing LWD along bank.			


South River Photolog  
 North Park BMA  
 Bank Monitoring Memo

<b>Photo Number:</b> 37 <b>Location:</b> 00+1200'	
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> Non-remediated section; ~ 45° bank angle; sparse grasses at toe; shrubs on upper bank; 50% vegetation cover; 3 trees mid bank in good condition; minimal undercutting at toe of bank; LWD present; no scour.	

<b>Photo Number:</b> 38 <b>Location:</b> 00+1250'	
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> Non-remediated section; lower bank ~70°; upper bank ~45°; no vegetation at toe; woody vegetation on mid and upper bank; 30% vegetation cover; trees mid bank in good condition.	


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 39		<b>Location:</b> 00+1250'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> Non-remediated section; wooden steps present from top of bank to mid bank then a mostly vertical drop; scour and erosion at the base of steps.			

<b>Photo Number:</b> 40		<b>Location:</b> 00+1300'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> Non-remediated section; ~ 45° bank angle; no vegetation at toe; woody vegetation on mid and upper bank; exposed roots; 30% vegetation cover; tree mid bank appears to be dead; significant undercutting mostly at toe of bank; some scour at exposed roots at toe of bank.			

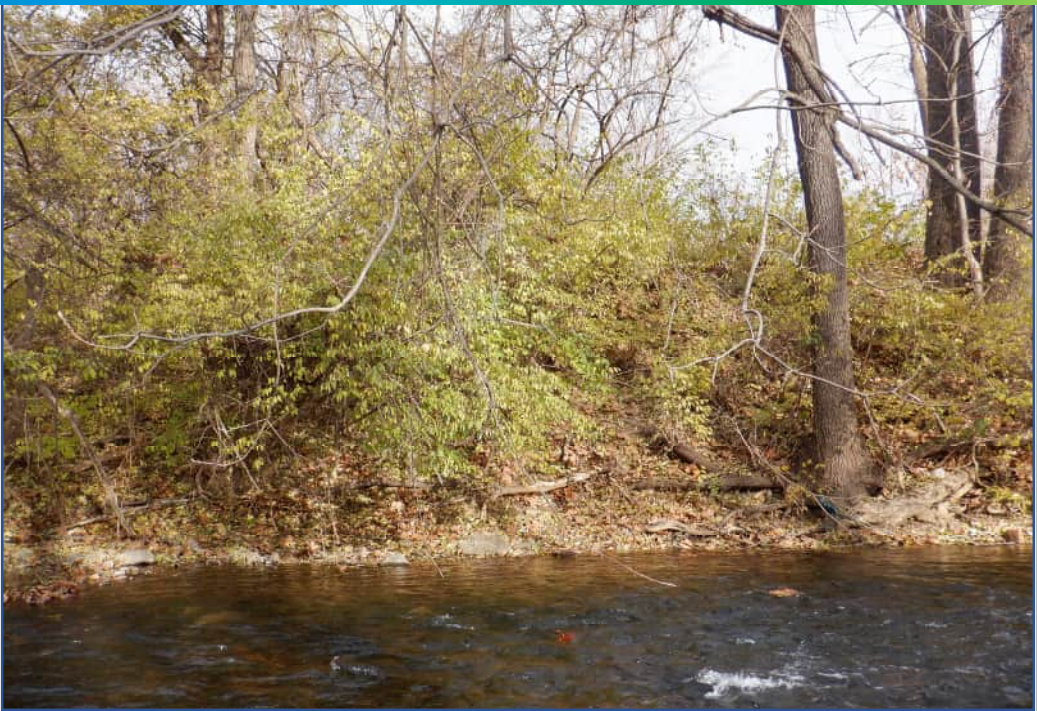
# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 41		<b>Location:</b> 00+1350'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> Non-remediated section; ~ 45° bank angle; woody vegetation at water's edge; entire bank shows exposed roots; 40% vegetation cover; 1 tree at toe and 3 at mid bank in good condition; undercutting at bank toe; no scour.			


<b>Photo Number:</b> 42		<b>Location:</b> 00+1400'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> Non-remediated section; ~ 45° bank angle; highly exposed roots throughout bank; bank covered with woody vegetation; sparse grasses at toe; 40% vegetation cover; one tree mid bank in good condition; bank undercutting at base of toe; no scour.			

# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 43		<b>Location:</b> 00+1450'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Northwest		
<b>Description:</b> Non-remediated section; ~ 50° bank angle; exposed roots throughout bank; bank covered with woody vegetation; sparse grasses at toe; 40% vegetation cover; one tree mid bank in good condition; bank undercutting at toe; minimal scour.		


<b>Photo Number:</b> 44		<b>Location:</b> 00+1500'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Northwest		
<b>Description:</b> End of non-remediated section; ~ 60° bank angle; no vegetation mid bank to toe; shrubs mid bank to top with exposed roots; 40% vegetation cover; 1 tree at toe and 1 on upper bank in good condition; footpath present; minimal undercutting at tree roots; minimal scour at exposed tree roots.		


**South River Photolog  
North Park BMA  
Bank Monitoring Memo**

<b>Photo Number:</b> 45		<b>Location:</b> 00+1550'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> Start of 2 <sup>nd</sup> remediated section; lower bank ~50°; upper bank ~ 75°; 95% vegetation cover; no at-risk trees present; erosion control fabric 20% exposed; rock toe intact, significant undercutting in non-remediated section.			

<b>Photo Number:</b> 46		<b>Location:</b> 00+1550'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> North			
<b>Description:</b> Downstream view of remediated bank; minimal sediment deposition; vegetation establishing.			


# South River Photolog North Park BMA Bank Monitoring Memo

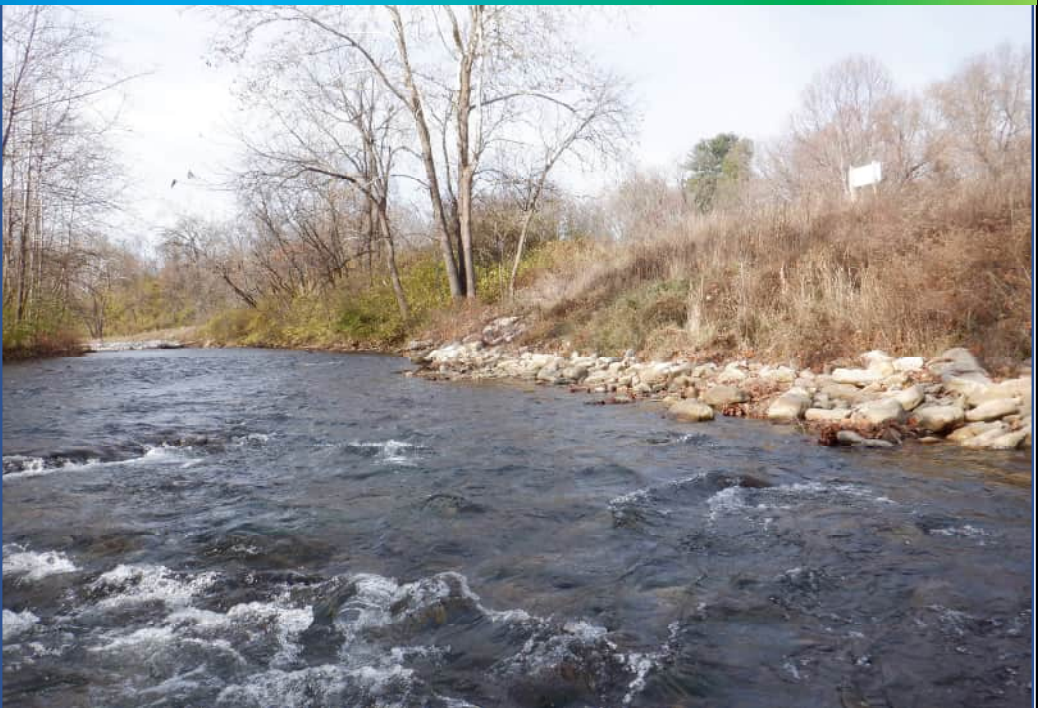
<b>Photo Number:</b> 47		<b>Location:</b> 00+1550'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> West		
<b>Description:</b> Upstream view of non-remediated bank; erosion and undercutting on non-remediated bank section.		

<b>Photo Number:</b> 48		<b>Location:</b> 00+1600'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Northwest		
<b>Description:</b> ~ 50° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; rock toe intact; minimal sediment deposition; vegetation establishing.		





# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 49		<b>Location:</b> 00+1650'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Northwest		
<b>Description:</b> ~ 45° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; erosion control fabric 5% exposed; kayak launch and steps intact, stonedust eroded revealing larger grade gravel, cobbles from rock toe moved into river; minimal sediment deposition.		

<b>Photo Number:</b> 50		<b>Location:</b> 00+1650'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> West		
<b>Description:</b> Upstream view of remediated bank; minimal sediment deposition; vegetation establishing.		

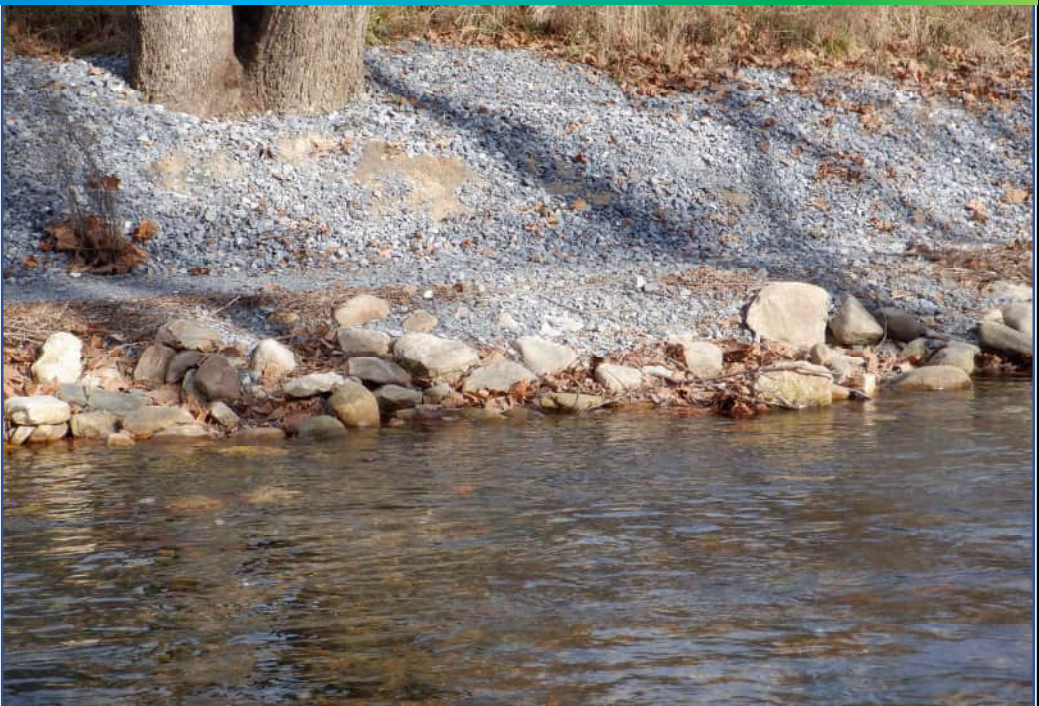
**South River Photolog  
North Park BMA  
Bank Monitoring Memo**

<b>Photo Number:</b> 51		<b>Location:</b> 00+1650'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> North			
<b>Description:</b> Downstream view of remediated bank; minimal sediment deposition; vegetation establishing; cobbles from rock toe moved into river.			


<b>Photo Number:</b> 52		<b>Location:</b> 00+1700'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 50° bank angle; live stakes and plantings not established; 95% vegetation cover; group of 4 trees above gravel walking path in good condition; erosion control fabric 10% exposed; rock toe intact.			


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 53	<b>Location:</b> 00+1700'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> West	
<b>Description:</b> Upstream view of remediated bank; stonedust eroded revealing larger grade gravel, minimal sediment deposition.	


<b>Photo Number:</b> 54	<b>Location:</b> 00+1700'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> Cobbles from rock toe moved into water, stonedust from path eroding.	


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 55	<b>Location:</b> 00+1750'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 50° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; rock toe intact; rock toe intact; vegetation establishing.	


<b>Photo Number:</b> 56	<b>Location:</b> 00+1800'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 50° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; rock toe intact; vegetation establishing.	

# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 57		<b>Location:</b> 00+1800'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> West			
<b>Description:</b> Upstream view of remediated bank; minimal sediment deposition; vegetation establishing.			

<b>Photo Number:</b> 58		<b>Location:</b> 00+1800'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> North			
<b>Description:</b> Downstream view of remediated bank; minimal sediment deposition; vegetation establishing.			


**South River Photolog  
North Park BMA  
Bank Monitoring Memo**

<b>Photo Number:</b> 59		<b>Location:</b> 00+1850'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 40° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; rock toe intact; minimal sediment deposition; vegetation establishing.			


<b>Photo Number:</b> 60		<b>Location:</b> 00+1900'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 45° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; constructed wooden staircase intact; minimal sediment deposition; vegetation establishing.			

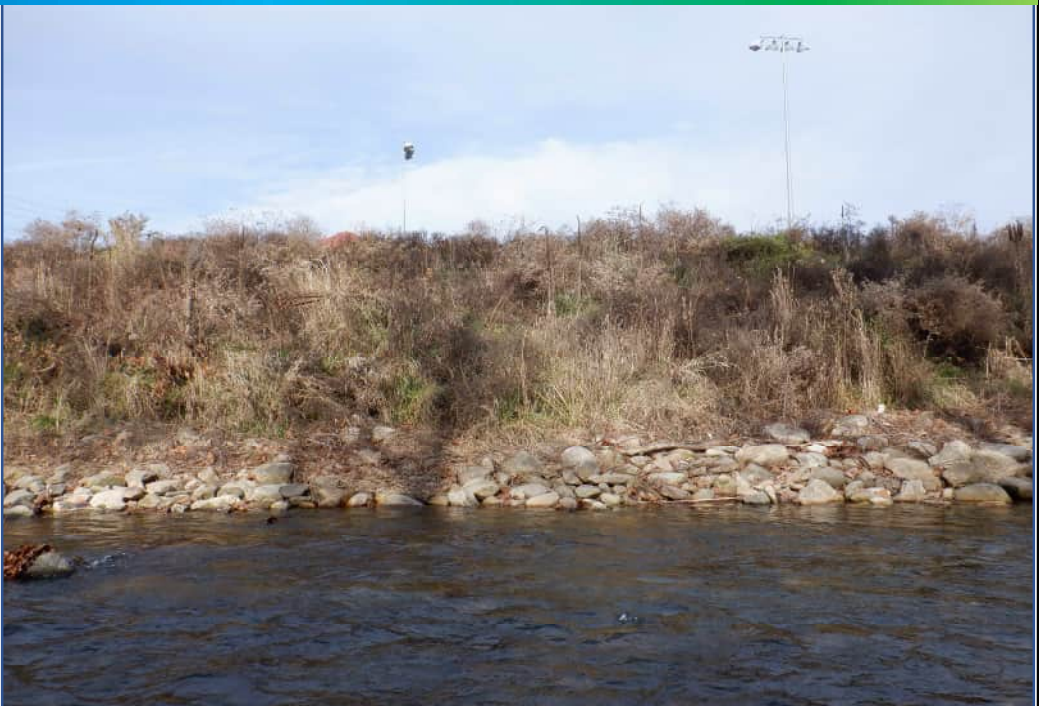
**South River Photolog  
North Park BMA  
Bank Monitoring Memo**

<b>Photo Number:</b> 61		<b>Location:</b> 00+1900'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> West			
<b>Description:</b> Upstream view of remediated bank; vegetation establishing; rock toe intact.			

<b>Photo Number:</b> 62		<b>Location:</b> 00+1900'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> North			
<b>Description:</b> Downstream view of remediated bank; vegetation establishing; rock toe intact.			


# South River Photolog North Park BMA Bank Monitoring Memo


<b>Photo Number:</b> 63		<b>Location:</b> 00+1950'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Northwest		
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; concrete outfall pipe above rock toe intact; rock toe intact; minimal sediment deposition; vegetation establishing; new footpath.		

<b>Photo Number:</b> 64		<b>Location:</b> 00+2000'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Northwest		
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; rock toe intact; minimal sediment deposition; vegetation establishing.		





# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 65	<b>Location:</b> 00+2050'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; rock toe intact; minimal sediment deposition; vegetation establishing.	


<b>Photo Number:</b> 66	<b>Location:</b> 00+2100'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; erosion control fabric minimally exposed above rock toe; rock toe intact; minimal sediment deposition; vegetation established.	

# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 67		<b>Location:</b> 00+2150'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Northwest		
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees present; rock toe intact; minimal sediment deposition; vegetation establishing.		


<b>Photo Number:</b> 68		<b>Location:</b> 00+2200'
<b>Date:</b> 12/7/2021		
<b>Direction:</b> Northwest		
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 95% vegetation cover; one tree mid bank in good condition; rock toe intact; minimal sediment deposition; vegetation establishing.		


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 69		<b>Location:</b> 00+2200'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> West			
<b>Description:</b> Upstream view of remediated bank; live stakes and plantings not established; rock toe intact; minimal sediment deposition; vegetation establishing.			


<b>Photo Number:</b> 70		<b>Location:</b> 00+2200'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> North			
<b>Description:</b> Downstream view of remediated bank; rock toe intact; minimal sediment deposition; vegetation establishing.			

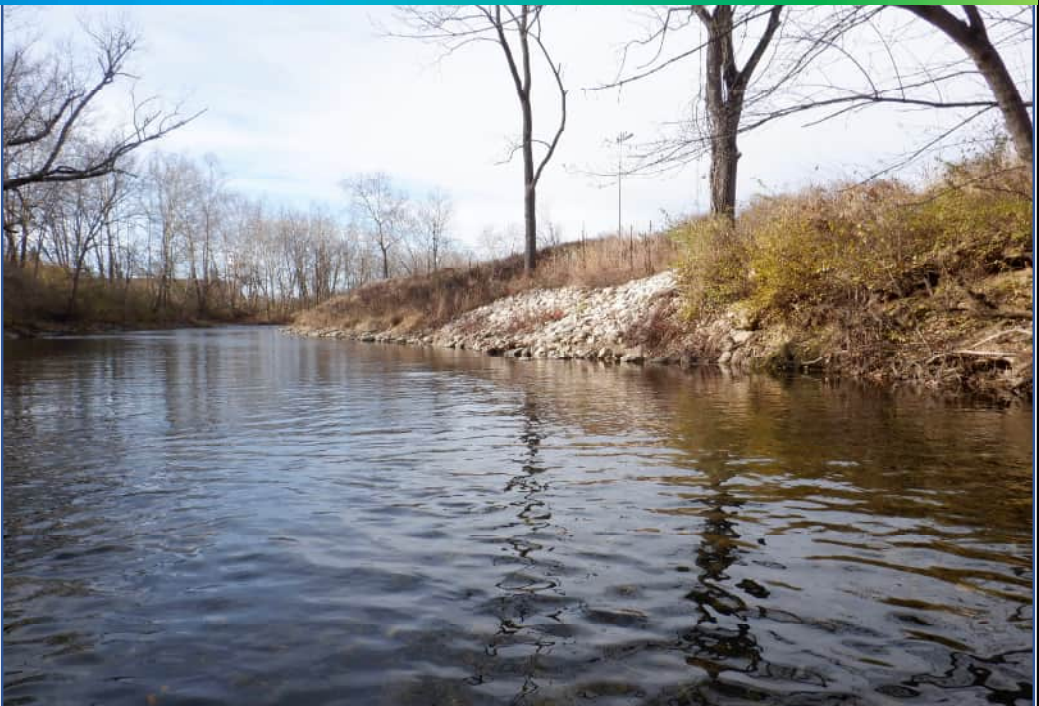
# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 71		<b>Location:</b> 00+2250'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 60° bank angle; live stakes and plantings not established; 95% vegetation cover; no at-risk trees; footpath at end of remediation; rock toe intact; vegetation establishing; minimal sediment deposition.			


<b>Photo Number:</b> 72		<b>Location:</b> 00+2300'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 65° bank angle; start of non-remediated section; lower bank ~90° upper bank ~40°; woody vegetation throughout bank; medium exposed roots mid to lower bank; sparse vegetation; no at-risk trees present; moderate bank undercutting.			


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 73		<b>Location:</b> 00+2350'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> Northwest			
<b>Description:</b> ~ 65° bank angle; lower bank ~90° upper bank ~40°; woody vegetation mid to upper bank; highly exposed roots; no vegetation established adjacent to water's edge; several trees on upper bank at risk; rock toe.			


<b>Photo Number:</b> 74		<b>Location:</b> 00+2350'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> West			
<b>Description:</b> Upstream view; undercutting at toe in non-remediated area; sparse vegetation cover.			


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 75	<b>Location:</b> 00+2350'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> North	
<b>Description:</b> Significant erosion and scour around exposed roots of at-risk trees.	


<b>Photo Number:</b> 76	<b>Location:</b> 00+2380'
<b>Date:</b> 12/7/2021	
<b>Direction:</b> Northwest	
<b>Description:</b> lower bank ~90°; upper bank ~40°; woody vegetation throughout bank; moderate exposed roots mid to lower bank; sparse vegetation; roots severely exposed.	


# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 77		<b>Location:</b> 00+2380'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> West			
<b>Description:</b> Upstream view; undercutting at toe of bank in non-remediated area; sparse vegetation cover.			

<b>Photo Number:</b> 78		<b>Location:</b> 00+2380'	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> North			
<b>Description:</b> Downstream view; minimal vegetation cover; erosion and scour by toe of slope.			

# South River Photolog North Park BMA Bank Monitoring Memo

<b>Photo Number:</b> 79		<b>Location:</b> North Park	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> West			
<b>Description:</b> Trees present across greenspace in North Park along greenway in good condition; vegetation minimally established in greenspace; plantings establishing.			

<b>Photo Number:</b> 80		<b>Location:</b> North Park	
<b>Date:</b> 12/7/2021			
<b>Direction:</b> West			
<b>Description:</b> Greenway intact and ready for pavement; some ruts along greenway from vehicles; some erosion control fabric exposed by proposed pollinator garden area.			



**Attachment E - Waynesboro Off-Site Cap Areas  
Inspection Record Sheet  
Maintenance Plan**

Notes:

Location and property owner name: <b>North Park BMA</b>		
Item	Status/Maintenance Needs	Repairs Needed?
Access Roads	N/A	
Trails	Upper Greenway trails in good condition. Some erosion and washout on lower staircases portion from recent high water. The lower gravel path connecting the staircases along the river has washout of the stone dust top layer piling them along the edge of the path along the bank exposing the larger grade blue stones. The trail is slightly sloped by the staircase due to erosion.	1
Drainage Structures	Drainage structures intact	1
Outfall Structures	Outfall structures intact	1
Rip-Rap Protection	Rip-rap intact and showing sediment deposition	1
Cap System Vegetative Cover	Most sections fully covered by well-established vegetation. A few spots are still bare in first remediation section. Second remediation area is fully covered by vegetation. No live stakes established.	1
Cap System Geosynthetics	Erosion control fabric covered in most areas but decomposing. No Geocell exposed.	1
Cap System Slope Stability	Slope is generally consistent and stable along BMA	1
Cap System Subsidence	No cap system subsidence observed	1
Fencing and Gates	Fencing and gates intact	1

1. Functioning properly; no repairs needed
2. Repairs needed (describe why, what, and where), but not time critical
3. Time critical repair needed (describe what and where)

Comments:

Vegetation is well established. Erosion control fabric is almost completely covered. Geocell is completely covered.

Inspected by: Bill Storm and Sarah Bartle

Date: Dec 7, 2021