



# **Pigg River Restoration at Power Dam**

## **Year-1 Monitoring Report**

*Prepared for:*

Friends of the Rivers of Virginia, Inc.  
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# **Index**

<b>Report Narrative</b>	2-4
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## **Figures**

<b>Exhibit 1 – Pigg River Power Dam: Permanent Monitoring Locations Map</b>	
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## **Appendices**

<b>Appendix A – Cross Section Location Coordinates, Description, Photos, Embeddedness, and Woody Debris Counts</b>	
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<b>Appendix B – Cross Section Plots</b>	
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<b>Appendix C – Thalweg Plots</b>	
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<b>Appendix D – Pebble Count Data</b>	
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<b>Appendix E – Biological Monitoring Data</b>	
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<b>Appendix F – Hydrology Data</b>	
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<b>Appendix G – Groundwater Monitoring Data</b>	
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<b>Appendix H – Local Weather Station Data</b>	
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## **Introduction**

Wetland Studies and Solutions, Inc. (WSSI) presents this monitoring report to the Friends of the Rivers of Virginia (FORVA), providing data related to Year-1 Monitoring efforts. The monitoring program has been designed to track changes to the river corridor and adjacent wetlands following the removal of the decommissioned Power Dam on the Pigg River in Rocky Mount, Virginia, and in accordance with the *Virginia Water Protection Permit Joint Permit Application #15-1551* (draft dated 6/30/2016). Monitoring activities were performed as outlined in the *Pigg River Restoration at Power Dam Monitoring RFP* (WSSI#1054, dated July 27, 2016, a.k.a. “RFP”).

The majority of necessary field data was collected by WSSI staff during normal baseflow conditions on October 03 - 05, 2017, with additional wetland hydrology information collected November 29, 2017. A total of twelve (12) cross sections were utilized. Cross-sections were established during November 2016 Post-Construction Monitoring and based on locations outlined in the RFP. Cross-sections, as located by GPS, are shown in **Exhibit 1**. Half of the cross-sections were established upstream and half below the relic dam structure. Spacing was adjusted to focus on areas around the dam where the greatest change was anticipated to occur. Cross-sections covered areas far enough upstream to be beyond backwater effects created by the dam and stretched downstream to the point where effects of the dam removal were anticipated to be largely diminished. Cross-section locations were also selected to correspond with previous monitoring efforts (Hitt et al., 2009; Bass, 2015).

## **Methods**

The focus of Year-1 Monitoring efforts was to locate the twelve monitoring stations previously established and document current channel conditions. The results are compared with post-construction monitoring information to show channel evolution throughout the dam removal 5-year post-construction monitoring period. WSSI staff began by accessing upstream cross-sections via canoe. Upstream access was gained through the Town of Rocky Mount’s sanitary sewer pumping station (entrance road located near the intersection of Power Dam Road and Scenic River Drive). Cross-sections 1-5 were accessed exclusively by canoe. Cross-sections 6-12 were accessed via vehicle/foot travel through Town or private property – specifically public land or Town property for sections 6-8, via Hudson Farm Lane (private) for section 9-11, and through private land on Chestnut Hill Road just downstream of the Pigg River bridge for section 12.

At each cross-section, WSSI staff photo-documented local conditions through upstream, downstream and channel bank photos. All photo documentation adhered to VWP guidelines, noting: direction, photographer, date/time, vegetative cover (as applicable), and a brief description. This information is included in **Appendix A**.

In addition to photographs, WSSI staff surveyed cross-section geometry using a laser level and survey tape to record station/elevation information. During Year 1 monitoring, points were surveyed at a maximum of 5-ft intervals along the sections, generally consistent with methodologies used in the *Sediment Capacity and Fate Modeling Report* (Bass, 2015) and Post-Construction Monitoring. Slight variations in cross section geometry are attributable to

differences in individual sampling events and site specific factors (i.e. normal survey error, vegetation, slack in the survey tape, etc.). Major changes seen in cross sections are due to channel evolution and erosion following dam removal. Cross-section geometry for all sections is given in **Appendix B**, with sections showing Post-Construction and 1-year channel geometry overlaid.

Physical habitat parameters including particle size, embeddedness, woody debris, and thalweg depth measurements were also recorded at each section. Observations regarding embeddedness are included with the section descriptions and photographs in **Appendix A**. The presence and quantification of large woody debris, as outlined in previous studies (Hitt et al., 2009), was documented by visual assessment for areas 150 feet upstream and downstream of the measured cross-section. Woody debris counts are also given in **Appendix A**.

Thalweg measurements were taken to document streambed elevation changes in the vicinity of the cross-section. Depth measurements were collected at 5-ft. intervals from the cross-section location in both the upstream and downstream direction for a distance of approximately 50 ft. (each direction), unless obscured by thick vegetation. Thalweg plots are given in **Appendix C**.

The method of data collection for bed material size varied depending on local conditions. The particle size distribution at the majority of monitored cross-sections was uniformly sandy. Bed material at the two downstream-most cross sections was coarser in nature and warranted formal sampling. A Wolman riffle pebble count was performed at these two sections and particle size distribution data is presented in **Appendix D**.

Year-1 monitoring efforts also included biological stream monitoring at three (3) of the defined cross-sections. Location and sampling methods corresponded to previous monitoring efforts as outlined in *Biomonitoring for the Rocky Mount Power Dam Removal Project: Establishing Baseline Conditions* (Hitt et al., 2009) and WSSI standard operating procedures. Detailed information regarding the biological stream monitoring can be found in **Appendix E**.

Wetland hydrology monitoring activities were conducted at forested wetland sites #2, #3, and #4, as outlined in the Joint Permit Application<sup>1</sup> (one location at sites 2 and 3 and two at site 4). Locations are shown in **Exhibit 1**. Sampling consisted of photo documentation of site conditions and observations of hydrology and soil characteristics necessary for completion of the hydrology portion of the “Wetland Determination Data Form – Eastern Mountains and Piedmont Region” from the U.S. Army Corps of Engineers Regional Supplement, Version 2 (2012). A 12-18” deep test pit was dug to document the presence of a water table or saturation. Wetland soil indicators were photo documented when observed and are scheduled for more detailed assessment in future years, as required by permit. Field data forms are included in **Appendix F**.

Also included within this report are the results of the first 10 months of groundwater monitoring at Wetland Site #2 (**Exhibit 1**). Groundwater monitoring information and results can be found in **Appendix G** with corresponding local weather station data given in **Appendix H**.

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<sup>1</sup> Year 1 wetland hydrology data collection was conducted separate from cross section surveys and benthic sampling. Sampling occurred outside the identified growing season, but all necessary data was still able to be collected.

## **Results**

Year 1 monitoring cross section surveys indicate slight bed incision at Cross Section 1 (approximately 1-ft of drop in bed elevation), with increased downcutting in Cross Sections 2-4 ranging from 2-ft to nearly 7-ft at Section 4. Changes at Sections 5 and 6 were less dramatic due to the fact that significant evolution occurred during the two-month time between completion of dam removal activities and post-construction monitoring when significant high flow events occurred. Where banks are not vertical, surface soils at the cross sections have made moderate gains in stability due to colonization by herbaceous vegetation. However, root depth is shallow and steep bank areas are still exhibiting signs of mass failure. Tension cracking is visible at cross sections where steep banks still exist.

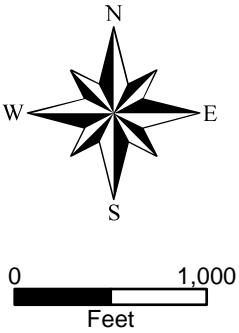
Results of benthic sampling showed a slight decrease in Stream Condition Index scores at two of the three monitoring locations. However, the level of variation seen from pre-removal sampling events is not beyond that which may be reasonably expected and attributable to independent factors such as normal climatic variation. Future monitoring events will be necessary to determine the influence of dam removal on benthic communities.

Wetland hydrology monitoring at Sites 2, 3, and 4 found persistent wetland vegetation. Moderate drought conditions were present during sampling. Soils at both Site 3 and 4 locations (adjacent to Cross Section 2 and Cross Section 4, respectively) were a uniform sandy loam texture with no water or saturation observed in test pits. Two sampling locations were established at Wetland Site 2 (river left, just upstream of the dam) and hydric soil indicators were seen in both locations. No water or saturation was seen at Site 2, Point 1. Water was present at approximately 6" below surface elevation at Site 2 Point 2. Qualitative observations made during monthly monitoring well data collection has shown the Site 2 wetland area to be largely dry at the surface since June 2017.





**Pigg River Restoration at  
Power Dam-Monitoring**  
Permanent Monitoring Locations  
Original Scale: 1"=1000'



- Survey Locations
- Cross Sections



## **Appendix A**

### **Cross Section 1**

<b><i>Location</i></b>	<b><i>Latitude</i></b>	<b><i>Longitude</i></b>
Left Bank	36.990985	-79.864618
Right Bank	36.990712	-79.864937

Description: Cross Section 1 is located approximately 600 feet downstream of the existing sanitary pump station, accessible via Scenic River Road. Access was by canoe from the upstream pumping station. Local conditions were noted as forested on the left bank and agricultural fields on the right bank. (*Note:* Left and right bank references will always be made facing downstream.) Bank slopes were steep and reasonably well vegetated with minor bank scour visible along the toe of slope.

The instrument setup for this cross section was at the left bank pin (Height of Instrument, HI = 5.90 ft.). The cross section plot is given on Sheet 1 of Appendix B and the thalweg plot is on Sheet 1 of Appendix C. No pebble count was taken at this location due the uniform fine-grained (sandy) nature of bed sediments.



Photo 1-1

Location, Orientation: XS 1, Looking Upstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/16, 10:32 AM

Taken by: \*See note below

Description: View looking upstream from the middle of Cross Section 1  
Woody Debris: 10

\*Note: All Post-construction photographs taken by J. Larkin, unless otherwise noted.



Photo 1-2

Location, Orientation: XS 1, Looking Downstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 10:34 AM

Description: View looking downstream from the middle of Cross Section 1

Woody Debris: 30

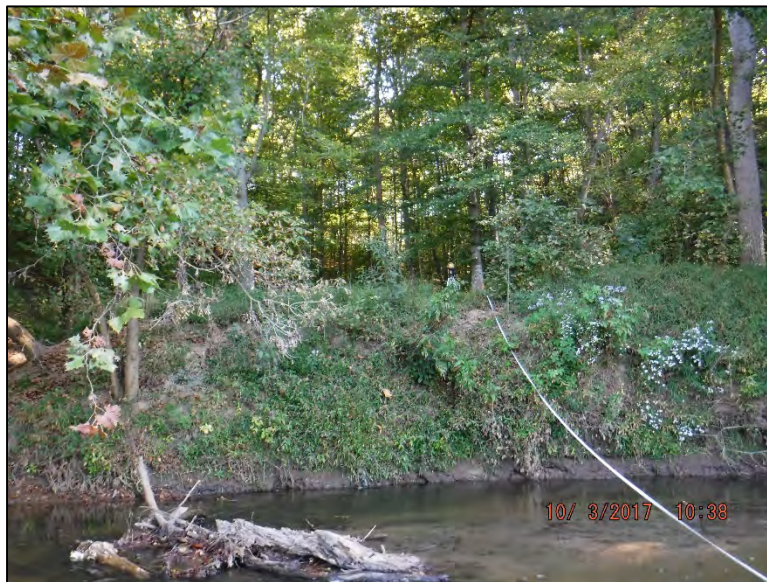


Photo 1-3

Location, Orientation: XS 1, Left Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 10:38 AM

Description: View looking left from the middle of Cross Section 1

Vegetation: 70% herbaceous cover, few trees at top of bank





Photo 1-4

Location, Orientation: XS 1, Right Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 10:54 AM

Description: View looking right from the middle of Cross Section 1

Vegetation: 90% herbaceous cover, no trees



Photo 1-5

Location, Orientation: XS 1, Upstream looking down

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 11:27 AM

Description: View looking downstream at Cross Section 1 from an upstream position



Photo 1-6

Location, Orientation: XS 1, Downstream looking up

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 11:46 AM

Description: View looking upstream at Cross Section 1 from a downstream position

## **Cross Section 2**

<i><b>Location</b></i>	<i><b>Latitude</b></i>	<i><b>Longitude</b></i>
Left Bank	36.984705	-79.864096
Right Bank	36.984655	-79.864333

**Description:** Cross Section 2 is located approximately 2,400 feet downstream (south) of Cross Section 1 and 1,200 feet downstream of the power line crossing. Access was by canoe from the upstream pumping station. Local conditions were noted as forested on both banks. The right bank slope was almost vertical but well stabilized by root structure and herbaceous cover. The left bank was formed by a sandy deposit (bar) and woody debris with little vegetation.

The instrument setup for this cross section was at the left bank pin (HI = 1.38 ft.). The cross section plot is on Sheet 2 of Appendix B, and the thalweg plot is on Sheet 2 of Appendix C. No pebble count was taken at this location due the uniform fine-grained (sandy) nature of bed sediments.

This cross section was located adjacent to the overbank wetland area (left bank) identified in permit documents and previous reports as Wetland Site #4. Wetland hydrology data forms are given in Appendix F.



Photo 2-1

Location, Orientation: XS 2, Looking Upstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 1:17 PM

Description: View looking upstream from the center of Cross Section 2

Woody Debris: 20





Photo 2-2

Location, Orientation: XS 2, Looking Downstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 1:18 PM

Description: View looking downstream from the middle of Cross Section 2

Woody Debris: 15



Photo 2-3

Location, Orientation: XS 2, Left Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 1:20 PM

Description: View looking left from the middle of Cross Section 2

Vegetation: 40% herbaceous cover, few trees, woody debris



Photo 2-4

Location, Orientation: XS 2, Right Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 1:18 PM

Description: View looking right from the middle of Cross Section 2

Vegetation: 50% herbaceous cover, few trees, woody debris



Photo 2-5

Location, Orientation: XS 2, Upstream looking down

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/16, 1:26 PM

Description: View looking downstream at Cross Section 2 from an upstream position





Photo 2-6

Location, Orientation: XS 2, Downstream looking up

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 1:22 PM

Description: View looking upstream at Cross Section 2 from a downstream position



Photo 2-7

Location, Orientation: XS 2, Bed Material

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 1:27 PM

Description: Bed material at Cross Section 2 was almost entirely silt/sand



### **Cross Section 3**

<i><b>Location</b></i>	<i><b>Latitude</b></i>	<i><b>Longitude</b></i>
Left Bank	36.980573	-79.855954
Right Bank	36.980669	-79.855792

**Description:** Cross Section 3 was located approximately 2,600 feet downstream of Cross Section 2, 500 feet southeast of the south end of Scenic River Road, and just downstream of a large meander bend. Access was by canoe from the upstream pumping station. Local conditions were noted as forested on both banks. Both banks had noticeable scour of fine sediment deposits occurring along the toes of slope. The left bank was composed of 40% vegetative cover and exposed root structures creating a steep vertical upper bank with the lower left bank primarily composed of sediment deposits. The right bank was also steeply sloped on the upper bank and composed of fine-grained sediment deposits towards the toe. Herbaceous cover was 80% on the lower half of the bank with significant woody debris present, while the upper half was exposed and un-vegetated.

The instrument setup for this cross section was at the left bank (HI = 3.55 ft.). The cross section plot is on Sheet 3 of Appendix B, and the thalweg plot is on Sheet 3 of Appendix C. No pebble count was taken at this location due the uniform fine-grained (sandy) nature of bed sediments.



Photo 3-1

Location, Orientation: XS 3, Looking Upstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 2:39 PM

Description: View looking upstream from the center of Cross Section 3

Woody Debris: 15



Photo 3-2

Location, Orientation: XS 3, Looking Downstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 3:40 PM

Description: View looking downstream from the middle of Cross Section 3

Woody Debris: 50



Photo 3-3

Location, Orientation: XS 3, Left Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 2:45 PM

Description: View looking left from the middle of Cross Section 3

Vegetation: 40% herbaceous plants, few trees





Photo 3-4

Location, Orientation: XS 3, Right Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 2:40 PM

Description: View looking right from the middle of Cross Section 3

Vegetation: 80% herbaceous cover and a few trees at top of bank



Photo 3-5

Location, Orientation: XS 3, Upstream looking down

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 2:46 PM

Description: View looking downstream at Cross Section 3 from an upstream position





Photo 3-6

Location, Orientation: XS 3, Downstream looking up

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 2:43 PM

Description: View looking upstream at Cross Section 3 from a downstream position



Photo 3-7

Location, Orientation: XS 3, Bed Material

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 2:59 PM

Description: Bed material at Cross Section 3 was almost entirely silt

## Cross Section 4

<i>Location</i>	<i>Latitude</i>	<i>Longitude</i>
Left Bank	36.985663	-79.856937
Right Bank	36.985403	-79.856873
Thalweg	36.985530	-79.856930

**Description:** Cross Section 4 is located approximately 1,600 feet downstream of Cross Section 3, east of Scenic River Road, south of the power line easement, and west of Power Dam Road in a short, straight, run between two sharp meander pools. Access was by canoe from the upstream pumping station. The cross section was bounded on both banks by forested conditions. Signs of past inundation and backwater effects from the dam were strongly visible at this cross section. A previously terraced channel cross section post dam removal is now characterized by significant bank failure and channel downcutting with a narrow baseflow channel. The right upper bank face was vertical, approximately 5-ft high, and showed signs of periodic mass failure (Photo 4-4). Upper left bank showed significant signs of bank failure and sluffing up to the top of bank. Lower left bank was composed of fine sediment, terraced and had moderate herbaceous vegetation.

The instrument setup for this cross section was at the left bank (HI = 4.03 ft.). The cross section plot is on Sheet 4 of Appendix B, and the thalweg plot is on Sheet 4 of Appendix C. No pebble count was taken at this location due the uniform fine-grained (sandy/silty) nature of bed sediments.

This cross section was located adjacent to the overbank wetland area (right bank) identified in permit documents and previous reports as Wetland Site #3. Wetland hydrology data forms are given in Appendix F.



Photo 4-1

Location, Orientation: XS 4, Looking Upstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 3:50 PM

Description: View looking upstream from the center of Cross Section 4  
Woody Debris: 10





Photo 4-2

Location, Orientation: XS 4, Looking Downstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 3:50 PM

Description: View looking downstream from the middle of Cross Section 4  
Woody Debris: 60



Photo 4-3

Location, Orientation: XS 4, Left Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 3:50 PM

Description: View looking left from the middle of Cross Section 4  
Vegetation: 90% herbaceous cover and a few trees at top of bank





Photo 4-4

Location, Orientation: XS 4, Right Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 3:51 PM

Description: View looking right from the middle of Cross Section 4

Vegetation: 80% herbaceous on lower terrace, small shrubs and a few trees at top of bank



Photo 4-5

Location, Orientation: XS 4, Upstream looking down

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 3:53 PM

Description: View looking downstream at Cross Section 4 from an upstream position



Photo 4-6

Location, Orientation: XS 4, Downstream looking up

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 3:55 PM

Description: View looking upstream at Cross Section 4 from a downstream position



Photo 4-7

Location, Orientation: XS 4, Bed Material

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 3:51 PM

Description: Bed material at Cross Section 4 was almost entirely sand/silt

## Cross Section 5

<i>Location</i>	<i>Latitude</i>	<i>Longitude</i>
Left Bank	36.991448	-79.857178
Right Bank		

**Description:** Cross Section 5 is located approximately 2,000 feet downstream of Cross Section 4; approximately 800 feet downstream (north) of the power line easement. Access was by canoe from the upstream pumping station. The cross section is bounded on both banks by forested conditions. Currently the channel is defined by a wide, deep cross section with a confined and down cutting baseflow. The channel is flanked by a wide steep mudflat on the right bank with significant scour (2-4 ft.) of fine sediment occurring at the toe with little to no vegetation present on the lower 1/3. The upper left bank is experiencing significant bank failure with a vertical inner face. Lower left bank is established by herbaceous vegetation with moderate bank scour at the toe.

The instrument setup for this cross section was at the left bank (HI = 2.76 ft.). The cross section plot is on Sheet 5 of Appendix B, and the thalweg plot is on Sheet 5 of Appendix C. No pebble count was taken at this location due the uniform fine-grained (sandy) nature of bed sediments.

This cross section was located adjacent to a narrow band of wetlands (as previously delineated) located on the left bank – the upstream end of the area identified in permit documents and previous reports as Wetland Site #2. Wetland hydrology data forms are given in Appendix F.



Photo 5-1

Location, Orientation: XS 5, Looking Upstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 5:01 PM

Description: View looking upstream from the center of Cross Section 5

Woody Debris: 2





Photo 5-2

Location, Orientation: XS 5, Looking Downstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 05:01 PM

Description: View looking downstream from the middle of Cross Section 5

Woody Debris: 3



Photo 5-3

Location, Orientation: XS 5, Left Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 5:05 PM

Description: View looking left from the middle of Cross Section 5

Vegetation: Small trees at bankfull, 80% herbaceous cover below top of bank



Photo 5-4

Location, Orientation: XS 5, Right Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 5:01 PM

Description: View looking right from the middle of Cross Section 5

Vegetation: Small trees and grass at bankfull, no vegetation below top of bank



Photo 5-5

Location, Orientation: XS 5, Upstream looking down

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 5:09 PM

Description: View looking downstream at Cross Section 5 from an upstream position





Photo 5-6

Location, Orientation: XS 5, Downstream looking up

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/03/17, 06:14 PM

Description: View looking upstream at Cross Section 5 from a downstream position



## Cross Section 6

<i>Location</i>	<i>Latitude</i>	<i>Longitude</i>
Left Bank		
Right Bank	36.995027	-79.859314

**Description:** Cross Section 6 is located approximately 300 feet upstream of the Power Dam structure. Access was by foot via the trail paralleling Power Dam Road. The cross section is bounded on both banks by forested conditions. During and following dam removal, flows cut through the deep sediment deposits behind the dam. At the time of Post-Construction monitoring, thalweg elevation at this section appeared to have already approached the elevation at the location of the dam breach. Thus, section depth did not significantly change between Post-Construction Year-1 surveys. This section was approximately 30-ft. deep and characterized by a wide channel cross section with widening of the channel apparent from previously confined cross sections (XS 4, 5, 6). The right bank had a vertical upper bank with evidence of previous bank failures apparent. The mid and lower left bank was composed of mostly sandy material and was established with moderate herbaceous vegetation with minor scour occurring at the toe of slope. The upper left bank showed evidence of mass failure with steep vertical faces. The mid to lower left bank was composed of sediment deposits stabilized by significant herbaceous vegetation. Minor scour was occurring at the toe of slope on the left bank. Large woody debris had mostly been removed in this cross section prior to monitoring efforts.

The instrument setup for this cross section was at the right bank (HI = 1.89 ft.). The cross section plot is on Sheet 6 of Appendix B, and the thalweg plot is on Sheet 6 of Appendix C. No pebble count was taken at this location due the uniform fine-grained (sandy) nature of bed sediments.

This cross section was located adjacent to a wider area of wetlands (as previously delineated) located on the left bank – the lower end of the area identified in permit documents and previous reports as Wetland Site #2. Wetland hydrology data forms are given in Appendix F.



Photo 6-1  
Location, Orientation: XS 6, Looking Upstream  
Permit Number: JPA #15-1551  
Wetland Data Sheet Reference: n/a  
10/04/17, 9:47 AM

Description: View looking upstream from the center of Cross Section 6  
Woody Debris: 4



Photo 6-2

Location, Orientation: XS 6, Looking Downstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/04/17, 9:38 PM

Description: View looking downstream from the middle of Cross Section 6  
Woody Debris: 15



Photo 6-3

Location, Orientation: XS 6, Left Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a



10/04/17, 9:54 AM

Description: View looking left from the middle of Cross Section 6  
Vegetation: 90% herbaceous cover, large trees and shrubs at top of bank



Photo 6-4

Location, Orientation: XS 6, Right Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/04/17, 9:54 AM

Description: View looking right from the middle of Cross Section 6  
Vegetation: 90% herbaceous cover, large trees and shrubs at top of bank



Photo 6-5

Location, Orientation: XS 6, Upstream looking down

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/04/17, 10:40 PM



Description: View looking downstream at Cross Section 6 from an upstream position



Photo 6-6

Location, Orientation: XS 6, Downstream looking up

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/04/17, 10:45 AM

Description: View looking upstream at Cross Section 6 from a downstream position

## **Cross Section 7**

<i><b>Location</b></i>	<i><b>Latitude</b></i>	<i><b>Longitude</b></i>
Left Bank	36.997204	-79.860491
Right Bank	36.997218	-79.859878

**Description:** Cross Section 7 is located approximately 450 feet downstream of the Power Dam Road bridge. Vehicular access was gained via farm field roads on Rocky Mount treatment plant property. The cross section was bounded on the left bank by forest and on the right bank by a narrow band of trees along the top of bank with agricultural fields just beyond. This section had mature woody vegetation to within one to two feet of the baseflow water surface elevation. The water surface width at this section had significantly widened (to more than 50 feet). Banks were relatively stable, with the cut bank located on river left. Fine sediment released from behind the dam had buried bed features and filled the thalweg, resulting in little variation in flow depth across the section. Recent sandy deposits and scour were also visible along the banks. The right bank had a 10-15-ft. wide side channel bar.

The instrument setup for this cross section was at the right bank (HI = 3.58 ft.). The cross section plot is on Sheet 7 of Appendix B, and the thalweg plot is on Sheet 7 of Appendix C. No pebble count was taken at this location due the uniform fine-grained (sandy) nature of bed sediments.



Photo 7-1

Location, Orientation: XS 7, Looking Upstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/05/17, 9:29 AM

Description: View looking upstream from the middle of Cross Section 7  
Woody Debris: 10



Photo 7-2

Location, Orientation: XS 7, Looking Downstream

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/05/17, 9:30 AM

Description: View looking downstream from the middle of Cross Section 7

Woody Debris: 7



Photo 7-3

Location, Orientation: XS 7, Left Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/05/17, 9:29 AM

Description: View looking left from the middle of Cross Section 7

Vegetation: 30% herbaceous cover, few trees





Photo 7-4

Location, Orientation: XS 7, Right Bank

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/05/17, 9:31 AM

Description: View looking right from the middle of Cross Section 7

Vegetation: 40% herbaceous plants, trees at bankfull



Photo 7-5

Location, Orientation: XS 7, Upstream looking down

Permit Number: JPA #15-1551

Wetland Data Sheet Reference: n/a

10/05/17, 9:32 AM

Description: View looking downstream at Cross Section 7 from an upstream position