North Fork Mountain Creek Monitoring Report

Monitoring Year 5 of 7

Stream and Wetland
NCDMS Contract No.002024
NCDMS Project No. 94151

Catawba County, NC
Data Collected: 3/11/2016 – 11/11/2016
Submitted: November 2016

Submitted to:

North Carolina Division of Mitigation Services

NCDEQ-DMS, 1652 Mail Service Center Raleigh NC 27699-1652

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Prepared for:

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Contents

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1.0 PROJECT SUMMARY

1.1. Project Setting and Background

The North Fork Mountain Creek Stream and Wetland Mitigation Site (NFMC) was identified and developed through the North Carolina Division of Mitigation Services (NCDMS) full delivery process. The site is located approximately six miles south of Catawba, North Carolina in southeastern Catawba County (Figure 1). The project lies within the Piedmont physiographic region (NCGS 2004) and USGS (2002) Level III ecoregion. The North Fork Mountain Creek watershed is within Catawba River Basin 14-digit Hydrologic Unit Code 03050101150030 and the North Carolina Division of Water Quality (NCDWQ) sub-basin 03-08-32 (NCDWQ 2010).

The mitigation site encompasses 17.2 acres containing 5,299 linear feet (lf) of stream channel and 4.44 acres of wetlands. The project consists of four reaches; reach 1 is on the mainstem of North Fork Mountain Creek, whereas reaches 2, 3, and 4 are on primary and secondary unnamed tributaries (UT1 and UT2) of North Fork Mountain Creek (Figure 2). An additional 0.97 acre of existing wetlands were preserved on the site; however, no mitigation credit is being claimed for this wetland preservation acreage per RFP 16-001117.

Prior to restoration the stream channels and wetlands were highly disturbed due to the presence of livestock that had unrestricted access to the riparian areas and stream channels. The riparian vegetation was decimated by overgrazing and trampling. The subsequently bare banks were then subject to severe erosion that was only exacerbated by hooves of the cattle.

1.2. Project Approach

Channel restoration involving improved pattern, dimension, and profile was completed on all four stream reaches. Priority I and II approaches were applied to the mainstem North Fork Mountain Creek (Rosgen 1996; NCSRI 2004), whereas only a Priority II approach was used on the tributary reaches. A total of 1.17 acres of wetlands were restored along reaches 1, 2, 3, and 4, while 3.27 acres of wetlands were created along reaches 2 and 4 (Figure 2).

1.3. Project Goals

The primary and secondary project goals, as outlined in the 2011 restoration plan, are as follows:

Primary goals:

- Provide stable stream channels throughout 5,180 linear feet of channel restoration
- Restore riparian buffers throughout the project site
- Restore 1.16 acres of riparian wetland
- Create 3.03 acres of riparian wetland
- Provide permanent protection through conservation easement for the entire floodplain of North Fork Mountain Creek and its tributaries within the project area.
- Improve water quality by significantly reducing sediment loads from bank erosion and fencing out cattle.

Secondary goals:

- Increase the diversity and quantity of macrobenthos, salamanders, and fish by improving habitat and coarsening of the stream bed
- Improve vegetative communities and terrestrial habitat diversity
- Improve hydrology by increasing groundwater recharge, groundwater and surface water storage, and groundwater/surface water interaction.

1.4. Success Criteria

1.4.1. Stream

Success criteria pertain to the stability of the restored channel's dimension, pattern, and sediment transport. The restored channel must demonstrate the general maintenance of a stable cross-section and have hydrologic access to the floodplain over the monitoring period. The restoration reach should mimic reference reach conditions and the channel will be considered stable if there are little or insignificant changes from the as-built dimensions. Some change in stream dimension is natural and expected.

Traditionally, the success of a stream's pattern and dimension is determined utilizing the dimensionless ratios of reference reaches. The range of values for the dimensionless ratios of the reference reaches are applied to the design reaches. In this case, design reaches are deemed successful if the variability of its pattern and dimension remain within the range of the dimensionless ratios taken from the reference reaches, plus or minus one-half the value of that range. For the North Fork Mountain Creek restoration project, dimensionless ratios of the design reaches vary slightly from the dimensionless ratios of the reference reaches. As a result, the restoration will be determined to be successful if the dimensionless ratios of the pattern and dimension of the restoration reaches remain within their 'as-built' range, plus or minus one-half the value of the range of the dimensionless ratios of the reference reaches. Pattern features (bedform distributions and riffle/pool lengths and slopes) should demonstrate little adjustment within the 7-year monitoring period. In terms of sediment transport, no significant trend in the aggradational or depositional potential of the restoration reaches should occur over the monitoring period. A minimum of two-bankfull events must be documented by crest gage [data] within the standard monitoring period.

1.4.2. Wetland

As per USACE (2003) guidelines, wetlands exhibiting water within 12 inches of the surface consecutively between 5% and 12.5% of the growing season in most years may be considered functional wetlands. The growing season at the North Fork Mountain Creek site extends from March 21 to November 11, a total of 236 days (NRCS 2012). Restored wetland hydrology is being compared to reference wetland hydrology both on-site and at the South Fork project (NCNCDMS Project No. 346, unpublished data). Based on data collected on-site, an 8% hydroperiod will be used as success criteria for this project.

1.5. Project Performance

This report presents the results of the Monitoring Year 5 (MY5) visual, morphological, vegetative, and groundwater data collected from 26 cross-sections, 12 bank pin arrays, 2 crest gauges, 16 automated groundwater monitoring stations, 1 automated rain gauge, 14 vegetative monitoring plots, and 31 photographic reference locations: as specified in the approved Restoration Plan and Baseline Report (EBX 2009, 2012).

Visual assessment of the site consisted of re-visiting 31 photographic reference locations (Appendix B), visually assessing the integrity of the channel and structures, assessing the establishment of planted and volunteer vegetation, and documenting the presence of invasive plant species. Problem areas consist of

stream bed degradation and aggradation, bank scour, and stressed structures (Appendix B, Figure 2, Table 4a). RES will address any areas of severe aggradation, degradation, and scour throughout the site that presents a stream stability problem. Remedial work would include adding riffle material, adding live stakes along the banks, and if necessary installing grade control structures in the riffles where degradation is present. Vegetation problem areas consist of small, localized pockets of poor growth/vigor and low stem density (Appendix B, Figure 2, Table 4b). Representative photos of problem areas are located in Appendix B. Photos of each problem area can be accessed through the digital e-submission file submitted to NCDMS.

Stream morphology data collected during MY5 indicates that, in general, the stream is stable. However, several noticeable changes were noted in the cross-section dimensions between MY3 and MY5 monitoring efforts. Cross-sections 1 and 2, located in Reach 4, remained relatively stable between MY3 and MY5. The formation of a berm on the left descending bank (LDB) of cross-section 1 led to a one foot decrease in bankfull width. Deposition of fine sediment has reduced the max depths at cross-sections 1 and 2, 0.2 feet and 0.3 foot, respectively. Cross-sections 3 through 11, located in Reach 2, remained stable between MY3 and MY5. The most significant changes took place at the lower end of the reach, with cross-sections 10 and 11 demonstrating the greatest change between MY3 and MY5. At cross-section 10 the bankfull width decreased by 1.0 foot and the max depth increased by 0.5 foot, ultimately decreasing the width/depth (W/D) ratio from 17.8 to 12.4. Scour along the right descending bank (RDB) at cross-section 11 led to an increased bankfull width of 1.7 feet. Reach 3, containing cross-sections 12 and 13, also remained somewhat stable between MY3 and MY5. The most substantial change took place at cross-section 13, where deposition along the RDB decreased bankfull width by 1.0 foot. Reach 1 cross-sectional dimensions, which includes cross-sections 14 through 26, remained mostly stable since the last morphological data collection. The most apparent change in morphological dimensions took place at cross-section 22, where the riffle has cut down 0.8 foot between MY3 and MY5.

Substrate monitoring was also performed during MY5. Riffle D_{50} ranged from very fine gravel to coarse gravel for Reach 1, medium sand to medium gravel for Reach 2, and silt/clay for Reaches 3 and 4. Reachwide pebble counts indicated that the D_{50} for Reach 1 was coarse sand, very coarse sand for Reach 2, silt/clay for Reach 3, and very fine sand for Reach 4. Bankpin data indicates that erosion is taking place at cross-sections 4, 5, and 7, which had erosion rates of 0.02, 0.21, and 0.08 foot per year, respectively. Erosion at cross-sections 4 and 5 were associated with areas of scour at the base of log step structures, scouring out around the arm of the structure.

Vegetation data collected during MY5 indicate that all 14 permanent vegetation monitoring plots are currently meeting the seven year vegetative success criteria of 210 stems per acre (Table 5). Average stem density across all plots was 856 stems per acre during MY5 (Table 7b). A total of 20 woody plant species were documented within the vegetation plots. Although, a few small depauperate areas of vegetation and a few areas of poor growth were noted (Figure 2), herbaceous vegetation is well established throughout the easement.

Dry conditions were persistent through the first three months (March, April, and May) of the growing season at NFMC. Precipitation at NFMC was below average for the majority of the growing season with three months falling below the 30th percentile for precipitation in Catawba County (Appendix E, Table 11). During MY5, six of the ten original monitoring wells met the 8% hydroperiod success criteria (Table 12). Hydroperiods for the original wells (NFMC-1 through NFMC-10) ranged from 0.8% to 55.5%. NFMC-1 and NFMC-10's not meeting the success criteria is likely a result of the dry conditions during the beginning of the MY5 growing season. Four supplemental gauges were added in the vicinity of the lacking NFMC 4 and NFMC-5 to better determine the hydrology of the wetland areas located on the right

descending bank (south eastern portion) of reach 2. NFMC-S4 met hydrology success criteria with a hydroperiod of 15.3%, however NFMC-S1, NFMC-S2, and NFMC-S3 located closest to the lacking NFMC-4 and NFMC-5 gauges, did not meet the success criteria during MY5 with hydroperiods of 3.0%, 3.4%, and 4.7%, respectively.

On February 4, 2015, RES, IRT, and DMS conducted an onsite meeting to review and discuss non-performing areas within the restored wetland that were failing to meet wetland criteria based on the Restoration Plan. Based on monitoring well data, portions of the constructed wetland area appeared not to be meeting the minimum hydrology standard, while other areas that were not proposed for restoration did appear to be returning to wetland conditions. RES requested the areas be swapped so that mitigation credit could be obtained for the areas that were returning to wetland in lieu of the area not meeting criteria; to which the IRT agreed. This new area is subject to the same performance standards as the other wetlands restored on the site. Two supplemental wells were installed in this area at the upper end of Reach 2, NFMC-S5 and NFMC-S6, and both met success criteria for MY5 with 41.9% and 86.4% hydroperiods, respectively.

Since project completion in June 2012 five bankfull events have occurred at the project site (Table 10). An initial bankfull event occurred in August 2012, which registered 0.58 foot above bankfull on UT1-Reach 2. The crest gauge on North Fork Mountain Creek- Reach 1 was damaged from the event and, as a consequence, the water level above bankfull could not be determined; however, the event was photo documented. A second event was documented using wrack lines in January 2013. The third event registered on the Reach 1 crest gauge as 0.33 foot above bankfull. The Reach 2 crest gauge did not register a bankfull event; however, photo-documentation of wrack lines along the reach indicated that a bankfull event did occur on this reach as well. During MY4, crest gauge data and wrack line observations on both Reach 1 and Reach 2 indicated a bankfull event had occurred (Appendix E; Table 10). During MY5, one bankfull event was noted on Reach 1 with the crest gauge recording a water level 0.10 foot above bankfull.

Summary information/data related to the occurrence of such things as beaver or encroachment, and statistics related to performance of various project and monitoring elements can be found in the tables and figures in the report appendices. Additional background and supporting information can be found in the Baseline Monitoring Report (EBX 2012) and in the Mitigation Plan (EBX 2011) documents.

2.0 METHODS

This report presents the results of the Monitoring Year 5 (MY5) visual, hydrologic, and morphological data from 26 cross sections, 12 bank pin arrays, 2 crest gauges, 16 automated groundwater monitoring stations, 1 automated rain gauge, 14 vegetation monitoring plots, and 31 photographic reference locations; as specified in the approved Restoration Plan and Baseline Report (EBX 2011, 2012).

Visual assessment of the stream was performed quarterly. Permanent photo station photos at 31 photographic reference locations were collected during the initial visual assessment at the beginning of the monitoring year during leaf-off conditions. Additional photos of vegetation or stream problem areas were documented with photographs and included in the electronic data submittal.

Geomorphological measurements were taken during low flow conditions using a Nikon NPR 332 Total Station. Three-dimensional coordinates associated with cross-sections were collected in the field and geo-referenced (NAD83 State Plane feet FIPS 3200). Morphological data was limited to 26 cross-sections, as collection of longitudinal profile is not required during annual monitoring events. Survey

data was imported into CAD, ArcGIS, and Excel for data processing and analysis. Channel substrate was characterized using a Wolman Pebble Count outlined in the Harrelson et al. (1994) and processed using Microsoft Excel. Pebble counts were conducted at all riffle cross-sections; a reachwide pebble count was made in each reach. Bank-pin arrays were installed at each pool cross-section. Pins were installed at three locations at each cross-section; the upper-third, at the cross-section, and the lower-third of the bend. The first set of pins was installed at the "normal" water line with an additional set of pins installed for each 2-feet increment of vertical bank. Once per monitoring year, starting in MY3, the length of exposed pin was recorded and the pin reset flush with the bank.

Vegetation success is being monitored using 14 permanent monitoring plots. Vegetation monitoring follows the CVS-EEP Level 2 Protocol for Recording Vegetation, Version 4.2 (Lee et al. 2008) and includes analysis of composition and density of planted species. Data is processed using the CVS data entry tool. In the field, the four corners of each plot were permanently marked with rebar and photos of each plot are taken from the origin each monitoring year.

Precipitation data was collected using an Onset HOBO Data Logging Rain Gauge. Groundwater for hydrologic success of the restored wetlands was monitored using 16 Onset HOBO U20 Water Level Loggers. An additional logger was installed on site, above ground, for use as a barometric reference. Data loggers collected depth to groundwater daily and all data were processed using HOBOware and analyzed using Microsoft Excel.

Bankfull events were documented with crest gauges located on Reaches 1 and 2. During quarterly visits to the site, the height of the corkline in each gauge was recorded and cross-referenced with known bankfull elevations at each crest gauge.

3.0 REFERENCES

EBX (Environmental Banc & Exchange). 2011. North Fork Mountain Creek Stream and Wetland Restoration, Restoration Plan, Catawba County, North Carolina. NCEEP Project No. 94151. Raleigh, North Carolina.

EBX (Environmental Banc & Exchange). 2012. North Fork Mountain Creek Stream and Wetland Restoration Final Baseline Monitoring Document and As-Built Baseline Report. Catawba County, North Carolina. NCEEP Project Number 94151. Prepared by Stantec Consulting Services, Inc. for EBX. Raleigh.

Harrelson, Cheryl, C. Rawlins and J. Potyondy. 1994. Stream Channel Reference Sites: An Illustrated Guide to Field Technique. General Technical Report RM-245. Rocky Mountain Forest and Range Experiment Station. USDA Forest Service. Fort Collins, Colorado.

Lee, M.T., Peet, R.K., Roberts, S.D. and T.R. Wentworth. 2008. CVS-EEP Protocol for Recording Vegetation. Version 4.2. http://cvs.bio.unc.edu/methods.htm; accessed November 2008.

NCDWQ (North Carolina Division of Water Quality). 2010. Catawba River Basinwide Water Quality Plan.

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NCSRI (North Carolina Stream Restoration Institute). 2004. Stream Restoration: A Natural Channel Design Handbook. North Carolina Stream Restoration Institute and North Carolina Sea Grant. Raleigh. http://www.bae.ncsu.edu/programs/extension/wqg/srp/guidebook.html; accessed November 2012.

NRCS (Natural Resources Conservation Service). 2012. Climate Analysis for Wetlands by County. http://www.wcc.nrcs.usda.gov/climate/wetlands.html; accessed June 2012.

Rosgen, D. 1996. Applied River Morphology. Wildland Hydrology. Pagosa Springs, Colorado.

USACE (U.S. Army Corps of Engineers). 2003. Stream Mitigation Guidelines. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, North Carolina Wildlife Resources Commission, North Carolina Department of Environment and Natural Resources-Division of Water Quality. Wilmington District.

USGS (U.S. Geological Survey). 2002. Ecoregions of North Carolina and South Carolina. Color poster with map, descriptive text, summary tables, and photographs. Reston, Virginia.

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Appendix A
General Tables and Figures

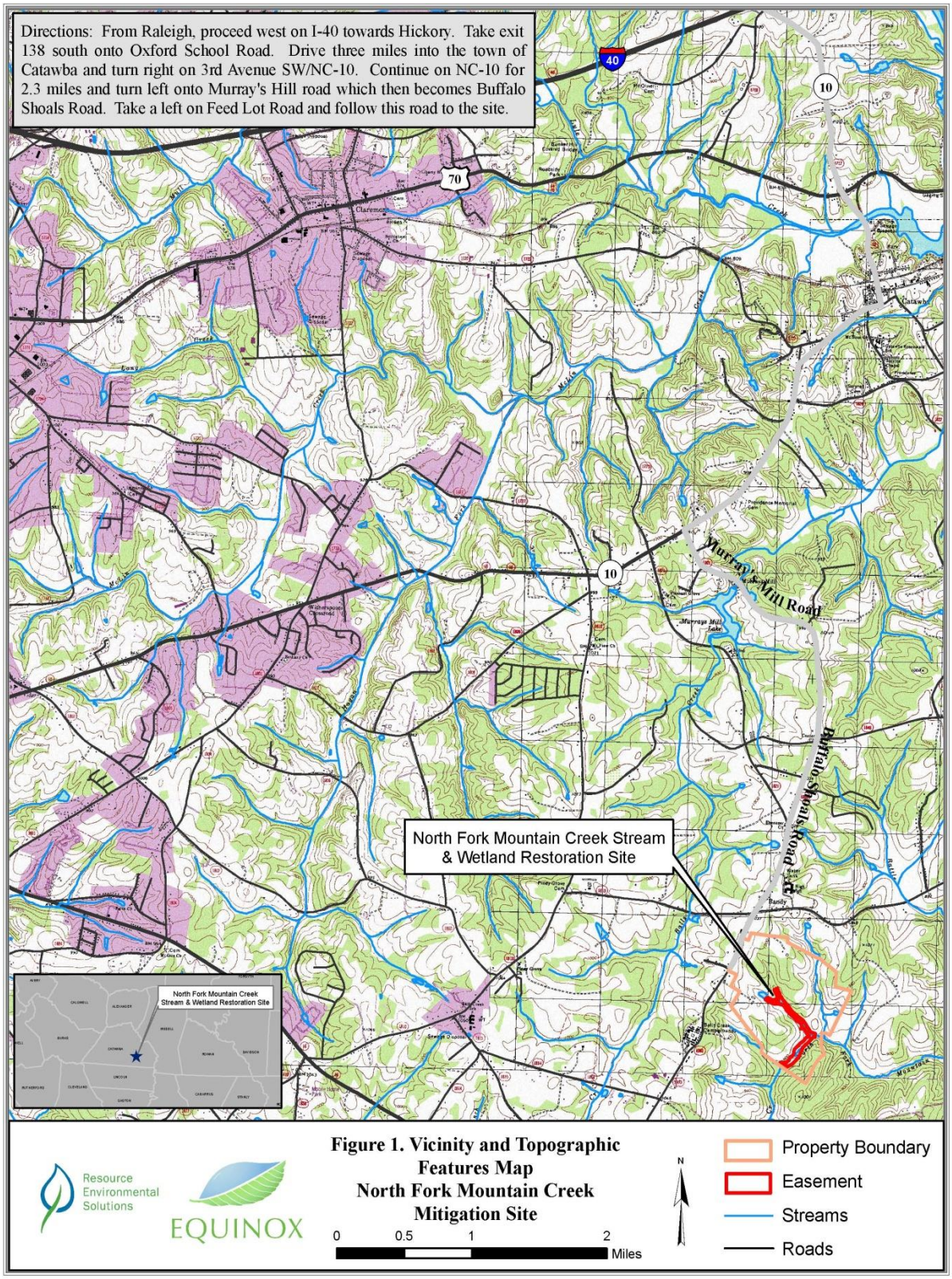

Directions: From Raleigh, proceed west on I-40 towards Hickory. Take exit 138 south onto Oxford School Road. Drive three miles into the town of Catawba and turn right on 3rd Avenue SW/NC-10. Continue on NC-10 for 2.3 miles and turn left onto Murray's Hill road which then becomes Buffalo Shoals Road. Take a left on Feed Lot Road and follow this road to the site.
40
10
70
10
Murray's Mill Road
Buffalo Shoals Road
North Fork Mountain Creek Stream & Wetland Restoration Site
North Fork Mountain Creek Stream & Wetland Restoration Site
Resource Environmental Solutions
EQUINOX
Figure 1. Vicinity and Topographic Features Map
North Fork Mountain Creek Mitigation Site
0
0.5
1
2
Miles
N
Property Boundary
Easement
Streams
Roads

Table 1. Project Components North Fork Mountain Creek Stream & Wetland / Project No. 94151							
Project Component or Reach ID	**Existing Feet/ Acres**	**Restoration Level**	**Approach**	**Restoration or Restoration Equivalent**	**Footage or Acreage**	**Mitigation Ratio**	**Mitigation Credits (WMUs/ SMUs)**
NFMC-4	2,245	R	R (P1/P2)	R	2,231	1:1	2,231
UT1-1	698	R	R (P1)	R	698	1:1	698
UT1-2	1,542	R	R (P1)	R	1,756	1:1	1,756
UT2-3	598	R	R (P1)	R	614	1:1	614
						Total SMUs	5,299
Wetland-R	-	R	R	R	1.2	1:1	1.17
Wetland-C	-	C	C	RE	3.27	2:1	1.64
Wetland-P	0.97	P	-	-	0.97	-	-
						Total WMUs	2.81

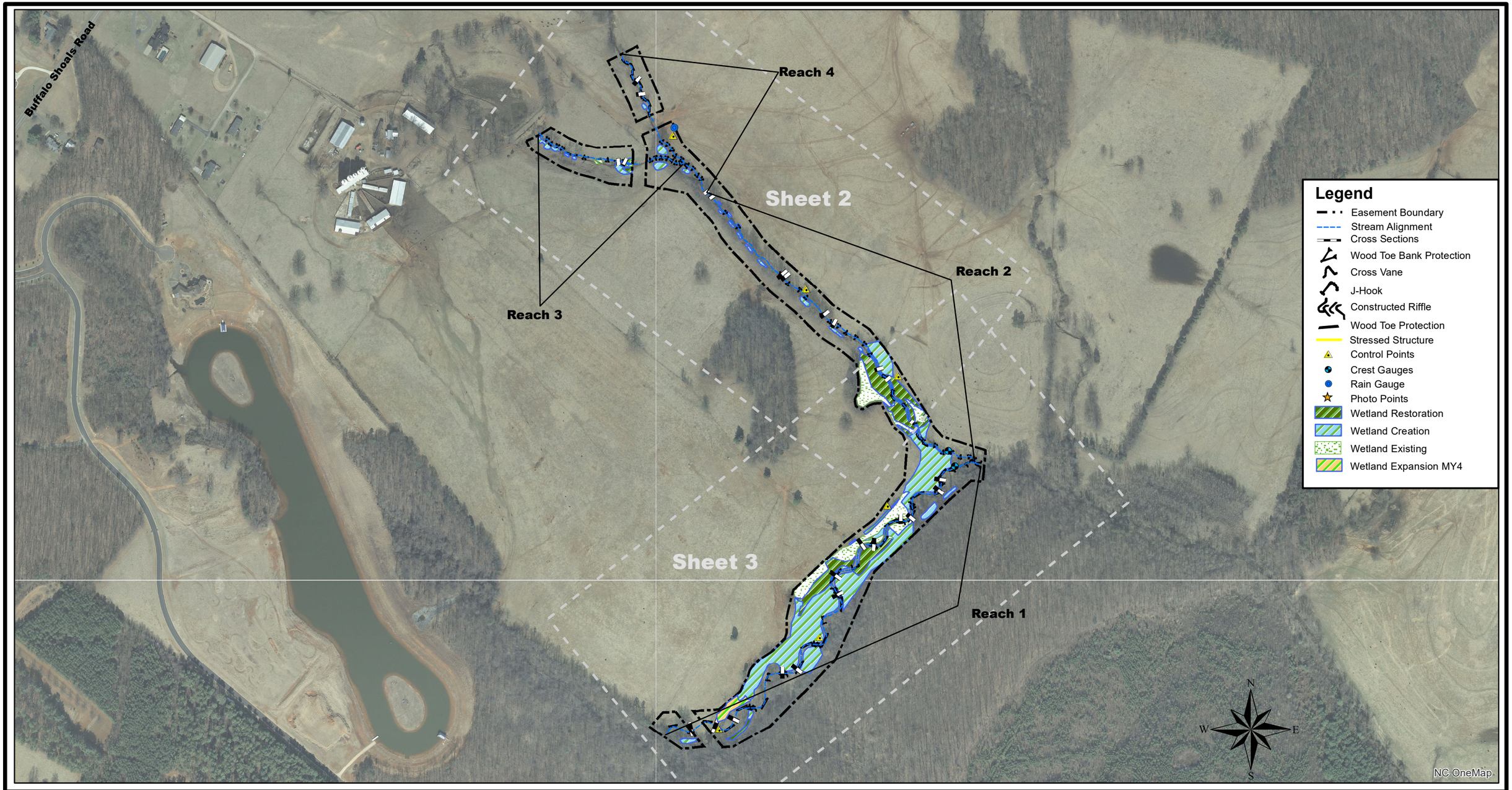
[1]W-R = wetlands restoration; W-C = wetlands creation; W-P = wetlands preservation.
[2]Wetland creation mitigation ratio was 2:1 as agreed upon with the USACE during the 401/404 permitting process (EBX 2012).
[3]Existing wetlands were preserved on the site, but no WMUs were credited to the project.

Table 2. Project Activity and Reporting History		
Activity or Report	**Data Collection Complete**	**Completion or Delivery**
Restoration Plan	Jul-11	Jul-11
Final Design - Construction Plans	N/A	Oct-11
Construction	N/A	May-12
Temporary S&E mix applied to entire project	N/A	May-12
Permanent seed mix applied to Reach	N/A	May-12
Mitigation Plan / As-Built (Year 0 Monitoring - baseline)	Jun-12	Aug-12
Exotic Invasive Plant Control	Jun-12	Jun-12
Year 1 Monitoring – 2012	Dec-12	Jan-13
Year 2 Monitoring – 2013	Nov-13	Nov-13
Year 3 Monitoring – 2014	Nov-14	Dec-14
Mitigation Plan Addendum	Feb-15	May-15
Beaver Dam Removal	-	Sep-15
Year 4 Monitoring – 2015	Nov-15	Dec-15
Year 5 Monitoring – 2016	Nov-16	Dec-16
Year 6 Monitoring – 2017		
Year 7 Monitoring – 2018		

Table 3. Project Contacts (NCDMS Project No. 94151)	
Contact	**Provider Information**
Designer Primary Project Design POC	Stantec Consulting, Inc. 801 Jones Franklin Rd. Suite 300 Raleigh, NC 27606 David Bidelspach (919) 218-0864
Construction Contractor Construction Contractor POC	North State Environmental, Inc. 2889 Lowery St. Winston-Salem, NC 27101 Darrell Westmoreland (336) 725-2010 Nate Martin (336) 725-2010
Planting Contractor 1 Planting Contractor 1 POC	New Forest Services 313 Condon Road Manistee, MI 49660 Brian Jarvinen (231) 590-9198
Planting Contractor 2 Planting Contractor 2 POC	Strader Farms, LLC Kenneth Strader
Seed Mix Sources	Green Resource 5204 Highgreen Court Colfax, NC 27235
Nursery Stock Suppliers	ArborGen (Trees and Livestakes) Blenheim, SC Strader Farms (Livestakes)
Baseline Monitoring Performers (Year 0)	Stantec Consulting Services, Inc. 801 Jones Franklin Rd Suite 300 Raleigh, NC 27606
Stream Monitoring POC	Tim Taylor (704) 329-0900
Vegetation Monitoring POC	N/A
Wetland Monitoring POC	N/A
Annual Monitoring Performers (Year 1-7)	Equinox Environmental Consultation and Design, Inc. 37 Haywood St. Suite 100 Asheville, NC 28801
Stream Monitoring POC	Drew Alderman (828) 253-6856
Vegetation Monitoring POC	Drew Alderman (828) 253-6856
Wetland Monitoring POC	Drew Alderman (828) 253-6856

Appendix B
Visual Assessment Data

Figure 2. Integrated Current Condition Plan View

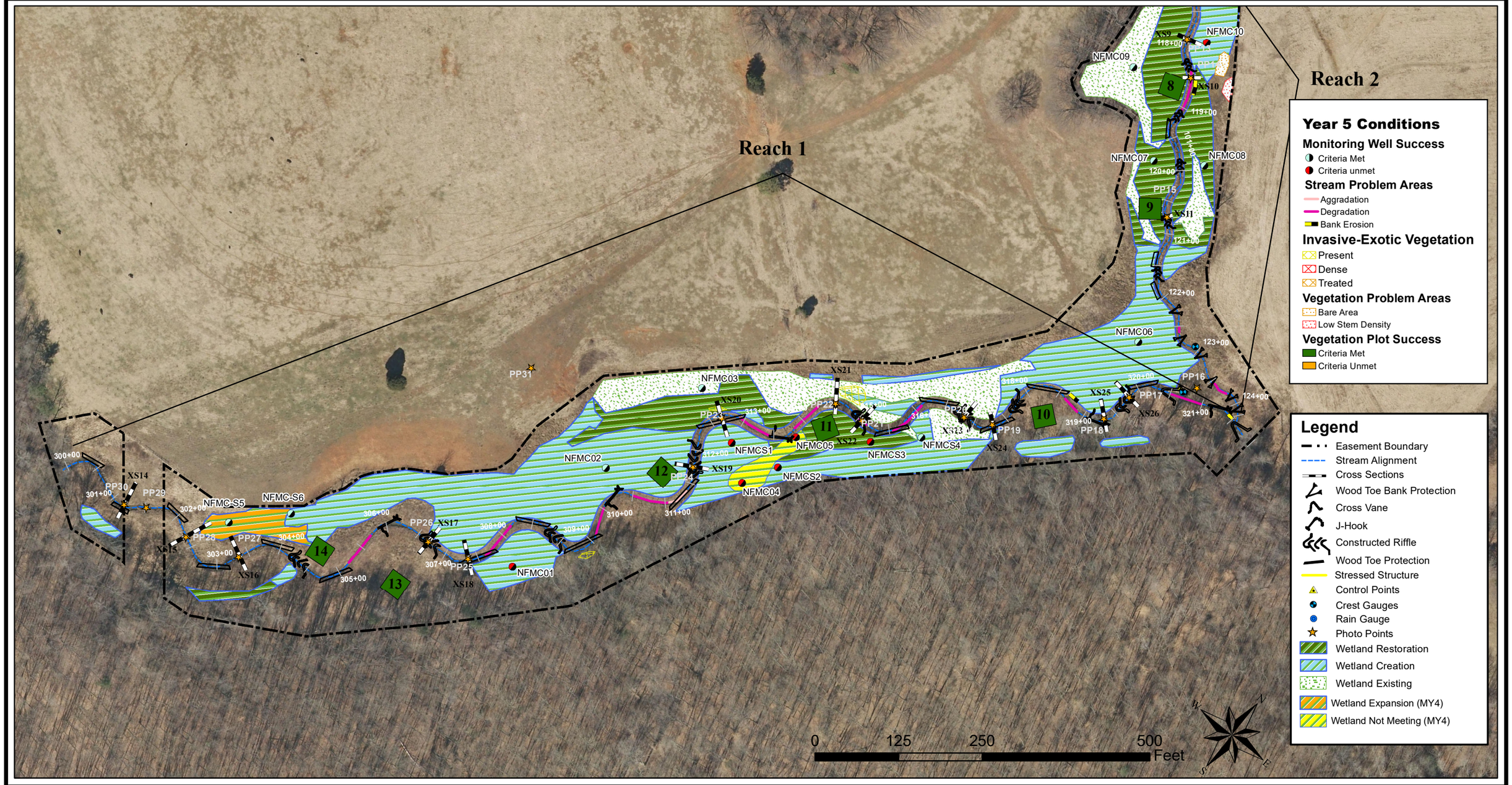


Prepared for	**Project:** North Fork Mountain Creek Stream and Wetland Restoration Year 5 Monitoring Catawba County, North Carolina	Notes: 1) 2010 Aerial Photo 2) Base Map Data Provided by Stantec.	Prepared by:
	Sheet 1 of 3		
	Date	Project Number	
	November 2016	NCEEP # 94151	

Figure 2. Integrated Current Condition Plan View

Prepared for	Project: North Fork Mountain Creek Stream and Wetland Restoration Year 5 Monitoring Catawba County, North Carolina	Notes: 1) 2010 Aerial Photo 2) Base Map Data Provided by Stantec.	Prepared by
res	Sheet 2 of 3		EQUINOX
	Date	Project Number	
	November 2016	NCEEP # 94151	

Figure 2. Integrated Current Condition Plan View



Prepared for	**Project:** North Fork Mountain Creek Stream and Wetland Restoration Year 5 Monitoring Catawba County, North Carolina	Notes: 1) 2010 Aerial Photo 2) Base Map Data Provided by Stantec.	Prepared by
res	Sheet 3 of 3		
	Date	Project Number	EQUINOX
	November 2016	NCEEP # 94151	

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Table 4a. Stream Problem Areas Table North Fork Mountain Creek Stream and Wetland / Project No. 94151				
Reach	**STA**	**Feature**	**Description**	**Notes**
1	305+50, 308+00, 310+00, 313+00, 314+00, 315+00, 318+60, 320+50	Bed	Degradation	
1	311+00	Bed	Aggradation	
1	318+50	Bed/Bank	Degradation/Erosion	
1	320+60	Bank	Erosion/Scour	
1	321+50	Bank	Erosion/Scour	
2	118+50	Bed	Headcut/Degradation	
2	107+60, 112+15	Bank	Erosion/ Scour	
2	110+15, 122+50, 123+50	Bed	Degradation	
2	106+00	Structure	Stressed Structure	
4	102+30	Structure	Stressed Structure	
4	101+60	Bed	Aggradation	

Table 4b. Vegetation Problem Areas Table North Fork Mountain Creek Stream and Wetland / Project No. 94151				
Reach	**STA**	**Feature**	**Description**	**Notes**
1	308+75, 312+60, 314+75	Easement	Invasive Exoitc - Present	*Lonicera japonica, Lingustrum sinense, Typha* spp.; 0.02 acre combined
2	106+00	Bench	Poor Growth Rate/ Vigor	0.03 acre
2	111+50	Bench	Poor Growth Rate/ Vigor	0.01 acre
2	118+50	Easement	Low Stem Density/Bare Area	0.08 acre
3	201+50	Bench	Low Stem Density/Bare Area	0.04 acre
3	200+50	Easement	Invasive Exotic - Present	*Lonicera japonica;* 0.06 acre
3	203+50	Bench	Poor Growth Rate/ Vigor	0.06 acre
3	205+50	Easement	Low Stem Density/Bare Area	0.12 acre
4	100+50, 103+00, 104+00	Easement	Invasive Exoitc - Present	*Lonicera japonica, Lingustrim sinense;* 0.03 acre combined
4	103+60	Easement	Low Stem Density/Bare Area	0.03 acre

Reach 4 Permanent Photo Points

Reach 4 – Permanent Photo Point 1
Downstream
March 9, 2016

Reach 4 – Permanent Photo Point 2
Downstream
March 9, 2016

Reach 4 Permanent Photo Points

Reach 4 – Permanent Photo Point 3
Downstream
March 9, 2016

Reach 4 – Permanent Photo Point 3
Upstream
March 9, 2016

Reach 3 Permanent Photo Points

Reach 3 – Permanent Photo Point 4
Downstream
March 9, 2016

Reach 3 – Permanent Photo Point 5
Downstream
March 9, 2016

Reach 3 Permanent Photo Points

Reach 3 – Permanent Photo Point 6
Downstream
March 9, 2016

Reach 3 – Permanent Photo Point 6
Upstream
March 9, 2016

Reach 2 Permanent Photo Points

Reach 2 – Permanent Photo Point 7
Downstream
March 9, 2016

Reach 2 – Permanent Photo Point 8
Downstream
March 9, 2016

Reach 2 Permanent Photo Points

Reach 2 – Permanent Photo Point 9
Downstream
March 9, 2016

Reach 2 – Permanent Photo Point 10
Downstream
March 9, 2016

Reach 2 Permanent Photo Points

Reach 2 – Permanent Photo Point 11
Downstream
March 9, 2016

Reach 2 – Permanent Photo Point 12
Downstream
March 9, 2016

Reach 2 Permanent Photo Points

Reach 2 – Permanent Photo Point 13
Downstream
March 9, 2016

Reach 2 – Permanent Photo Point 14
Downstream
March 9, 2016

Reach 2 Permanent Photo Points

Reach 2 – Permanent Photo Point 15
Downstream
March 9, 2016

Reach 2 – Permanent Photo Point 16
North
March 9, 2016

Reach 2 Permanent Photo Points

Reach 2 – Permanent Photo Point 16
Northwest
March 9, 2016

Reach 1 Permanent Photo Points

Reach 1 – Permanent Photo Point 16
Southwest
March 9, 2016

Reach 1 – Permanent Photo Point 17
Downstream
March 9, 2016

Reach 1 Permanent Photo Points

Reach 1 – Permanent Photo Point 18
Downstream
March 9, 2016

Reach 1 – Permanent Photo Point 19
Downstream
March 9, 2016

Reach 1 Permanent Photo Points

Reach 1 – Permanent Photo Point 20
Downstream
March 9, 2016

Reach 1 – Permanent Photo Point 21
Downstream
March 9, 2016

Reach 1 Permanent Photo Points

Reach 1 – Permanent Photo Point 22
Downstream
March 9, 2016

Reach 1 – Permanent Photo Point 23
Downstream
March 9, 2016

Reach 1 Permanent Photo Points

Reach 1 – Permanent Photo Point 24
Downstream
March 9, 2016

Reach 1 – Permanent Photo Point 25
Downstream
March 9, 2016

Reach 1 Permanent Photo Points

Reach 1 – Permanent Photo Point 26
Downstream
March 9, 2016

Reach 1 – Permanent Photo Point 27
Downstream
March 9, 2016

Reach 1 Permanent Photo Points

Reach 1 – Permanent Photo Point 28
Downstream
March 9, 2016

Reach 1 – Permanent Photo Point 29
Downstream
March 9, 2016

Reach 1 Permanent Photo Points

Reach 1 – Permanent Photo Point 29
Upstream
March 9, 2016

Reach 1 – Permanent Photo Point 30
Downstream
March 9, 2016

Reach 1 Permanent Photo Points

Reach 1 – Permanent Photo Point 31
Northeast
March 9, 2016

Reach 1 – Permanent Photo Point 31
Southeast
March 9, 2016

Reach 1 Permanent Photo Points

Reach 1 – Permanent Photo Point 31
South
March 9, 2016

Vegetation Plots

Vegetation Plot 1

Vegetation Plot 2

Vegetation Plot 3

Vegetation Plot 4

Vegetation Plot 5

Vegetation Plot 6

Vegetation Plot 7

Vegetation Plot 8

Vegetation Plot 9

Vegetation Plot 10

Vegetation Plots

Vegetation Plot 11

Vegetation Plot 12

Vegetation Plots

Vegetation Plot 13

Vegetation Plot 14

Representative Photos Documenting Bankfull Events

Reach 1 Crest Gauge

Representative Photos of Stream and Vegetation Areas Requiring Observation

Reach 1 Sta. 305+50 – Riffle Degradation

Reach 1 Sta. 308+00– Riffle Degradation

Reach 1 Sta. 313+00 – Riffle Degradation

Reach 1 Sta. 314+00– Riffle Degradation

Reach 1 Sta. 316+60 – Bank Erosion

Reach 2 Sta. 106+00– Stressed Structure

Reach 2 Sta. 110+50 – Headcut/ Bed Degradation

Reach 4 Sta. 101+50 – Channel Aggradation

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Appendix C
Vegetation Plot Data

Table 5. MY5 Vegetation Plot Criteria Attainment North Fork Mountain Creek - Project No. 94151		
Vegetation Plot ID	**Vegetation Survival Threshold Met?**	**Tract Mean**
1	Yes	100%
2	Yes	
3	Yes	
4	Yes	
5	Yes	
6	Yes	
7	Yes	
8	Yes	
9	Yes	
10	Yes	
11	Yes	
12	Yes	
13	Yes	
14	Yes	

Table 6. CVS Vegetation Plot Metadata North Fork Mountain Creek - Project No. 94151	
Report Prepared By	Owen Carson
Date Prepared	9/29/2016 12:44
database name	Equinox_2016_NFMC_MY5.mdb
database location	Z:\ES\NRI&M\EBX Monitoring\NF Mountain Creek\NFMC-MY5-2016\Data\Veg
computer name	FIELDTECH3-PC
file size	46088192
DESCRIPTION OF WORKSHEETS IN THIS DOCUMENT----------	
Metadata	Description of database file, the report worksheets, and a summary of project(s) and project data.
Proj, planted	Each project is listed with its PLANTED stems per acre, for each year. This excludes live stakes.
Proj, total stems	Each project is listed with its TOTAL stems per acre, for each year. This includes live stakes, all planted stems, and all natural/volunteer stems.
Plots	List of plots surveyed with location and summary data (live stems, dead stems, missing, etc.).
Vigor	Frequency distribution of vigor classes for stems for all plots.
Vigor by Spp	Frequency distribution of vigor classes listed by species.
Damage	List of most frequent damage classes with number of occurrences and percent of total stems impacted by each.
Damage by Spp	Damage values tallied by type for each species.
Damage by Plot	Damage values tallied by type for each plot.
Planted Stems by Plot and Spp	A matrix of the count of PLANTED living stems of each species for each plot; dead and missing stems are excluded.
ALL Stems by Plot and spp	A matrix of the count of total living stems of each species (planted and natural volunteers combined) for each plot; dead and missing stems are excluded.
PROJECT SUMMARY----------	
Project Code	171300307
project Name	North Fork Mountain Creek
Description	
River Basin	Catawba
length(ft)	
stream-to-edge width (ft)	
area (sq m)	
Required Plots (calculated)	
Sampled Plots	14

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Table 7a. Planted and Total Stem Counts (Species by Plot with Annual Means)
North Fork Mountain Creek / Project No. 94151

			Current Plot Data (MY5 2016)																												
			Plot 1			Plot 2			Plot 3			Plot 4			Plot 5			Plot 6			Plot 7			Plot 8			Plot 9			Plot 10		
Scientific Name	Common Name	Species Type	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Acer rubrum	Red Maple	Tree												12						1												
Acer rubrum var. rubrum	Red Maple	Tree																														
Alnus serrulata	Hazel Alder	Shrub										1	1	2												1					6
Betula nigra	River Birch	Tree																						4	4	4	2	2	2	5	5	5
Carpinus caroliniana	American Hornbeam	Tree																												1	1	1
Carpinus caroliniana var. caroliniana	Coastal American Hornbeam	Tree																												1	1	1
Cephalanthus occidentalis	Common Buttonbush	Shrub																														
Cornus amomum	Silky Dogwood	Shrub	1	1	1			1	1	1	1																					
Diospyros virginiana	Common Persimmon	Tree						1																		4						
Fraxinus pennsylvanica	Green Ash	Tree	1	1	2	4	4	4	1	1	1	9	9	9				1	1	1	4	4	4	2	2	2	3	3	3	2	2	2
Juglans nigra	Black Walnut	Tree							3	3	3	1	1	1																2	2	2
Juniperus virginiana	Eastern Redcedar	Tree																														
Liquidambar styraciflua	Sweetgum	Tree			1						1									22												3
Liriodendron tulipifera	Tuliptree	Tree	3	3	4	2	2	2	5	5	5	2	2	4	9	9	9	6	6	10			5							4	4	4
Liriodendron tulipifera var. tulipifera	Tulip-tree	Tree																														
Nyssa sylvatica	Blackgum	Tree																														
Platanus occidentalis	American Sycamore	Tree	1	1	1	3	3	3	2	2	2	10	10	10	4	4	4	1	1	1	15	15	15	12	12	12	10	10	10	3	3	3
Platanus occidentalis var. occidentalis	Sycamore, Plane-tree	Tree																														
Prunus serotina var. serotina	Black Cherry	Tree																														
Prunus serrulata	Japanese Flowering Cherry				4			4									5			3											
Quercus	Oak	Tree																														
Quercus alba	White Oak	Tree	6	6	7	1	1	1	1	1	1				6	6	6	4	4	4	3	3	3									
Quercus phellos	Willow Oak	Tree	1	1	1	7	7	7	6	6	6	6	6	6	4	4	4	5	5	5	8	8	8	6	6	6	3	3	3	4	4	4
Quercus rubra	Northern Red Oak	Tree	2	2	2	1	1	1							2	2	2	1	1	1	2	2	2									
Quercus rubra var. rubra	Northern Red Oak	Tree																														
Rhus	Sumac	shrub																														
Rhus aromatica var. aromatica	Fragrant Sumac	Shrub																														
Rhus glabra	Smooth Sumac	shrub																														
Rhus typhina	Staghorn Sumac	shrub						10			8						3						8									
Salix nigra	Black Willow	Tree												9												2			1			1
Unknown		Shrub or Tree																														
Stem count			15	15	23	18	18	34	19	19	28	29	29	53	25	25	33	18	18	48	32	32	45	24	24	31	18	18	19	22	22	32
size (ares)			1			1			1			1			1			1			1			1			1			1		
size (ACRES)			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02			0.02		
Species count			7	7	9	6	6	10	7	7	9	6	6	8	5	5	7	6	6	9	5	5	7	4	4	7	4	4	5	8	8	11
Stems per ACRE			607	607	931	728	728	1,376	769	769	1,133	1,174	1,174	2,145	1,012	1,012	1,335	728	728	1,942	1,295	1,295	1,821	971	971	1,255	728	728	769	890	890	1,295

Color for Density
Exceeds requirements by 10%
Exceeds requirements, but by less than 10%
Fails to meet requirements, by less than 10%
Fails to meet requirements by more than 10%

Table 7a. Planted and Total Stem Counts (Species by Plot with Annual Means)
North Fork Mountain Creek / Project No. 94151

		Current Plot Data (MY5 2016)												Annual Means													
		Species	Plot 11			Plot 12			Plot 13			Plot 14			MY5 (2016)			MY3 (2014)			MY2 (2013)			MY1 (2012)			MY0 (2012)		
Scientific Name	Common Name	Type	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Acer rubrum	Red Maple	Tree															13											
Acer rubrum var. rubrum	Red Maple	Tree																		7			1					
Alnus serrulata	Hazel Alder	Shrub			7	1	1	2	2	2	3			1	4	4	22	4	4	52	4	4	51	3	3	17	3	3	3
Betula nigra	River Birch	Tree				7	7	7				3	3	3	21	21	21	21	21	24	21	21	21	24	24	24	25	25	25
Carpinus caroliniana	American Hornbeam	Tree	3	3	8	1	1	1							5	5	10	5	5	5	7	7	7	7	7	7	8	8	8
Carpinus caroliniana var. caroliniana	Coastal American Hornbeam	Tree													1	1	1	1	1	1	1	1	1						
Cephalanthus occidentalis	Common Buttonbush	Shrub				2	2	2	1	1	1				3	3	3	4	4	4	4	4	7	4	4	4	4	4	4
Cornus amomum	Silky Dogwood	Shrub			10						1			1	2	2	15	4	4	12	4	4	6	3	3	3			
Diospyros virginiana	Common Persimmon	Tree															5			5			3						
Fraxinus pennsylvanica	Green Ash	Tree	3	3	3	1	1	1	1	1	1	7	7	7	39	39	40	39	39	40	40	40	40	41	41	41	44	44	44
Juglans nigra	Black Walnut	Tree	1	1	1				1	1	1	2	2	2	10	10	10	11	11	11	11	11	14	10	10	10	11	11	11
Juniperus virginiana	Eastern Redcedar	Tree									2						2												
Liquidambar styraciflua	Sweetgum	Tree			85			4			18			6			140			73			15			10			
Liriodendron tulipifera	Tuliptree	Tree	2	2	2				3	3	3	2	2	9	38	38	57	39	39	39	40	40	40	41	41	45	47	47	47
Liriodendron tulipifera var. tulipifera	Tulip-tree	Tree																		5			11						
Nyssa sylvatica	Blackgum	Tree																								5			
Platanus occidentalis	American Sycamore	Tree	9	9	9	8	8	8	2	2	2	1	1	1	81	81	81	84	84	84	86	86	86	86	86	86	91	91	91
Platanus occidentalis var. occidentalis	Sycamore, Plane-tree	Tree																		7			3						
Prunus serotina var. serotina	Black Cherry	Tree																		6			3						
Prunus serrulata	Japanese Flowering Cherry																16												
Quercus	Oak	Tree																						3	3	3	28	28	28
Quercus alba	White Oak	Tree													21	21	22	20	20	20	19	19	19	5	5	5			
Quercus phellos	Willow Oak	Tree	4	4	4	3	3	3	4	4	4	2	2	2	63	63	63	62	62	63	67	67	67	62	62	62	49	49	49
Quercus rubra	Northern Red Oak	Tree													8	8	8	10	10	10	11	11	11	23	23	23	31	31	31
Quercus rubra var. rubra	Northern Red Oak	Tree																		2									
Rhus	Sumac	shrub																								5			
Rhus aromatica var. aromatica	Fragrant Sumac	Shrub																					6						
Rhus glabra	Smooth Sumac	shrub																		8			1						
Rhus typhina	Staghorn Sumac	shrub															29												
Salix nigra	Black Willow	Tree						5									18			17			6			3			
Unknown		Shrub or Tree																									1	1	1
Stem count			22	22	129	23	23	33	14	14	36	17	17	32	296	296	576	304	304	495	315	315	419	312	312	353	342	342	342
size (ares)			1			1			1			1			14			14			14			14			14		
size (ACRES)			0.02			0.02			0.02			0.02			0.35			0.35			0.35			0.35			0.35		
Species count			6	6	9	7	7	9	7	7	10	6	6	9	13	13	20	13	13	22	13	13	22	13	13	17	12	12	12
Stems per ACRE			890	890	5,220	931	931	1,335	567	567	1,457	688	688	1,295	856	856	1,665	879	879	1,431	911	911	1,211	902	902	1,020	989	989	989

Color for Density
Exceeds requirements by 10%
Exceeds requirements, but by less than 10%
Fails to meet requirements, by less than 10%
Fails to meet requirements by more than 10%

Appendix D
Stream Geomorphology Data

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Table 8. Monitoring Data - Dimensional Morphology Summary
(Dimensional Parameters - Cross-Sections)
North Fork Mountain Creek Stream & Wetland / Project No. 94151 - Reach 1 (2,231 feet)

	Cross-Section 14 Pool								Cross-Section 15 Riffle								Cross-Section 16 Riffle								Cross-Section 17 Riffle								Cross-Section 18 Pool							
Dimension	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	890.9	890.9	890.9	890.9	-	890.9			889.7	889.7	889.7	889.7	-	889.7			889.4	889.4	889.4	889.4	-	889.4			886.6	886.6	886.6	886.6	-	886.6			886.2	886.2	886.2	886.2	-	886.2		
Bankfull Width (ft)	20.6	19.4	18.3	18.4	-	19.1			17.3	16.3	16.2	16.1	-	16.2			19.3	18.6	18.7	18.4	-	18.5			17.5	18.6	19.8	19.4	-	19.6			25.8	27.8	27.2	28.0	-	28.5		
Floodprone Width (ft)	59.3	>150.0	>150.0	>150.0	-	>150.0			100.0	>150.0	>150.0	>150.0	-	>150.0			55.7	>150.0	>150.0	>150.0	-	>150.0			50.3	>150.0	>150.0	>150.0	-	>150.0			53.3	>150.0	>150.0	>150.0	-	>150.0		
Bankfull Mean Depth (ft)	1.2	1.3	1.4	1.3	-	1.1			1.2	1.0	1.0	1.0	-	1.1			1.3	1.2	1.2	1.2	-	1.1			1.4	1.2	1.2	1.2	-	1.1			1.4	1.3	1.3	1.2	-	1.0		
Bankfull Max Depth (ft)	3.1	3.0	3.0	3.1	-	3.2			2.2	2.1	2.2	2.2	-	2.6			2.3	2.2	2.2	2.2	-	2.3			2.3	2.2	2.6	2.8	-	2.7			3.4	3.6	3.5	3.2	-	3.1		
Bankfull Cross Sectional Area (ft^2)	25.6	25.0	25.5	24.7	-	22.4			19.9	17.0	16.7	15.9	-	17.1			25.4	22.4	22.5	21.8	-	21.2			23.9	23.0	23.8	24.0	-	22.6			35.1	36	34	32.2	-	29.8		
Bankfull Width/Depth Ratio	16.6	15.0	13.1	13.7	-	16.7			15.1	15.6	15.7	16.2	-	15.4			14.8	15.4	15.6	15.5	-	16.2			12.7	15.0	16.5	15.7	-	17.0			19.0	21.5	21.7	24.3	-	27.3		
Bankfull Entrenchment Ratio	2.9	7.7	8.2	8.6	-	7.9			5.8	9.2	9.3	9.3	-	9.2			2.9	8.1	8.0	8.2	-	8.1			2.9	8.1	7.6	7.7	-	7.6			2.1	5.4	5.5	5.4	-	5.3		
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0		
d50 (mm)	-	-	-	-	-	-			-	-	-	10.0	-	17.0			-	-	-	17.0	-	17.0			-	-	-	18.0	-	10.0			-	-	-	-	-	-		

	Cross-Section 19 Riffle								Cross-Section 20 Pool								Cross-Section 21 Pool								Cross-Section 22 Riffle								Cross-Section 23 Riffle							
Dimension	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	883.0	883.0	883.0	883.0	-	883.0			882.6	882.6	882.6	882.6	-	882.6			880.6	880.6	880.6	880.6	-	880.6			880.0	880.0	880.0	880.0	-	880.0			878.2	878.2	878.2	878.2	-	878.2		
Bankfull Width (ft)	21.7	21.5	22.3	22.1	-	22.5			25.3	24.8	25.1	25.3	-	25.6			23.0	21.4	21.0	21.5	-	20.8			20.7	18.2	18.1	18.0	-	17.9			18.6	19.0	19.6	19.6	-	18.8		
Floodprone Width (ft)	100.0	>150.0	>150.0	>150.0	-	>150.0			56.1	>150.0	>150.0	>150.0	-	>150.0			54.5	>150.0	>150.0	>150.0	-	>150.0			54.0	>150.0	>150.0	>150.0	-	>150.0			39.5	>150.0	>150.0	>150.0	-	>150.0		
Bankfull Mean Depth (ft)	1.2	1.1	1.0	1.0	-	1.0			1.5	1.2	1.1	1.1	-	1.1			1.5	1.5	1.5	1.3	-	1.2			1.1	1.1	1.1	1.1	-	1.3			1.2	1.1	1.1	1.0	-	1.0		
Bankfull Max Depth (ft)	2.1	2.1	2.1	2.2	-	2.4			3.3	2.9	3.0	3.0	-	2.9			3.4	3.4	4.1	3.1	-	3.0			2.2	1.9	2.2	2.3	-	3.1			2.4	2.3	2.5	2.5	-	2.6		
Bankfull Cross Sectional Area (ft^2)	25.8	23.9	23.3	22.5	-	22.5			36.7	30.3	28.8	28.3	-	27.2			34.2	31.5	31.9	27.8	-	25.7			22.0	19.6	19.6	19.9	-	22.6			22.7	21.0	21.0	19.8	-	19.3		
Bankfull Width/Depth Ratio	18.2	19.4	21.4	21.7	-	22.6			17.4	20.3	22.0	22.6	-	24.1			15.5	14.5	13.9	16.6	-	16.9			19.6	17.0	16.7	16.3	-	14.3			15.2	17.3	18.3	19.4	-	18.3		
Bankfull Entrenchment Ratio	4.6	7.0	6.7	6.8	-	6.7			2.2	6.0	6.0	5.9	-	5.9			2.4	7.0	7.1	7.0	-	7.2			2.6	8.2	8.3	8.3	-	8.4			2.1	7.9	7.6	7.7	-	8.0		
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0		
d50 (mm)	-	-	-	12.0	-	3.0			-	-	-	-	-	-			-	-	-	-	-	-			-	-	-	29.0	-	5.6			-	-	-	8.9	-	8.5		

	Cross-Section 24 Pool								Cross-Section 25 Pool								Cross-Section 26 Riffle							
Dimension	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	877.8	877.8	877.8	877.8	-	877.8			876.2	876.2	876.2	876.2	-	876.2			875.2	875.2	875.2	875.2	-	875.2		
Bankfull Width (ft)	18.6	18.2	18.6	18.1	-	18.2			18.7	19.4	18.9	19.6	-	20.0			18.8	19.5	19.9	20.5	-	20.2		
Floodprone Width (ft)	42.3	>150.0	>150.0	>150.0	-	>150.0			50.3	>150.0	>150.0	>150.0	-	>150.0			50.1	>150.0	>150.0	>150.0	-	>150.0		
Bankfull Mean Depth (ft)	1.1	1.1	1.1	1.1	-	1.1			1.4	1.4	1.3	1.2	-	1.3			1.0	1.0	1.0	1.0	-	1.0		
Bankfull Max Depth (ft)	2.5	2.5	2.7	2.6	-	2.6			3.0	3.2	3.0	2.9	-	3.0			1.6	2.5	2.3	2.7	-	2.2		
Bankfull Cross Sectional Area (ft^2)	21.2	20.7	20.5	19.4	-	20.8			26.2	26.3	25.3	24.4	-	26.4			19.4	19.8	19.9	19.6	-	20.2		
Bankfull Width/Depth Ratio	16.3	16.0	16.8	16.9	-	15.9			13.3	14.2	14.1	15.7	-	15.2			18.2	19.3	19.9	21.4	-	20.1		
Bankfull Entrenchment Ratio	2.3	8.2	8.1	8.3	-	8.2			2.7	7.7	7.9	7.7	-	7.5			2.7	7.7	7.5	7.3	-	7.4		
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0		
d50 (mm)	-	-	-	-	-	-			-	-	-	-	-							29.0	-	5.8		

- Information unavailable.

Table 8. Monitoring Data - Dimensional Morphology Summary
(Dimensional Parameters - Cross-Sections)
North Fork Mountain Creek Stream & Wetland / Project No. 94151 - Reach 2 (1,756 feet)

	Cross-Section 3 Riffle								Cross-Section 4 Pool								Cross-Section 5 Pool								Cross-Section 6 Riffle								Cross-Section 7 Pool							
Dimension	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	901.2	901.2	901.2	901.2	-	901.2			900.1	900.1	900.1	900.1	-	900.1			892.6	892.6	892.6	892.6	-	892.6			892.6	892.5	892.5	892.5	-	892.5			889.4	889.4	889.4	889.4	-	889.4		
Bankfull Width (ft)	12.8	14.4	14.5	14.0	-	12.8			10.9	9.3	10.8	10.3	-	10.1			9.6	9.8	10.2	10.0	-	10.9			12.0	11.4	12.1	11.6	-	11.7			15.0	12.7	13.6	13.5	-	13.5		
Floodprone Width (ft)	22.5	>25	>25	>23.1	-	>23.1			22.2	>20.0	>20.0	>20.0	-	>20.0			50.9	>50.0	>50.0	>50.0	-	>50.0			45.8	>40	>40	>46.2	-	>46.2			45.4	>40.0	>40.0	>45.0	-	>45.0		
Bankfull Mean Depth (ft)	0.8	0.8	0.8	0.8	-	0.9			0.8	0.9	1.0	1.1	-	1.1			1.2	1.2	1.1	1.2	-	1.2			0.7	0.7	0.7	0.8	-	0.8			0.9	0.9	0.9	0.9	-	0.9		
Bankfull Max Depth (ft)	1.6	1.7	1.7	1.9	-	1.8			1.6	1.5	1.8	2.4	-	2.2			2.3	2.0	2.0	2.5	-	2.2			1.6	1.7	1.7	1.9	-	1.9			2.6	2.2	2.2	2.0	-	2.0		
Bankfull Cross Sectional Area (ft^2)	10.1	11.5	11.7	11.8	-	11.9			9.2	8.0	10.5	11.7	-	10.8			11.0	11.3	11.3	12.4	-	13.3			8.7	8.5	8.8	8.8	-	9.1			13.7	11.8	12.8	12.5	-	12.0		
Bankfull Width/Depth Ratio	16.2	18.0	17.9	16.5	-	13.8			13.0	10.9	11.2	9.1	-	9.5			8.3	8.4	9.1	8.1	-	9.0			16.6	15.2	16.5	15.3	-	14.9			16.5	13.6	14.5	14.5	-	15.2		
Bankfull Entrenchment Ratio	1.0	1.6	1.6	1.7	-	1.8			2.0	2.2	1.9	2.0	-	2.0			5.3	5.2	5.0	5.0	-	4.6			3.8	4.1	3.8	4.0	-	4.0			3.0	3.6	3.4	3.4	-	3.4		
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0		
d50 (mm)	-	-	-	6.9	-	4.0			-	-	-	-	-	-			-	-	-	-	-	-			-	-	-	11.0	-	0.42			-	-	-	-	-	-		

	Cross-Section 8 Riffle								Cross-Section 9 Riffle								Cross-Section 10 Pool								Cross-Section 11 Riffle							
Dimension	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	888.9	888.9	888.9	888.9	-	888.9			883.4	883.4	883.4	883.4	-	883.4			882.8	882.8	882.8	882.8	-	882.8			878.7	878.7	878.7	878.7	-	878.7		
Bankfull Width (ft)	11.9	11.4	12.3	11.4	-	11.9			15.4	12.8	13.0	13.8	-	13.8			13.7	13.3	13.0	12.4	-	11.4			11.3	9.0	7.8	6.3	-	8.0		
Floodprone Width (ft)	50.0	>40.0	>40.0	>40.0	-	>40.0			40.0	>40.0	>40.0	>38.7	-	>38.7			30.0	>150.0	>150.0	>200.0	-	>200.0			30.0	>150.0	>150.0	>150.0	-	>150.0		
Bankfull Mean Depth (ft)	0.9	0.8	0.8	0.8	-	0.8			0.5	0.5	0.5	0.5	-	0.5			0.6	0.6	0.7	0.7	-	0.9			0.7	0.5	0.6	0.7	-	0.7		
Bankfull Max Depth (ft)	1.6	1.7	1.7	1.9	-	2.0			1.1	1.1	1.5	1.5	-	1.3			1.9	1.4	1.8	1.8	-	2.3			1.2	1.0	1.2	1.2	-	1.2		
Bankfull Cross Sectional Area (ft^2)	10.2	9.1	9.4	8.9	-	9.7			8.1	6.1	6.6	7.4	-	6.5			8.8	8.1	8.6	8.6	-	10.5			7.4	4.7	4.9	4.3	-	5.3		
Bankfull Width/Depth Ratio	13.9	14.3	16.0	14.7	-	14.6			29.0	26.8	25.9	25.9	-	29.3			21.3	21.8	19.8	17.8	-	12.4			17.1	17.0	12.4	9.1	-	12.2		
Bankfull Entrenchment Ratio	4.2	3.5	3.3	3.5	-	3.4			2.6	3.0	3.0	2.8	-	2.8			2.2	11.3	15.3	16.2	-	17.5			2.7	16.7	25.7	24.0	-	18.7		
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0		
d50 (mm)	-	-	-	0.062	-	2.4			-	-	-	17.0	-	11.0			-	-	-	-	-	-			-	-	-	12.0	-	6.4		

- Information unavailable.
*Elevation data was offset to match MY2 data

Table 8. Monitoring Data - Dimensional Morphology Summary (Dimensional Parameters - Cross-Sections) North Fork Mountain Creek Stream & Wetland / Project No. 94151 - Reach 3 (698 feet)																
	Cross-Section 12 Riffle								Cross-Section 13 Pool							
Dimension	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	918.0	918.0	918.0	918.0	-	918.0			916.8	916.8	916.8	916.8	-	916.8		
Bankfull Width (ft)	7.2	8.3	7.9	7.5	-	7.8			8.1	7.6	8.6	8.8	-	7.8		
Floodprone Width (ft)	22.8	>30.0	>30.0	>20.0	-	>20.0			33.2	>30.0	>30.0	>30.0	-	>30.0		
Bankfull Mean Depth (ft)	0.6	0.5	0.5	0.5	-	0.5			1.1	1.2	1.1	1.0	-	1.1		
Bankfull Max Depth (ft)	1.0	0.9	0.9	0.8	-	1.0			2.2	2.1	2.0	1.9	-	1.9		
Bankfull Cross Sectional Area (ft^2)	4.2	3.8	3.8	3.5	-	3.6			9.1	9.4	9.4	9.0	-	8.6		
Bankfull Width/Depth Ratio	12.5	17.9	16.4	15.9	-	17.0			7.2	6.1	7.9	8.6	-	7.0		
Bankfull Entrenchment Ratio	3.2	2.7	2.8	2.8	-	3.0			4.1	4.4	3.9	3.8	-	4.3		
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0		
d50 (mm)	-	-	-	0.062	-	0.062			-	-	-	-	-	-		

- Information unavailable.
*Elevation data was offset to match MY2 data

Table 8. Moniroting Data - Dimensional Morphology Summary (Dimensional Parameters - Cross-Sections) North Fork Mountain Creek Stream & Wetland / Project No. 94151 - Reach 4 (614 feet)																
	Cross-Section 1 Riffle								Cross-Section 2 Pool							
Dimension	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**	**Base**	**MY1**	**MY2**	**MY3**	**MY4**	**MY5**	**MY6**	**MY7**
Record Elevation (datum) Used	919.6	919.6	919.6	919.6	-	919.6			917.5	917.5	917.5	917.5	-	917.5		
Bankfull Width (ft)	7.8	8.4	8.4	8.5	-	7.5			7.1	10.2	10.8	10.8	-	11.1		
Floodprone Width (ft)	50.0	>40.0	>40.0	>40.0	-	>40.0			34.2	>40.0	>40	>24.3	-	>24.3		
Bankfull Mean Depth (ft)	0.6	0.5	0.4	0.4	-	0.4			1.5	1.3	1.0	0.8	-	0.5		
Bankfull Max Depth (ft)	0.9	0.8	0.6	0.8	-	0.6			2.1	2.1	2.0	1.5	-	1.2		
Bankfull Cross Sectional Area (ft^2)	4.7	4.2	3.1	3.5	-	2.8			10.6	13.6	10.5	9.1	-	6.0		
Bankfull Width/Depth Ratio	12.8	16.5	22.8	20.3	-	19.8			4.8	7.7	11.2	12.9	-	20.3		
Bankfull Entrenchment Ratio	6.4	5.0	5.0	5.0	-	5.6			4.8	2.4	2.2	2.2	-	2.2		
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	-	1.0			1.0	1.0	1.0	1.0	-	1.0		
d50 (mm)	-	-	-	0.062	-	0.063			-	-	-	-	-	-		

- Information unavailable.
*Elevation data was offset to match MY2 data

Table 9. North Fork Mountain Creek Stream & Wetland / Project No.94151 Bank Pin Arrays					
Cross Section #	Length of Exposed Pin (mm)				
	Upstream	At Cross Section	Downstream	Rate (mm/yr)	Rate (ft/yr)
2	0[B]	0[B]	0[B]	0	0.00
4	-	0[B]	12.7	6.4	0.02
5	69.3	87.6	35.5	64.1	0.21
7	0[B]	0[B]	76.2	25.4	0.08
10	0[B]	0[B]	M	0	0.00
13	0[B]	0[B]	0[B]	0	0.00
14	0[B]	0	M	0	0.00
18	0[B]	0[B]	0[B]	0	0.00
20 (Lower Transect)	0[B]	0[B]	0[B]	0	0.00
20 (Upper Transect)	0[B]	0[B]	0[B]	0	0.00
21	0	0	0[B]	0	0.00
24	0[B]	0[B]	0[B]	0	0.00
25	-	0	0[B]	0	0.00

- Pin not installed due to constraints in bank.

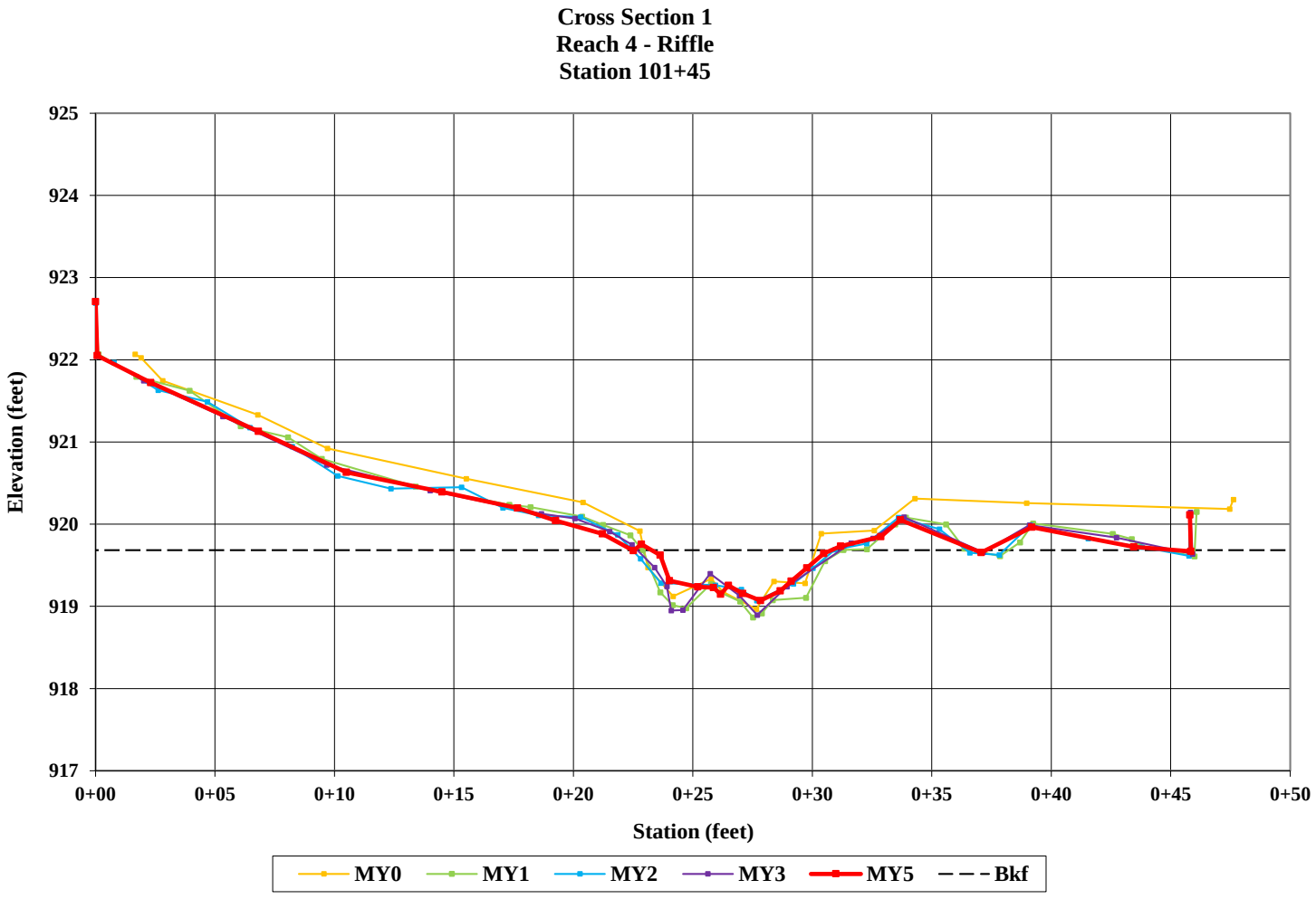
[B] Buried with soft accretions on bank.

M - Missing

Cross Section 1 Reach 4 – Riffle

Left Bank Descending

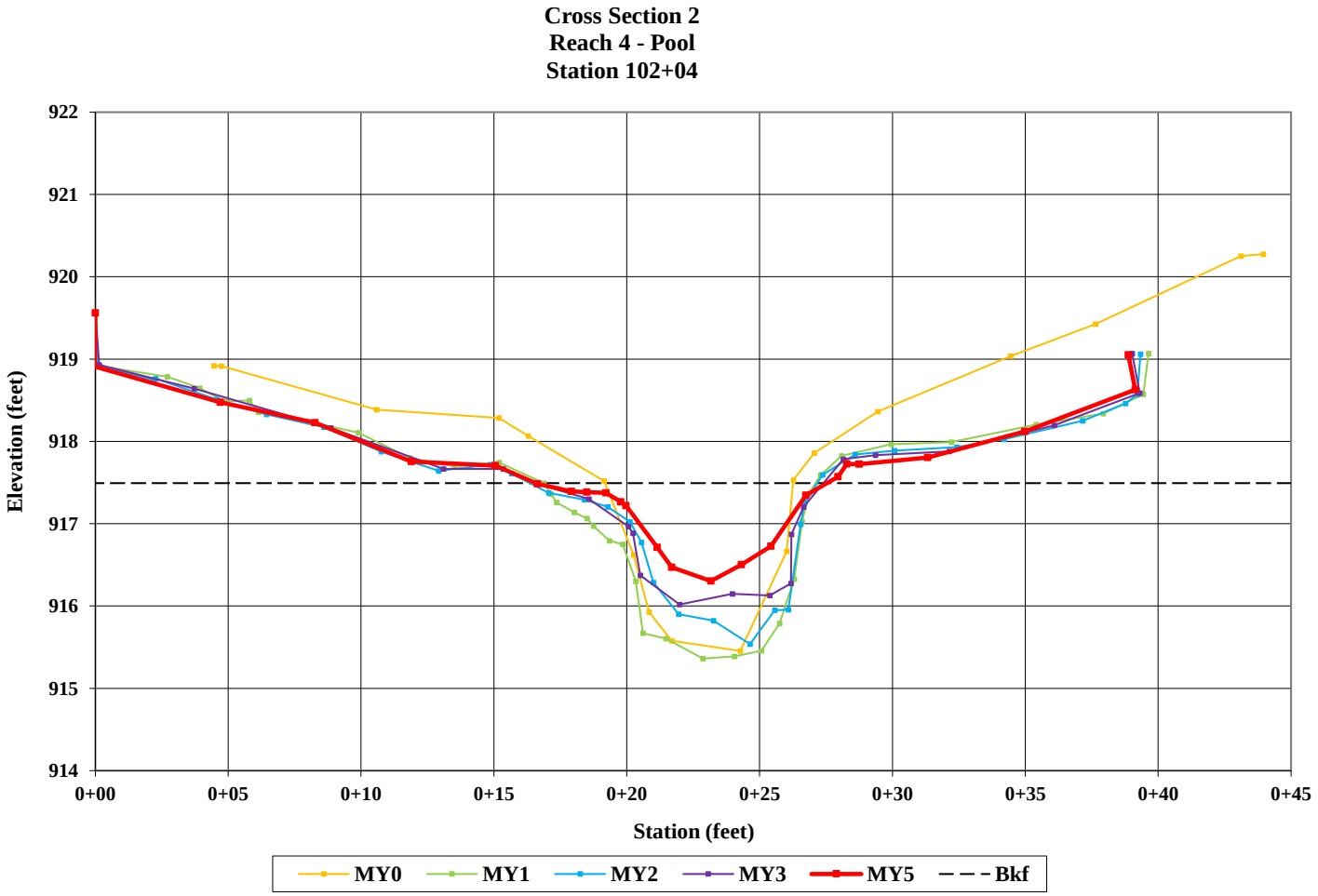
Right Bank Descending



Cross Section 2 Reach 4 – Pool

Left Bank Descending

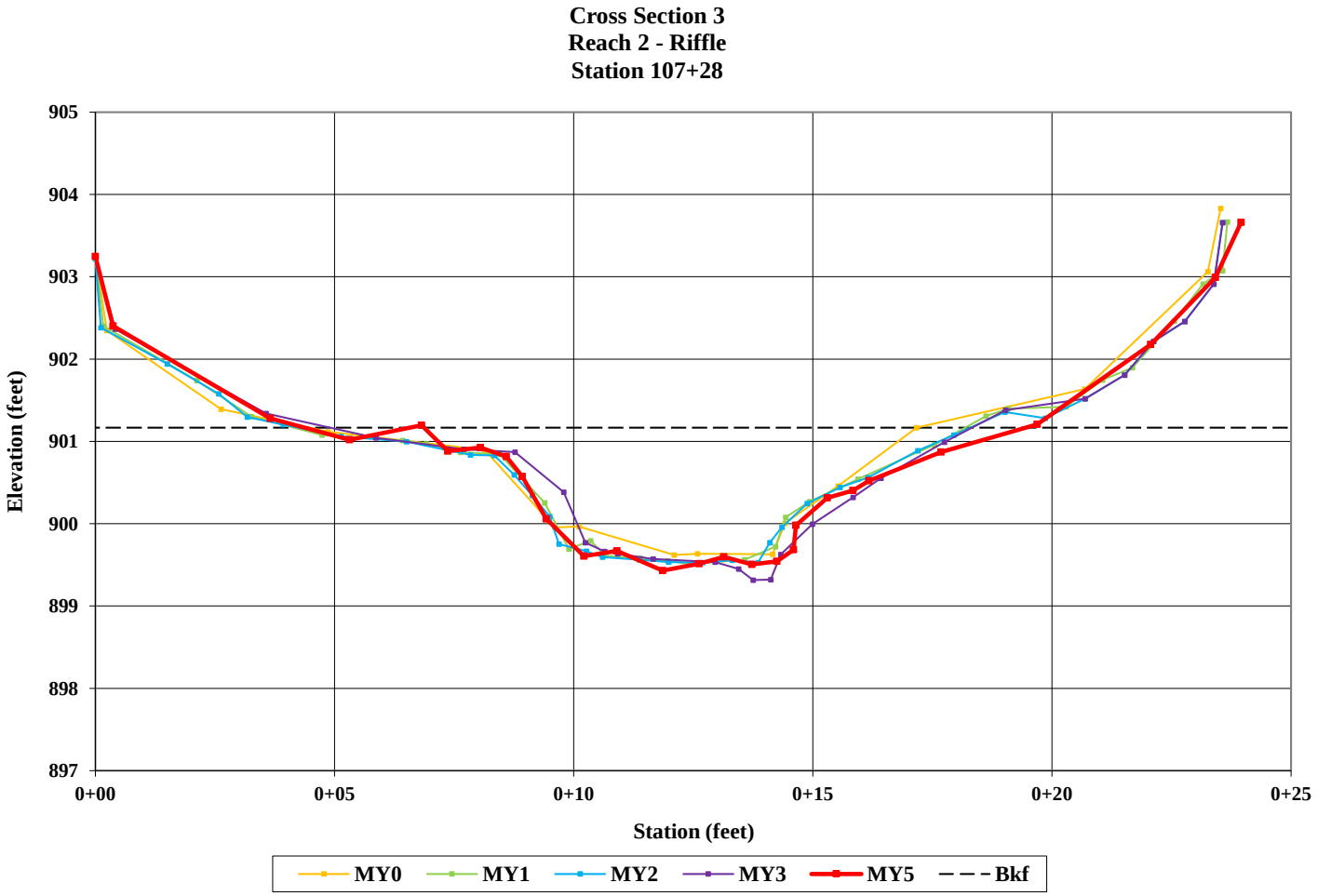
Right Bank Descending



Cross Section 3 Reach 2 – Riffle

Left Bank Descending

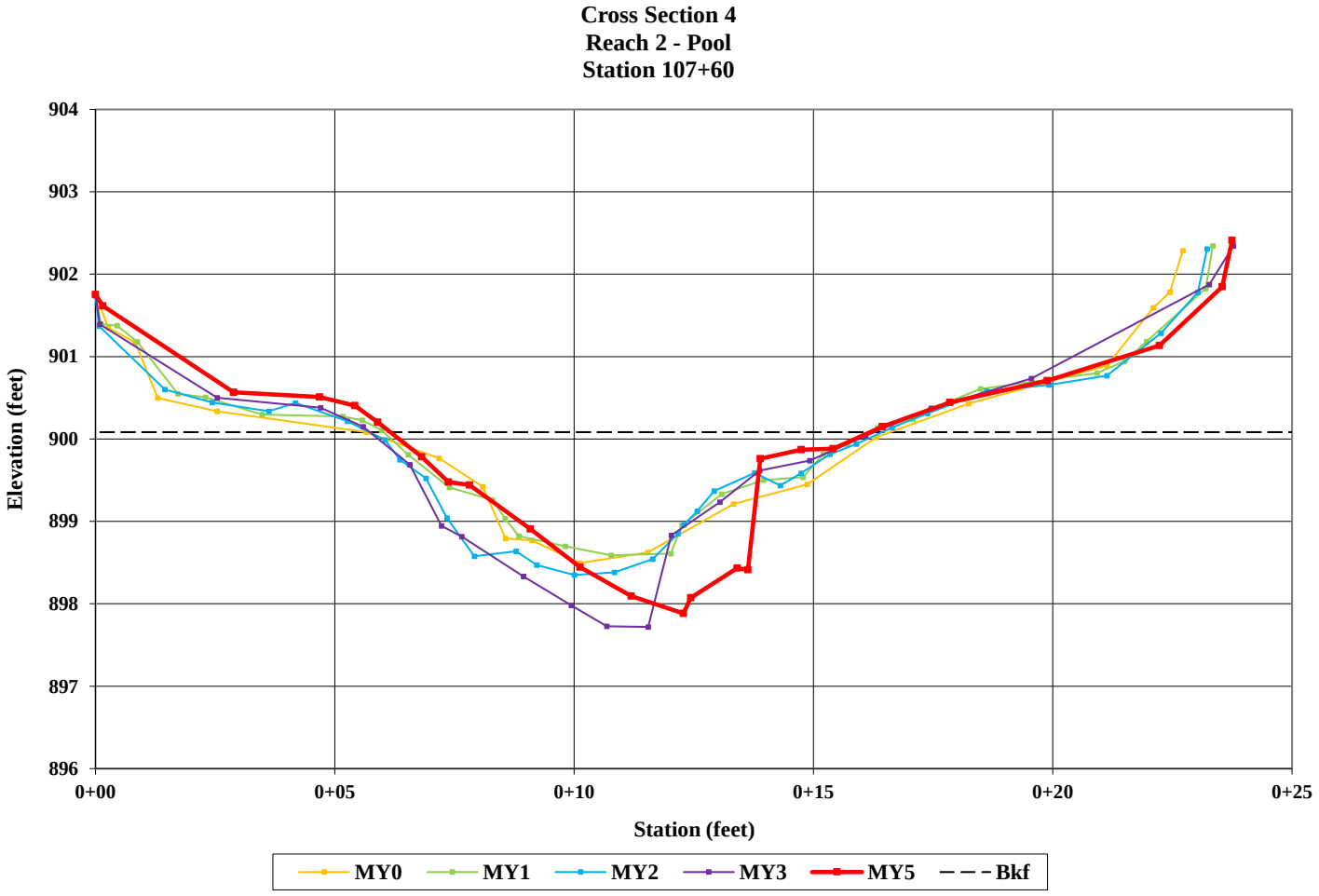
Right Bank Descending



Cross Section 4 Reach 2 – Pool

Left Bank Descending

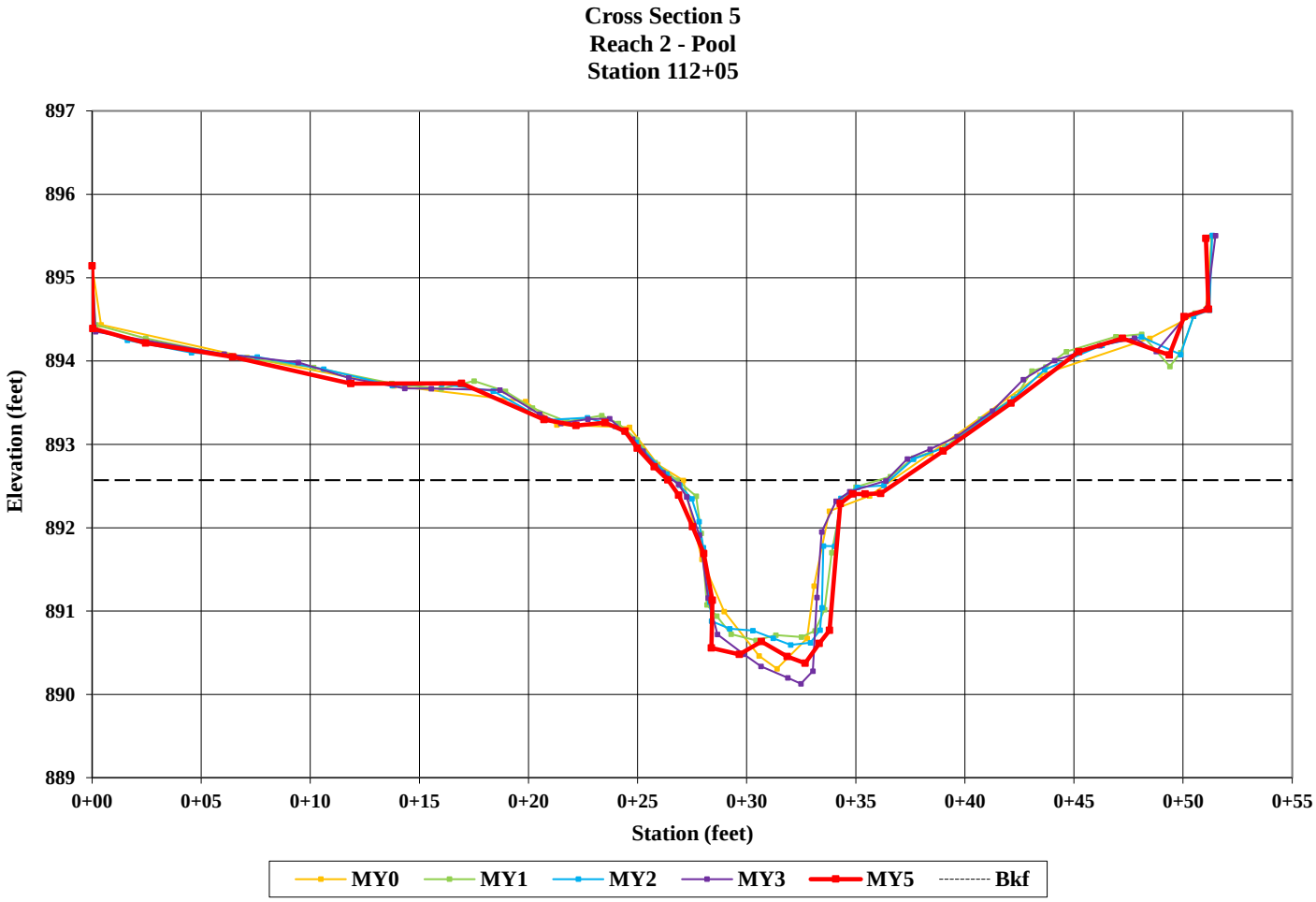
Right Bank Descending



Cross Section 5 Reach 2 – Pool

Left Bank Descending

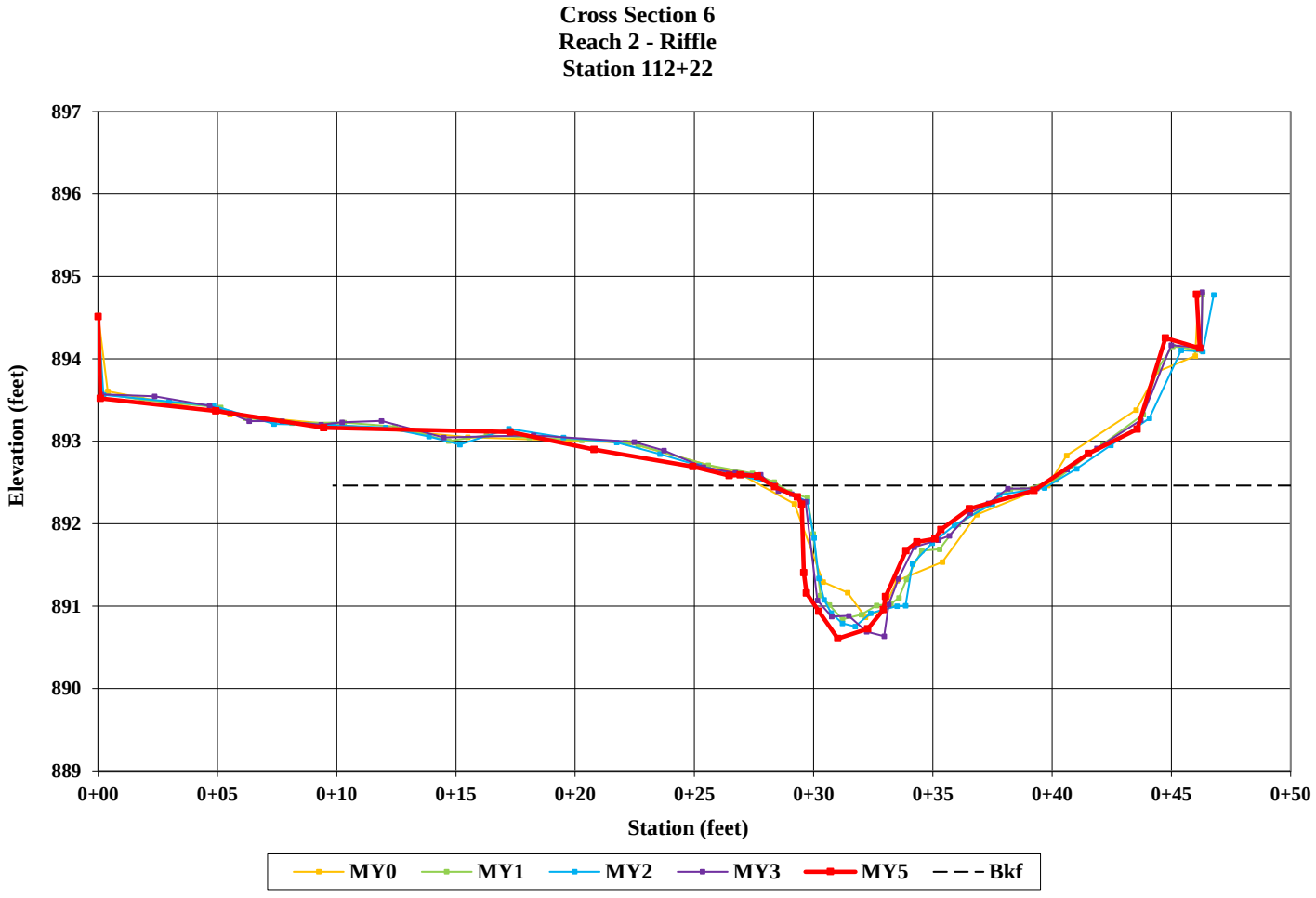
Right Bank Descending



Cross Section 6 Reach 2 – Riffle

Left Bank Descending

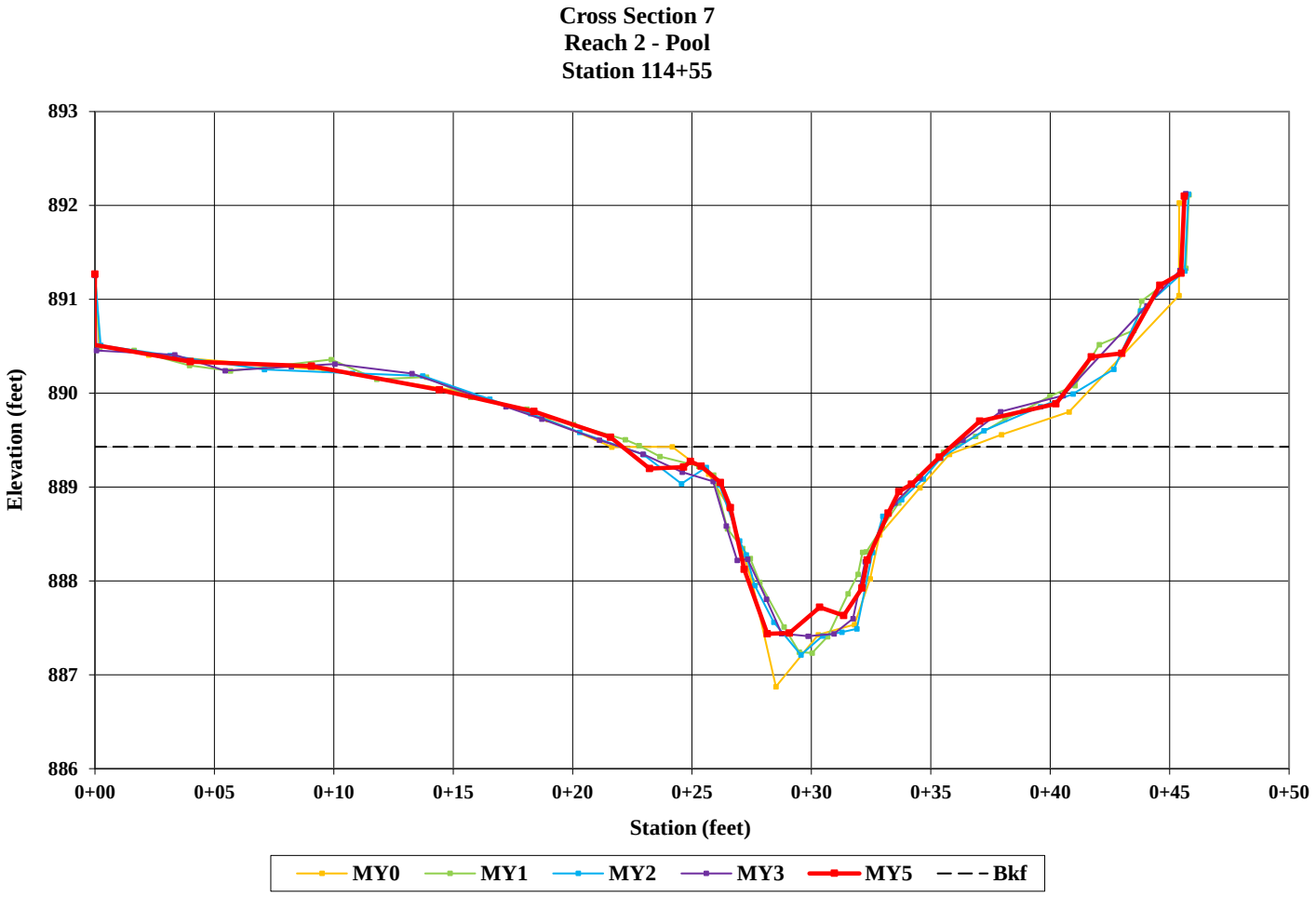
Right Bank Descending



Cross Section 7 Reach 2 – Pool

Left Bank Descending

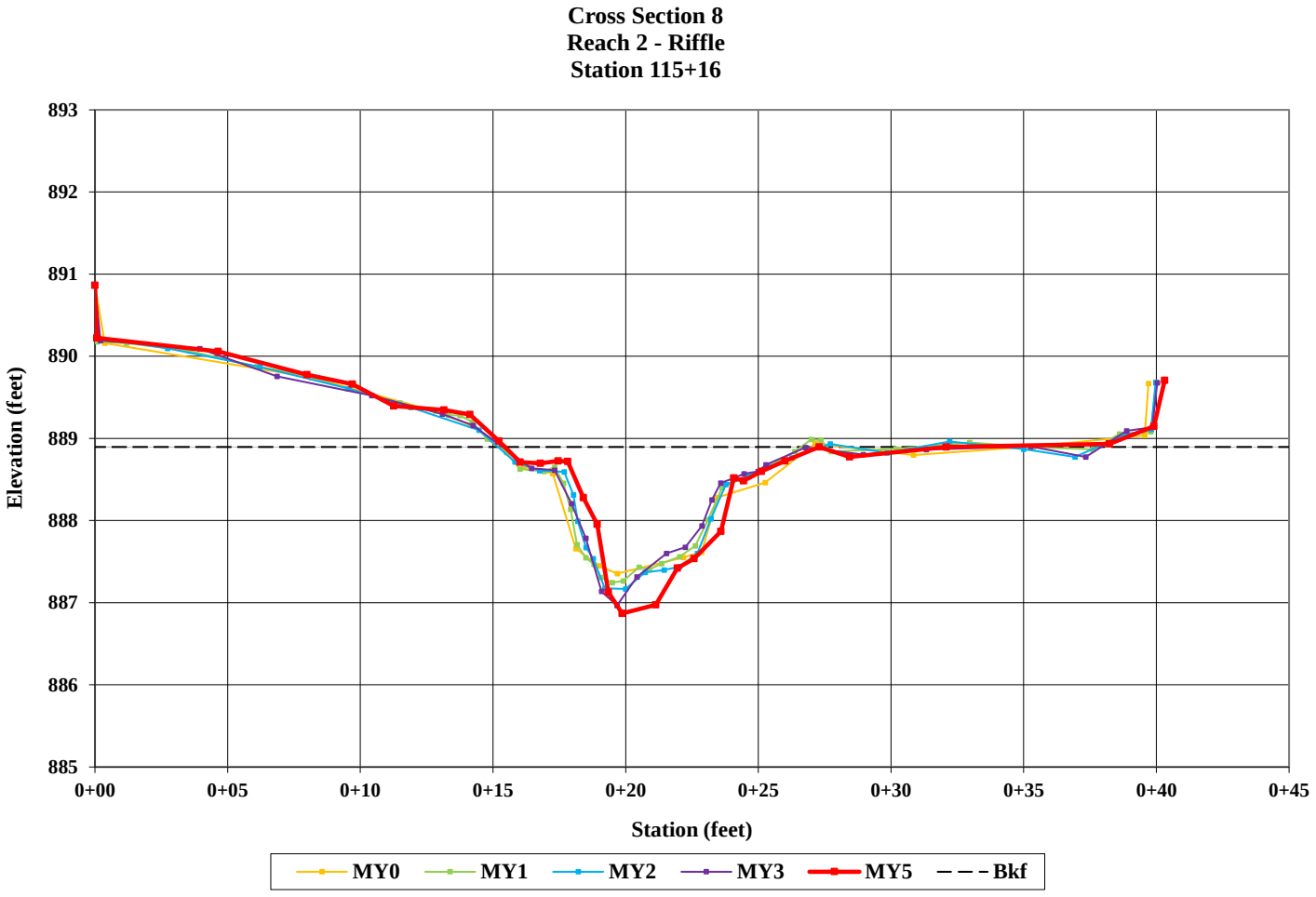
Right Bank Descending



Cross Section 8 Reach 2 – Riffle

Left Bank Descending

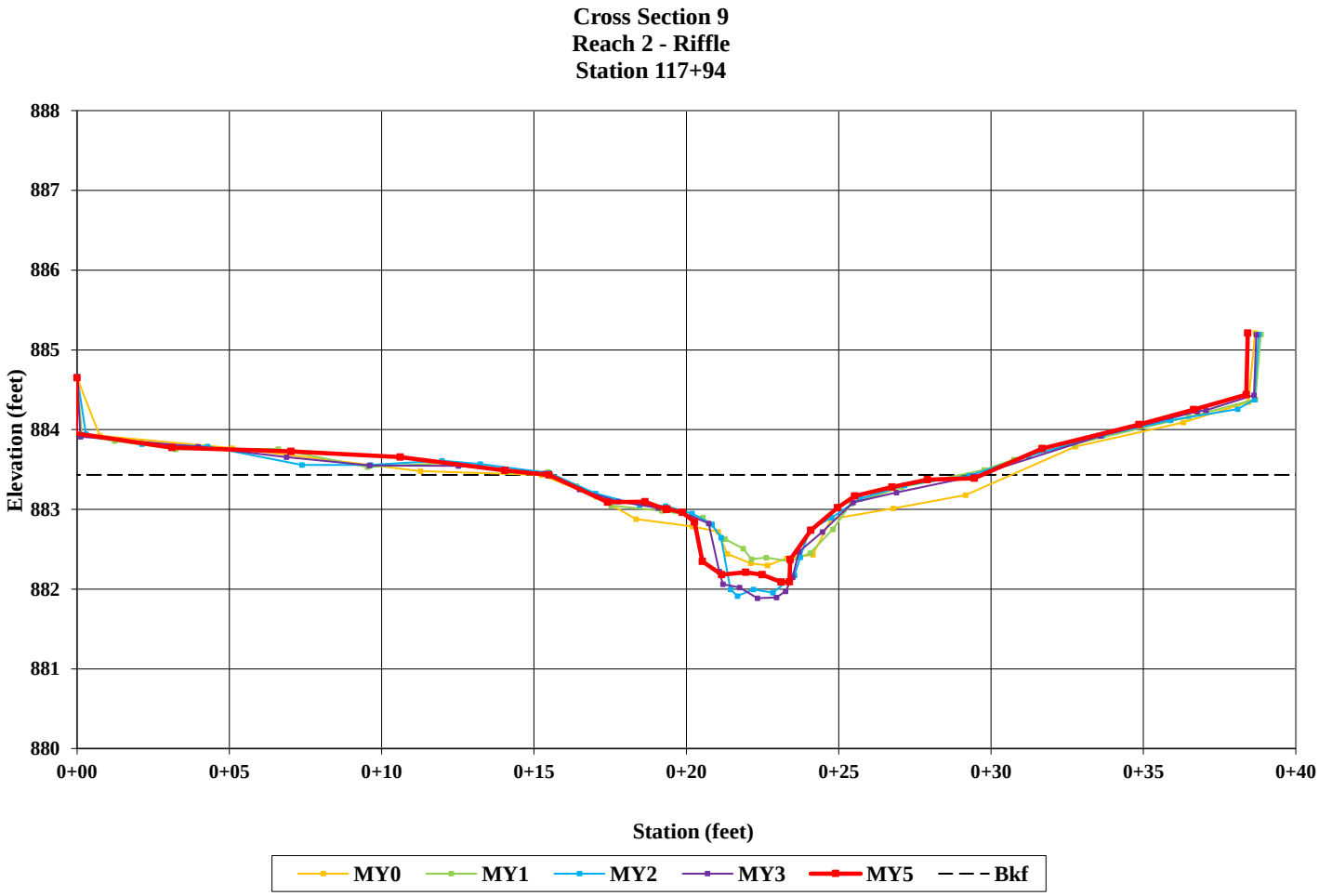
Right Bank Descending



Cross Section 9 Reach 2 – Riffle

Left Bank Descending

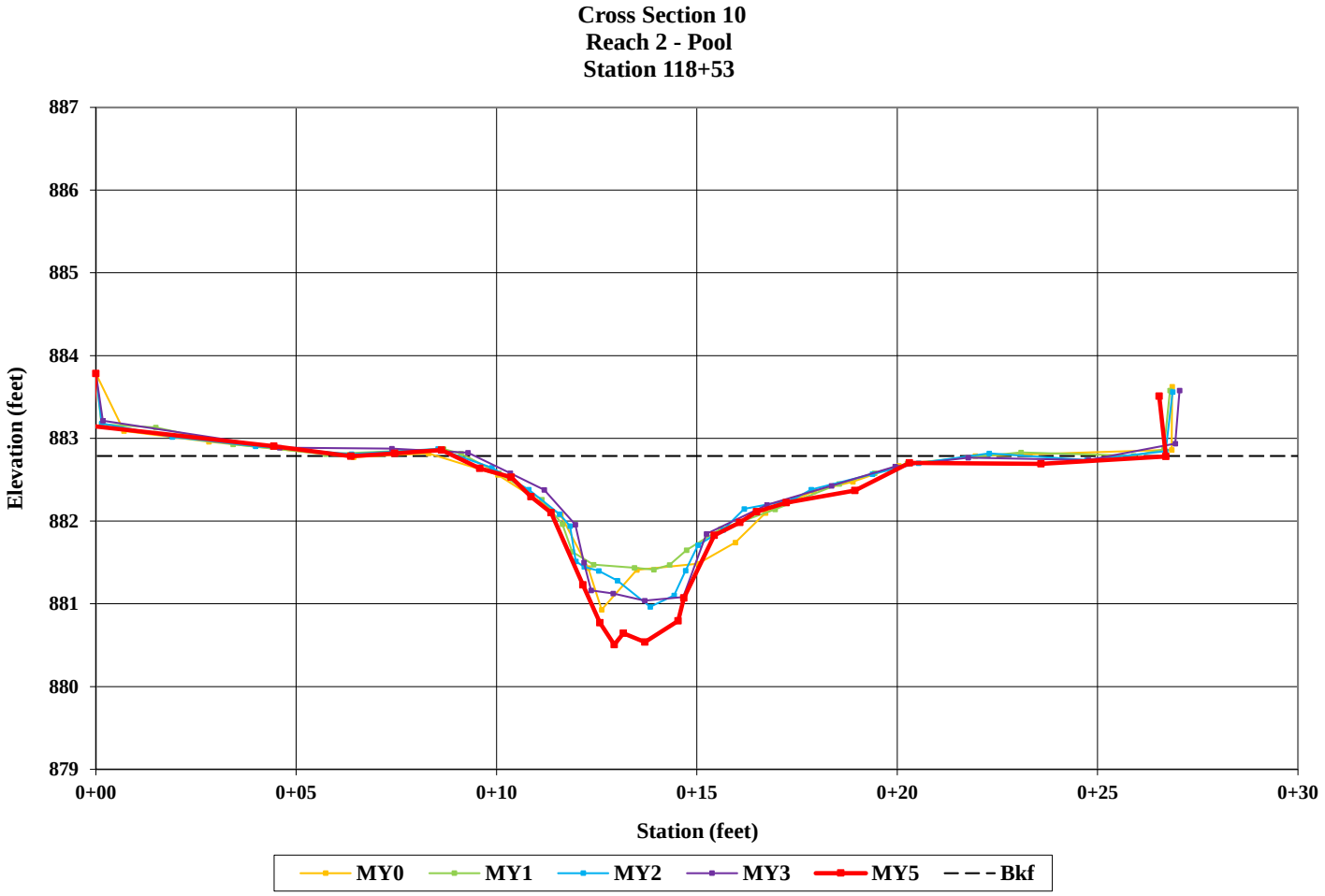
Right Bank Descending



Cross Section 10 Reach 2 – Pool

Left Bank Descending

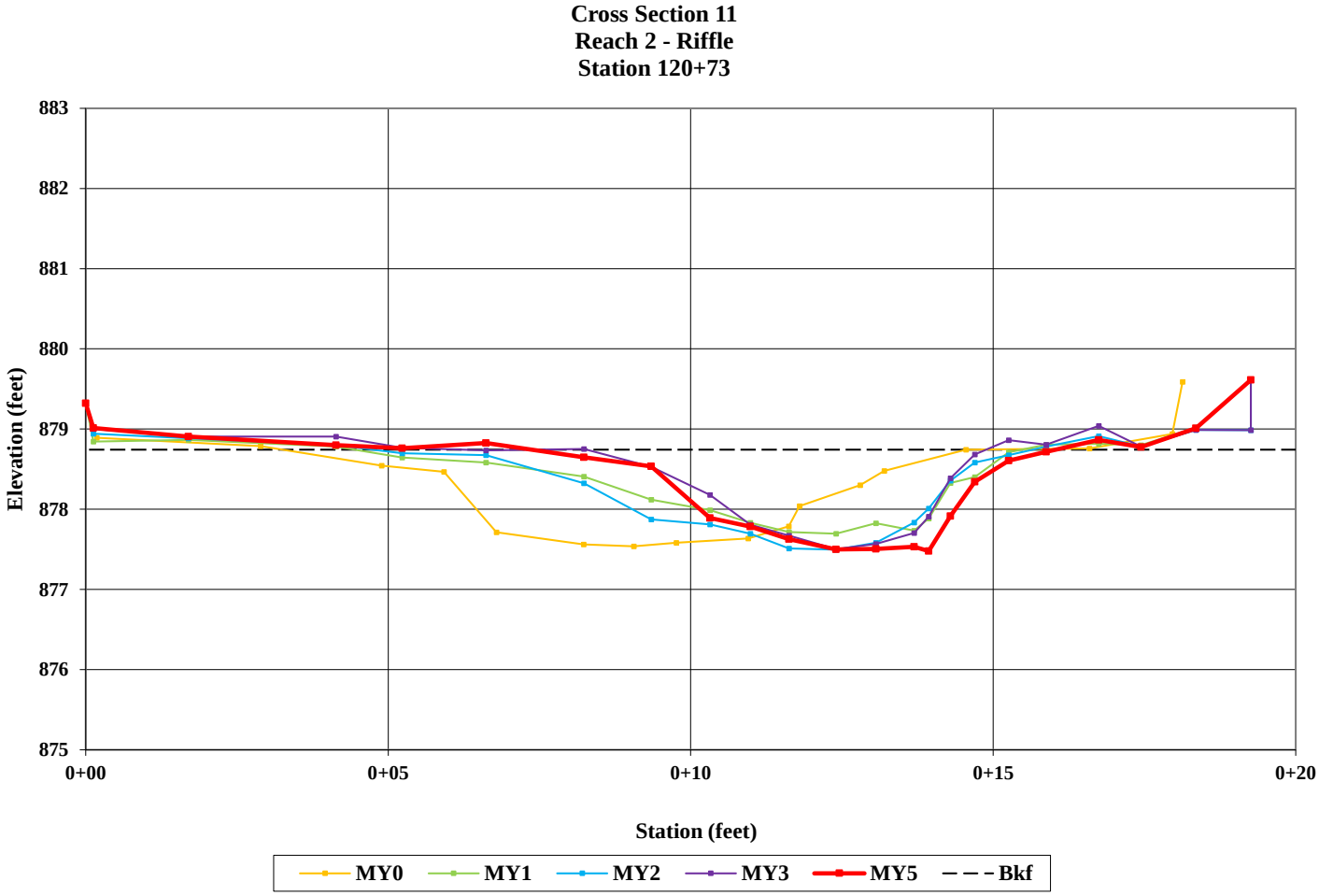
Right Bank Descending



Cross Section 11 Reach 2 – Riffle

Left Bank Descending

Right Bank Descending

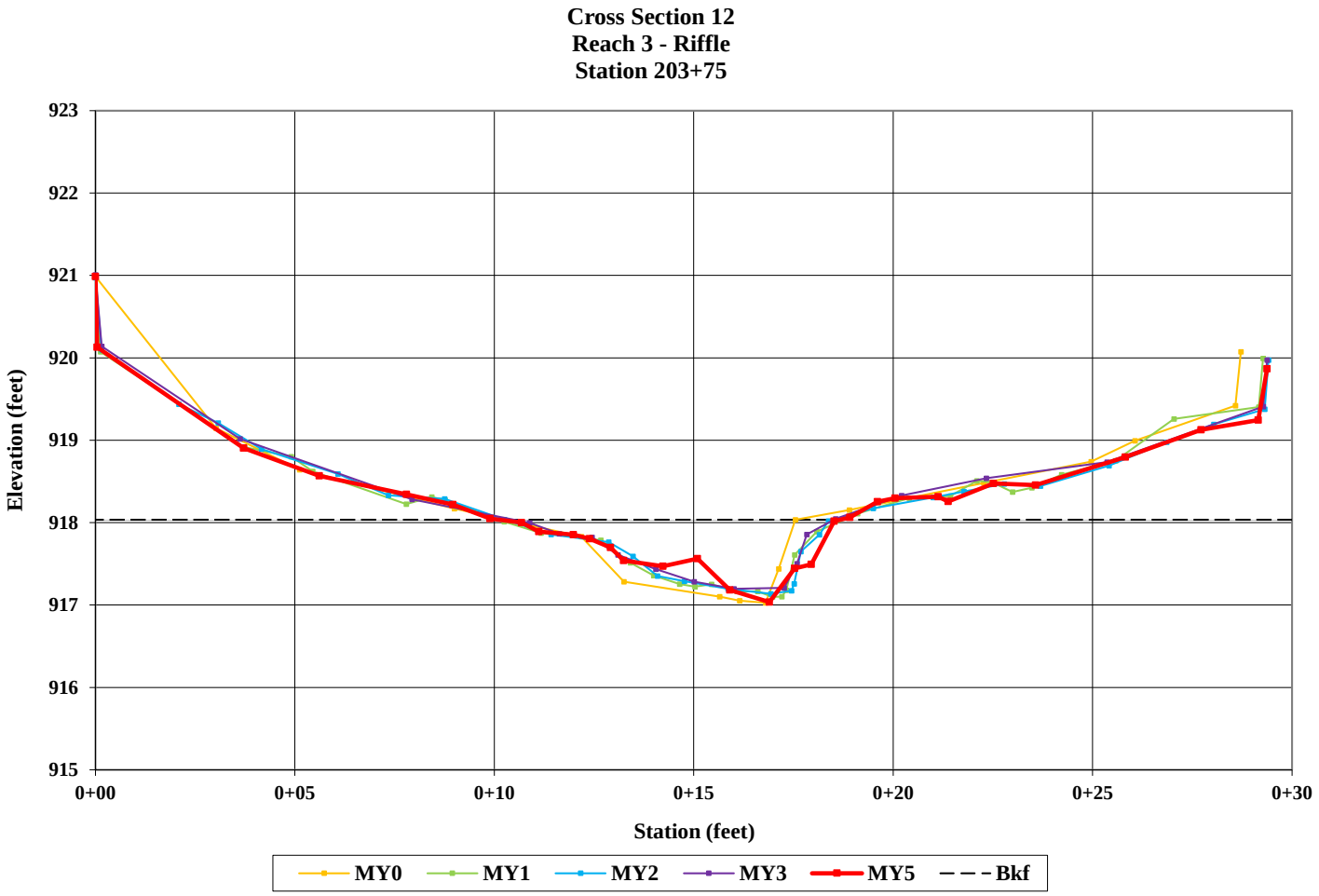


*The shift represented in the above figure is due to an inconsistency in surveying the correct pins between monitoring years.

Cross Section 12 Reach 3 – Riffle

Left Bank Descending

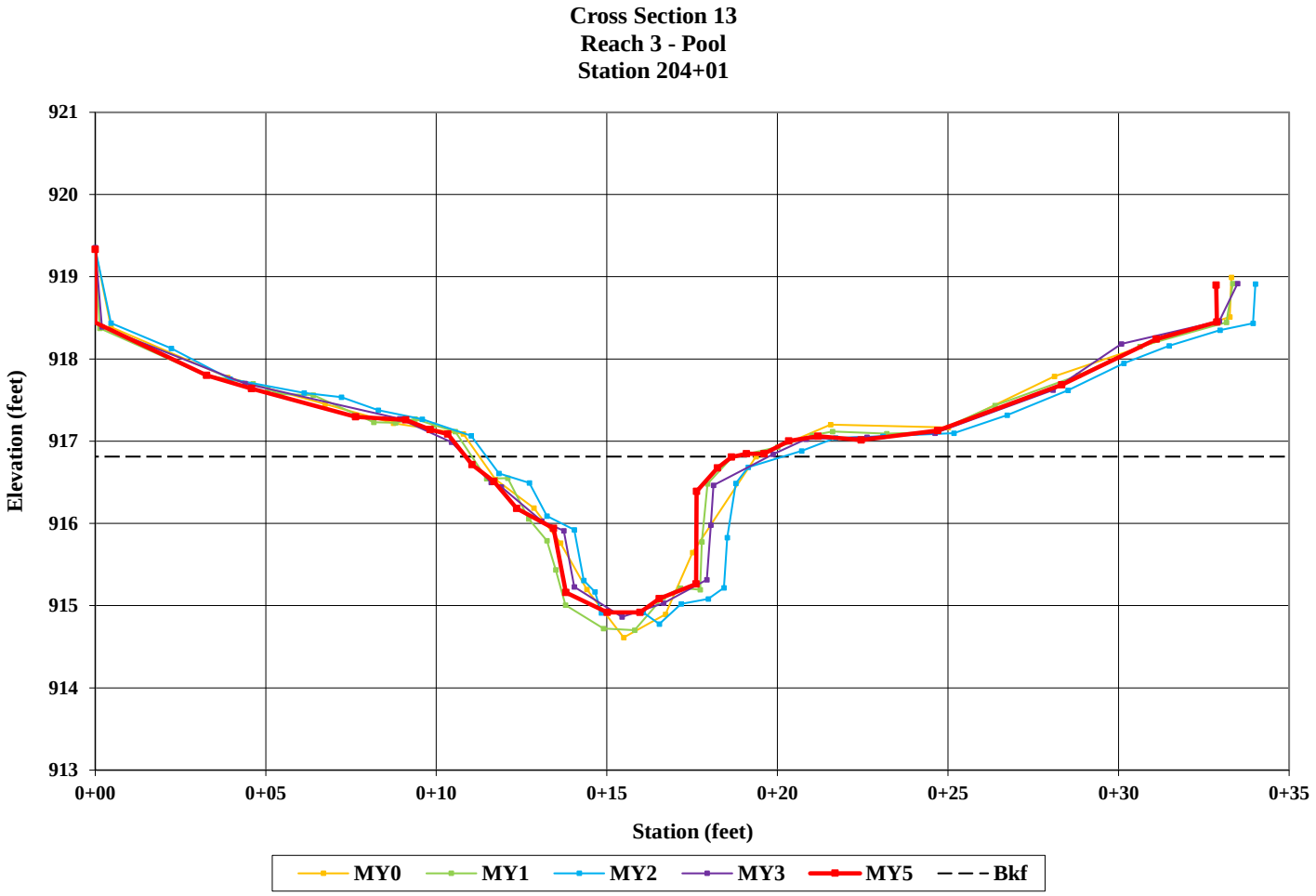
Right Bank Descending



Cross Section 13 Reach 3 – Pool

Left Bank Descending

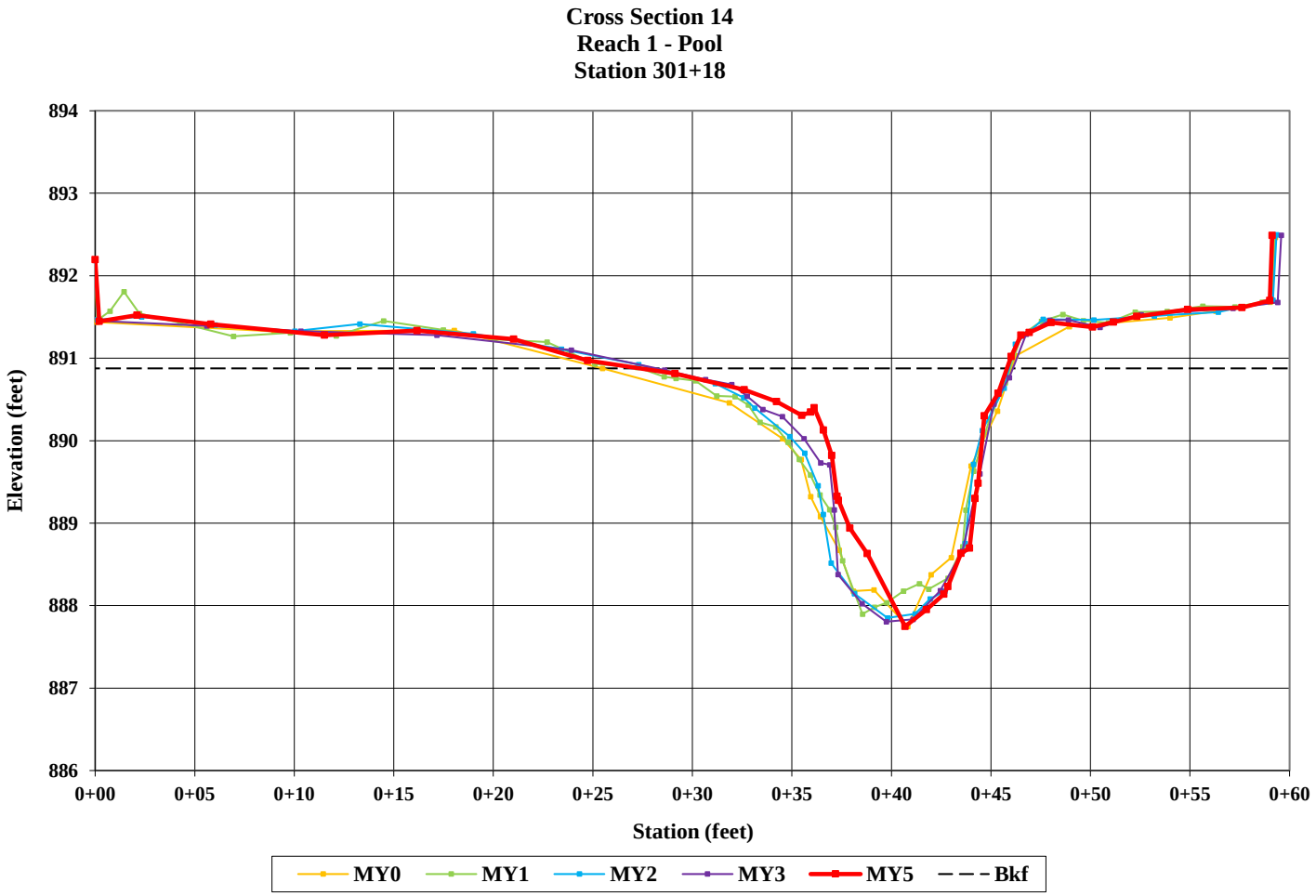
Right Bank Descending



Cross Section 14 Reach 1 – Pool

Left Bank Descending

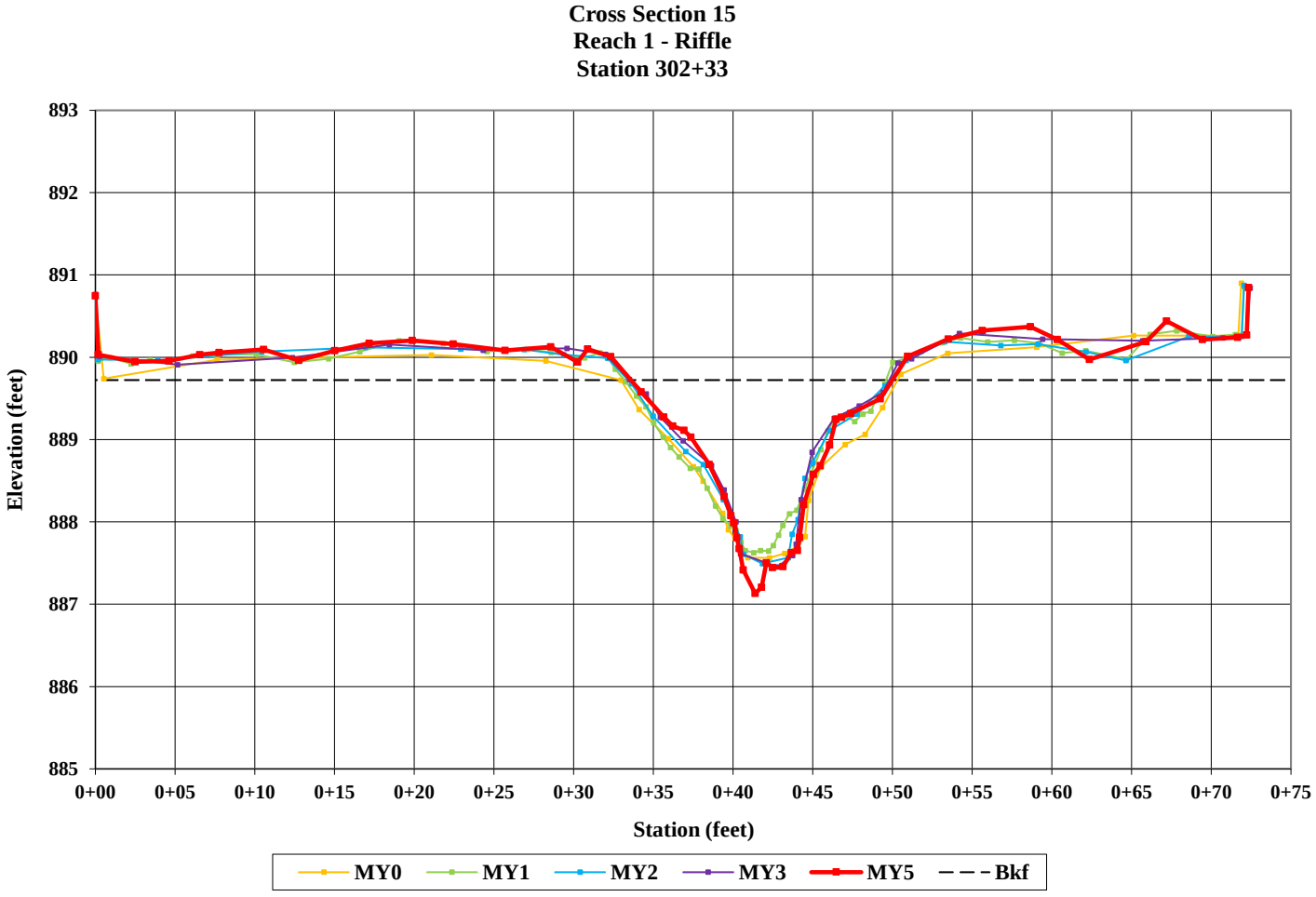
Right Bank Descending



Cross Section 15 Reach 1 – Riffle

Left Bank Descending

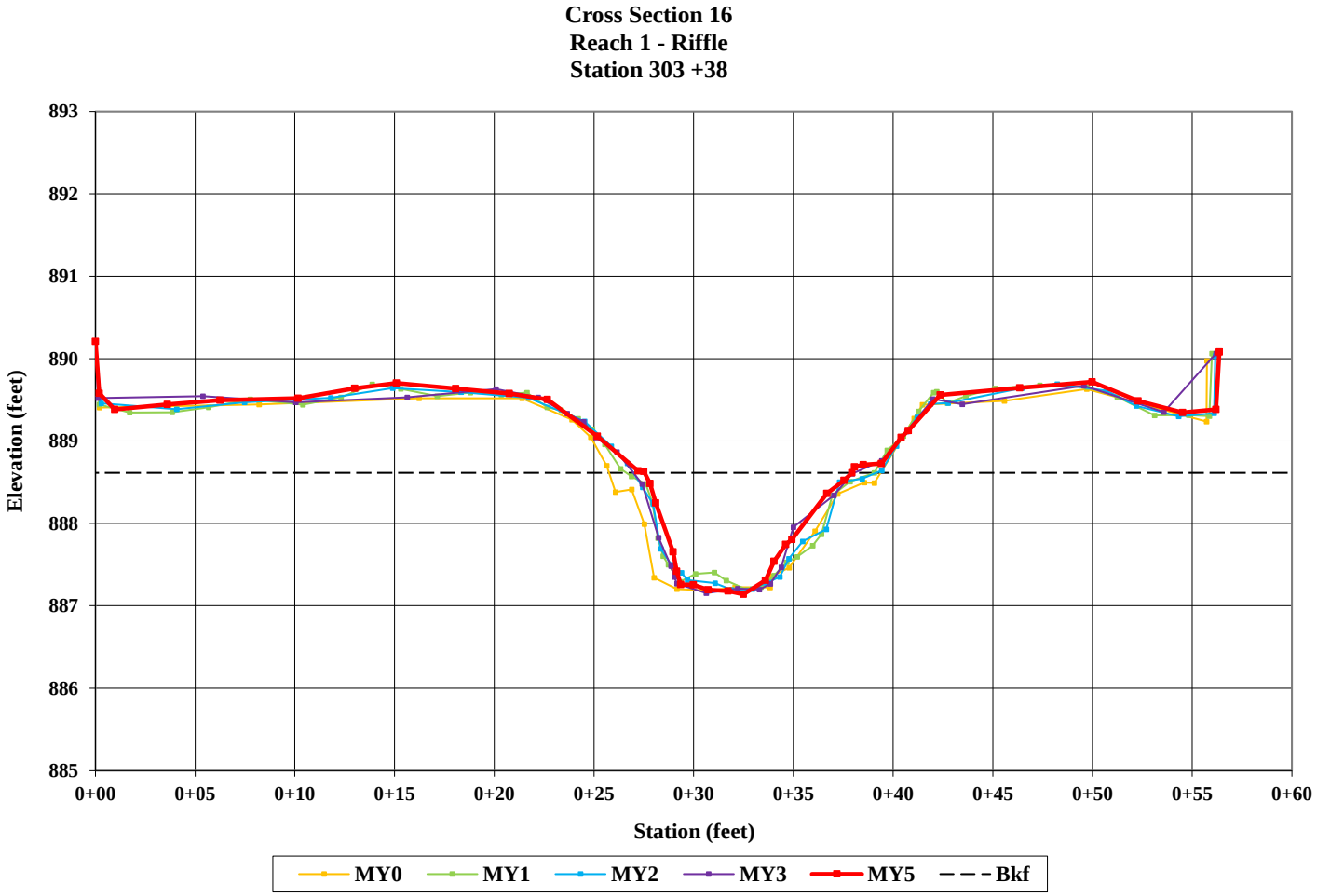
Right Bank Descending



Cross Section 16 Reach 1 – Riffle

Left Bank Descending

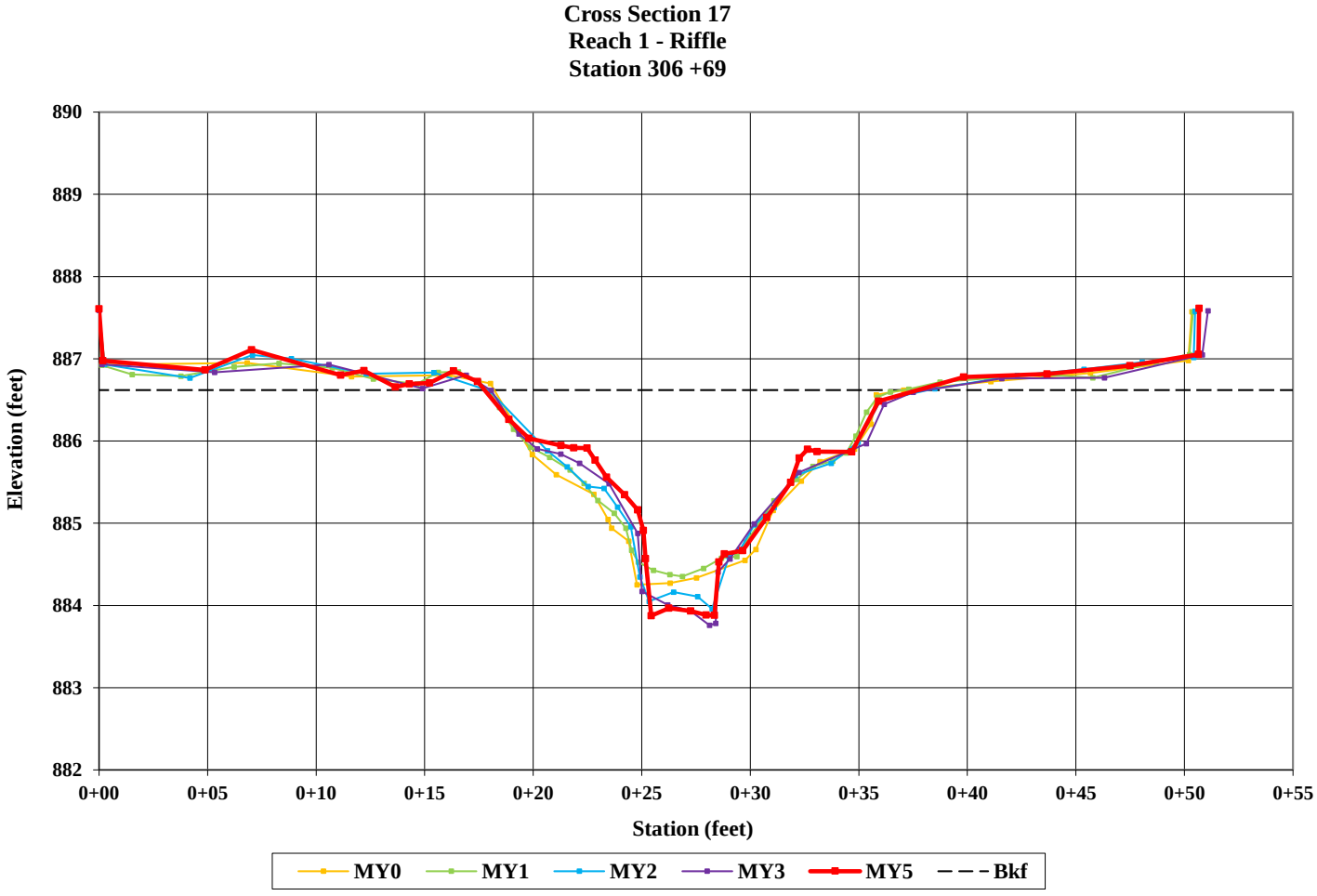
Right Bank Descending



Cross Section 17 Reach 1 – Riffle

Left Bank Descending

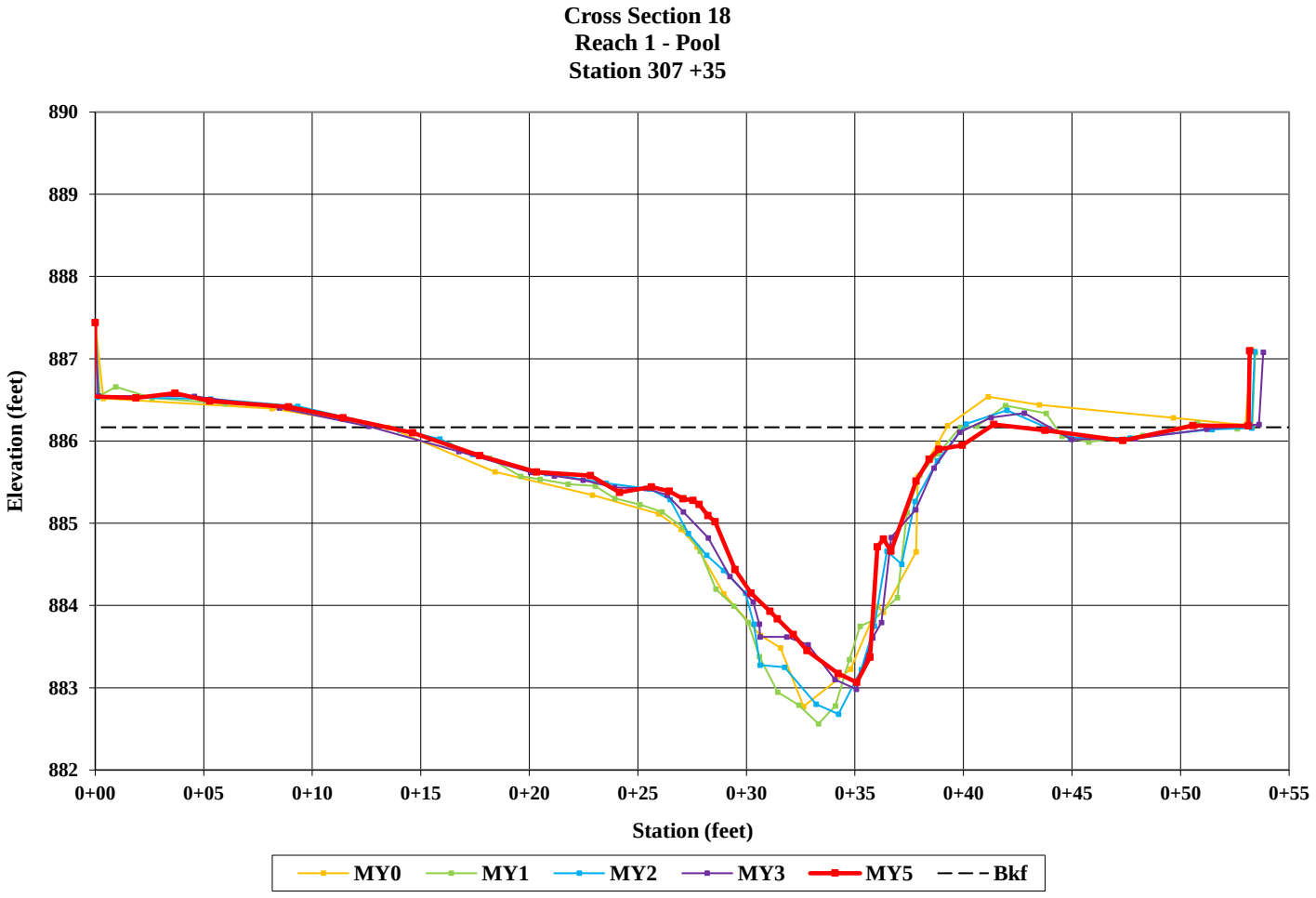
Right Bank Descending



Cross Section 18 Reach 1 – Pool

Left Bank Descending

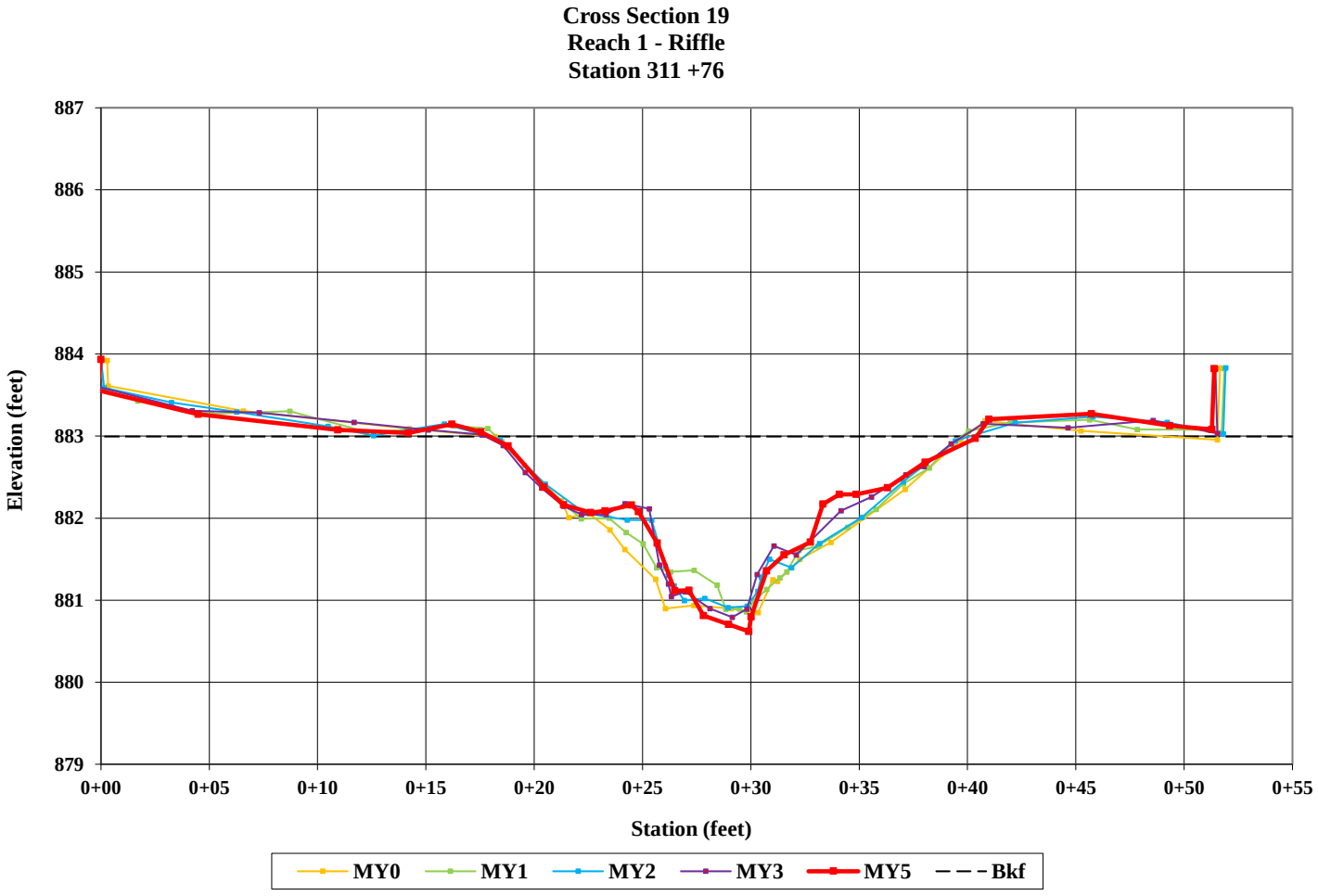
Right Bank Descending



Cross Section 19 Reach 1 – Riffle

Left Bank Descending

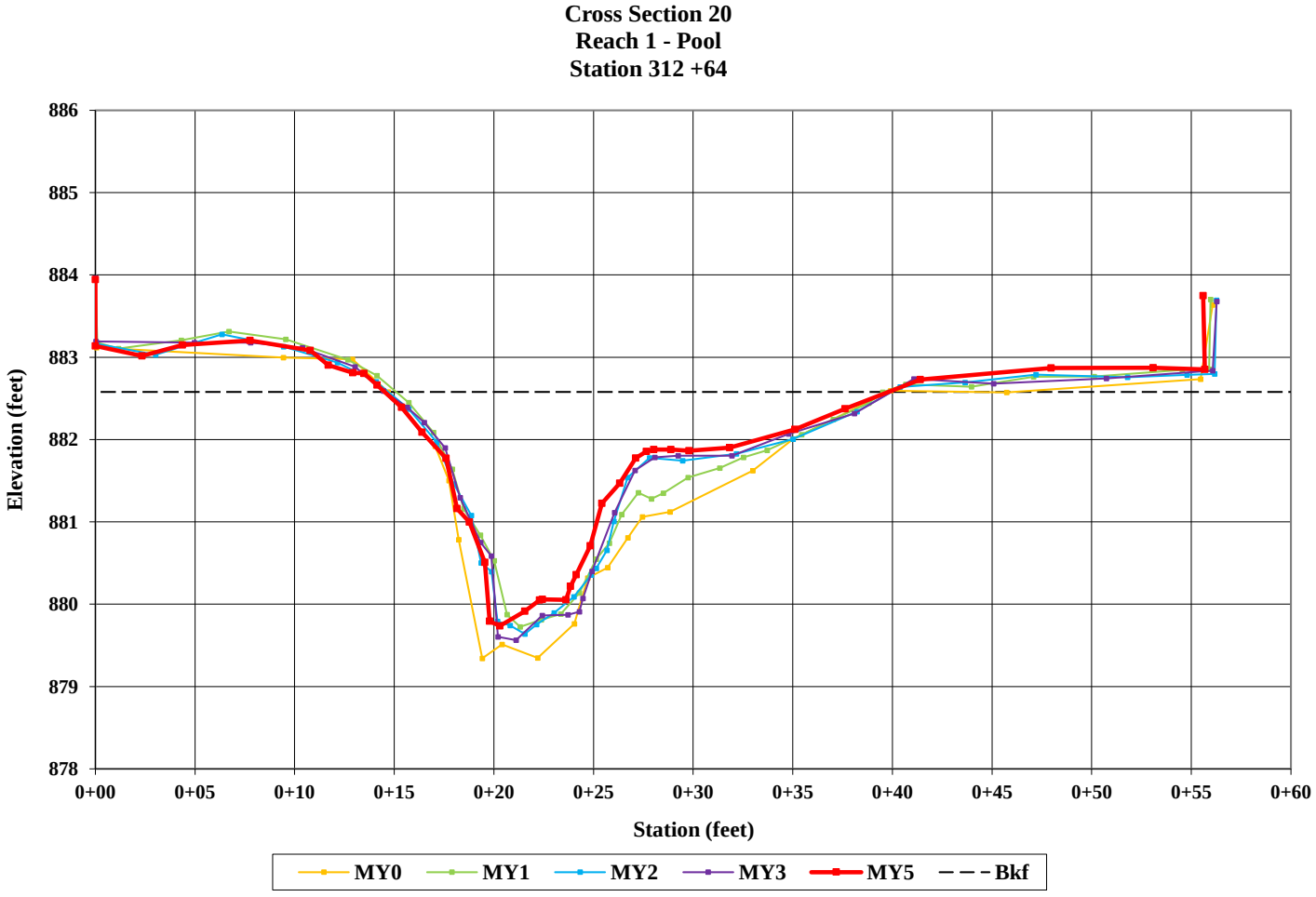
Right Bank Descending



Cross Section 20 Reach 1 – Pool

Left Bank Descending

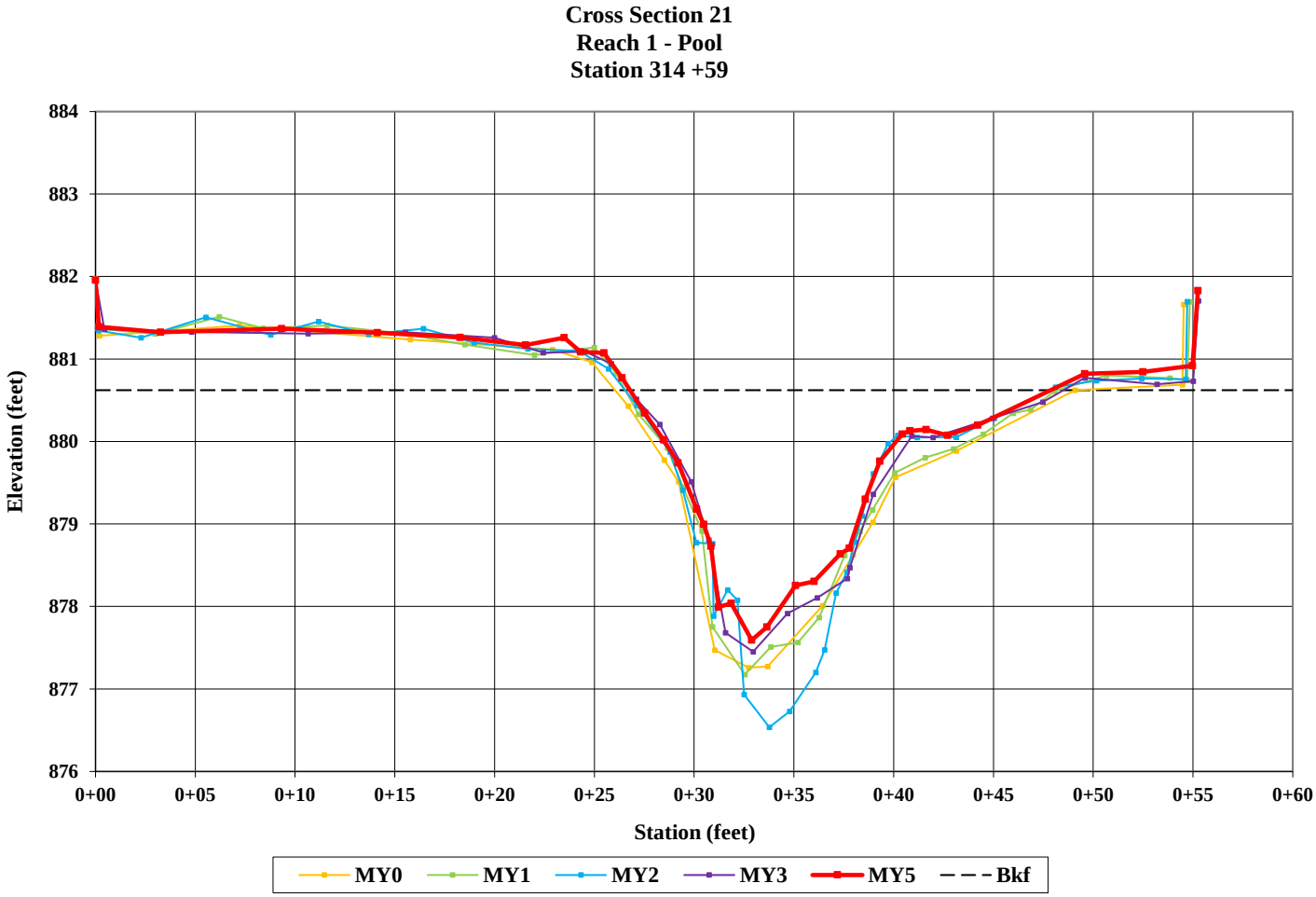
Right Bank Descending



Cross Section 21 Reach 1 – Pool

Left Bank Descending

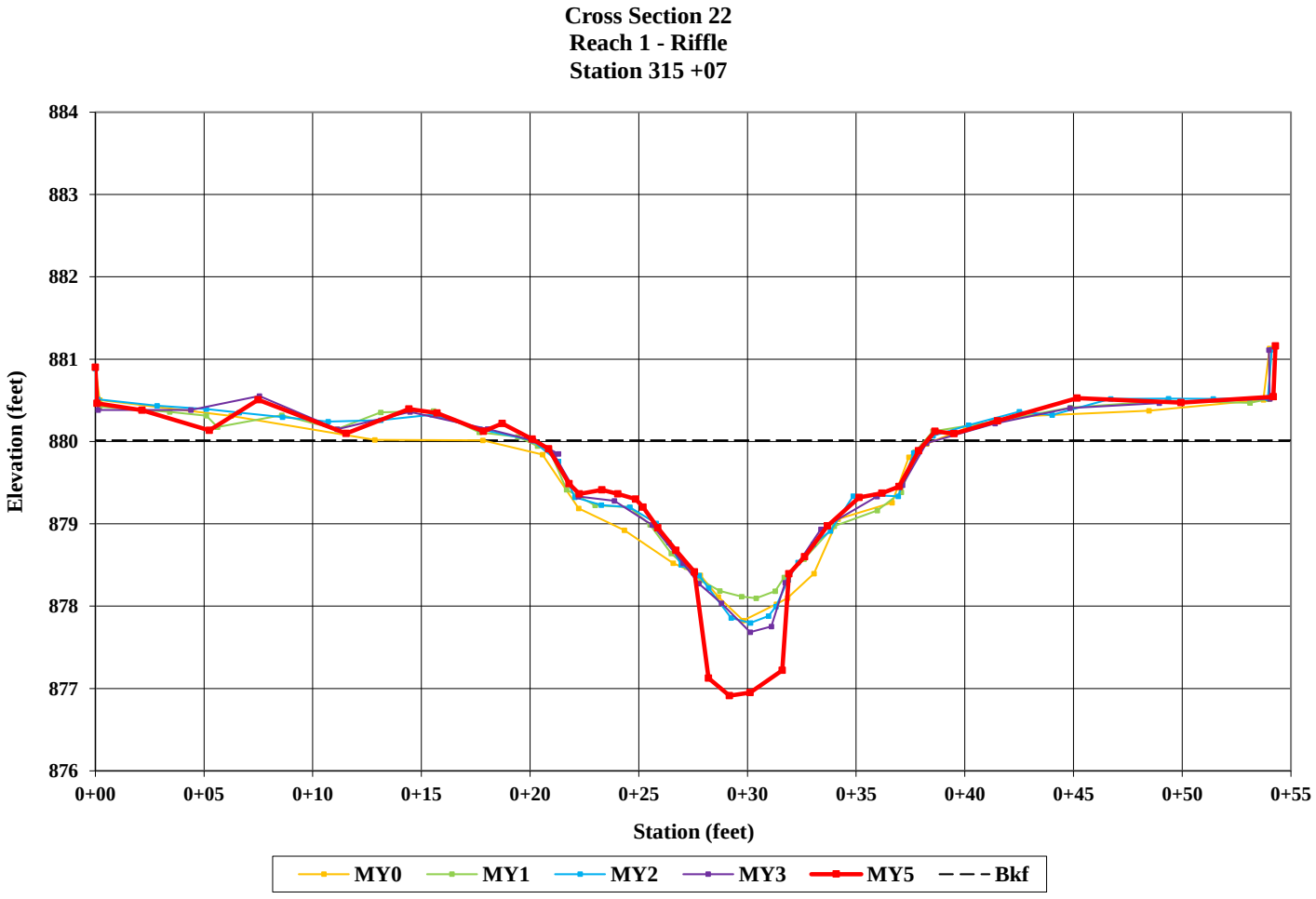
Right Bank Descending



Cross Section 22 Reach 1 – Riffle

Left Bank Descending

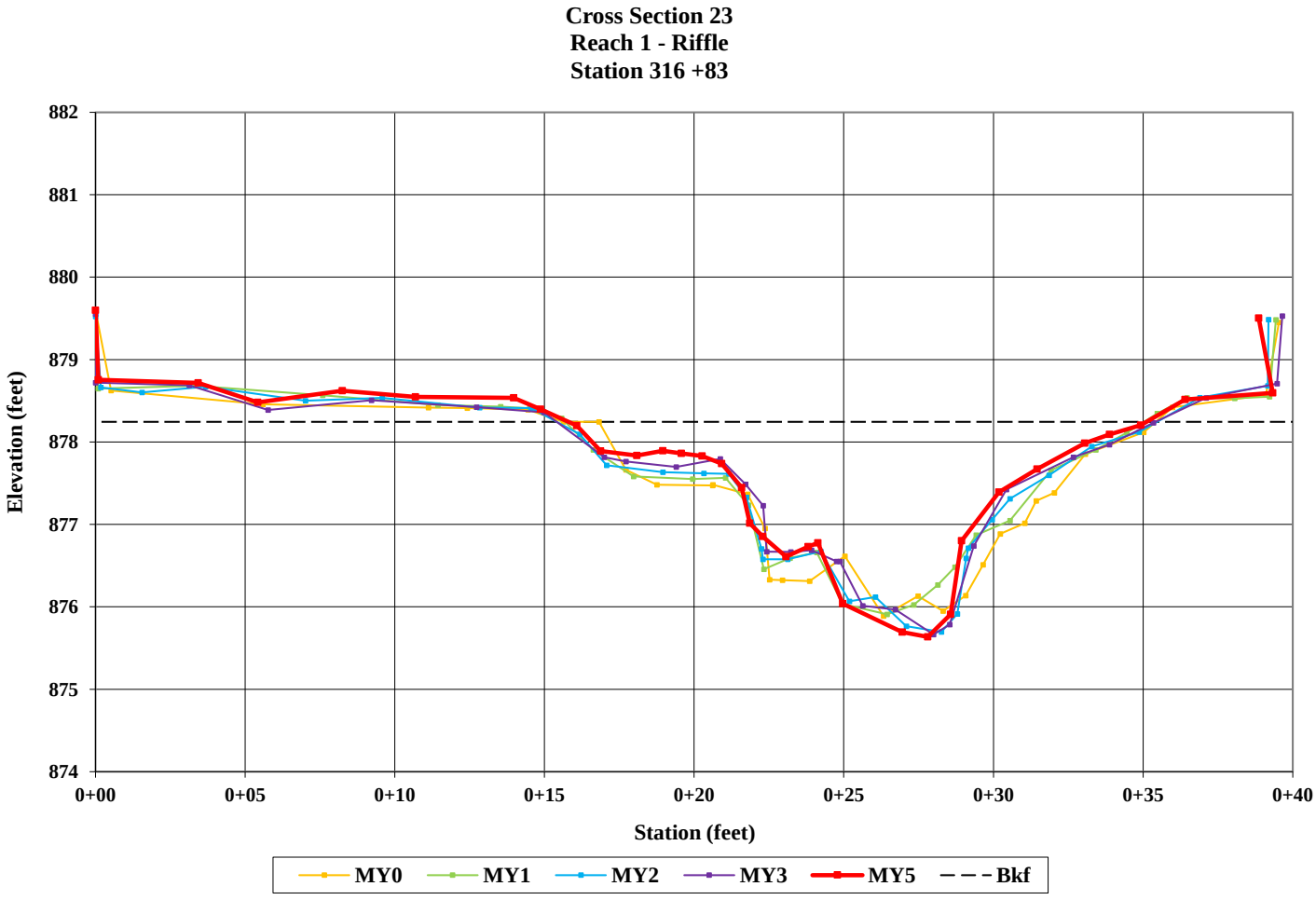
Right Bank Descending



Cross Section 23 Reach 1 – Riffle

Left Bank Descending

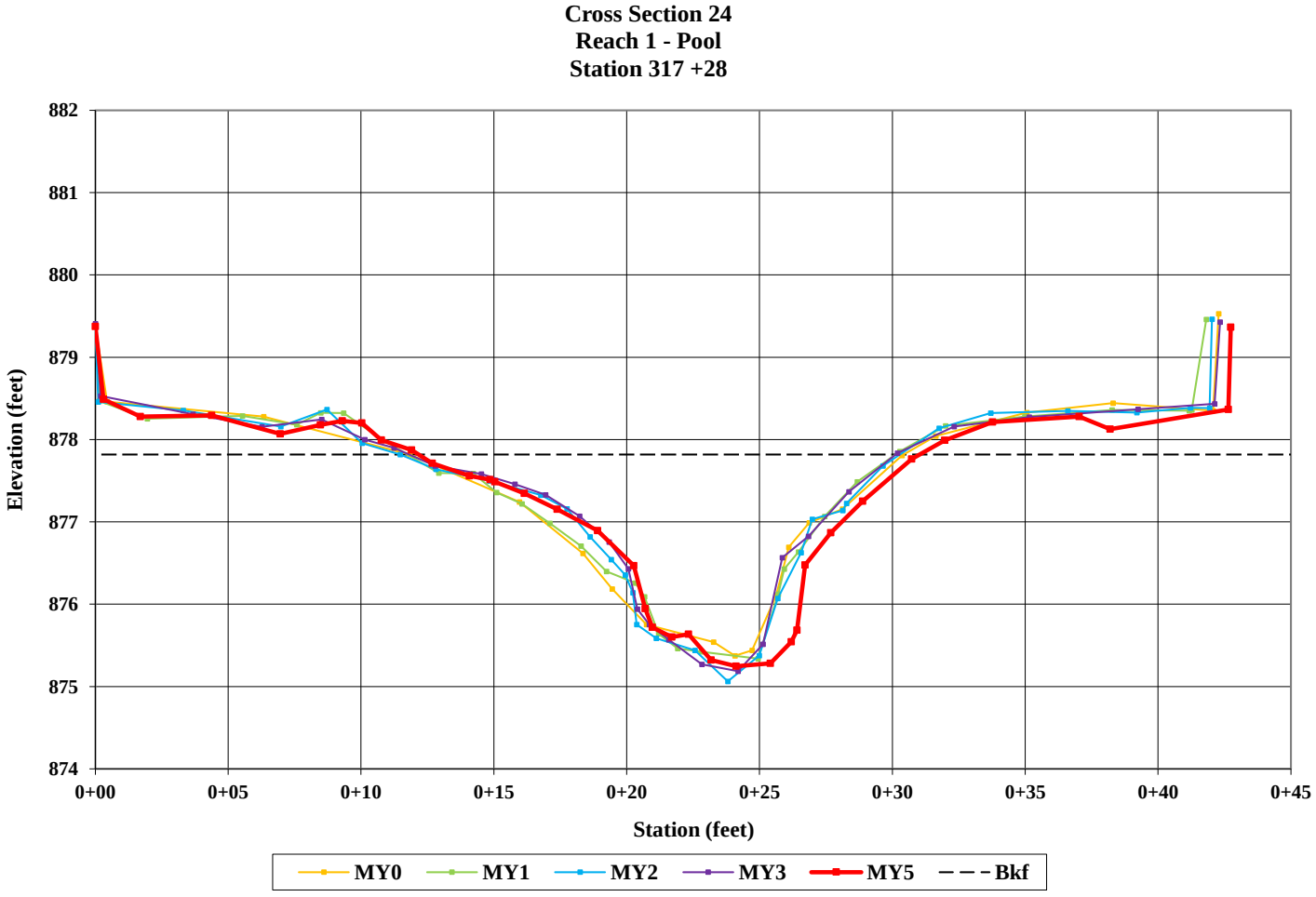
Right Bank Descending



Cross Section 24 Reach 1 – Pool

Left Bank Descending

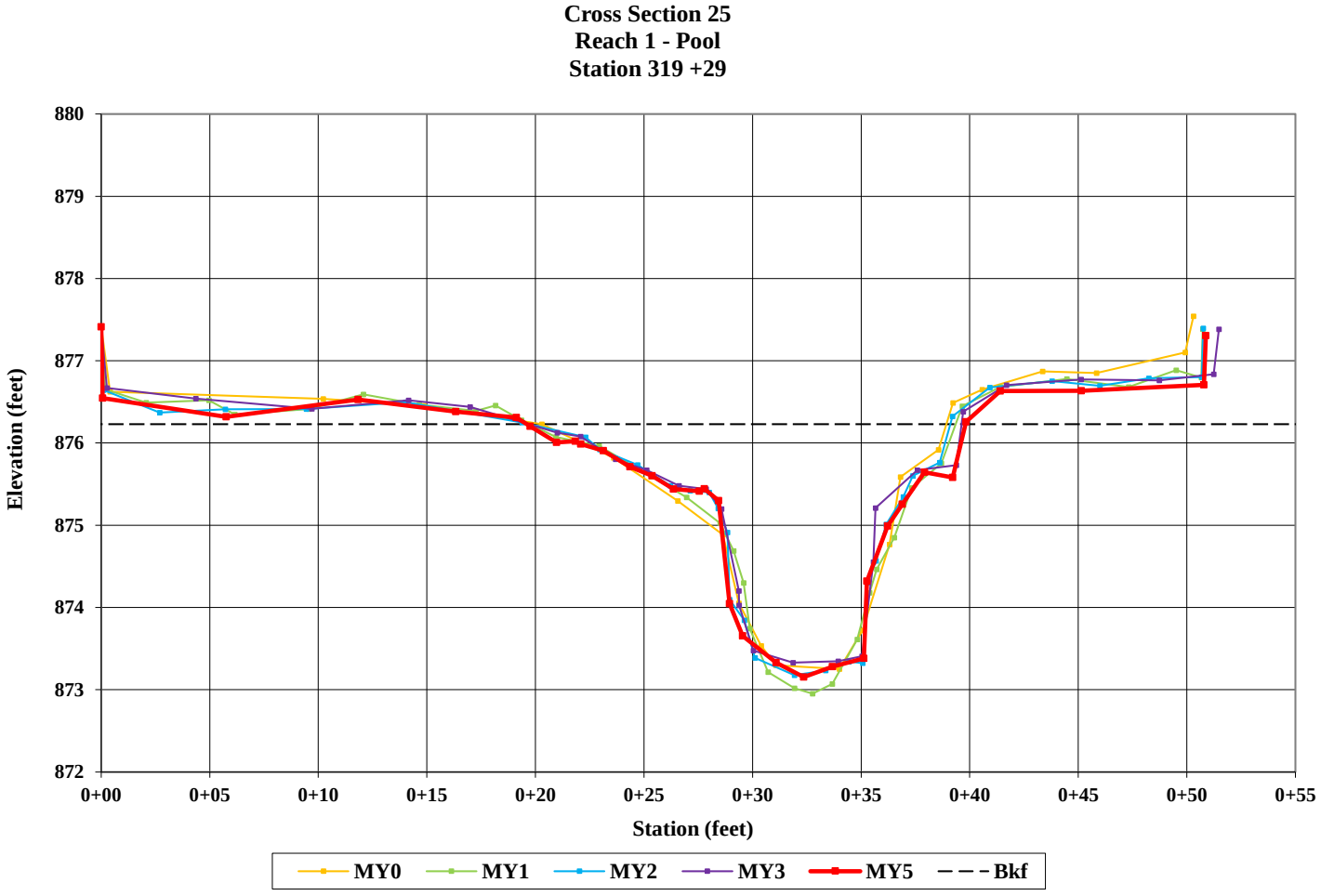
Right Bank Descending



Cross Section 25 Reach 1 – Pool

Left Bank Descending

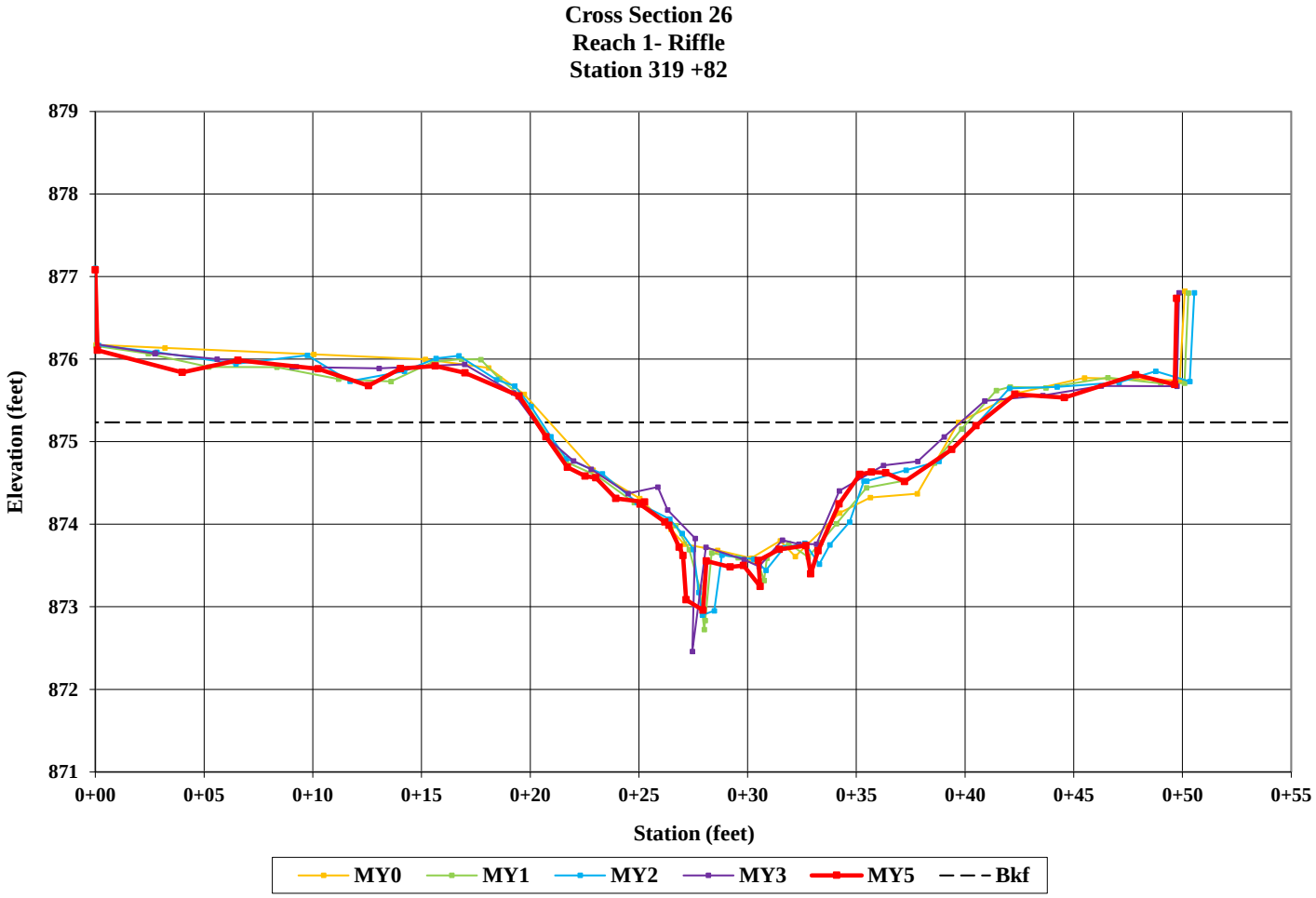
Right Bank Descending



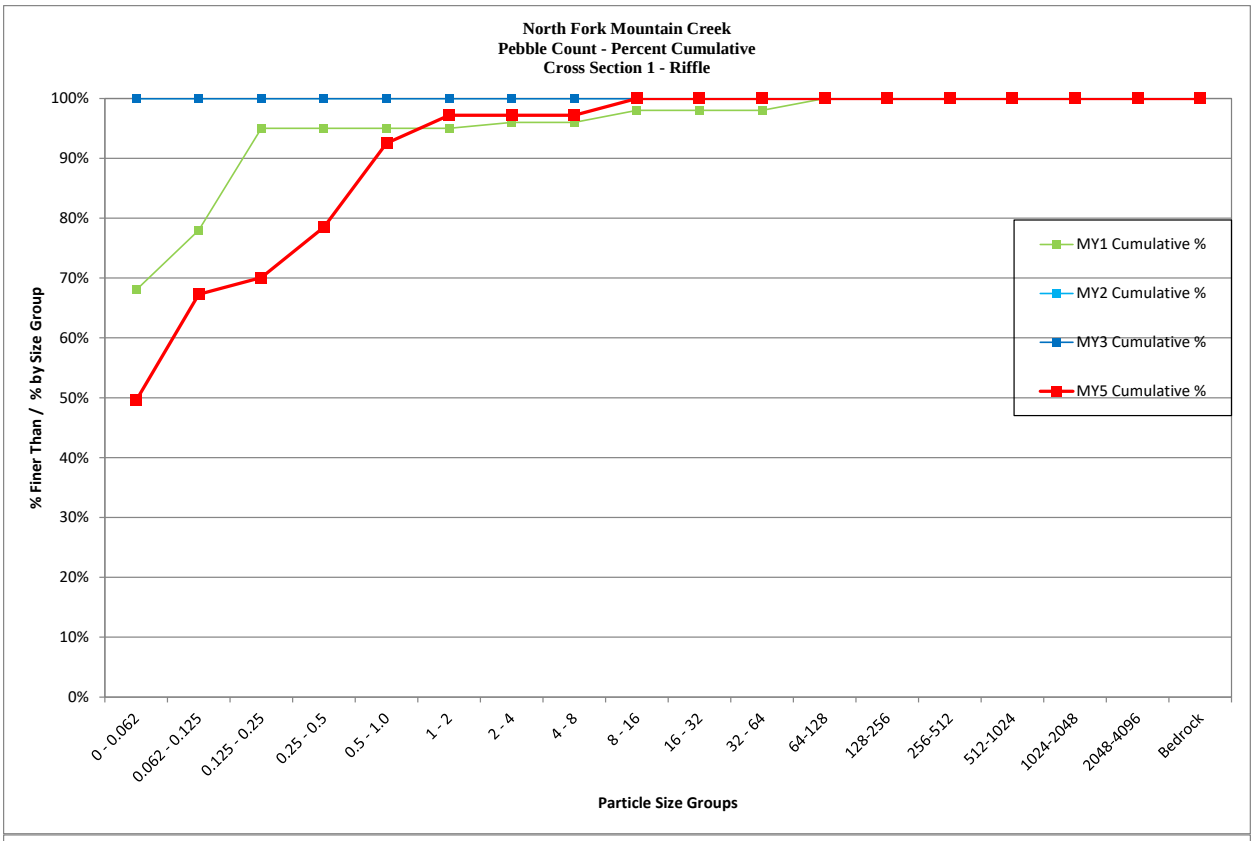
Cross Section 26 Reach 1 – Riffle

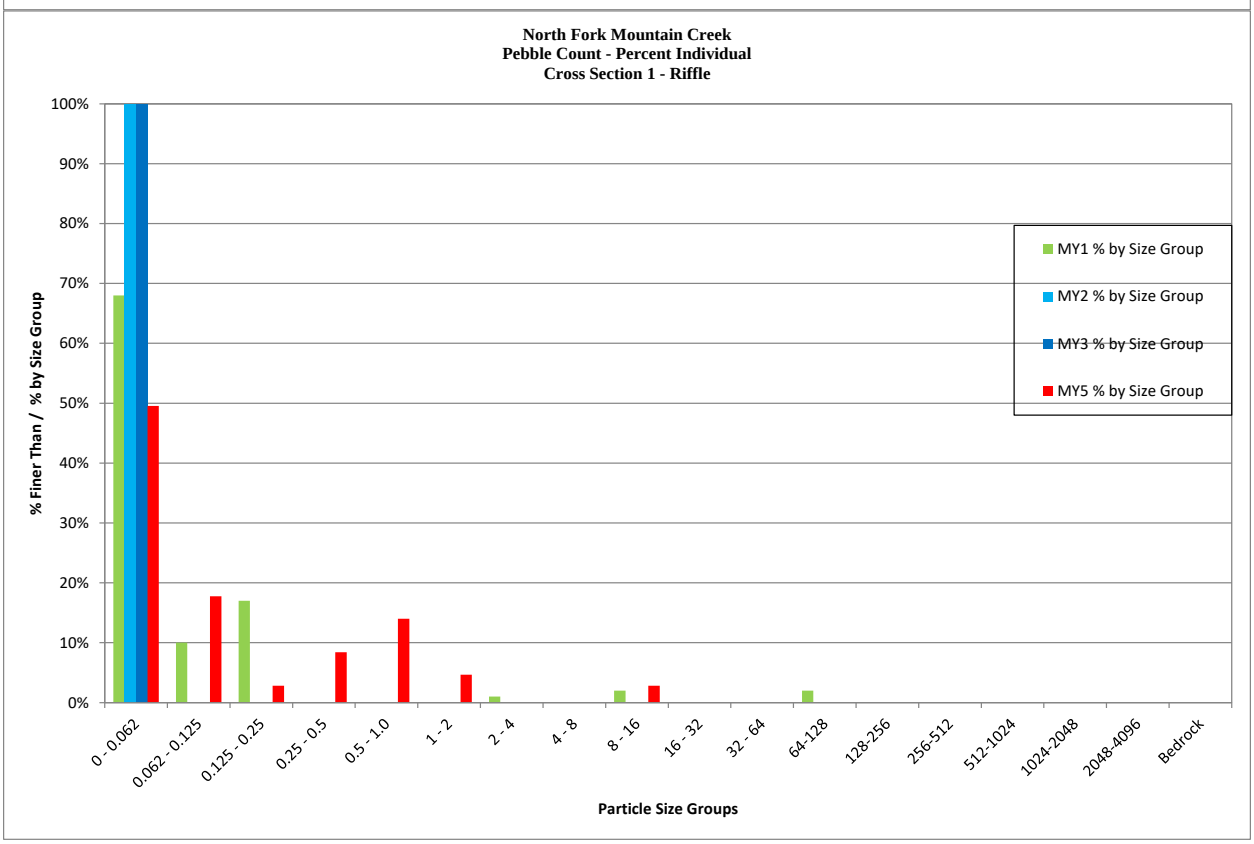
Left Bank Descending

Right Bank Descending

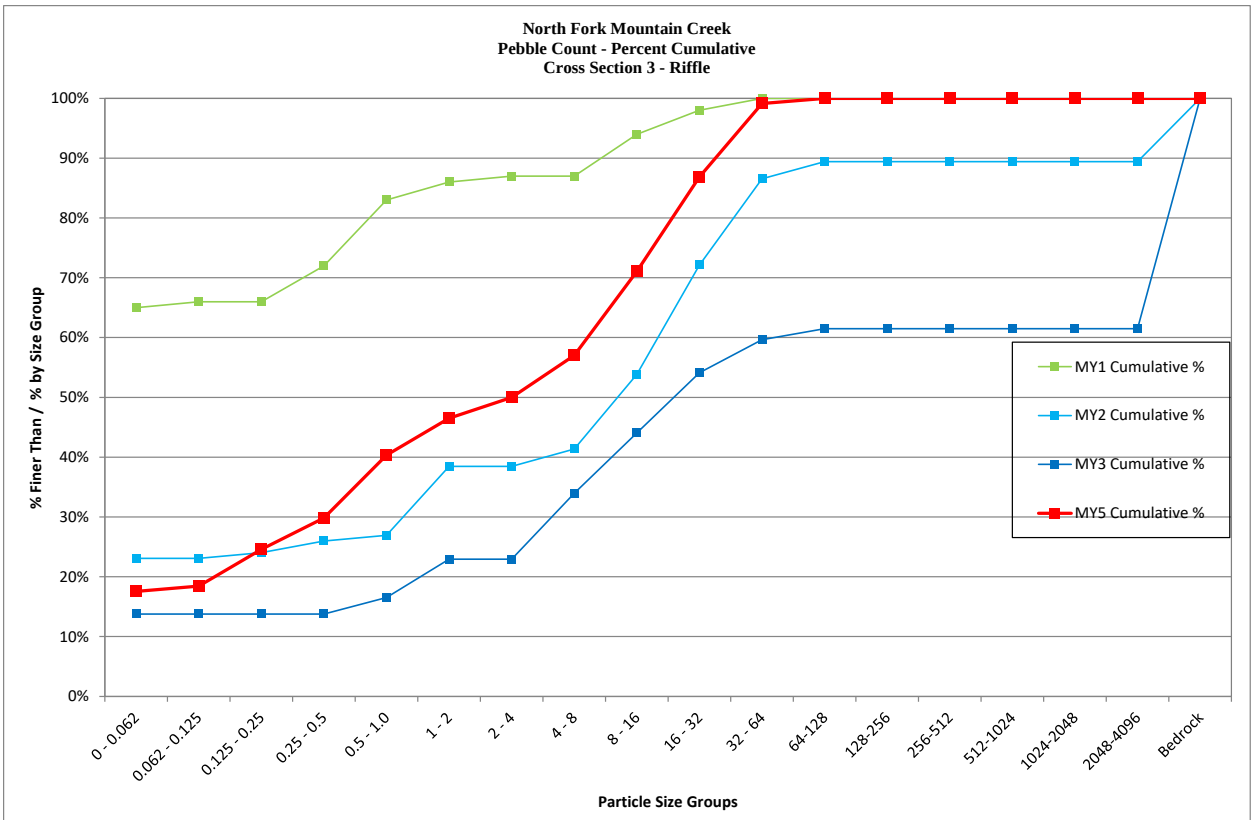


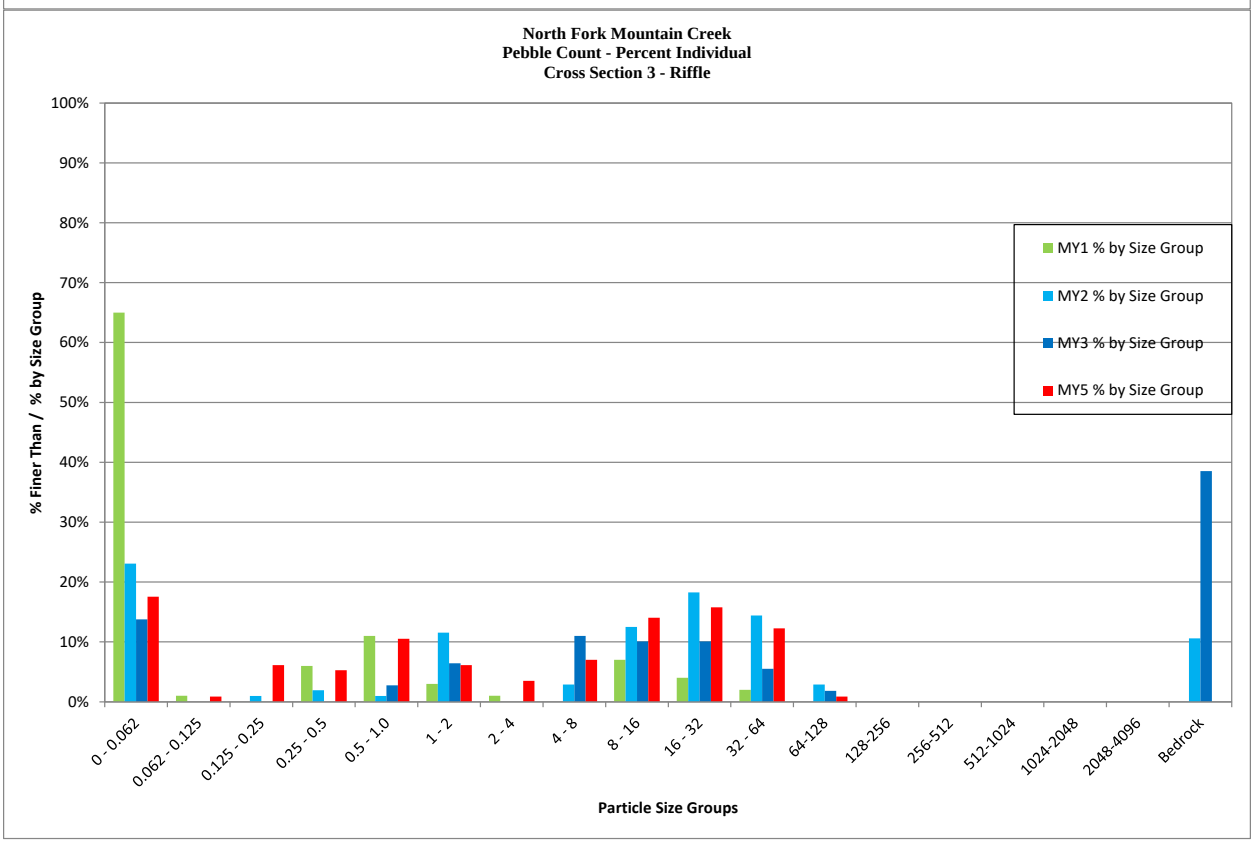
North Fork Mountain Creek			
Cross Section 1 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	53	49.5%	50%
0.062 - 0.125	19	17.8%	67%
0.125 - 0.25	3	2.8%	70%
0.25 - 0.5	9	8.4%	79%
0.5 - 1.0	15	14.0%	93%
1 - 2	5	4.7%	97%
2 - 4	0	0.0%	97%
4 - 8	0	0.0%	97%
8 - 16	3	2.8%	100%
16 - 32	0	0.0%	100%
32 - 64	0	0.0%	100%
64-128	0	0.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**107**	**100%**	**100%**
		Summary Data	
		D50	**0.063**
		D84	**0.66**
		D95	**1.4**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 1 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

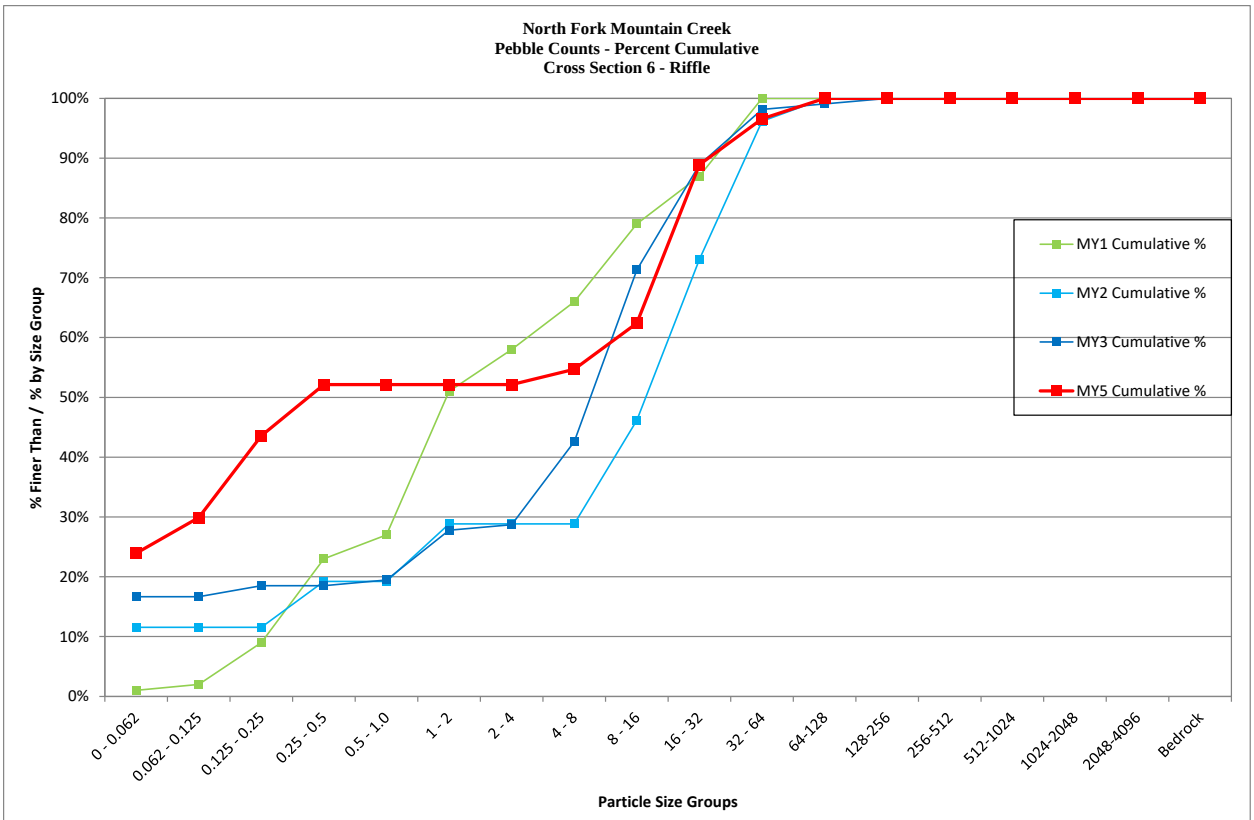

North Fork Mountain Creek
Pebble Count - Percent Individual
Cross Section 1 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

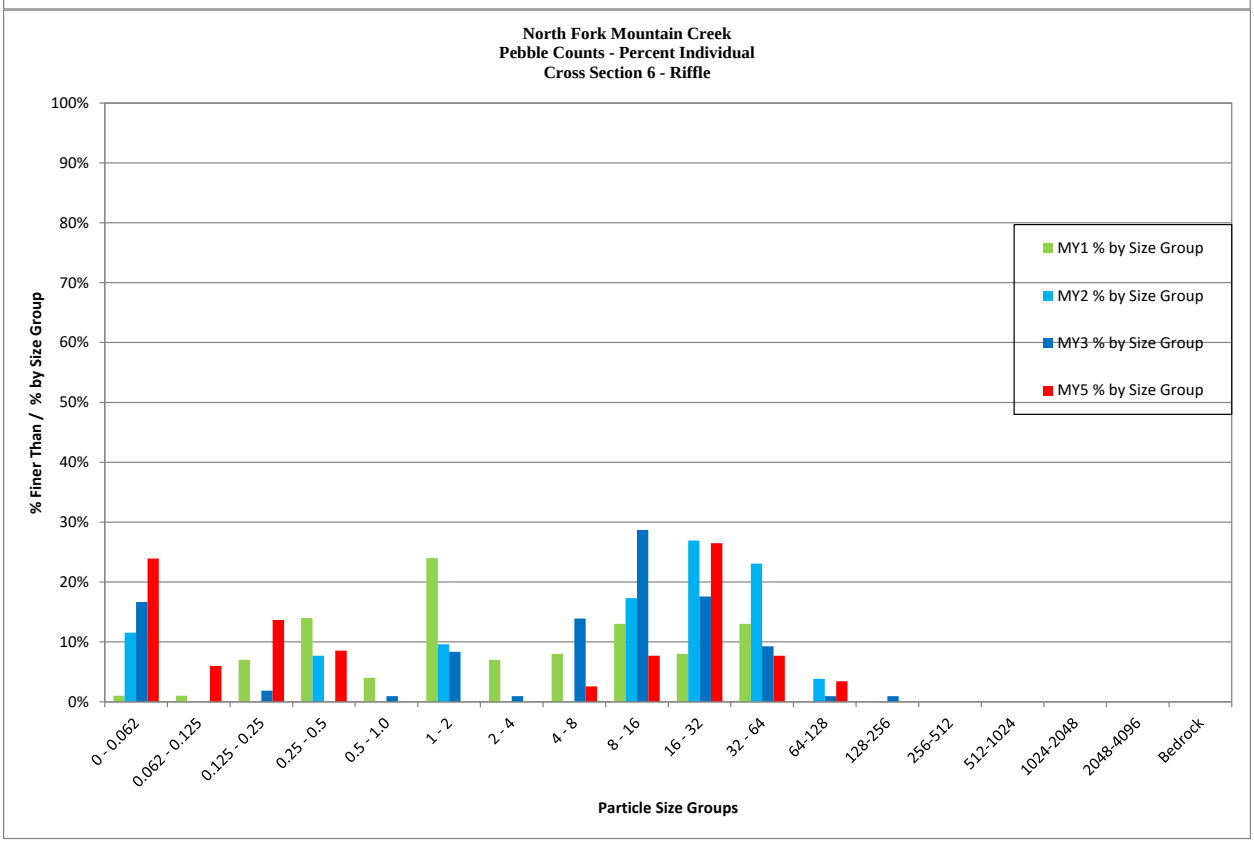
North Fork Mountain Creek			
Cross Section 3 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	20	17.5%	18%
0.062 - 0.125	1	0.9%	18%
0.125 - 0.25	7	6.1%	25%
0.25 - 0.5	6	5.3%	30%
0.5 - 1.0	12	10.5%	40%
1 - 2	7	6.1%	46%
2 - 4	4	3.5%	50%
4 - 8	8	7.0%	57%
8 - 16	16	14.0%	71%
16 - 32	18	15.8%	87%
32 - 64	14	12.3%	99%
64-128	1	0.9%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**114**	**100%**	**100%**
		Summary Data	
		D50	**4**
		D84	**29**
		D95	**44**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 3 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %

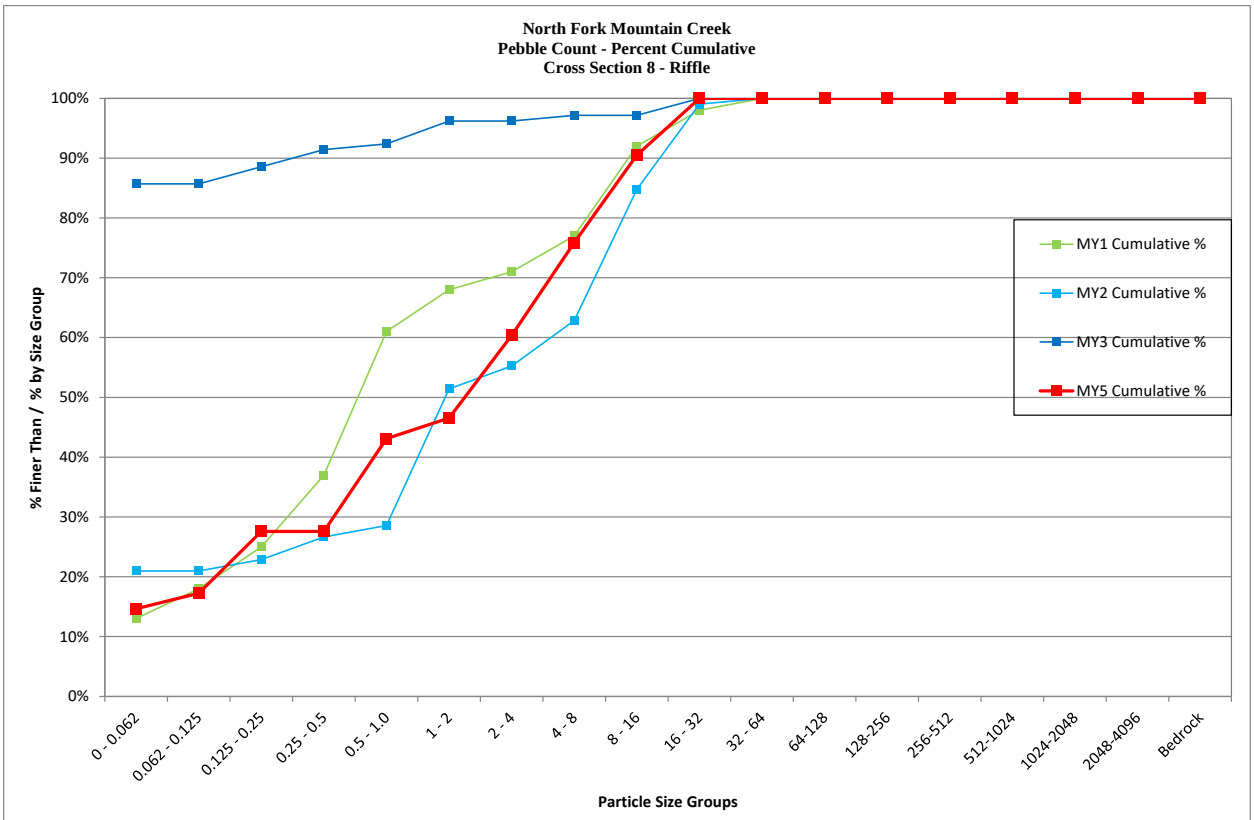

North Fork Mountain Creek
Pebble Count - Percent Individual
Cross Section 3 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group

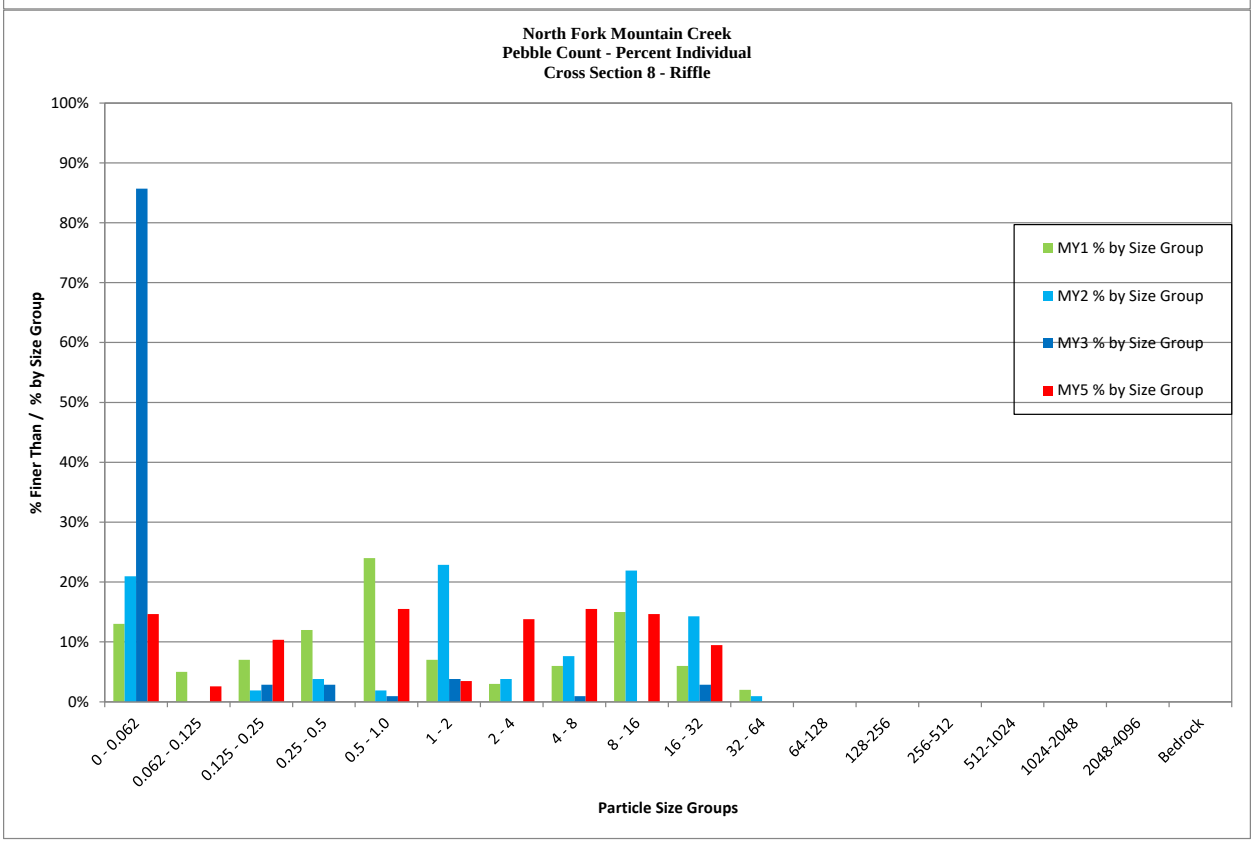
North Fork Mountain Creek			
Cross Section 6 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	28	23.9%	24%
0.062 - 0.125	7	6.0%	30%
0.125 - 0.25	16	13.7%	44%
0.25 - 0.5	10	8.5%	52%
0.5 - 1.0	0	0.0%	52%
1 - 2	0	0.0%	52%
2 - 4	0	0.0%	52%
4 - 8	3	2.6%	55%
8 - 16	9	7.7%	62%
16 - 32	31	26.5%	89%
32 - 64	9	7.7%	97%
64-128	4	3.4%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**117**	**100%**	**100%**
		Summary Data	
		D50	**0.42**
		D84	**28**
		D95	**43**


North Fork Mountain Creek
Pebble Counts - Percent Cumulative
Cross Section 6 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

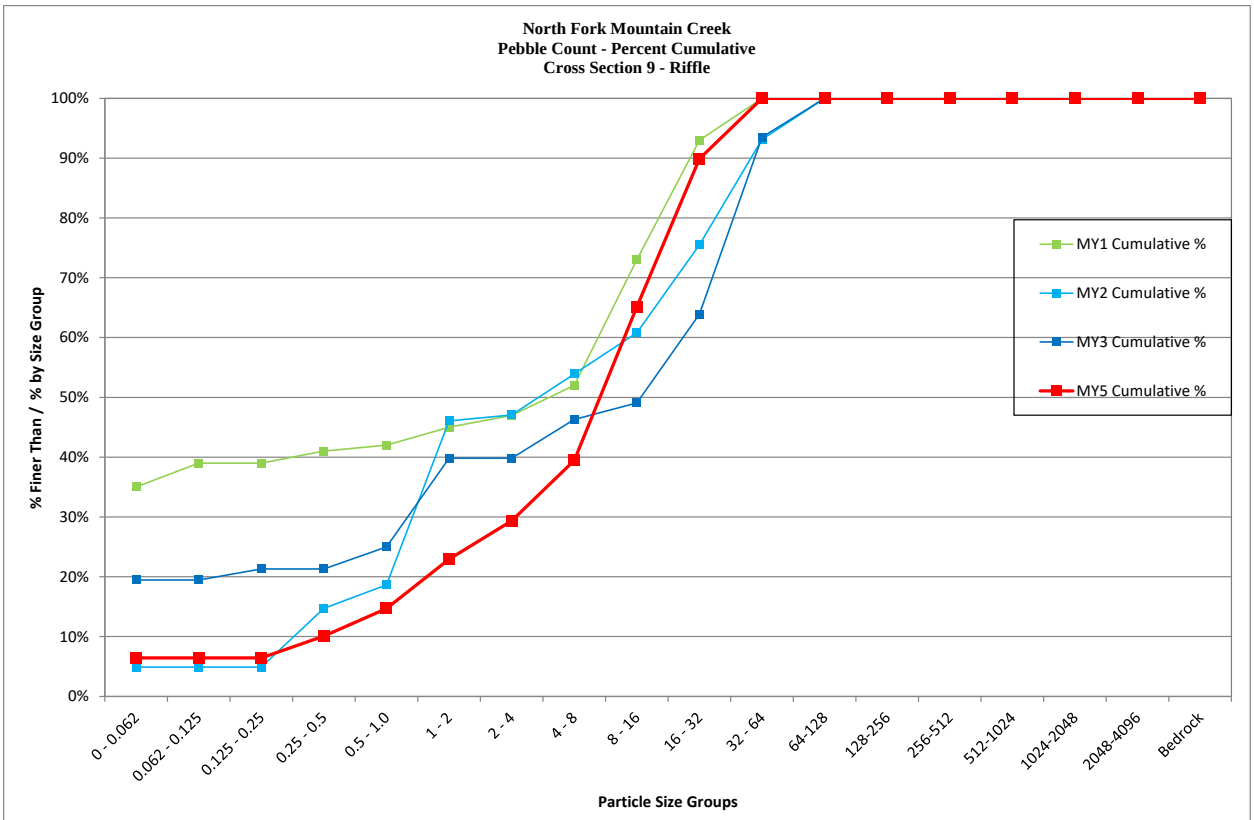

North Fork Mountain Creek
Pebble Counts - Percent Individual
Cross Section 6 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

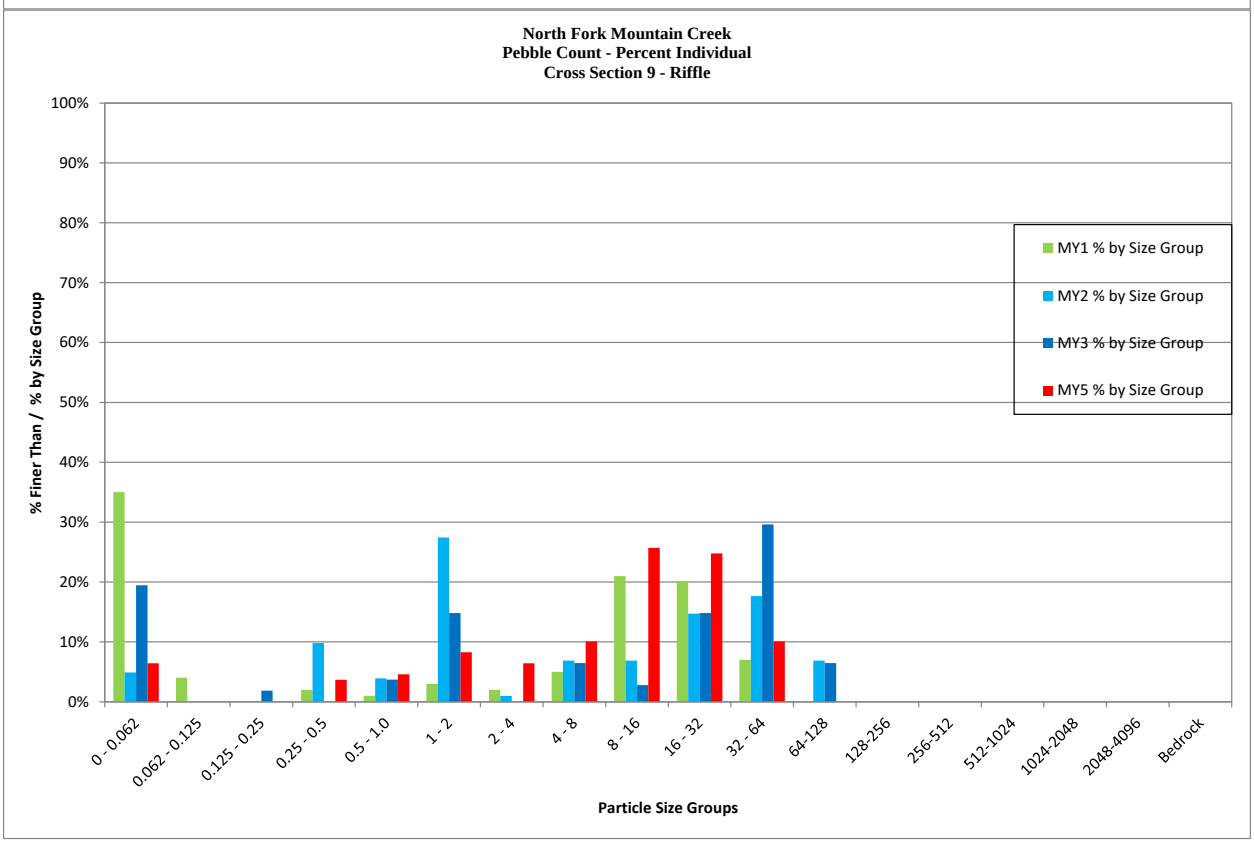
North Fork Mountain Creek			
Cross Section 8 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	17	14.7%	15%
0.062 - 0.125	3	2.6%	17%
0.125 - 0.25	12	10.3%	28%
0.25 - 0.5	0	0.0%	28%
0.5 - 1.0	18	15.5%	43%
1 - 2	4	3.4%	47%
2 - 4	16	13.8%	60%
4 - 8	18	15.5%	76%
8 - 16	17	14.7%	91%
16 - 32	11	9.5%	100%
32 - 64	0	0.0%	100%
64-128	0	0.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**116**	**100%**	**100%**
		Summary Data	
		D50	**2.4**
		D84	**12**
		D95	**23**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 8 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

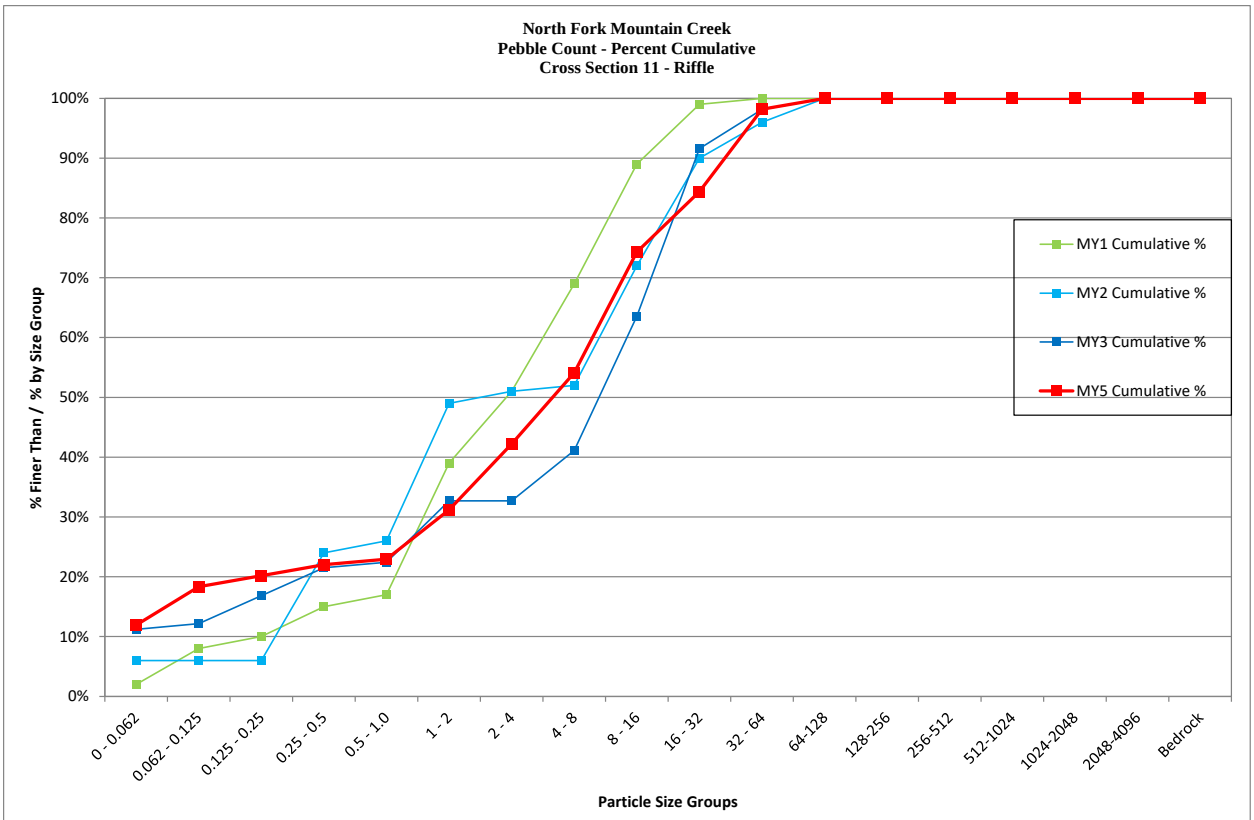

North Fork Mountain Creek
Pebble Count - Percent Individual
Cross Section 8 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

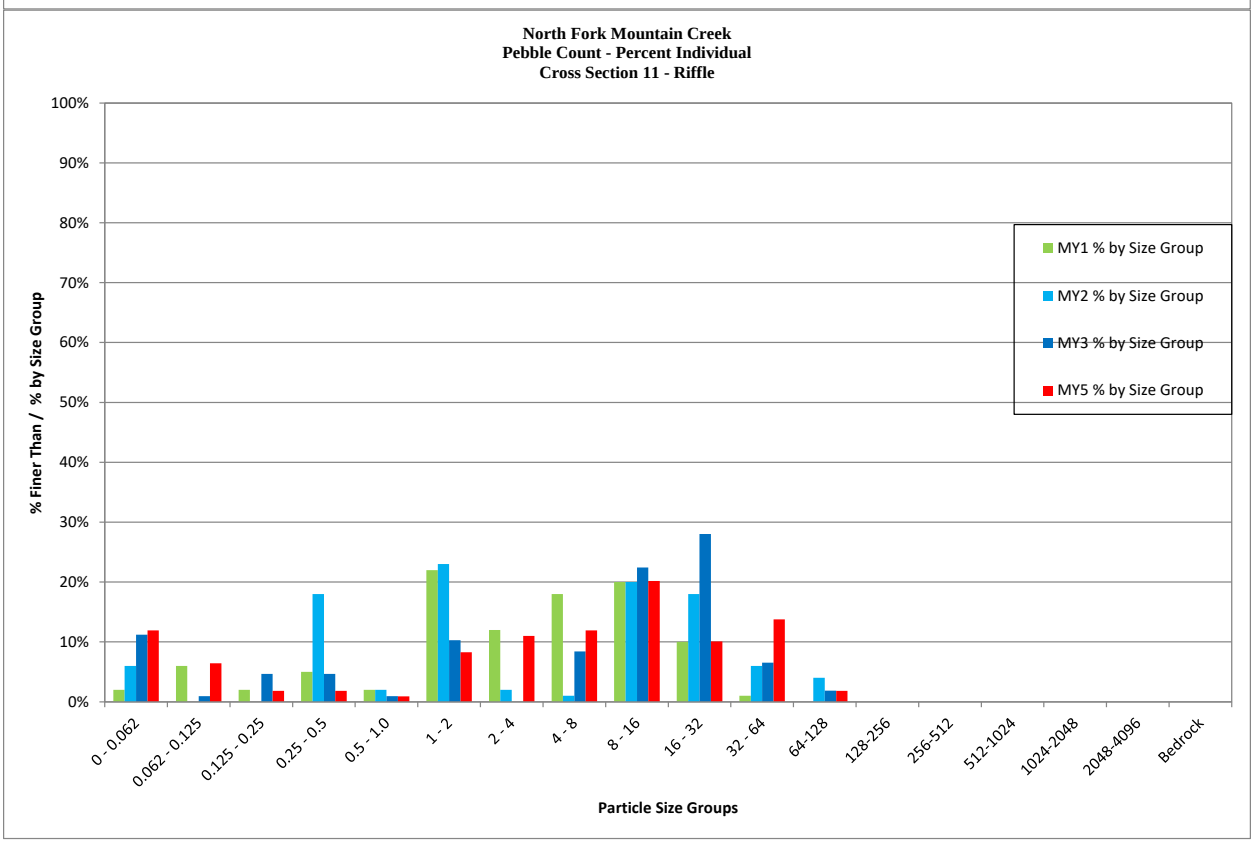
North Fork Mountain Creek			
Cross Section 9 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	7	6.4%	6%
0.062 - 0.125	0	0.0%	6%
0.125 - 0.25	0	0.0%	6%
0.25 - 0.5	4	3.7%	10%
0.5 - 1.0	5	4.6%	15%
1 - 2	9	8.3%	23%
2 - 4	7	6.4%	29%
4 - 8	11	10.1%	39%
8 - 16	28	25.7%	65%
16 - 32	27	24.8%	90%
32 - 64	11	10.1%	100%
64-128	0	0.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**109**	**100%**	**100%**
		Summary Data	
		D50	**11**
		D84	**27**
		D95	**44**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 9 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

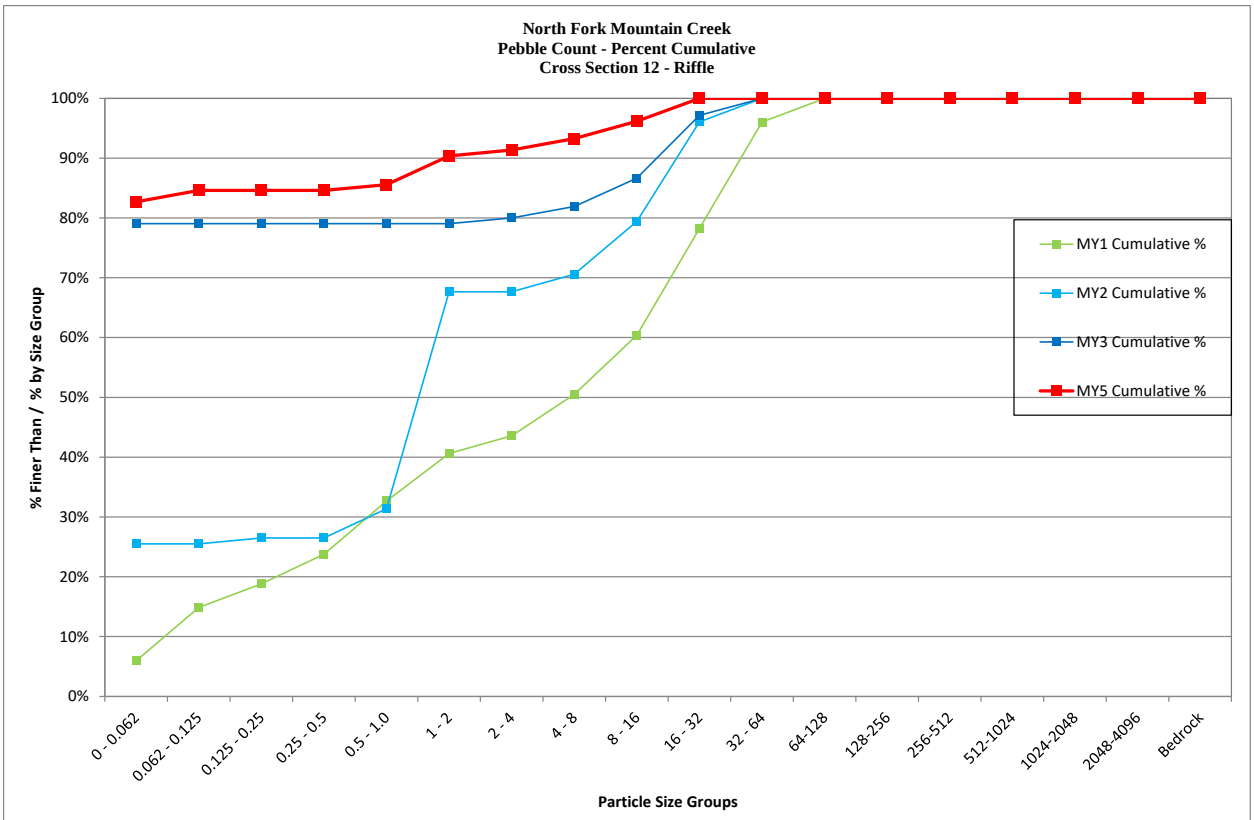

North Fork Mountain Creek
Pebble Count - Percent Individual
Cross Section 9 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

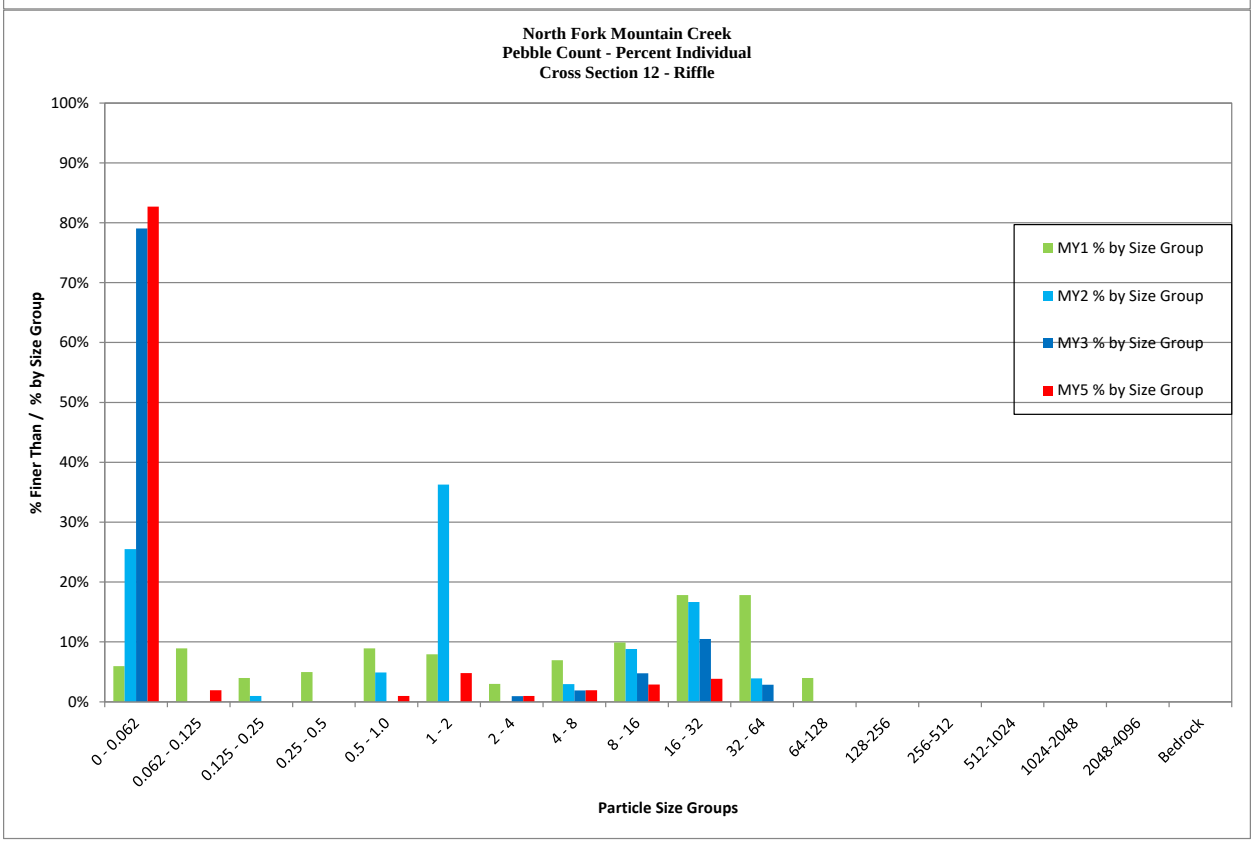
North Fork Mountain Creek			
Cross Section 11 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	13	11.9%	12%
0.062 - 0.125	7	6.4%	18%
0.125 - 0.25	2	1.8%	20%
0.25 - 0.5	2	1.8%	22%
0.5 - 1.0	1	0.9%	23%
1 - 2	9	8.3%	31%
2 - 4	12	11.0%	42%
4 - 8	13	11.9%	54%
8 - 16	22	20.2%	74%
16 - 32	11	10.1%	84%
32 - 64	15	13.8%	98%
64-128	2	1.8%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**109**	**100%**	**100%**
		Summary Data	
		D50	**6.4**
		D84	**31**
		D95	**47**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 11 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

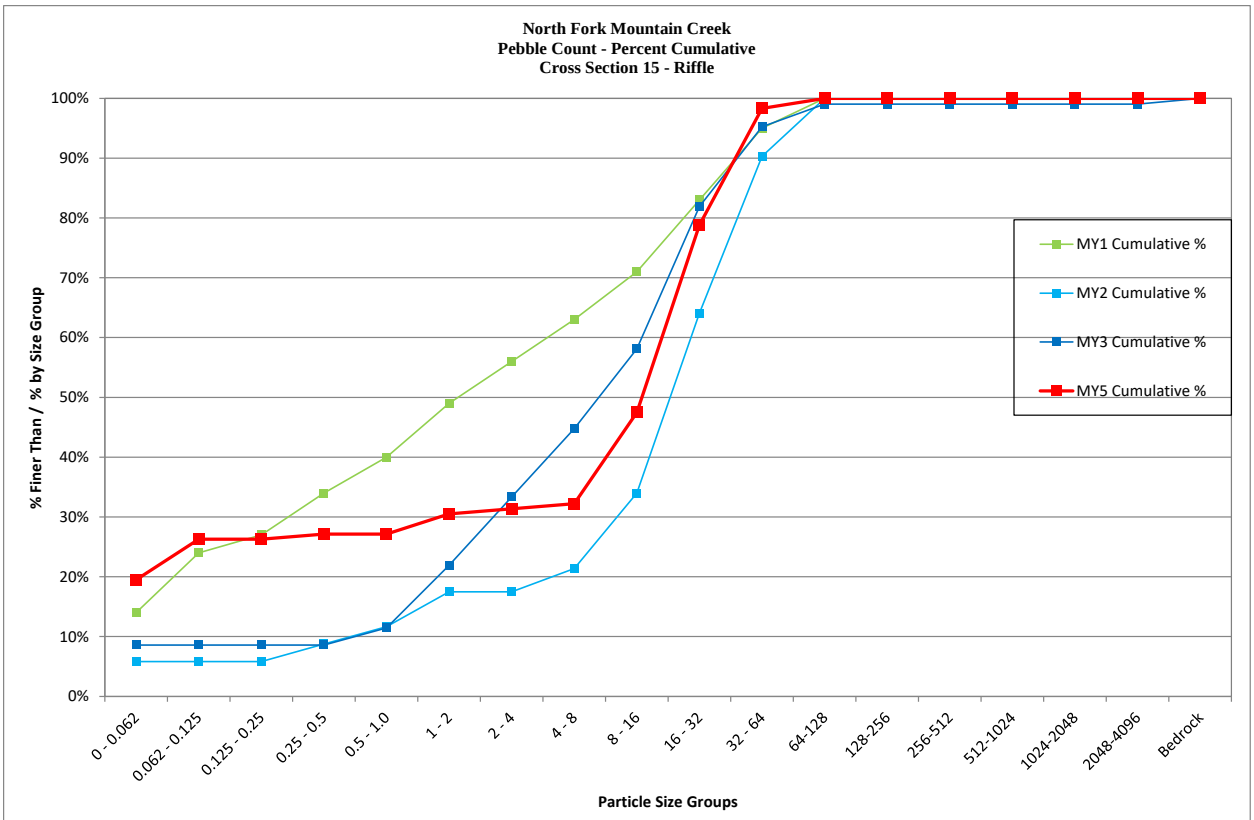

North Fork Mountain Creek
Pebble Count - Percent Individual
Cross Section 11 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

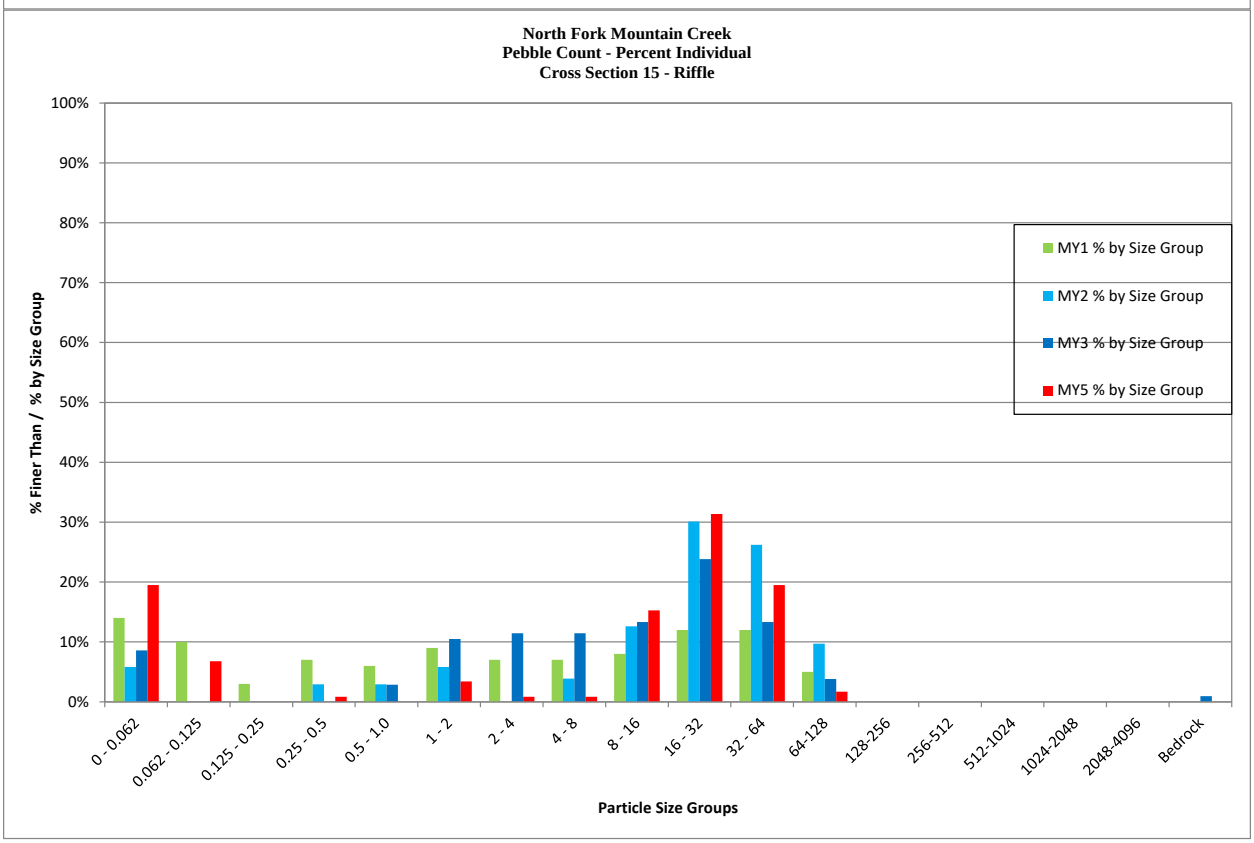
North Fork Mountain Creek			
Cross Section 12 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	86	82.7%	83%
0.062 - 0.125	2	1.9%	85%
0.125 - 0.25	0	0.0%	85%
0.25 - 0.5	0	0.0%	85%
0.5 - 1.0	1	1.0%	86%
1 - 2	5	4.8%	90%
2 - 4	1	1.0%	91%
4 - 8	2	1.9%	93%
8 - 16	3	2.9%	96%
16 - 32	4	3.8%	100%
32 - 64	0	0.0%	100%
64-128	0	0.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**104**	**100%**	**100%**
		Summary Data	
		D50	**0.062**
		D84	**0.1**
		D95	**11**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 12 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

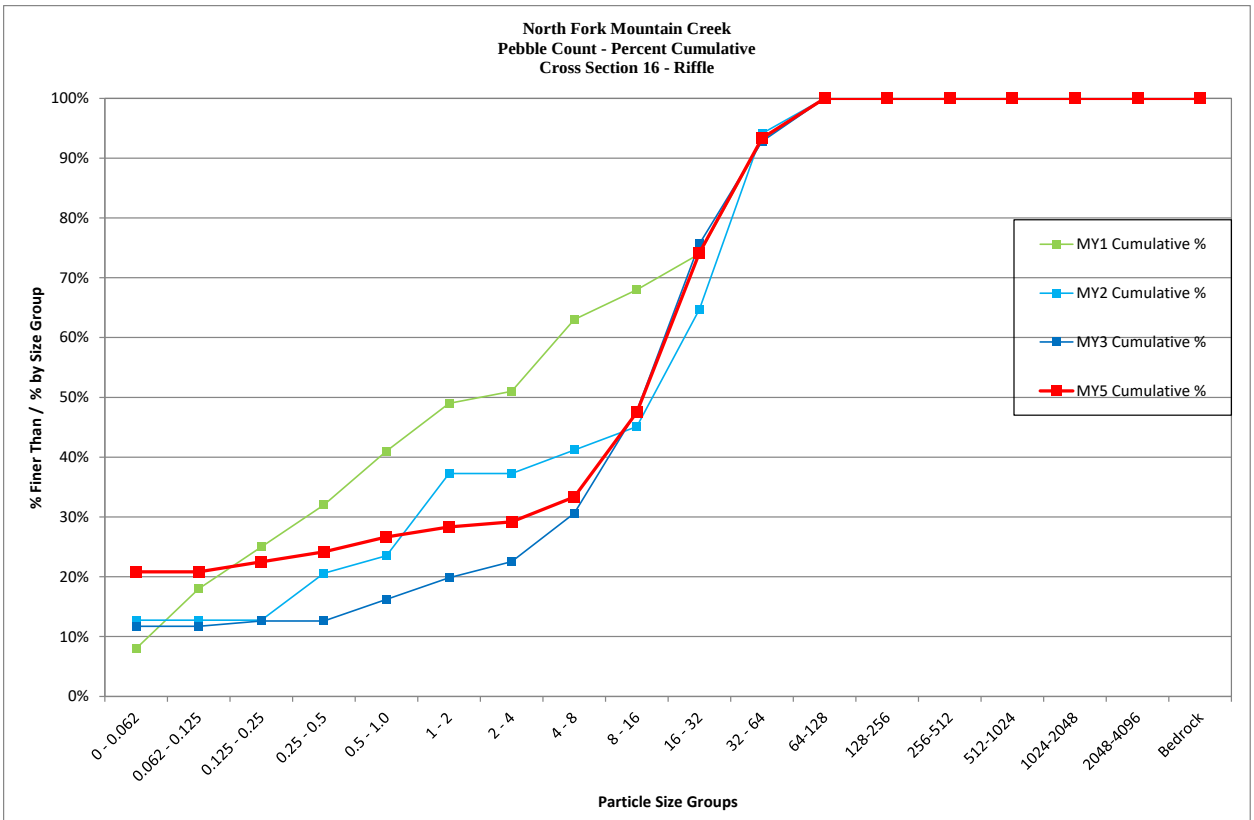

North Fork Mountain Creek
Pebble Count - Percent Individual
Cross Section 12 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

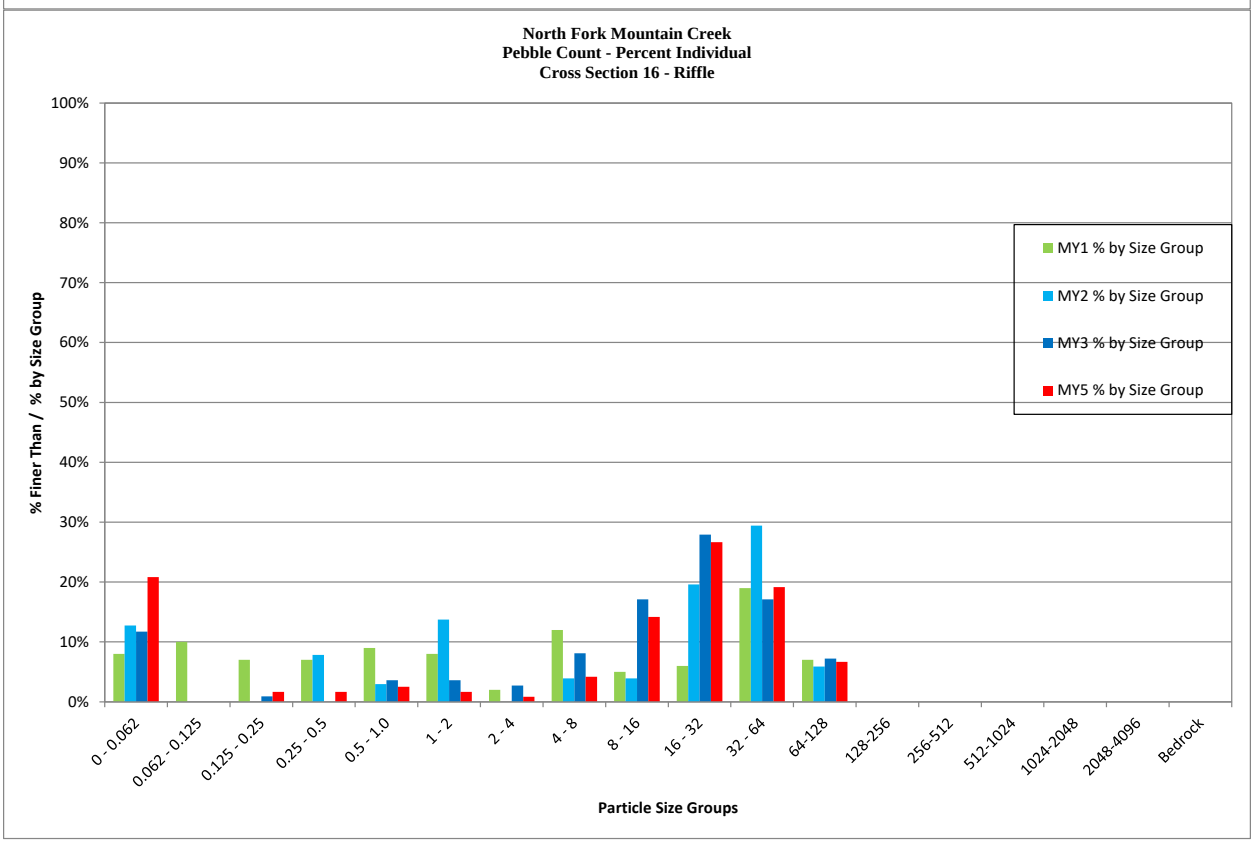
North Fork Mountain Creek			
Cross Section 15 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	23	19.5%	19%
0.062 - 0.125	8	6.8%	26%
0.125 - 0.25	0	0.0%	26%
0.25 - 0.5	1	0.8%	27%
0.5 - 1.0	0	0.0%	27%
1 - 2	4	3.4%	31%
2 - 4	1	0.8%	31%
4 - 8	1	0.8%	32%
8 - 16	18	15.3%	47%
16 - 32	37	31.4%	79%
32 - 64	23	19.5%	98%
64-128	2	1.7%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**118**	**100%**	**100%**
		Summary Data	
		D50	**17**
		D84	**36**
		D95	**53**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 15 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

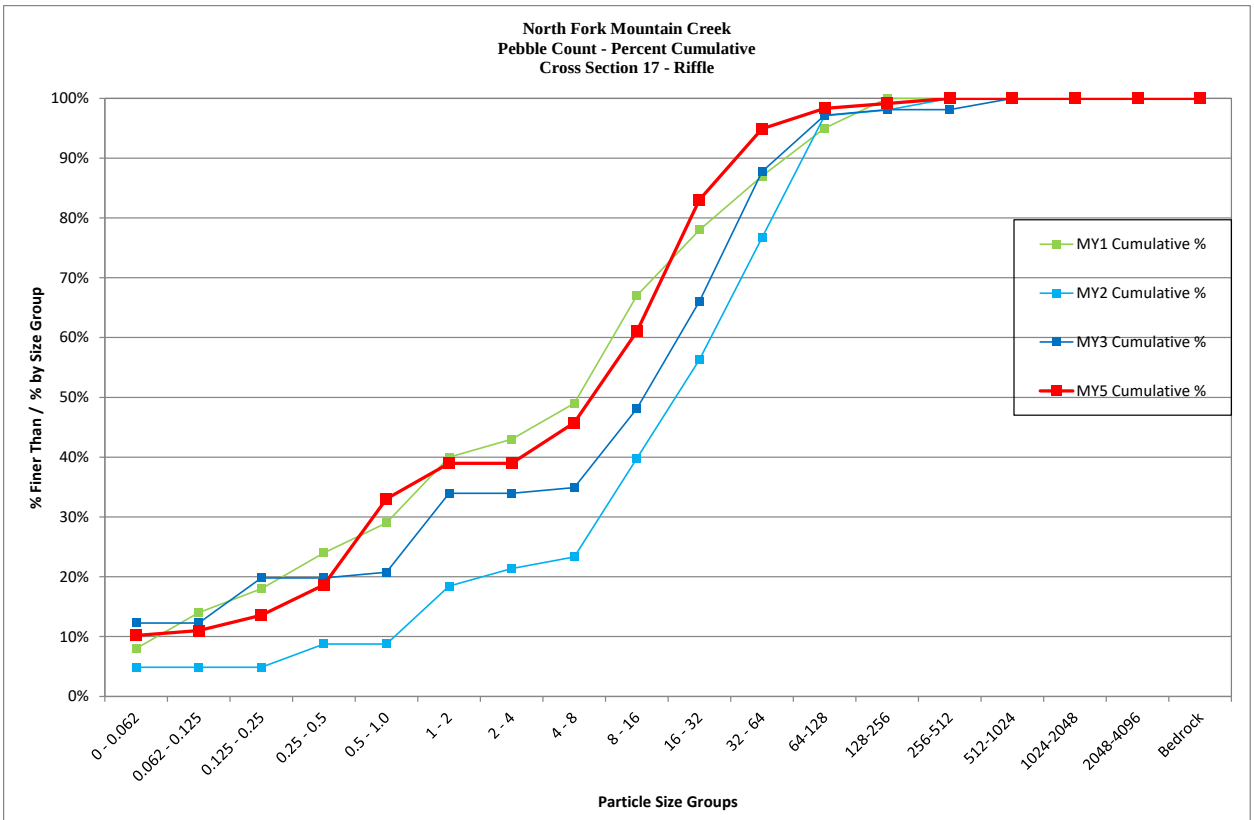

North Fork Mountain Creek
Pebble Count - Percent Individual
Cross Section 15 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

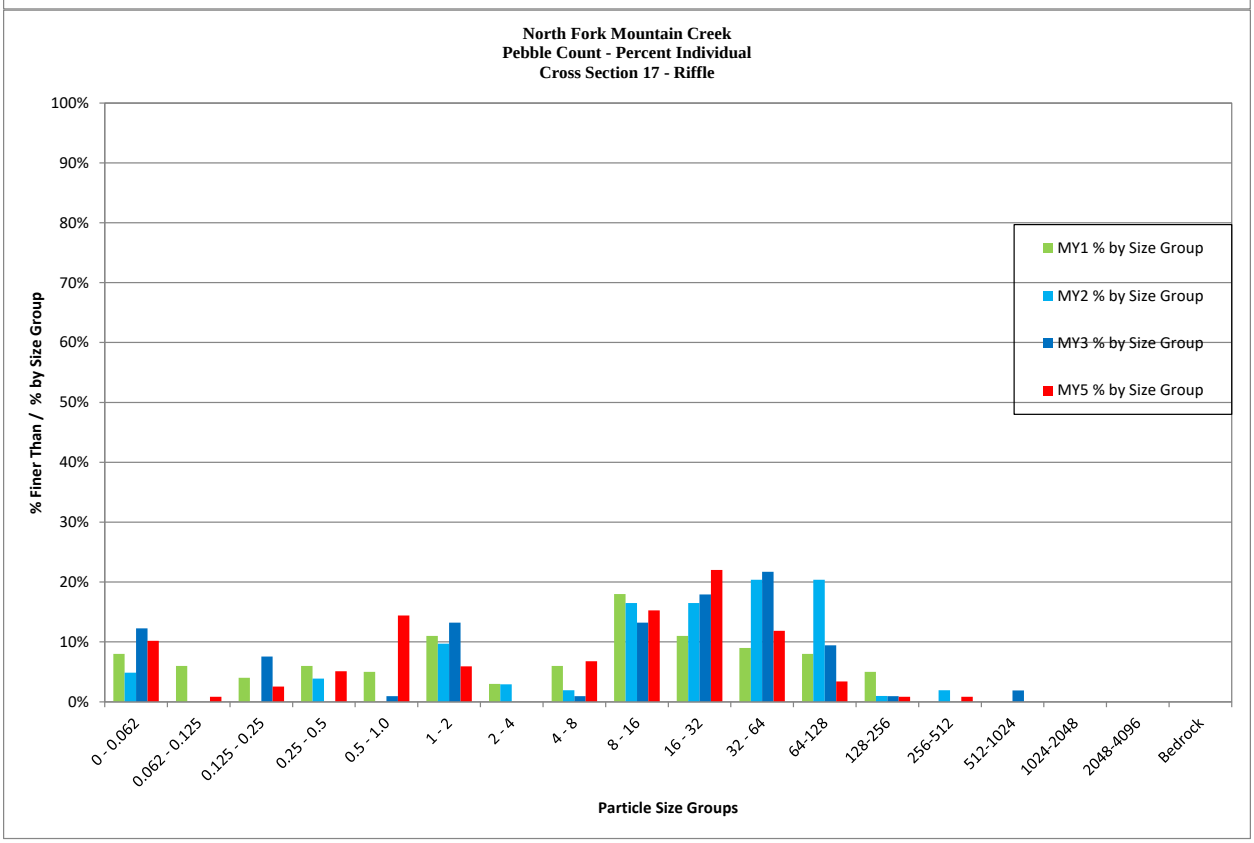
North Fork Mountain Creek			
Cross Section 16 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	25	20.8%	21%
0.062 - 0.125	0	0.0%	21%
0.125 - 0.25	2	1.7%	23%
0.25 - 0.5	2	1.7%	24%
0.5 - 1.0	3	2.5%	27%
1 - 2	2	1.7%	28%
2 - 4	1	0.8%	29%
4 - 8	5	4.2%	33%
8 - 16	17	14.2%	48%
16 - 32	32	26.7%	74%
32 - 64	23	19.2%	93%
64-128	8	6.7%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**120**	**100%**	**100%**
		Summary Data	
		D50	**17**
		D84	**43**
		D95	**72**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 16 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

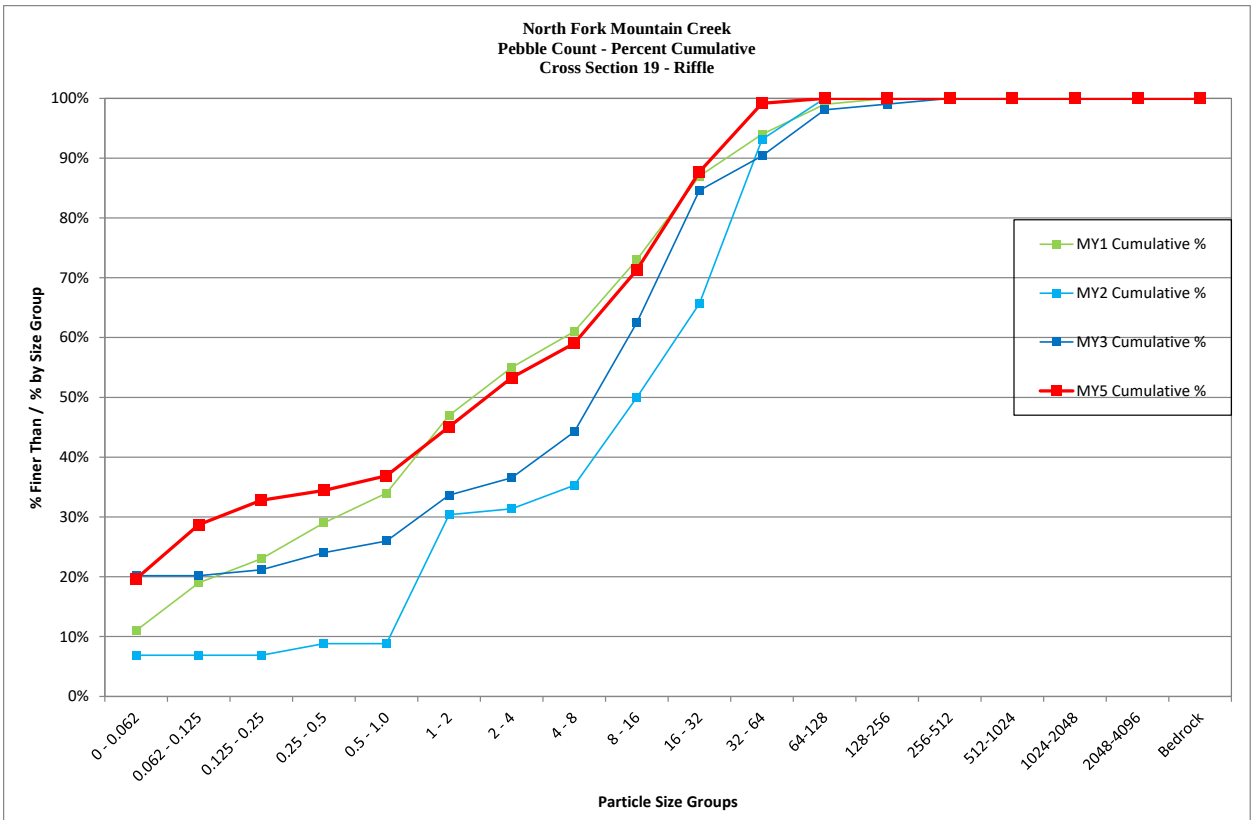

North Fork Mountain Creek
Pebble Count - Percent Individual
Cross Section 16 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

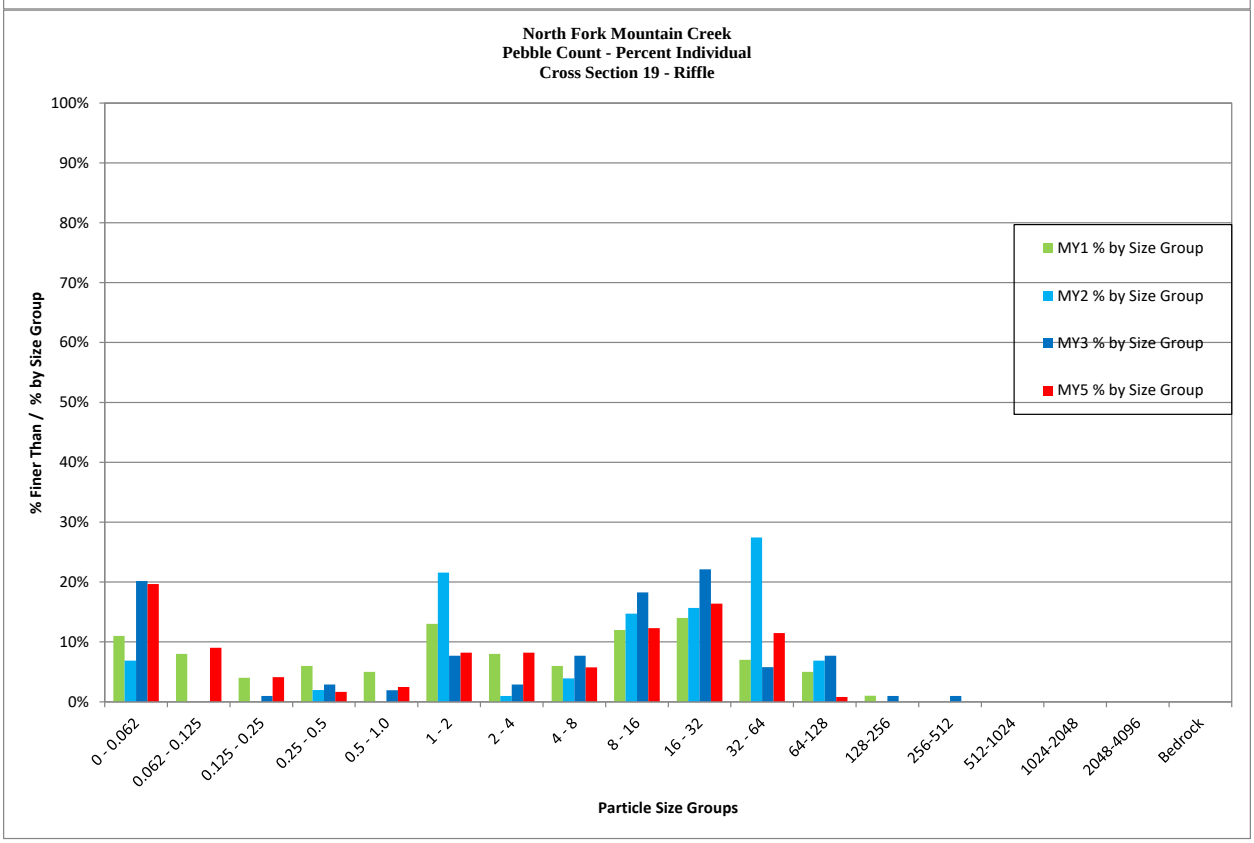
North Fork Mountain Creek			
Cross Section 17 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	12	10.2%	10%
0.062 - 0.125	1	0.8%	11%
0.125 - 0.25	3	2.5%	14%
0.25 - 0.5	6	5.1%	19%
0.5 - 1.0	17	14.4%	33%
1 - 2	7	5.9%	39%
2 - 4	0	0.0%	39%
4 - 8	8	6.8%	46%
8 - 16	18	15.3%	61%
16 - 32	26	22.0%	83%
32 - 64	14	11.9%	95%
64-128	4	3.4%	98%
128-256	1	0.8%	99%
256-512	1	0.8%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**118**	**100%**	**100%**
		Summary Data	
		D50	**10**
		D84	**33**
		D95	**65**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 17 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

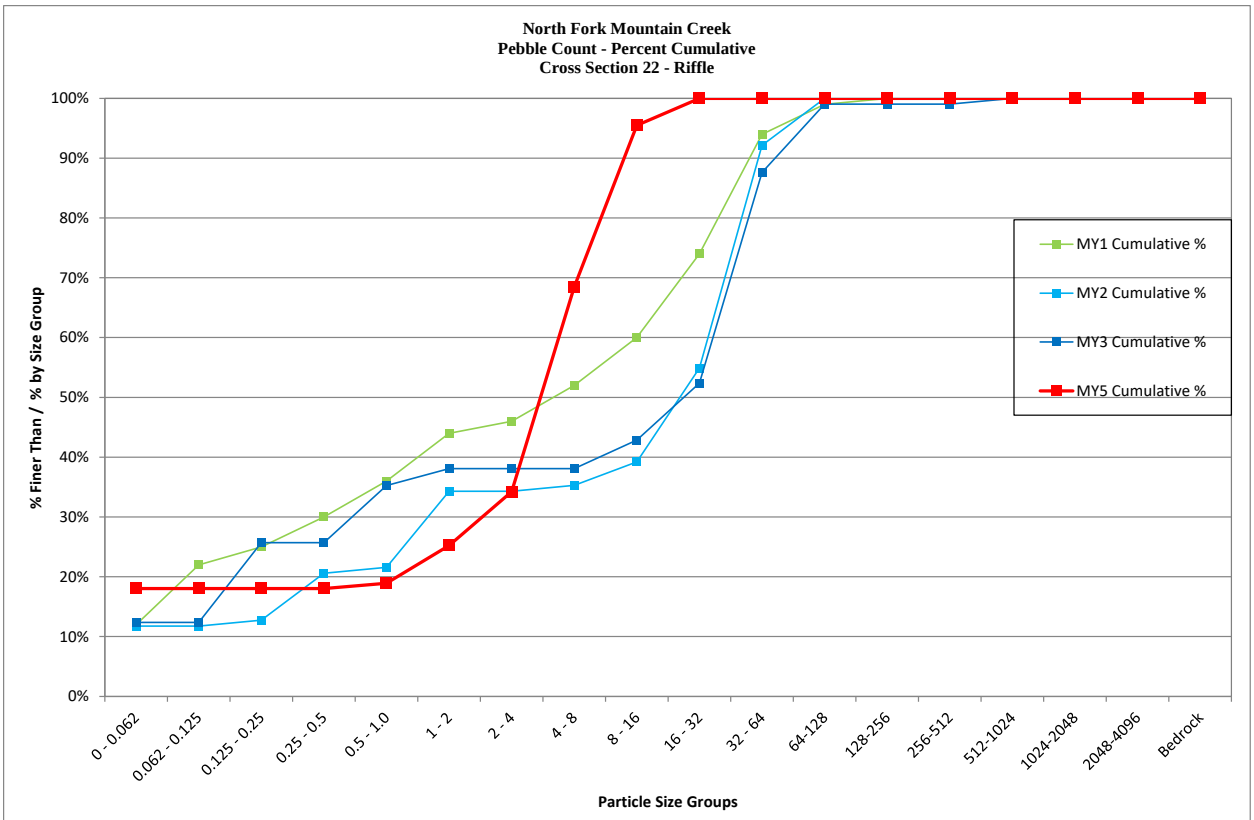

North Fork Mountain Creek
Pebble Count - Percent Individual
Cross Section 17 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

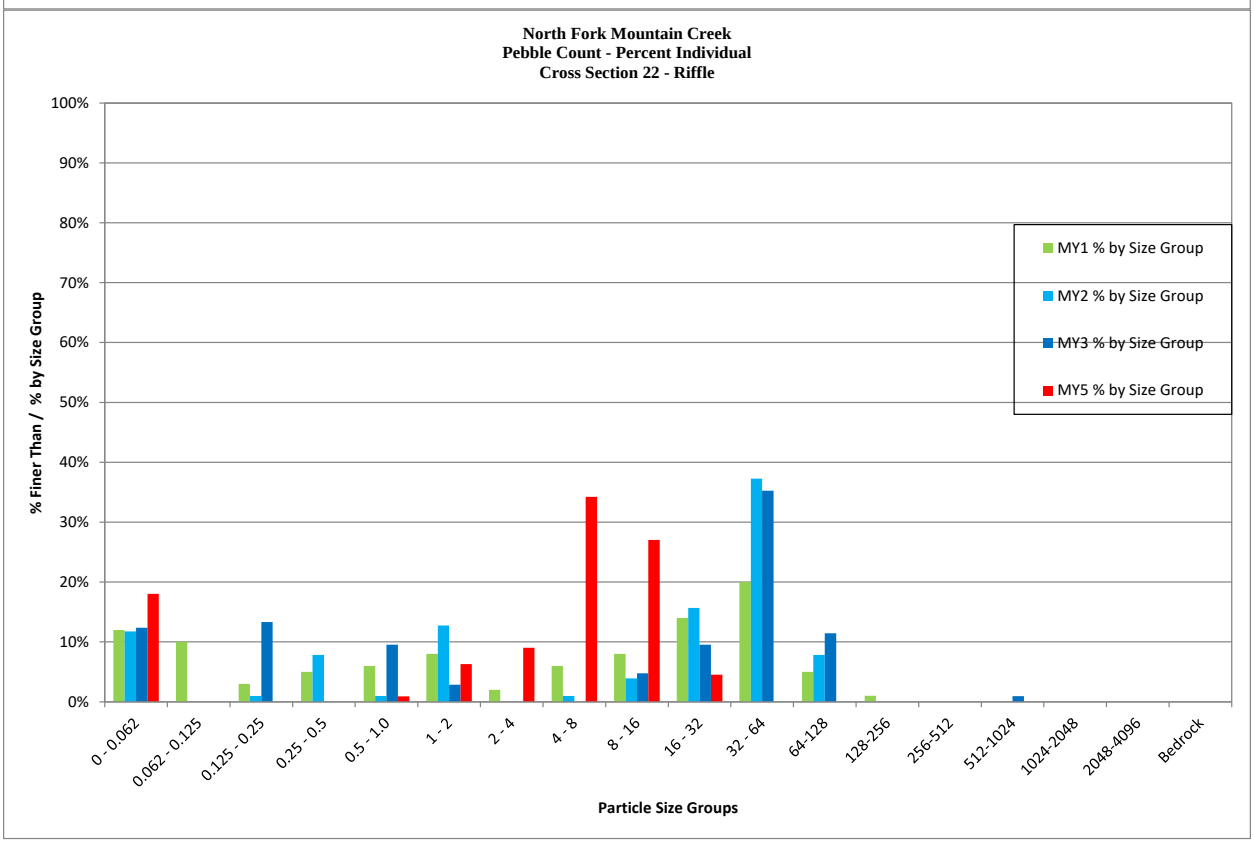
North Fork Mountain Creek			
Cross Section 19 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	24	19.7%	20%
0.062 - 0.125	11	9.0%	29%
0.125 - 0.25	5	4.1%	33%
0.25 - 0.5	2	1.6%	34%
0.5 - 1.0	3	2.5%	37%
1 - 2	10	8.2%	45%
2 - 4	10	8.2%	53%
4 - 8	7	5.7%	59%
8 - 16	15	12.3%	71%
16 - 32	20	16.4%	88%
32 - 64	14	11.5%	99%
64-128	1	0.8%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**122**	**100%**	**100%**
		Summary Data	
		D50	**3**
		D84	**27**
		D95	**47**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 19 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

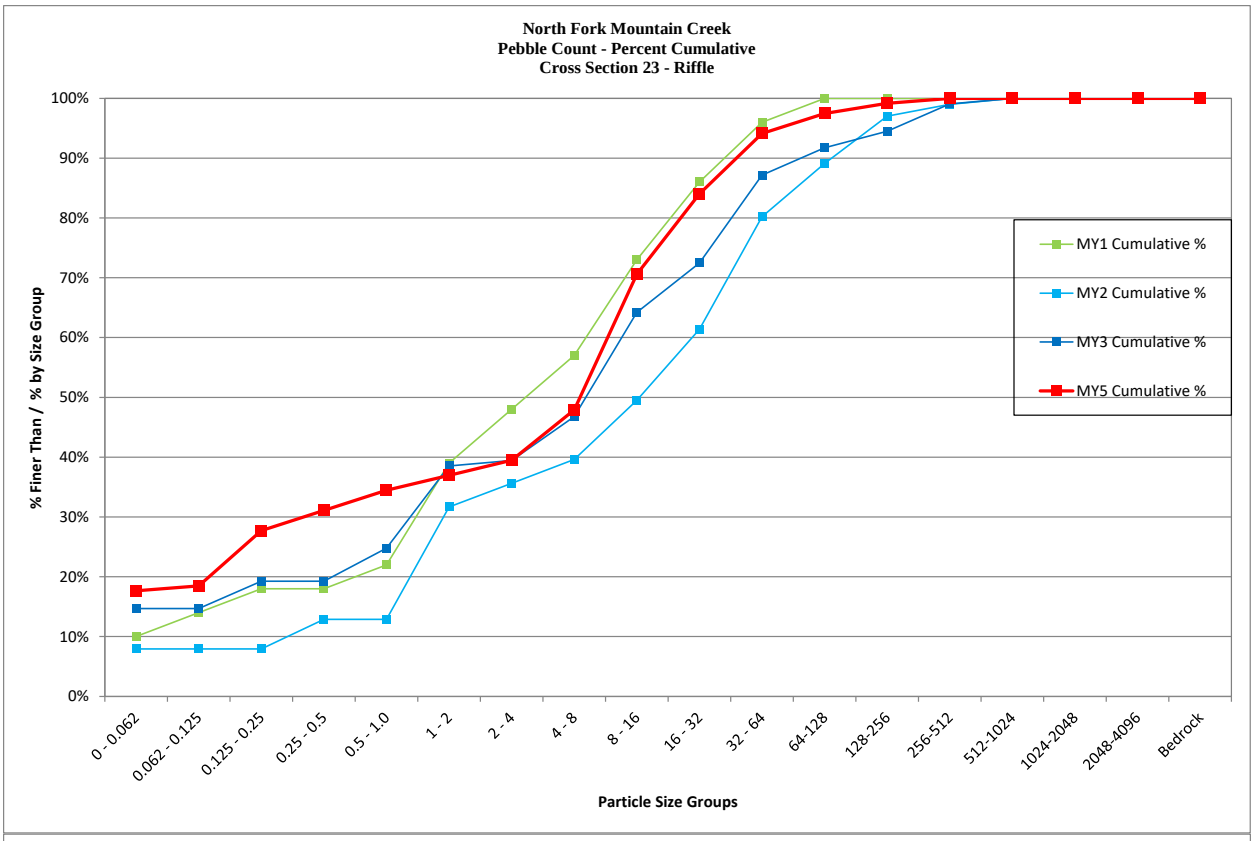

North Fork Mountain Creek
Pebble Count - Percent Individual
Cross Section 19 - Riffle
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

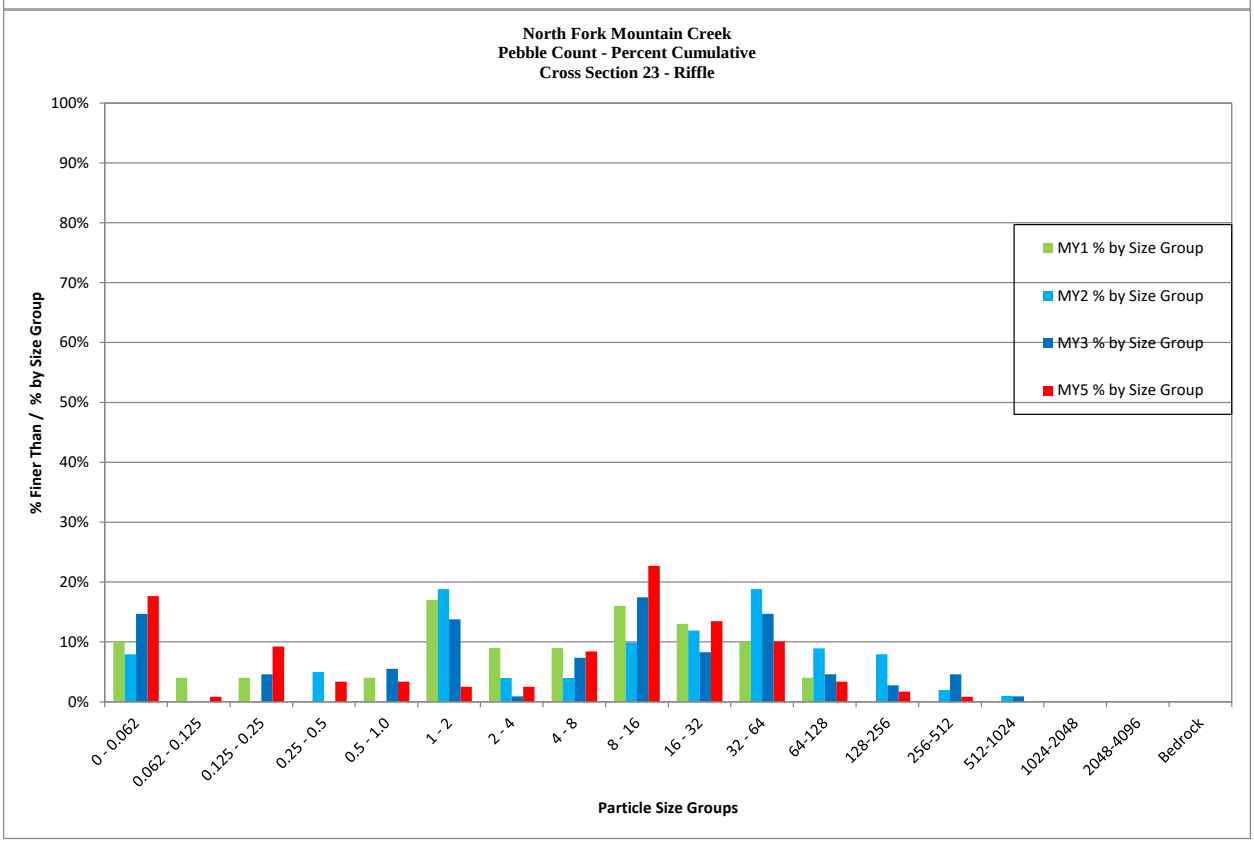
North Fork Mountain Creek			
Cross Section 22 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	20	18.0%	18%
0.062 - 0.125	0	0.0%	18%
0.125 - 0.25	0	0.0%	18%
0.25 - 0.5	0	0.0%	18%
0.5 - 1.0	1	0.9%	19%
1 - 2	7	6.3%	25%
2 - 4	10	9.0%	34%
4 - 8	38	34.2%	68%
8 - 16	30	27.0%	95%
16 - 32	5	4.5%	100%
32 - 64	0	0.0%	100%
64-128	0	0.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**111**	**100%**	**100%**
		Summary Data	
		D50	**5.6**
		D84	**11**
		D95	**16**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 22 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

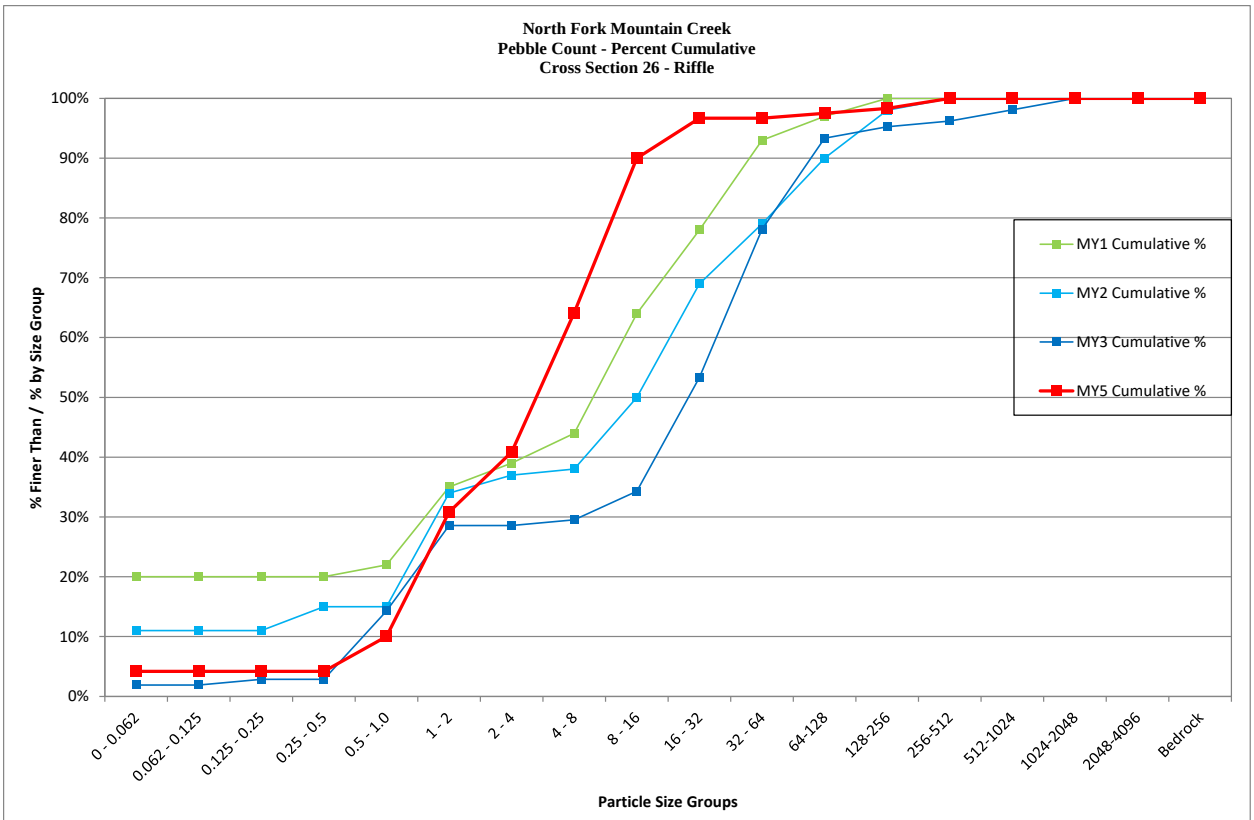

North Fork Mountain Creek
Pebble Count - Percent Individual
Cross Section 22 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

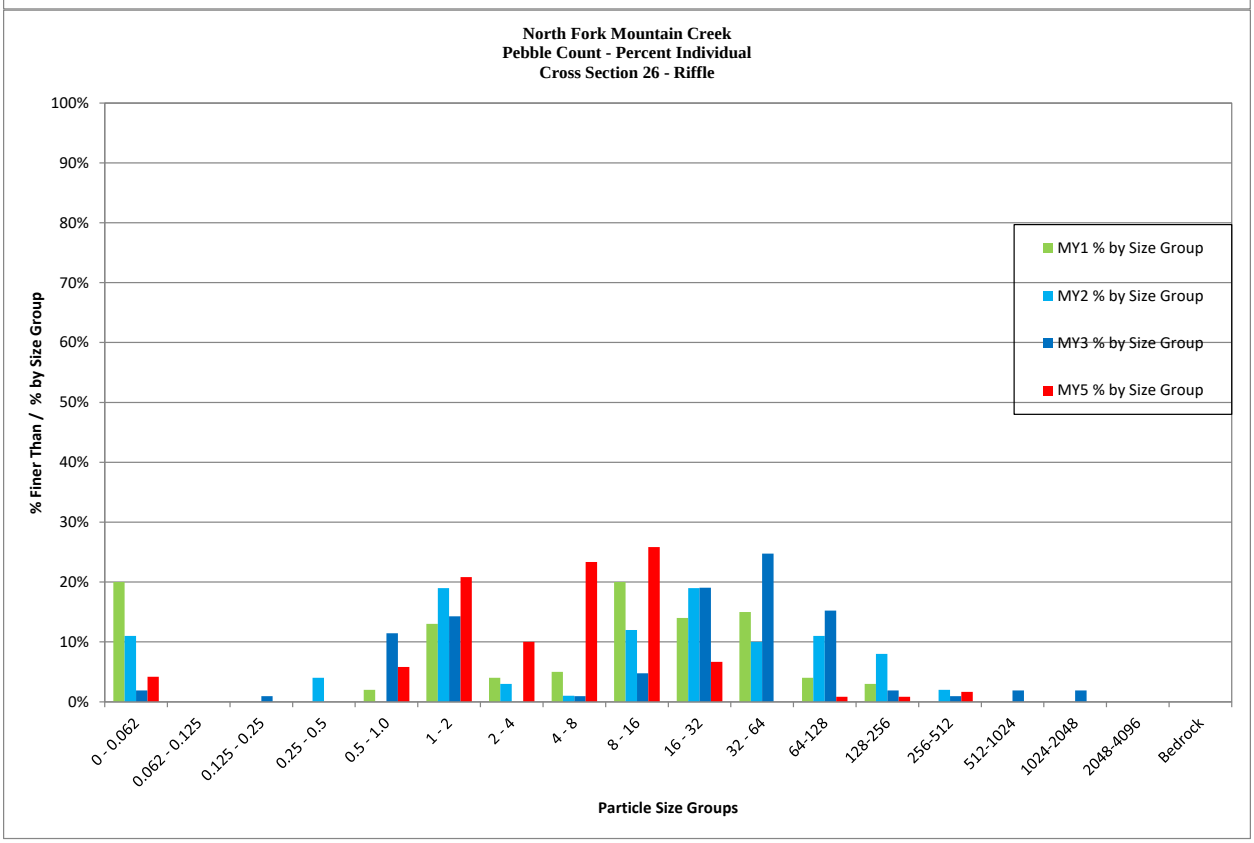
North Fork Mountain Creek			
Cross Section 23 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	21	17.6%	18%
0.062 - 0.125	1	0.8%	18%
0.125 - 0.25	11	9.2%	28%
0.25 - 0.5	4	3.4%	31%
0.5 - 1.0	4	3.4%	34%
1 - 2	3	2.5%	37%
2 - 4	3	2.5%	39%
4 - 8	10	8.4%	48%
8 - 16	27	22.7%	71%
16 - 32	16	13.4%	84%
32 - 64	12	10.1%	94%
64-128	4	3.4%	97%
128-256	2	1.7%	99%
256-512	1	0.8%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**119**	**100%**	**100%**
		Summary Data	
		D50	**8.5**
		D84	**32**
		D95	**91**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 23 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

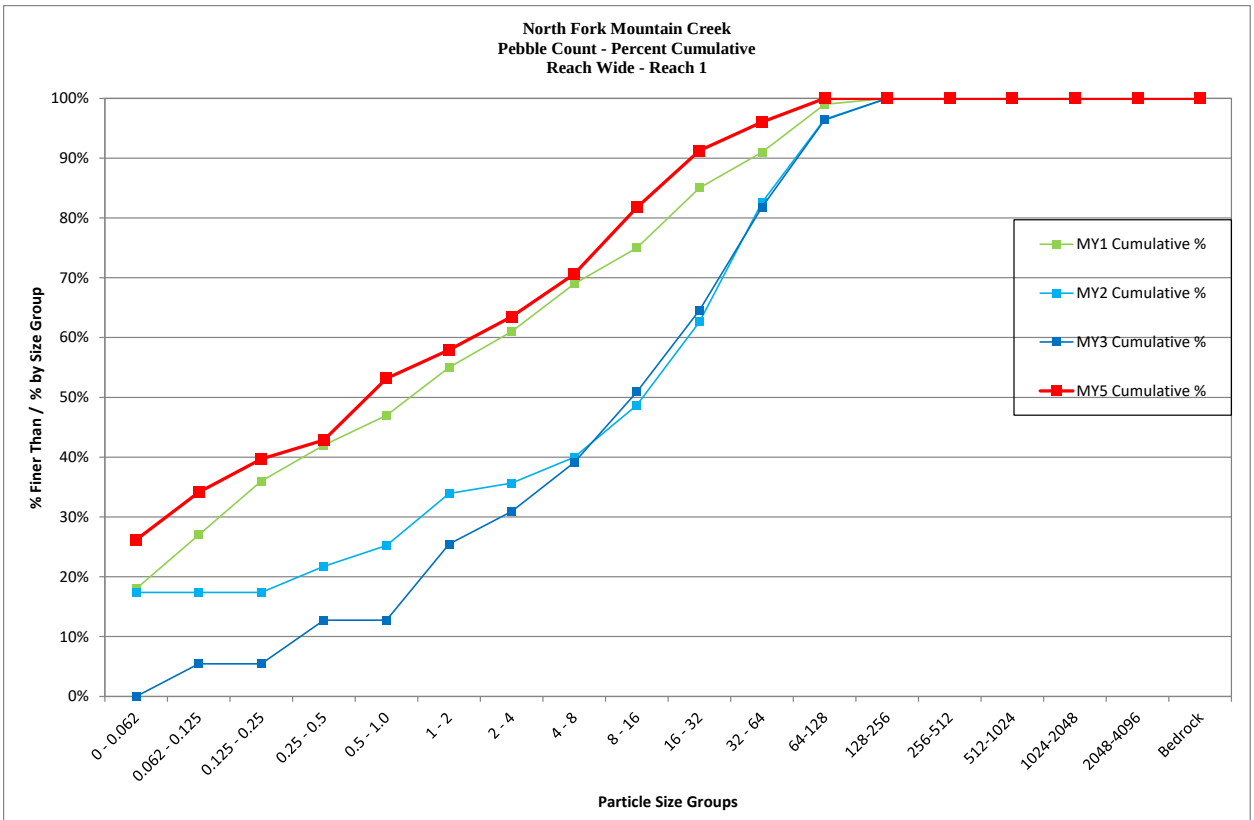

North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 23 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

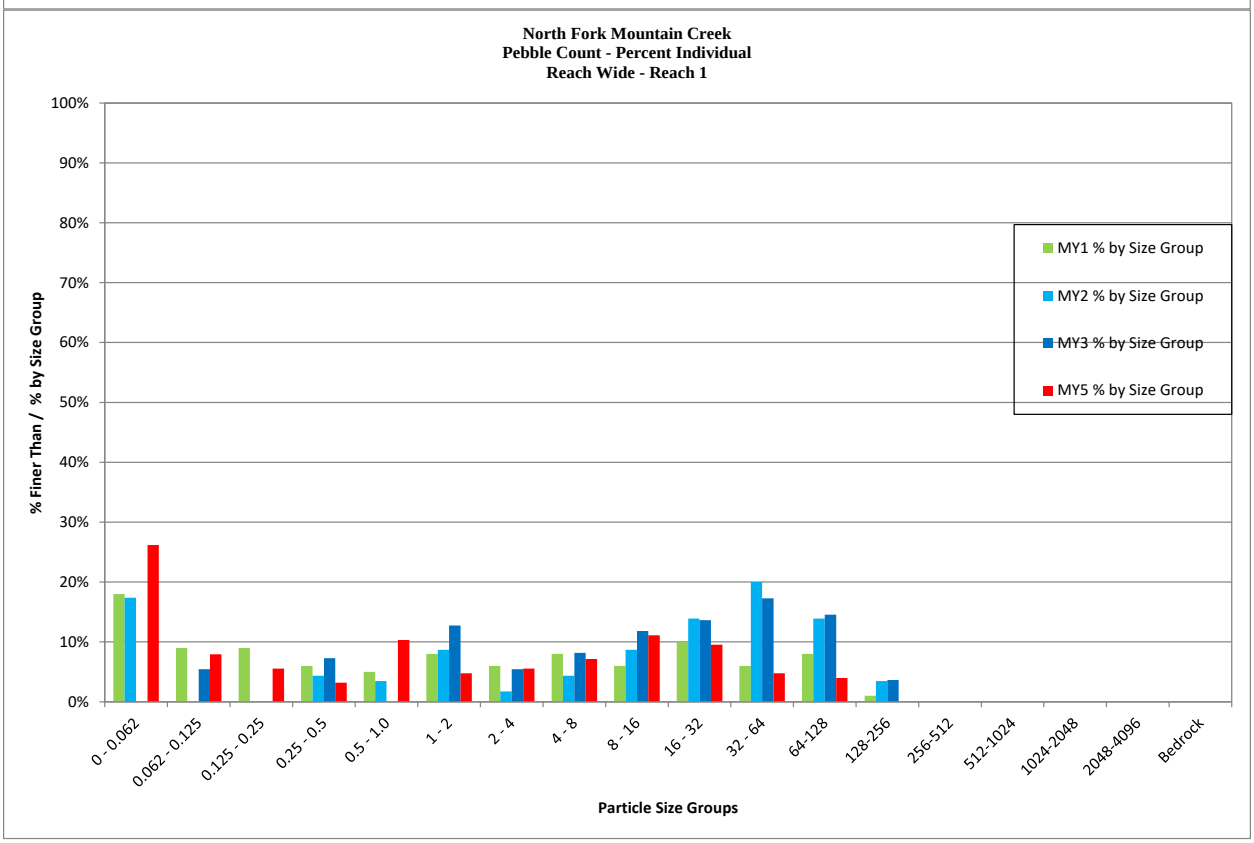
North Fork Mountain Creek			
Cross Section 26 - Riffle			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	5	4.2%	4%
0.062 - 0.125	0	0.0%	4%
0.125 - 0.25	0	0.0%	4%
0.25 - 0.5	0	0.0%	4%
0.5 - 1.0	7	5.8%	10%
1 - 2	25	20.8%	31%
2 - 4	12	10.0%	41%
4 - 8	28	23.3%	64%
8 - 16	31	25.8%	90%
16 - 32	8	6.7%	97%
32 - 64	0	0.0%	97%
64-128	1	0.8%	98%
128-256	1	0.8%	98%
256-512	2	1.7%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**120**	**100%**	**100%**
		Summary Data	
		D50	**5.8**
		D84	**14**
		D95	**22**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Cross Section 26 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

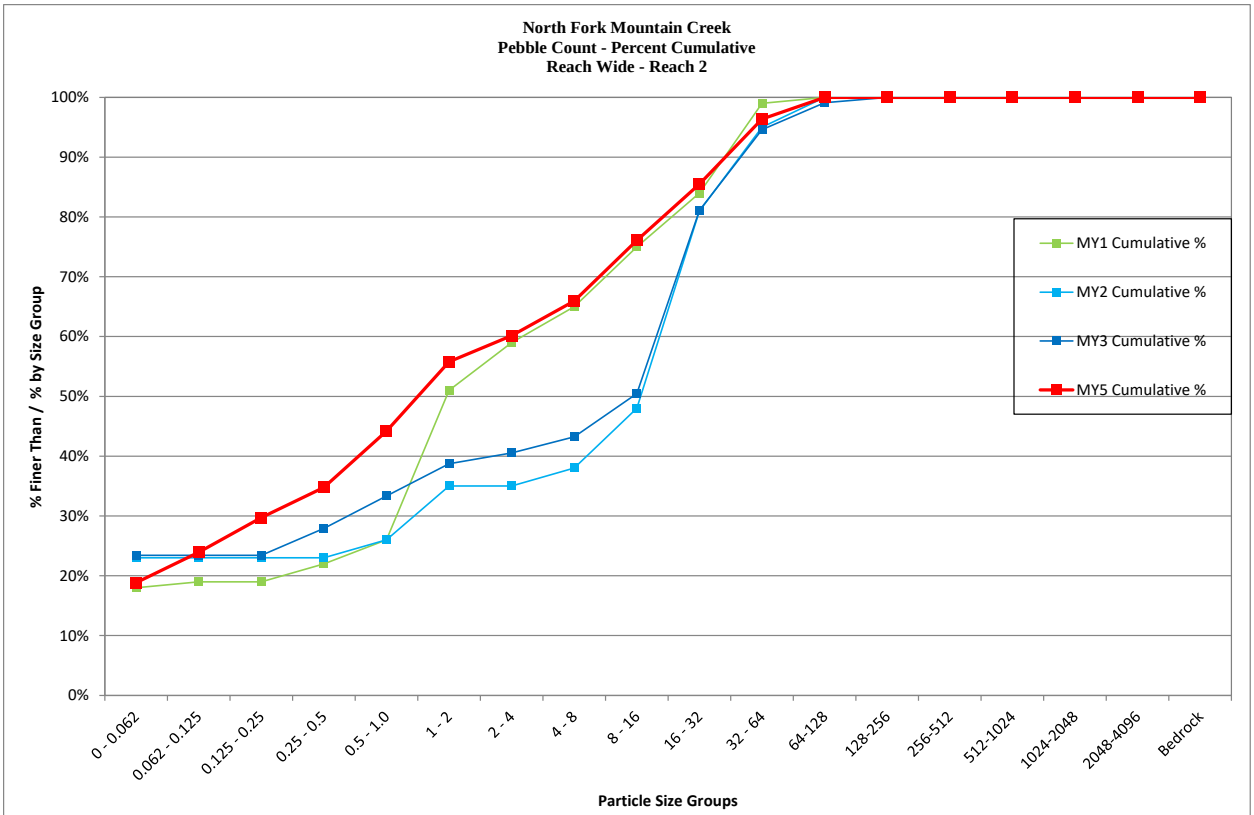

North Fork Mountain Creek
Pebble Count - Percent Individual
Cross Section 26 - Riffle
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

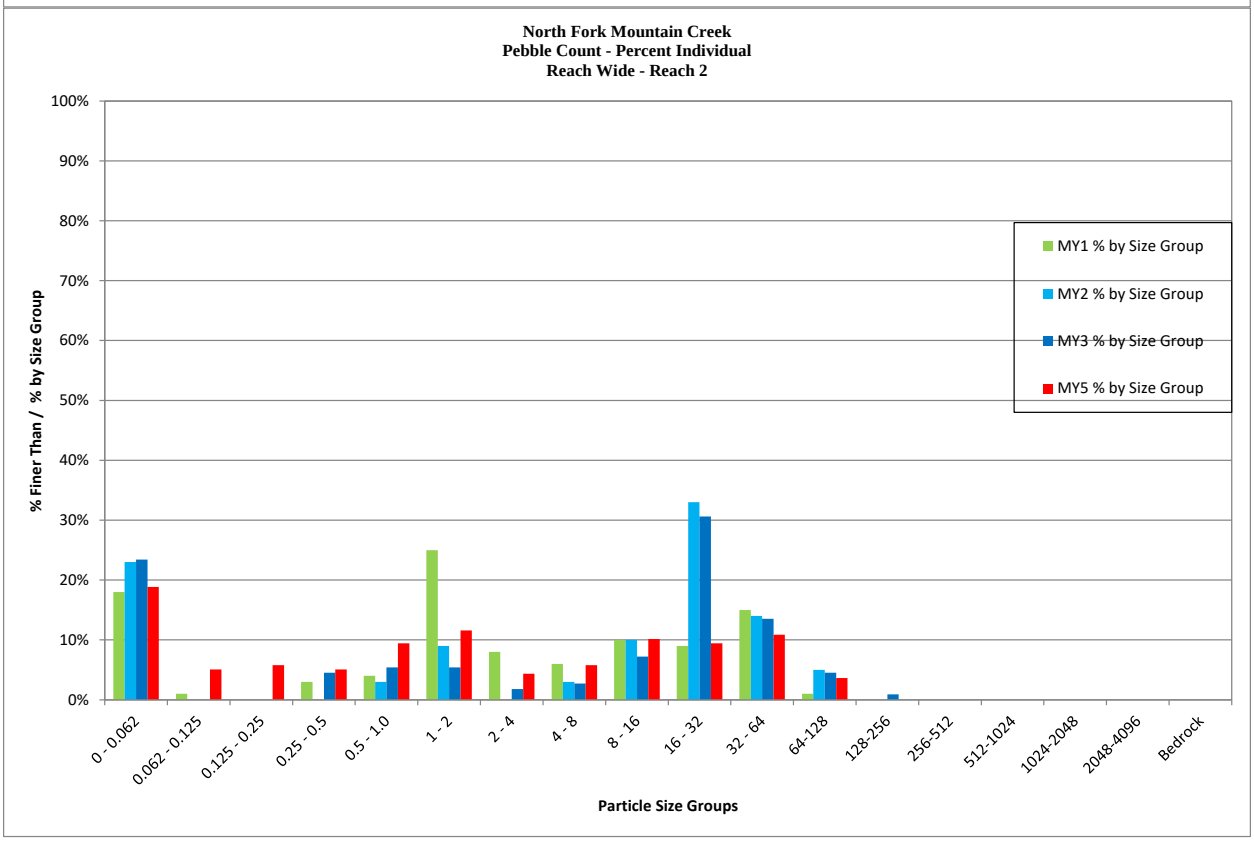
North Fork Mountain Creek			
Reach-Wide Count 1- Reach			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	33	26.2%	26%
0.062 - 0.125	10	7.9%	34%
0.125 - 0.25	7	5.6%	40%
0.25 - 0.5	4	3.2%	43%
0.5 - 1.0	13	10.3%	53%
1 - 2	6	4.8%	58%
2 - 4	7	5.6%	63%
4 - 8	9	7.1%	71%
8 - 16	14	11.1%	82%
16 - 32	12	9.5%	91%
32 - 64	6	4.8%	96%
64-128	5	4.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**126**	**100%**	**100%**
		Summary Data	
		D50	**0.81**
		D84	**19**
		D95	**51**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Reach Wide - Reach 1
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

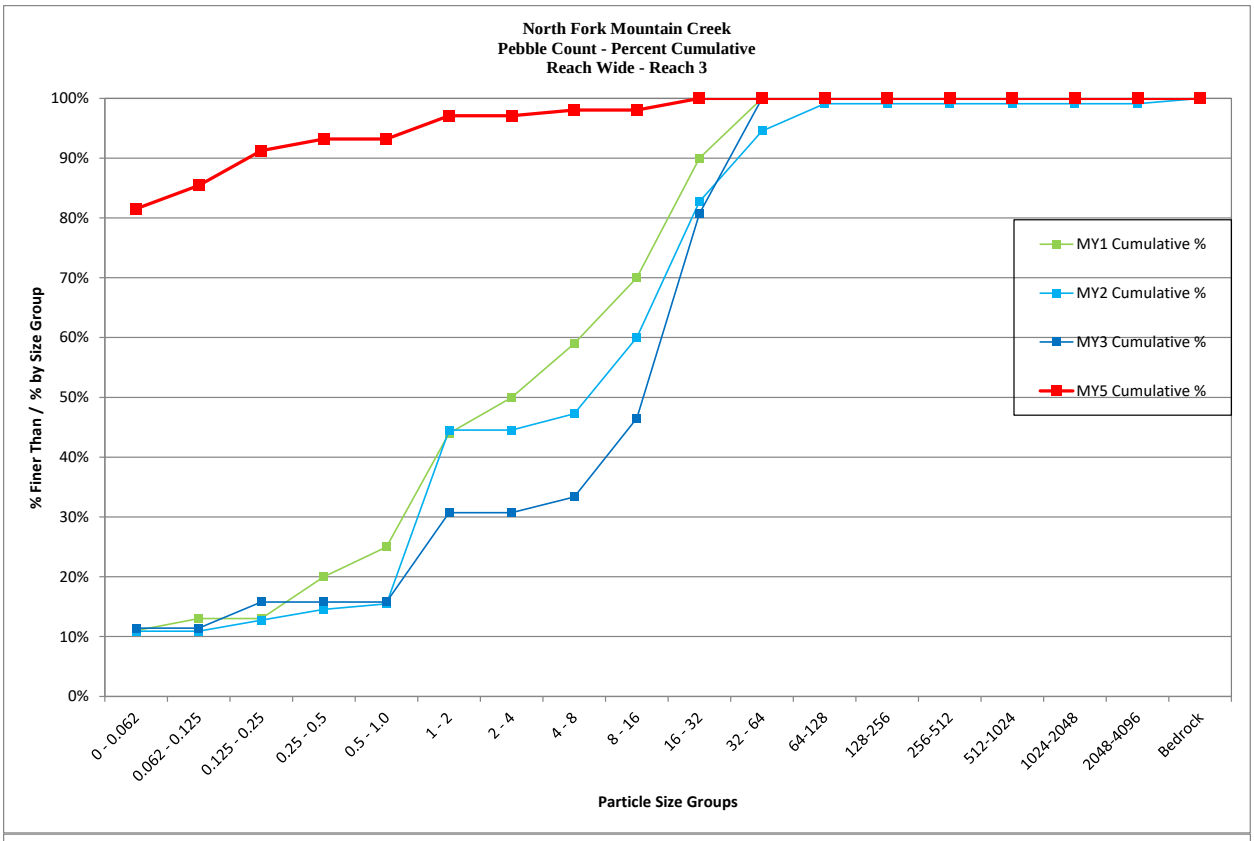

North Fork Mountain Creek
Pebble Count - Percent Individual
Reach Wide - Reach 1
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

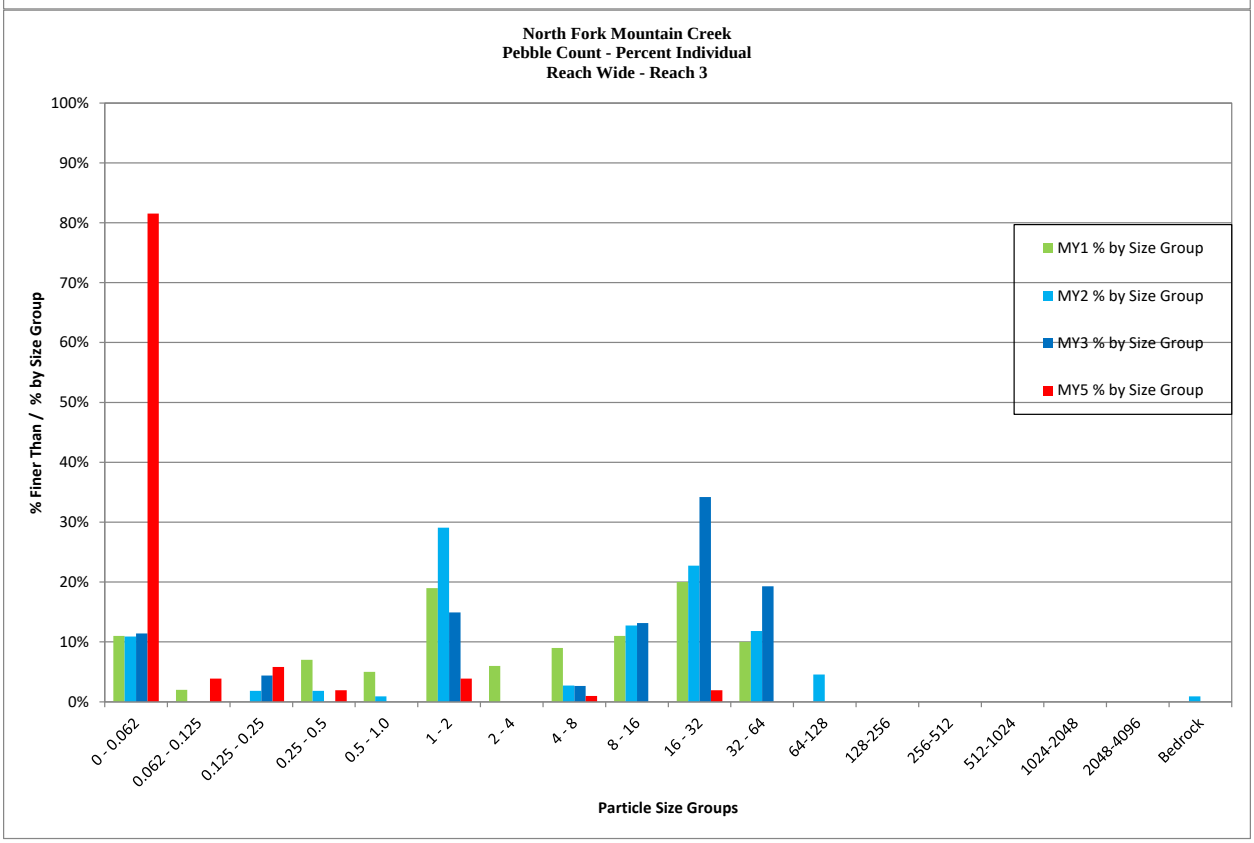
North Fork Mountain Creek			
Reach-Wide Count 2- Reach			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	26	18.8%	19%
0.062 - 0.125	7	5.1%	24%
0.125 - 0.25	8	5.8%	30%
0.25 - 0.5	7	5.1%	35%
0.5 - 1.0	13	9.4%	44%
1 - 2	16	11.6%	56%
2 - 4	6	4.3%	60%
4 - 8	8	5.8%	66%
8 - 16	14	10.1%	76%
16 - 32	13	9.4%	86%
32 - 64	15	10.9%	96%
64-128	5	3.6%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**138**	**100%**	**100%**
		Summary Data	
		D50	**1.4**
		D84	**28**
		D95	**56**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Reach Wide - Reach 2
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

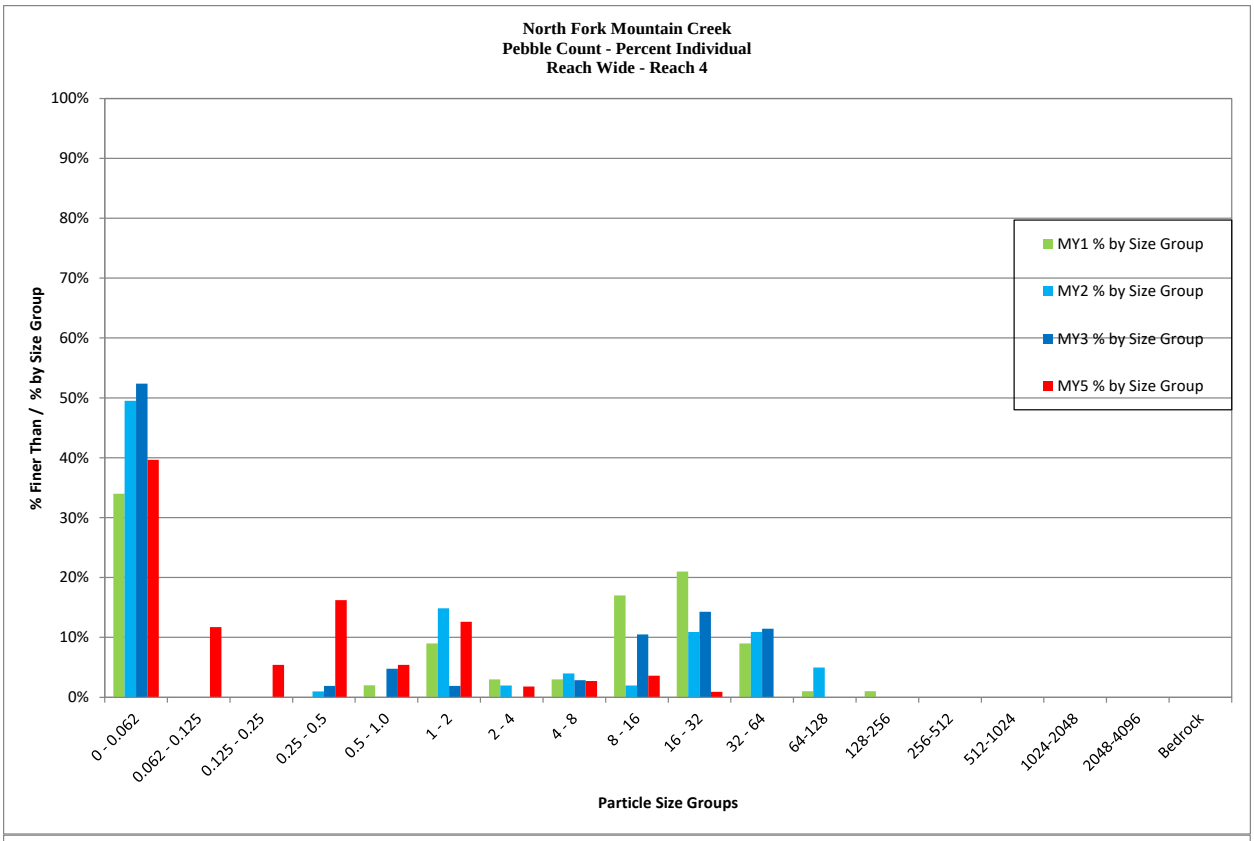

North Fork Mountain Creek
Pebble Count - Percent Individual
Reach Wide - Reach 2
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

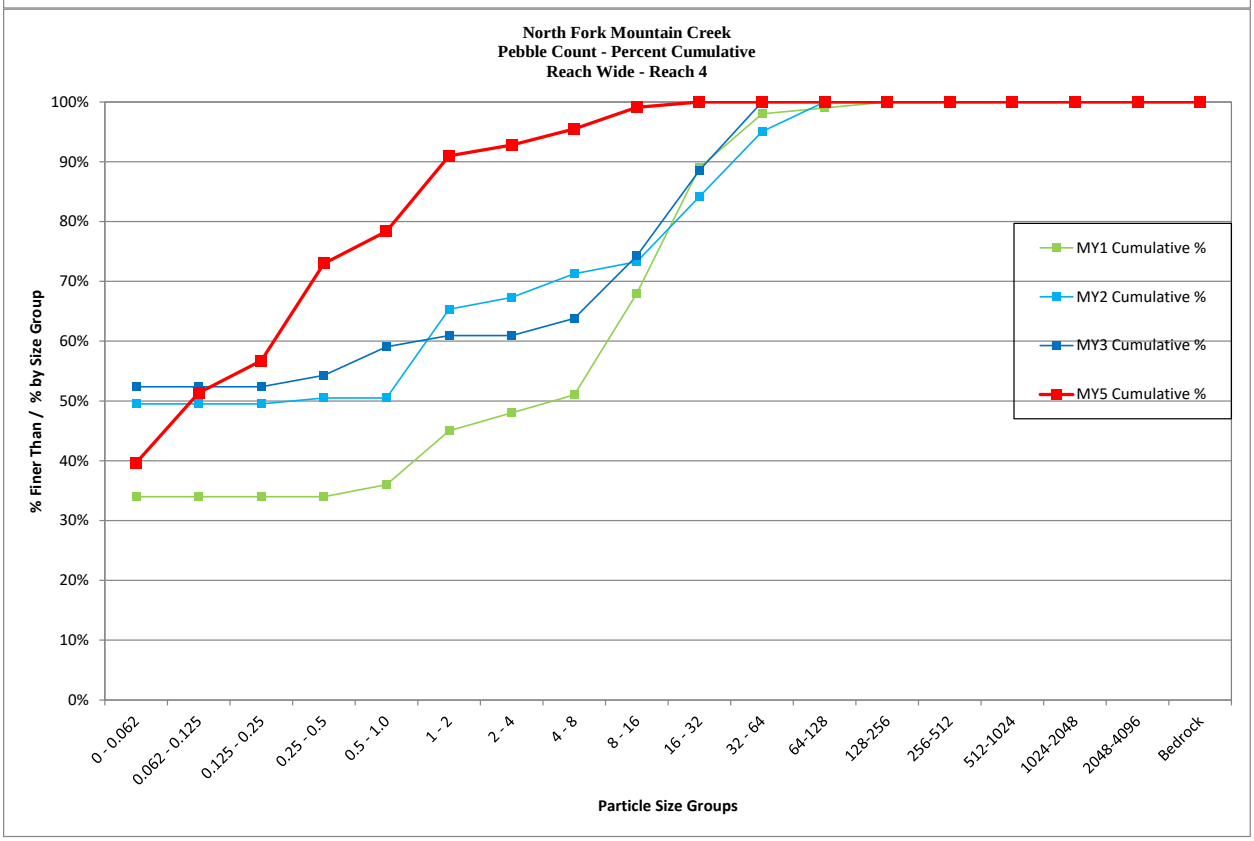
North Fork Mountain Creek			
Reach-Wide Count 3- Reach			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	84	81.6%	82%
0.062 - 0.125	4	3.9%	85%
0.125 - 0.25	6	5.8%	91%
0.25 - 0.5	2	1.9%	93%
0.5 - 1.0	0	0.0%	93%
1 - 2	4	3.9%	97%
2 - 4	0	0.0%	97%
4 - 8	1	1.0%	98%
8 - 16	0	0.0%	98%
16 - 32	2	1.9%	100%
32 - 64	0	0.0%	100%
64-128	0	0.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**103**	**100%**	**100%**
		Summary Data	
		D50	**0.062**
		D84	**0.096**
		D95	**1.4**


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Reach Wide - Reach 3
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups


North Fork Mountain Creek
Pebble Count - Percent Individual
Reach Wide - Reach 3
% Finer Than / % by Size Group
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

North Fork Mountain Creek			
Reach-Wide Count 4- Reach			
Monitoring Year - 2016; MY5			
Bed Surface Material Particle Size Class (mm)	**Number**	**% Individual**	**% Cumulative**
0 - 0.062	44	39.6%	40%
0.062 - 0.125	13	11.7%	51%
0.125 - 0.25	6	5.4%	57%
0.25 - 0.5	18	16.2%	73%
0.5 - 1.0	6	5.4%	78%
1 - 2	14	12.6%	91%
2 - 4	2	1.8%	93%
4 - 8	3	2.7%	95%
8 - 16	4	3.6%	99%
16 - 32	1	0.9%	100%
32 - 64	0	0.0%	100%
64-128	0	0.0%	100%
128-256	0	0.0%	100%
256-512	0	0.0%	100%
512-1024	0	0.0%	100%
1024-2048	0	0.0%	100%
2048-4096	0	0.0%	100%
Bedrock	0	0.0%	100%
Total	**111**	**100%**	**100%**
		Summary Data	
		D50	**0.12**
		D84	**1.4**
		D95	**7.4**


North Fork Mountain Creek
Pebble Count - Percent Individual
Reach Wide - Reach 4
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY1 % by Size Group
MY2 % by Size Group
MY3 % by Size Group
MY5 % by Size Group
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups


North Fork Mountain Creek
Pebble Count - Percent Cumulative
Reach Wide - Reach 4
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
% Finer Than / % by Size Group
MY1 Cumulative %
MY2 Cumulative %
MY3 Cumulative %
MY5 Cumulative %
0 - 0.062
0.062 - 0.125
0.125 - 0.25
0.25 - 0.5
0.5 - 1.0
1 - 2
2 - 4
4 - 8
8 - 16
16 - 32
32 - 64
64-128
128-256
256-512
512-1024
1024-2048
2048-4096
Bedrock
Particle Size Groups

Appendix E
Hydrologic Data

Table 10. Crest Gauge Data Recorded at the North Fork Mountain Creek Site			
Month/Year Recorded	Documentation[1]	North Fork Mountain Creek	UT1
		Reach 1	Reach 2
		(feet above bankfull)	(feet above bankfull)
Aug-12	Crest Gauge/Wrack Lines	2.00	0.58
Jan-13[2]	Wrack Lines	--	--
Feb-14	Wrack Lines/Crest Gauge	0.33	--
Nov-15	Crest Gauge/Wrack Lines	0.21	0.13
Mar-16	Crest Gauge/Wrack Lines	0.10	

[1]See Appendix D for photo documentation.
[2]Crest Gauge was damaged from bankfull event; no reading was recorded.

Photo Verification of Bankfull Event

Bankfull reading at 0.65 foot, 0.10 foot above recorded bankfull stage

Table 11. North Fork Mountain Creek Monthly Rain Statistics

Monthly Rain Gauge Data						
Month	Site Monthly Rainfall	Hickory Monthly Rainfall	South Fork Reference Monthly	30th Percentile	70th Percentile	Average
Jan-16	2.95	2.54	0.00	2.64	5.04	3.90
Feb-16	3.29	4.81	0.00	2.33	4.41	3.42
Mar-16	0.95	0.97	0.74	3.12	5.17	4.27
Apr-16	0.92	3.75	1.08	2.06	4.57	3.37
May-16	2.01	5.97	8.30	2.5	4.68	3.77
Jun-16	5.18	3.89	0.94	2.73	5.41	4.27
Jul-16	3.94	7.36	0.00	2.43	4.45	3.92
Aug-16	2.72	4.01	0.00	2.73	4.71	4.00
Sep-16	0.10	1.10	0.00	2.39	5.2	3.75
Oct-16	0.00	1.31	0.00	1.96	3.98	3.40
Nov-16	0.00	0.07	0.00	2.33	4.3	3.47
Dec-16	-	-	-	2.17	3.96	3.21
Total	22.06	35.78	11.06			

Site rain gauge malfuction September-November

South Fork Reference rain gauge damaged July-November

North Fork Mountain Creek Monthly Rain Statistics

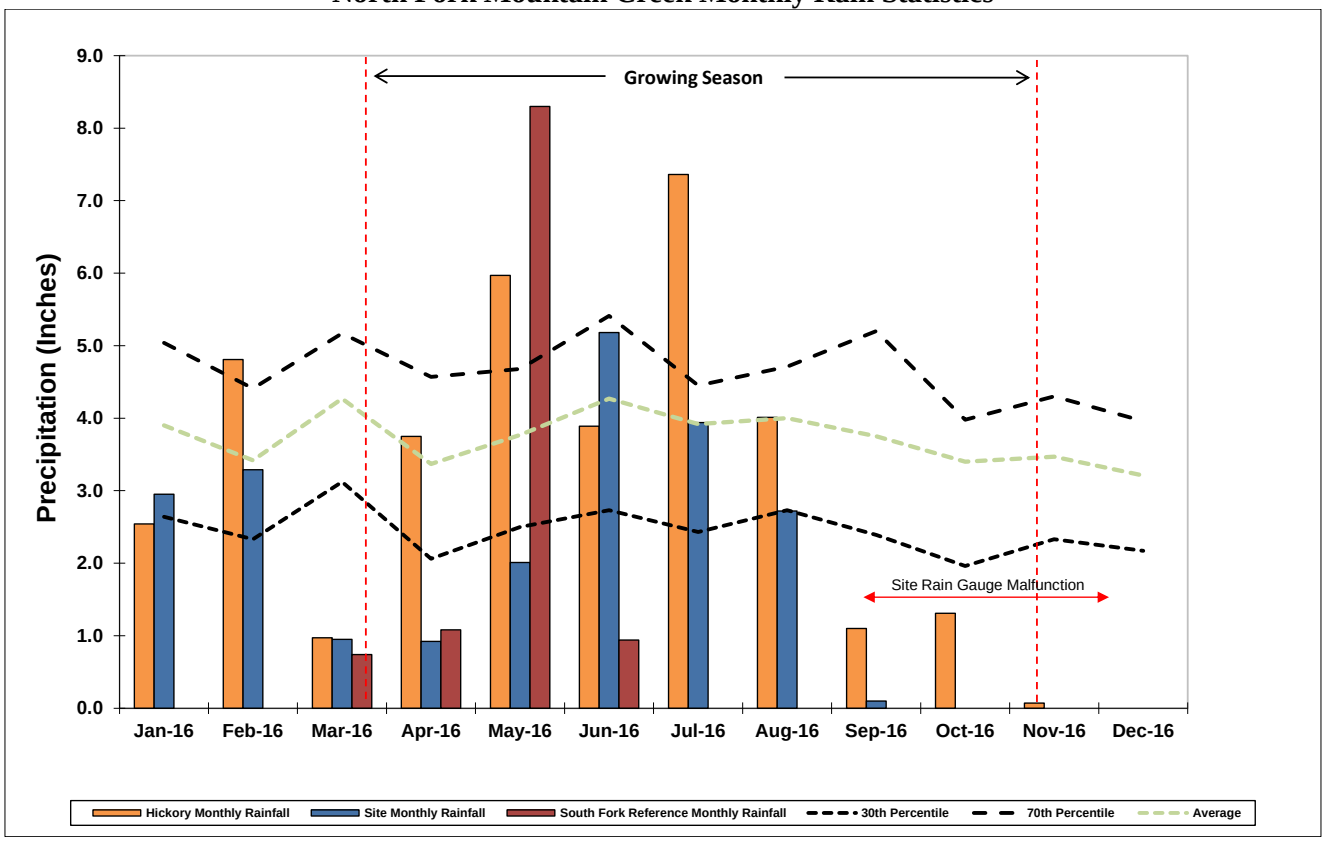


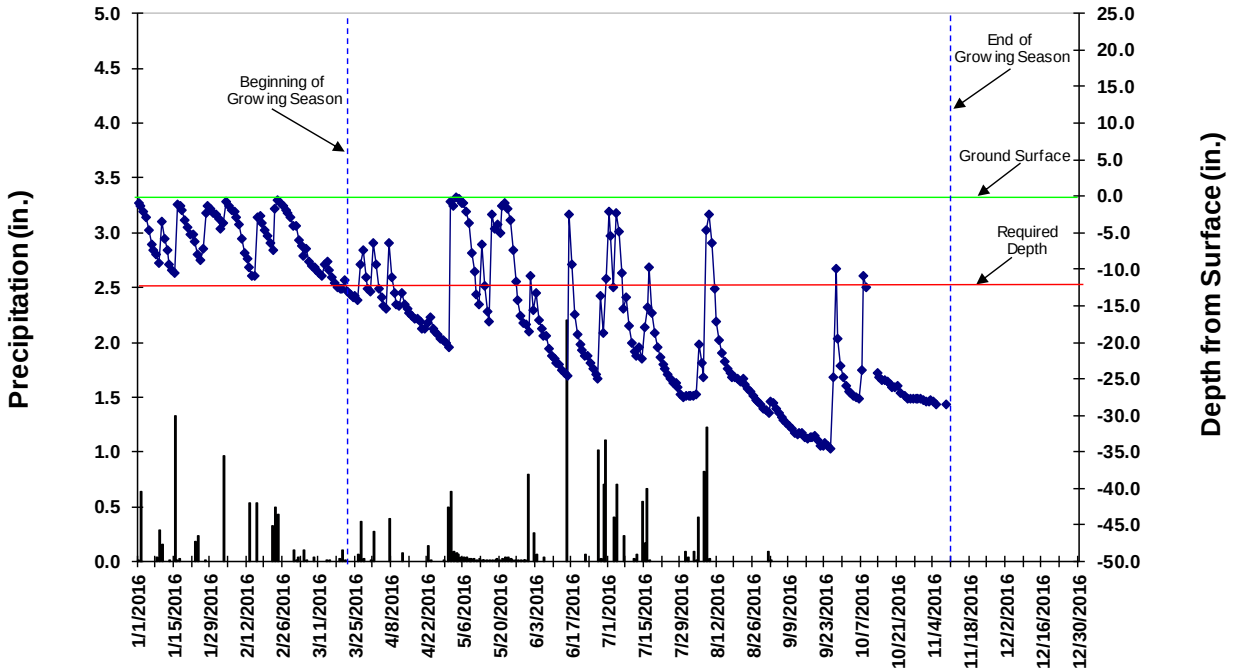
Table 12. Wetland Gauge Attainment Data Summary of Groundwater Monitoring Results North Fork Mountain Creek Stream & Wetland / Project No. 94151							
Gauge ID	Success Criteria Achieved; Percent of Growing Season						
	Year 1 (2012)	Year 2 (2013)	Year 3 (2014)	Year 4 (2015)	Year 5 (2016)[1]	Year 6 (2017)	Year 7 (2018)
NFMC 1	No/4 1.7%	Yes/32 13.6%	Yes/43 18.2%	No/10 4.2%	No/10 4.2 %		
NFMC 2	Yes/86 36.4%	Yes/67 28.4%	Yes/67 28.4%	Yes/52 22.0%	Yes/82 34.7%		
NFMC 3	Yes/57 24.2%	Yes/127 53.8%	Yes/91 38.6%	Yes/60 25.4%	Yes/43 18.2%		
NFMC 4	No/5 2.1%	No/10 4.2%	No/5 2.1%	No/10 4.2%	No/7 3.0%		
NFMC 5	No/1 0.4%	No/4 1.7%	No/2 0.8%	No/3 1.3%	No/2 0.8%		
NFMC 6	Yes/87 36.9%	Yes/127 53.8 %	Yes/67 28.4%	Yes/51 21.6%	Yes/40 16.9%		
NFMC 7	Yes/171 72.5%	Yes/127 53.8%	Yes/119 50.4%	Yes/89 37.7%	Yes/131 55.5%		
NFMC 8	Yes/57 24.2%	Yes/127 53.8%	Yes/68 28.8%	Yes/59 25.0%	Yes/81 34.3%		
NFMC 9	Yes/102 43.2%	Yes/127 53.8%	Yes/92 39.0%	Yes/60 25.4%	Yes/90 38.1%		
NFMC 10	No/12 5.1%	Yes/36 15.3%	Yes/43 18.2%	No/15 6.4%	No/10 4.2%		
NFMC S1	N/A	N/A	Yes/39 16.5%	No/15 6.4%	No/7 3.0%		
NFMC S2	N/A	N/A	Yes/21 8.9%	No/12 5.1%	No/8 3.4%		
NFMC S3	N/A	N/A	Yes/30 12.7%	Yes/26 11.0%	No/11 4.7%		
NFMC S4	N/A	N/A	Yes/99 41.9%	Yes/75 31.8%	Yes/36 15.3%		
NFMC S5	N/A	N/A	N/A	Yes/59 25.0%	Yes/99 41.9%		
NFMC S6	N/A	N/A	N/A	Yes/235 99.6%	Yes/204 86.4%		
SF Reference	N/A	N/A	N/A	Yes/111 47.0%	Yes/235 100.0%		

N/A - Information does not apply.

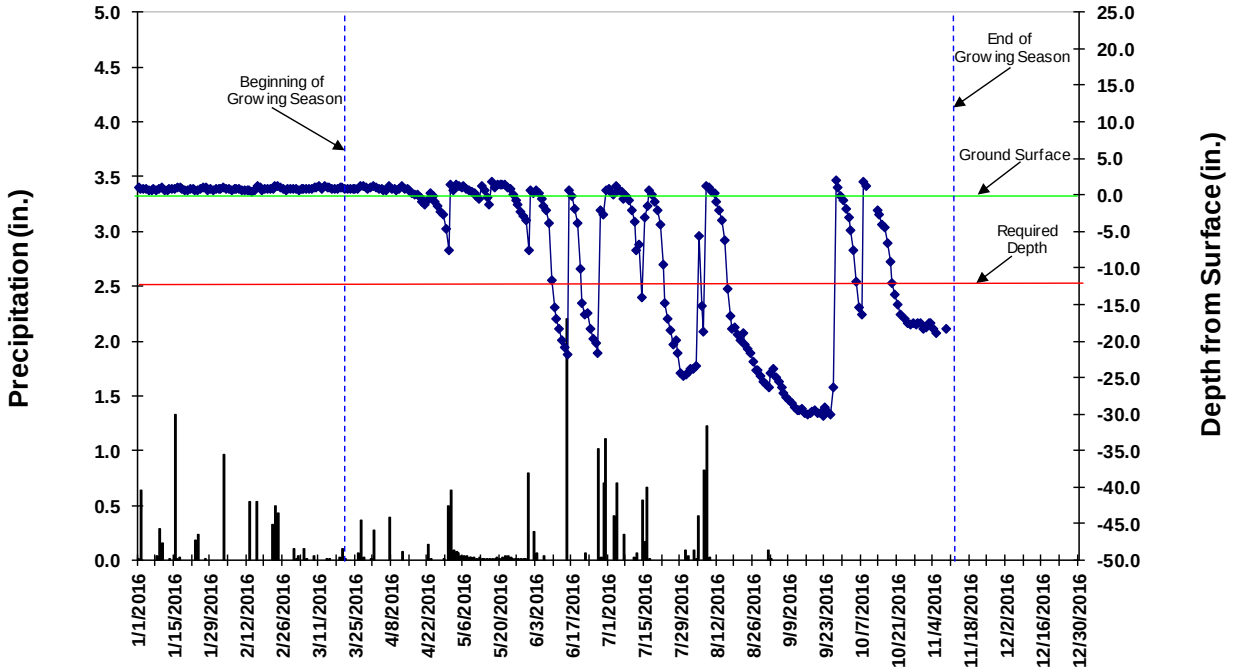
Hydrology Success Criteria = 8%

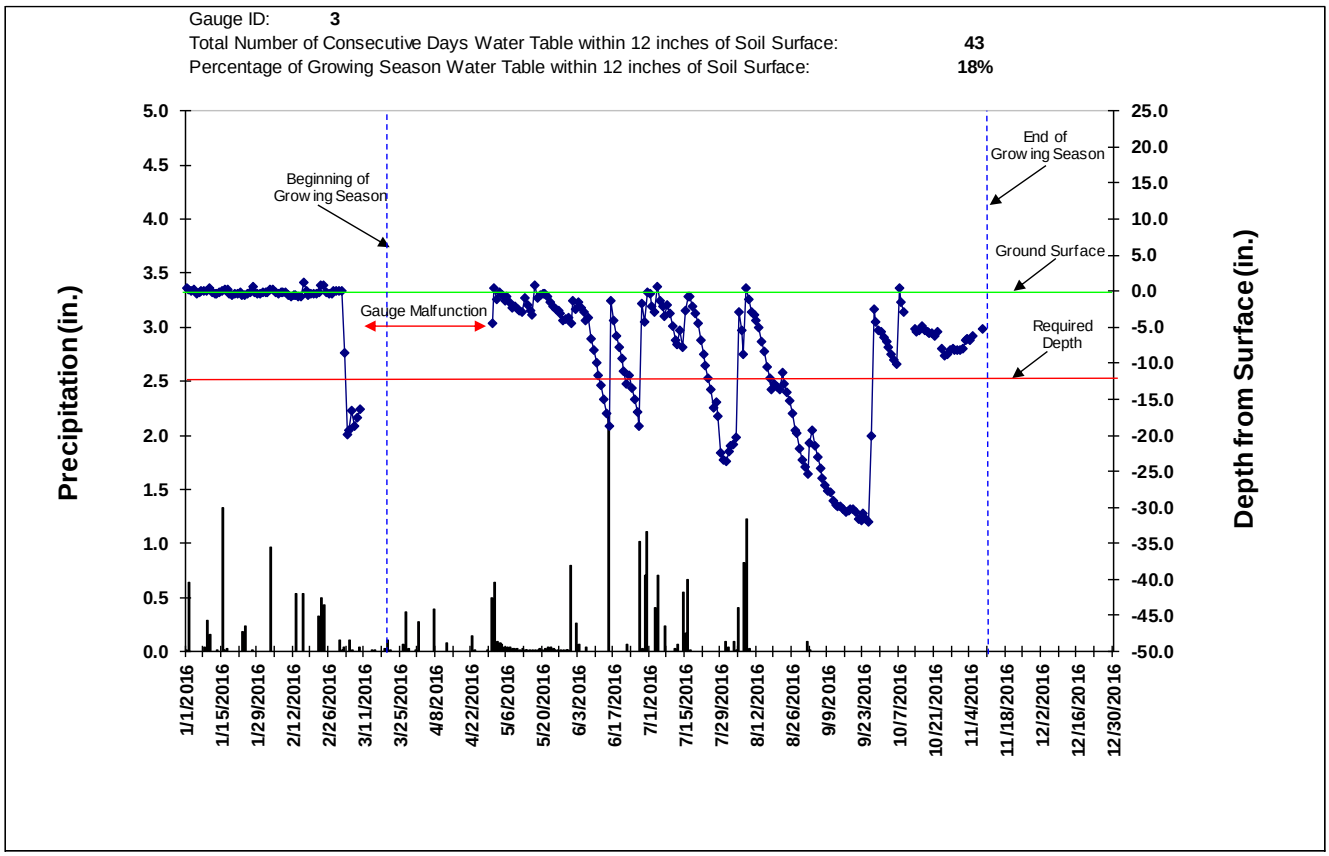
[1] Dates 10/10-10/12, 10/23, 11/6-11/8 removed due to inconsistent barometric reference data

Gauge ID: **1**
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **10**
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **4.2%**



Gauge ID: **2**
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **82**
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **35%**




Gauge ID: 3
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 43
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 18%
Precipitation (in.)
Depth from Surface (in.)
Beginning of Growing Season
End of Growing Season
Ground Surface
Gauge Malfunction
Required Depth
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
1/1/2016
1/15/2016
1/29/2016
2/12/2016
2/26/2016
3/11/2016
3/25/2016
4/8/2016
4/22/2016
5/6/2016
5/20/2016
6/3/2016
6/17/2016
7/1/2016
7/15/2016
7/29/2016
8/12/2016
8/26/2016
9/9/2016
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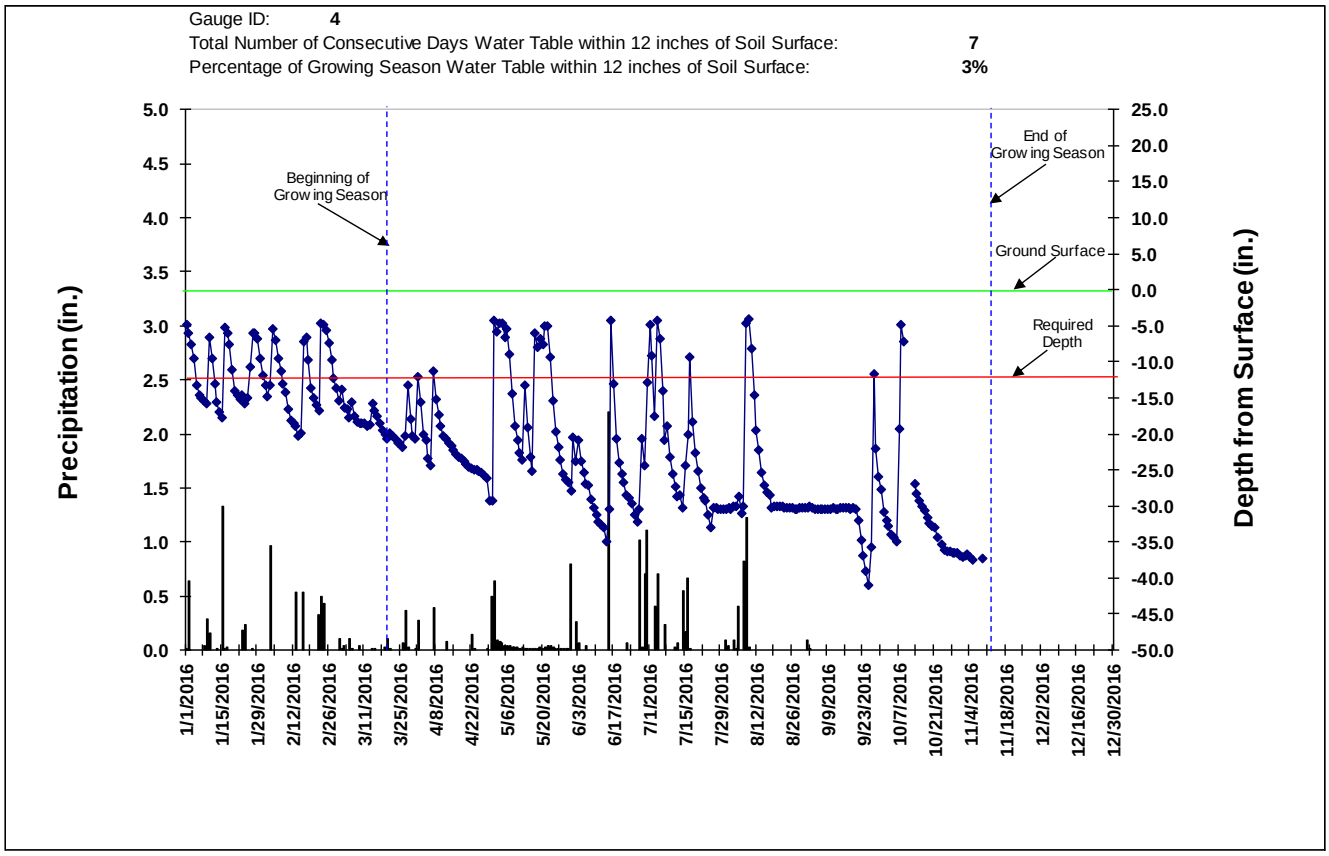
12/16/2016
12/30/2016


Gauge ID: 4
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 7
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 3%
Precipitation (in.)
Depth from Surface (in.)
Beginning of Growing Season
End of Growing Season
Ground Surface
Required Depth
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
1/1/2016
1/15/2016
1/29/2016
2/12/2016
2/26/2016
3/11/2016
3/25/2016
4/8/2016
4/22/2016
5/6/2016
5/20/2016
6/3/2016
6/17/2016
7/1/2016
7/15/2016
7/29/2016
8/12/2016
8/26/2016
9/9/2016
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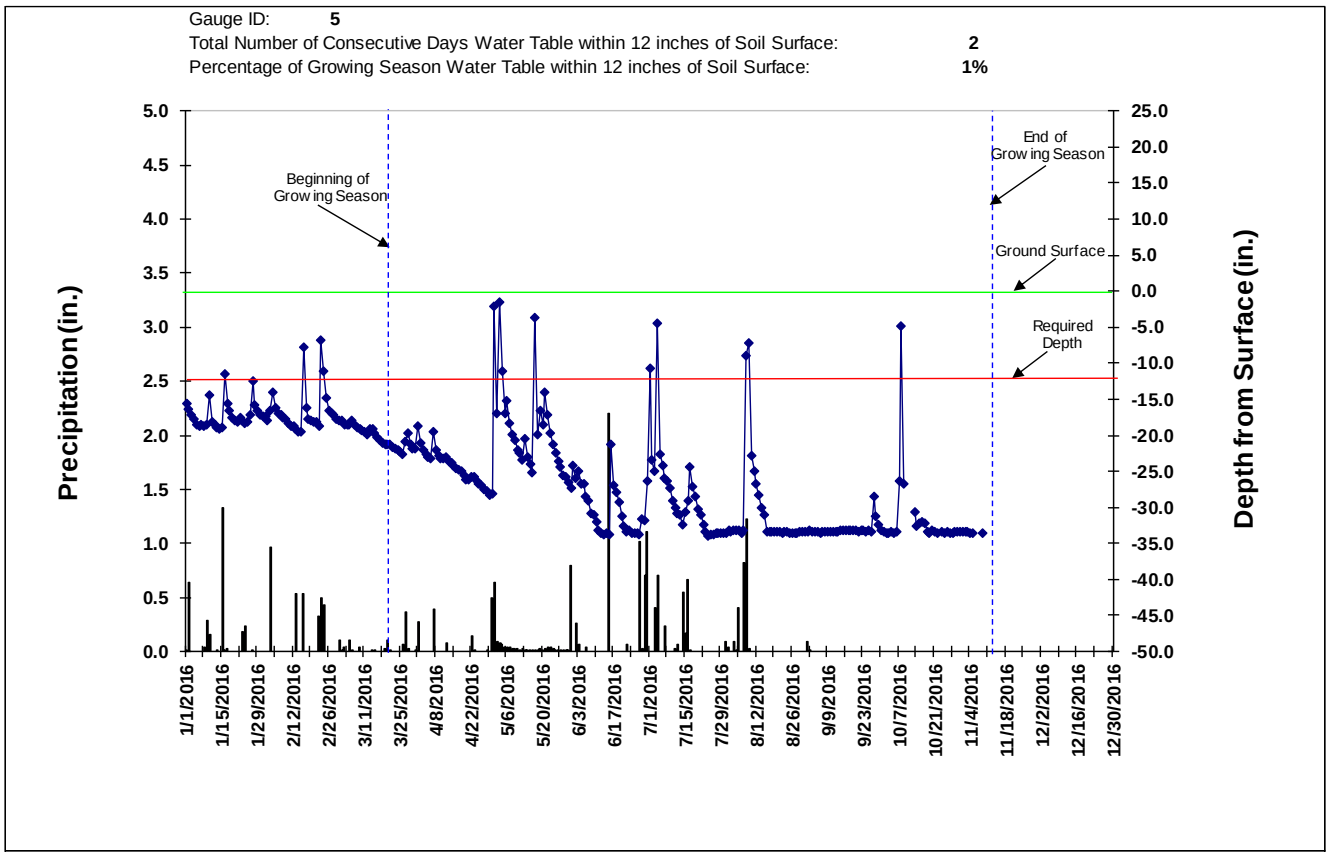
11/18/2016
12/2/2016
12/16/2016
12/30/2016


Gauge ID: 5
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 2
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 1%
Precipitation (in.)
Depth from Surface (in.)
Beginning of Growing Season
End of Growing Season
Ground Surface
Required Depth
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
1/1/2016
1/15/2016
1/29/2016
2/12/2016
2/26/2016
3/11/2016
3/25/2016
4/8/2016
4/22/2016
5/6/2016
5/20/2016
6/3/2016
6/17/2016
7/1/2016
7/15/2016
7/29/2016
8/12/2016
8/26/2016
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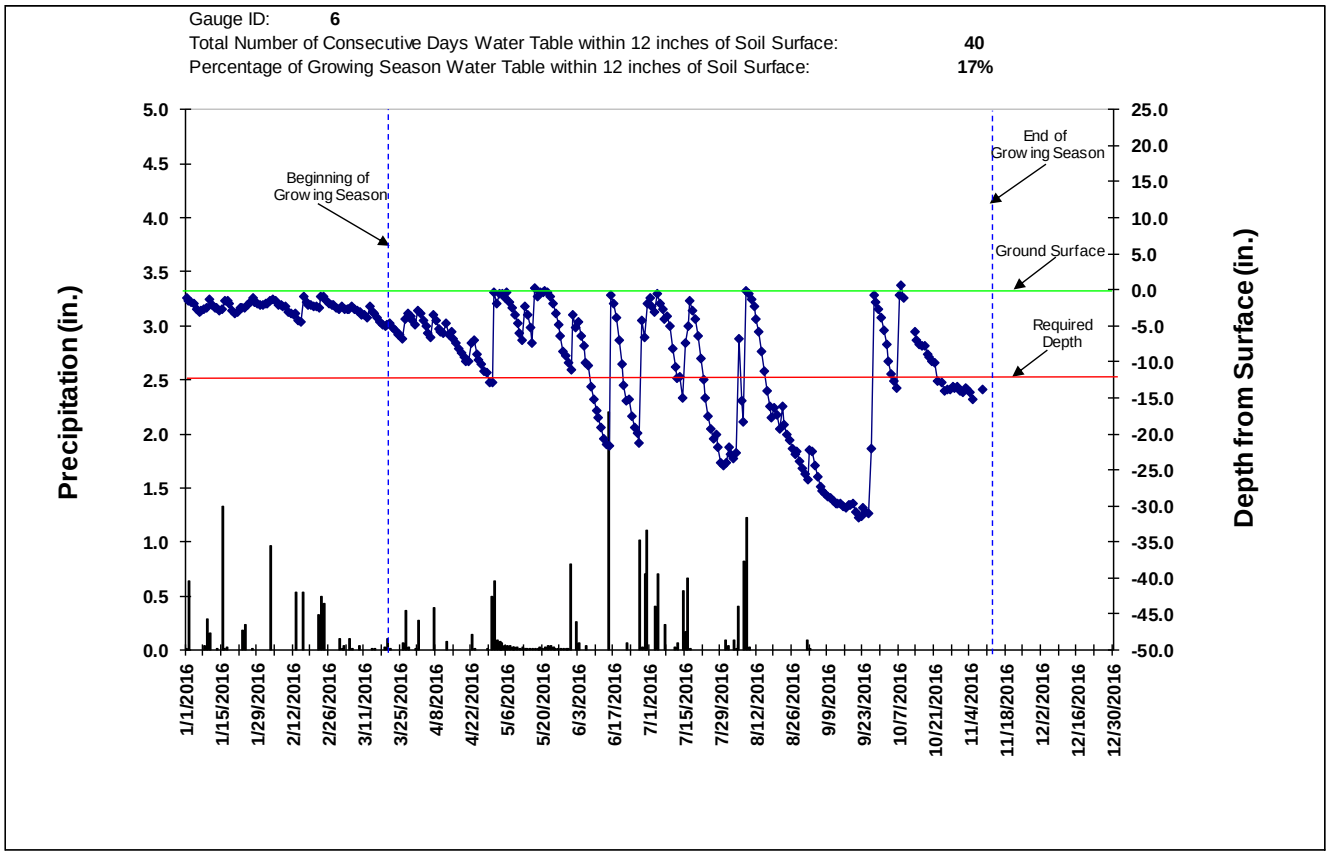
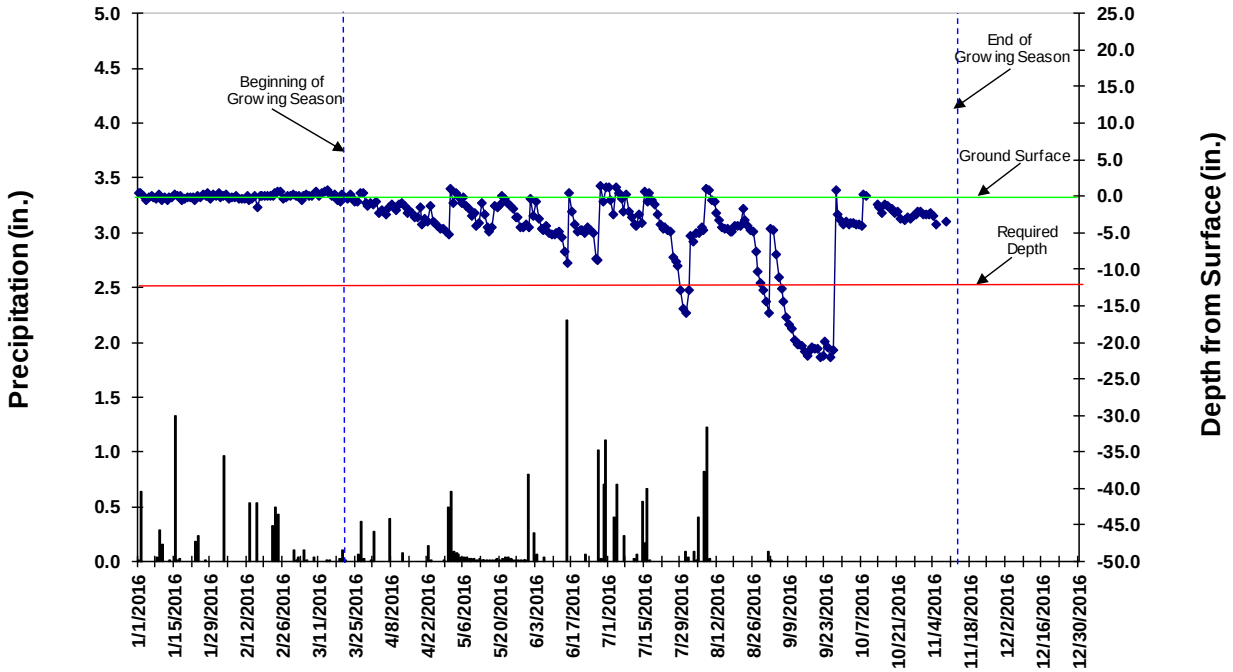
12/2/2016
12/16/2016
12/30/2016


Gauge ID: 6
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 40
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 17%
Precipitation (in.)
Depth from Surface (in.)
Beginning of Growing Season
End of Growing Season
Ground Surface
Required Depth
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
1/1/2016
1/15/2016
1/29/2016
2/12/2016
2/26/2016
3/11/2016
3/25/2016
4/8/2016
4/22/2016
5/6/2016
5/20/2016
6/3/2016
6/17/2016
7/1/2016
7/15/2016
7/29/2016
8/12/2016
8/26/2016
9/9/2016
9/23/2016
10/7/2016
10/21/2016
11/4/2016
11/18/2016
12/2/2016
12/16/2016
12/30/2016

Gauge ID: **7**

Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **131**

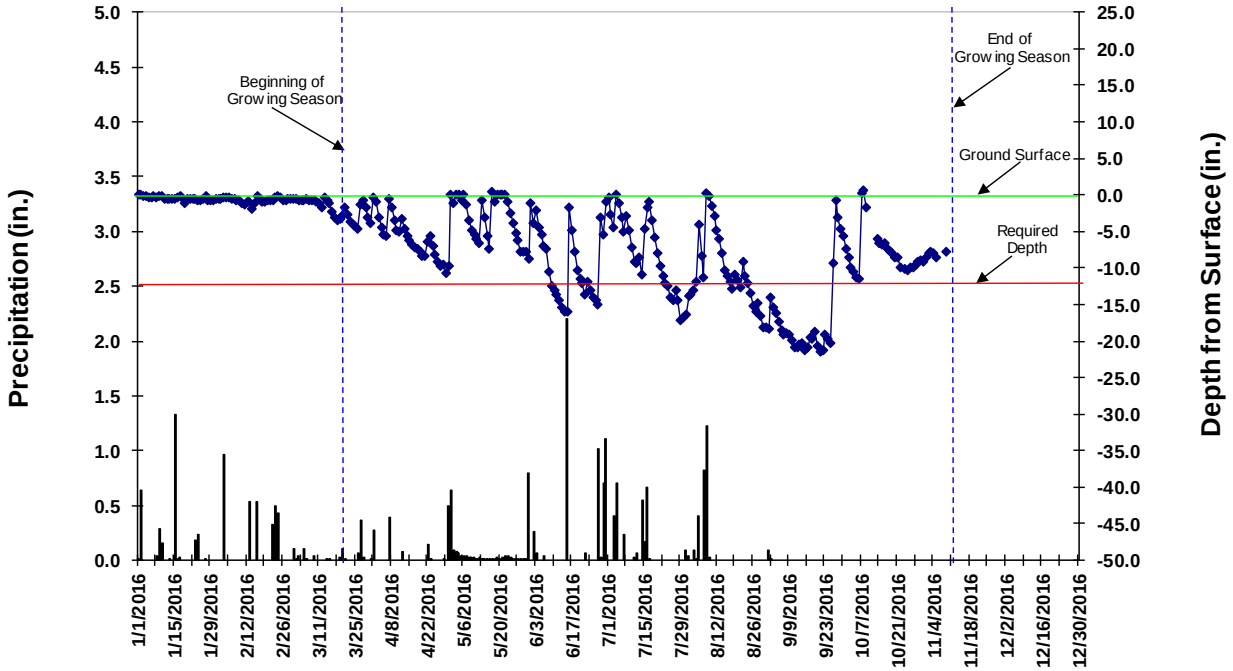
Percentage of Growing Season Water Table within 12 inches of Soil Surface: **56%**

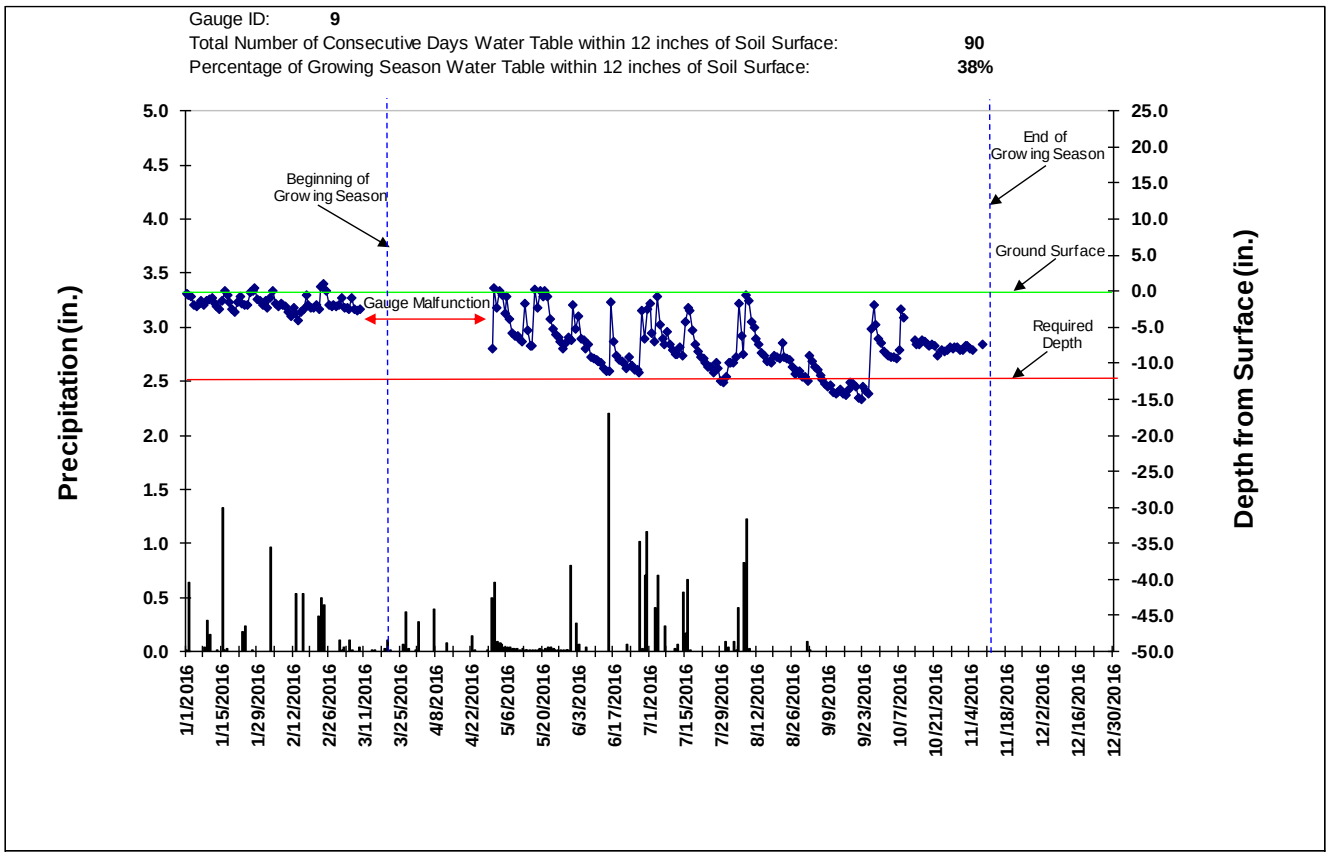


Gauge ID: **8**

Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: **81**

Percentage of Growing Season Water Table within 12 inches of Soil Surface: **34%**




Gauge ID: 9
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 90
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 38%
Precipitation (in.)
Depth from Surface (in.)
Beginning of Growing Season
End of Growing Season
Ground Surface
Gauge Malfunction
Required Depth
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
1/1/2016
1/15/2016
1/29/2016
2/12/2016
2/26/2016
3/11/2016
3/25/2016
4/8/2016
4/22/2016
5/6/2016
5/20/2016
6/3/2016
6/17/2016
7/1/2016
7/15/2016
7/29/2016
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8/26/2016
9/9/2016
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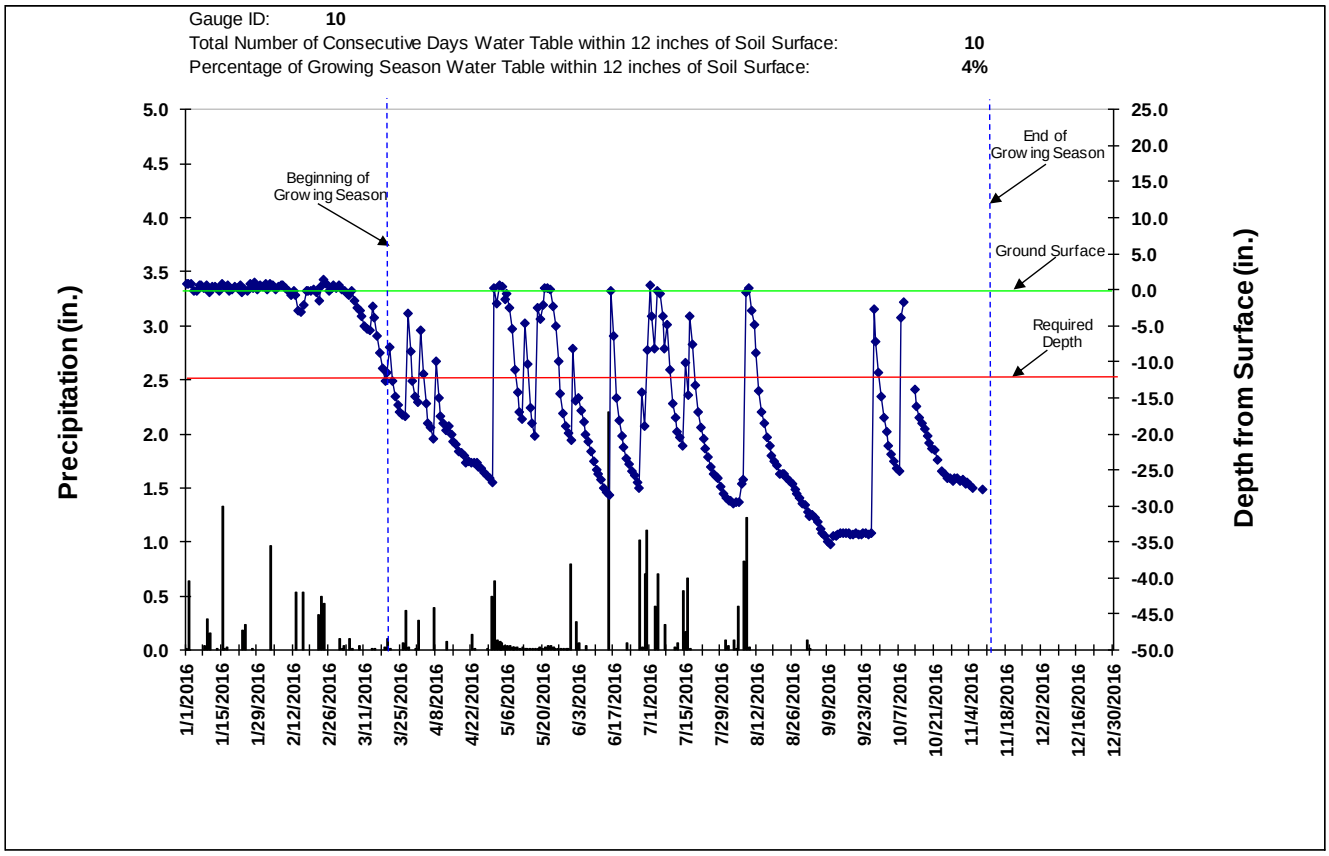
10/21/2016
11/4/2016
11/18/2016
12/2/2016
12/16/2016
12/30/2016


Gauge ID: 10
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 10
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 4%
Precipitation (in.)
Depth from Surface (in.)
Beginning of Growing Season
End of Growing Season
Ground Surface
Required Depth
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
1/1/2016
1/15/2016
1/29/2016
2/12/2016
2/26/2016
3/11/2016
3/25/2016
4/8/2016
4/22/2016
5/6/2016
5/20/2016
6/3/2016
6/17/2016
7/1/2016
7/15/2016
7/29/2016
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8/26/2016
9/9/2016
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10/21/2016
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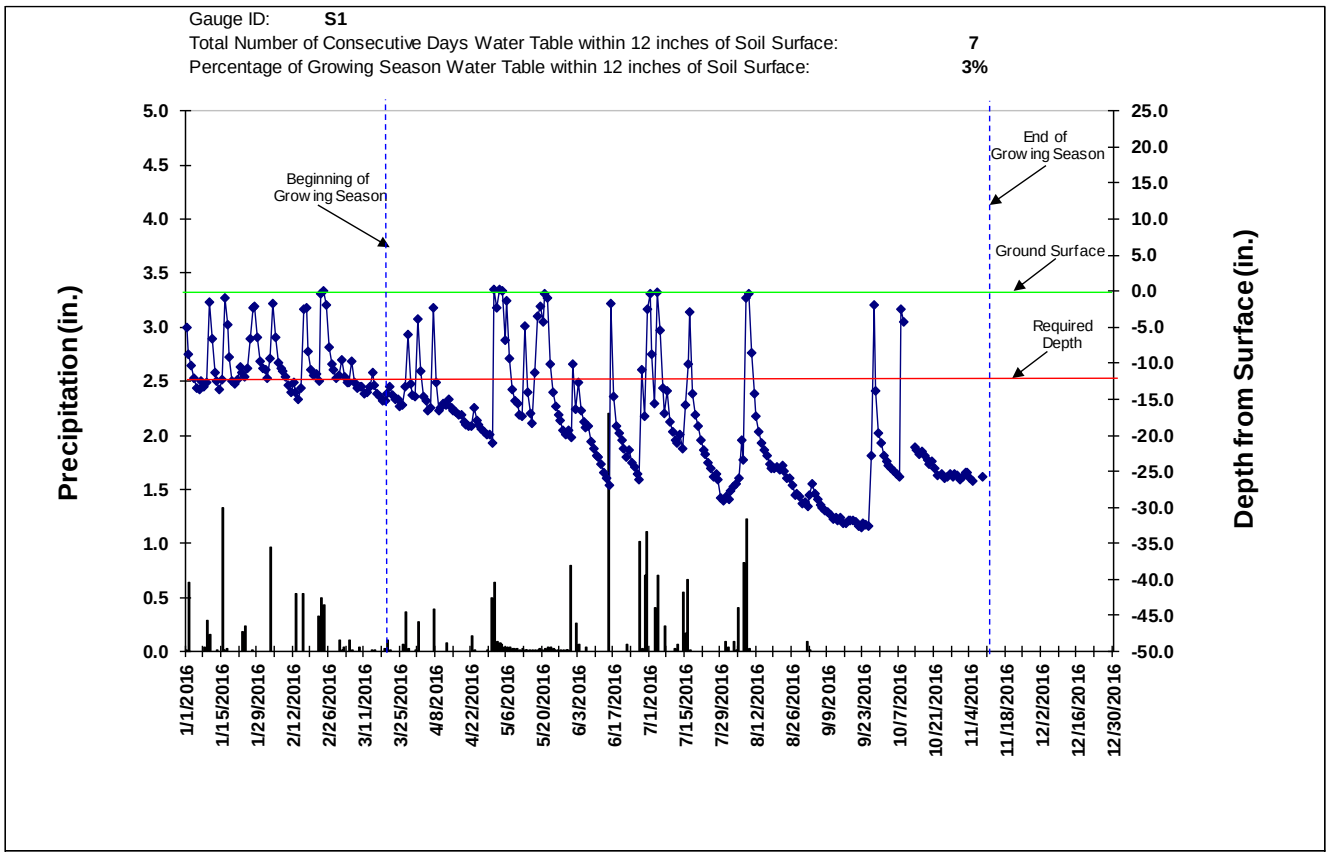
11/18/2016
12/2/2016
12/16/2016
12/30/2016


Gauge ID: S1
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 7
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 3%
Precipitation (in.)
Depth from Surface (in.)
Beginning of Growing Season
End of Growing Season
Ground Surface
Required Depth
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
1/1/2016
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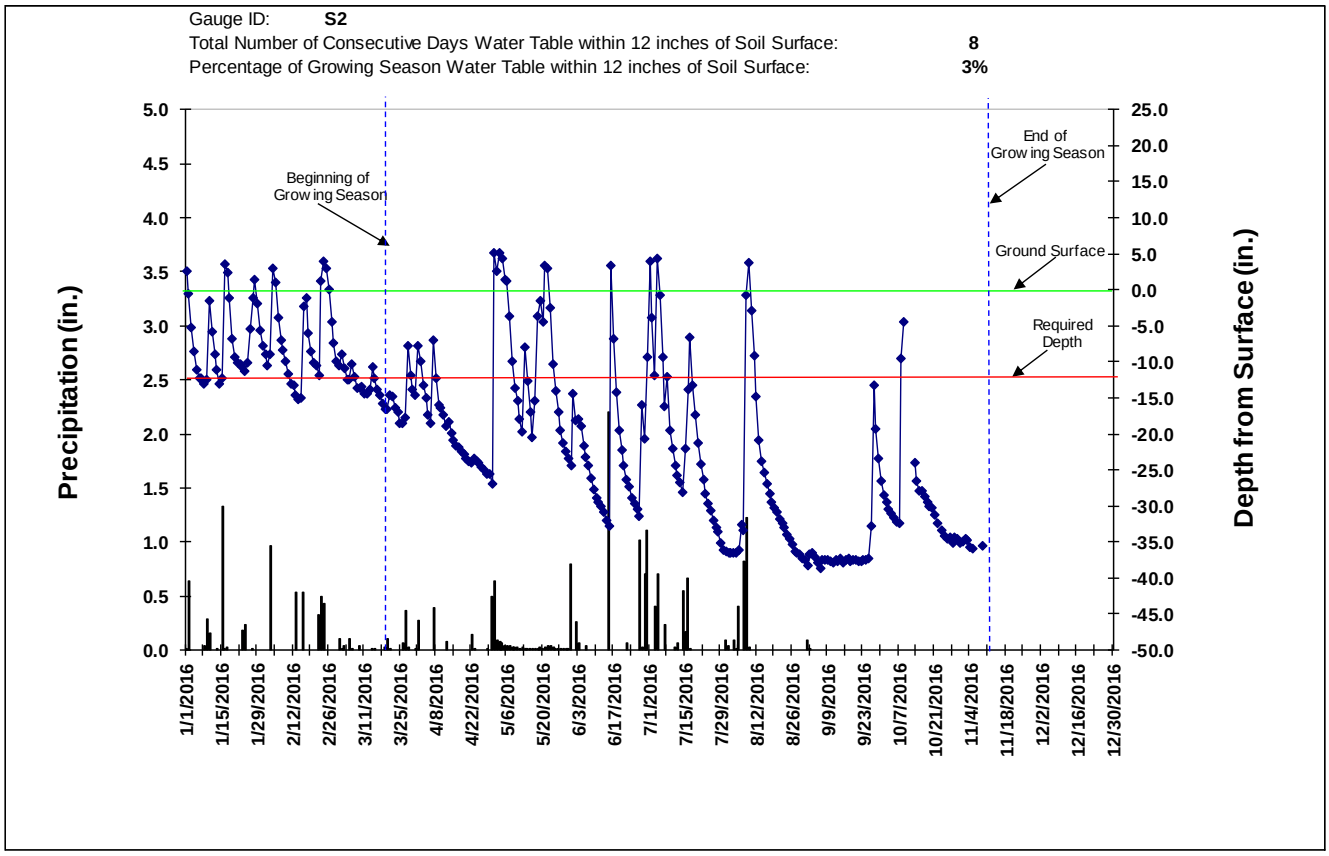
Gauge ID: S2
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 8
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 3%
Precipitation (in.)
Depth from Surface (in.)
Beginning of Growing Season
End of Growing Season
Ground Surface
Required Depth
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
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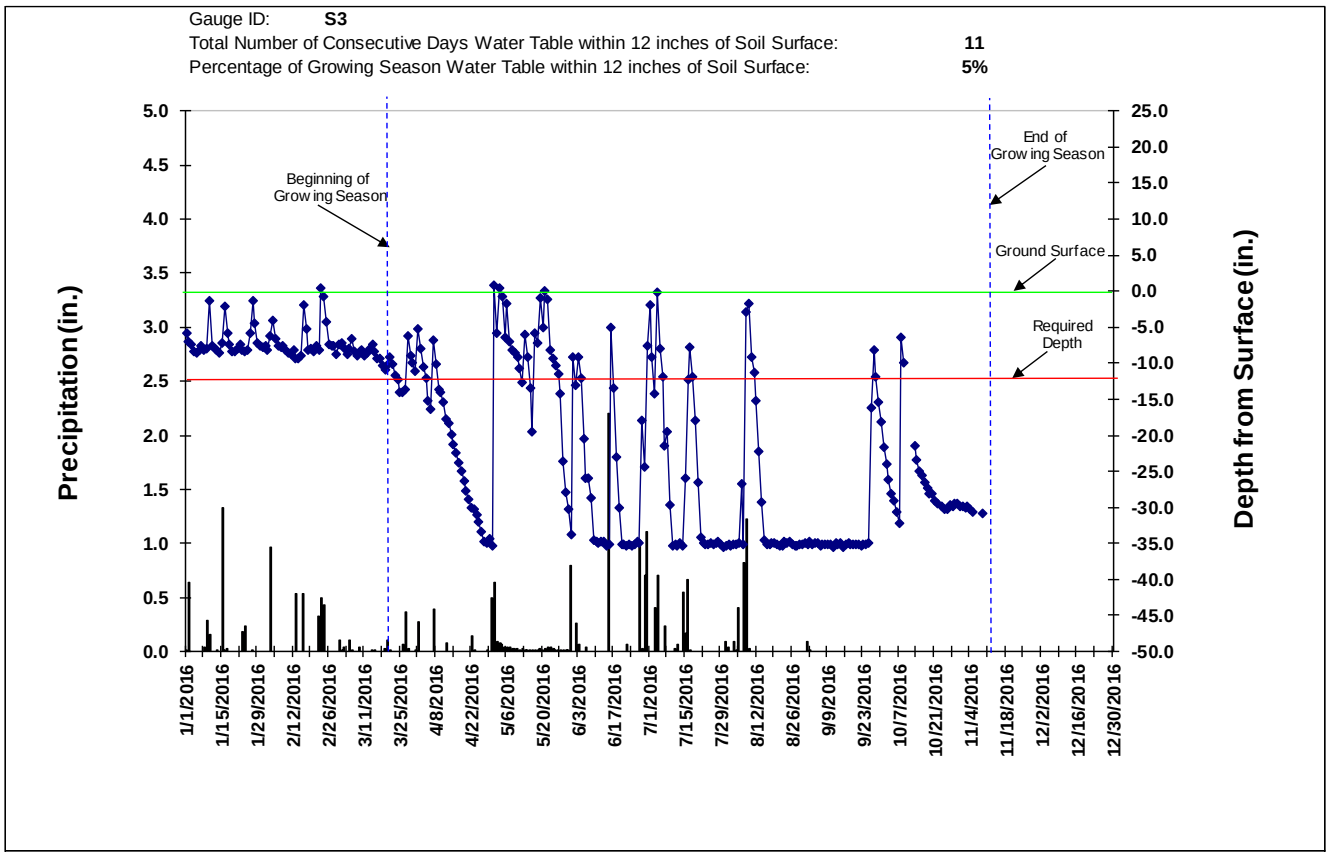
12/30/2016


Gauge ID: S3
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 11
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 5%
Precipitation (in.)
Depth from Surface (in.)
Beginning of Growing Season
End of Growing Season
Ground Surface
Required Depth
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
1/1/2016
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6/3/2016
6/17/2016
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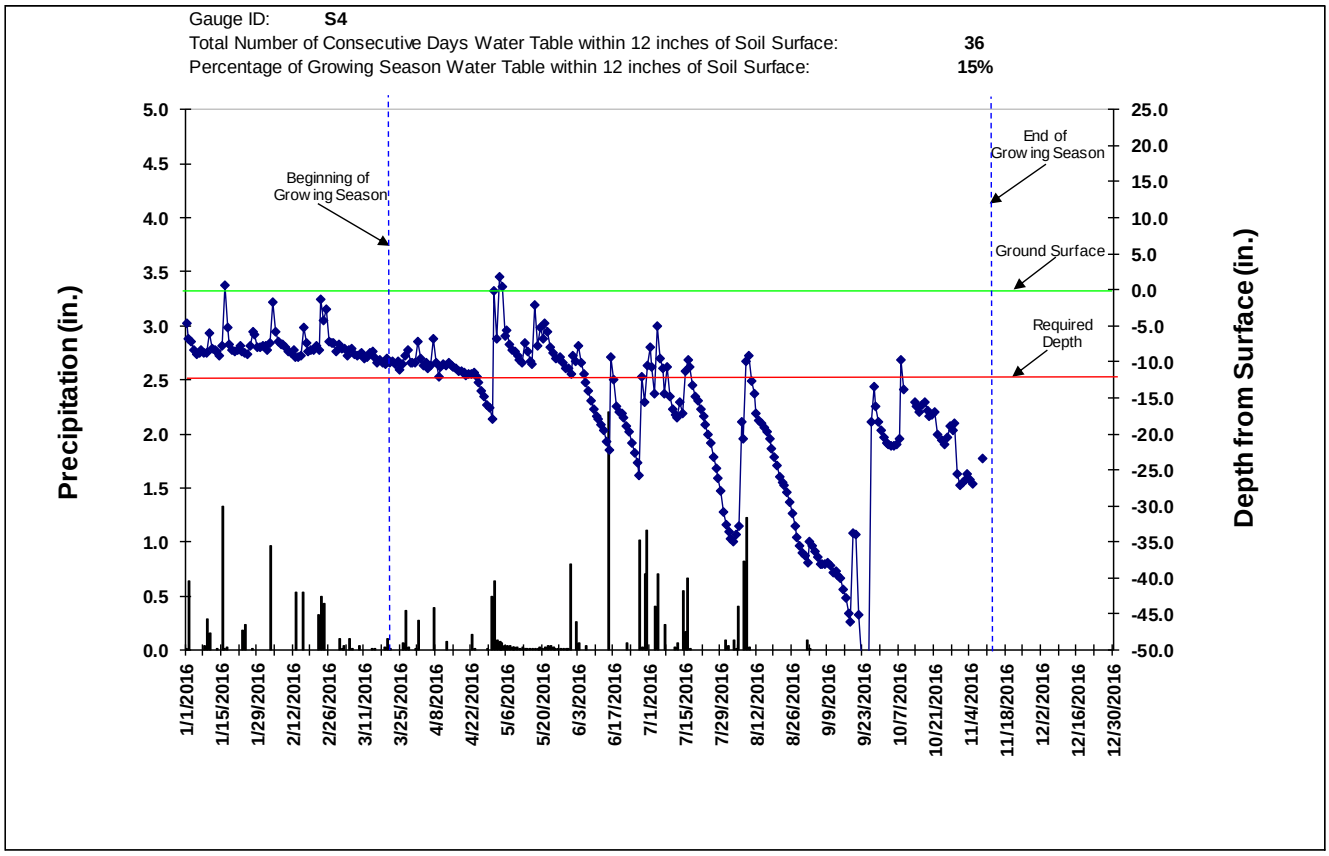
Gauge ID: S4
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 36
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 15%
Precipitation (in.)
Depth from Surface (in.)
Beginning of Growing Season
End of Growing Season
Ground Surface
Required Depth
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
1/1/2016
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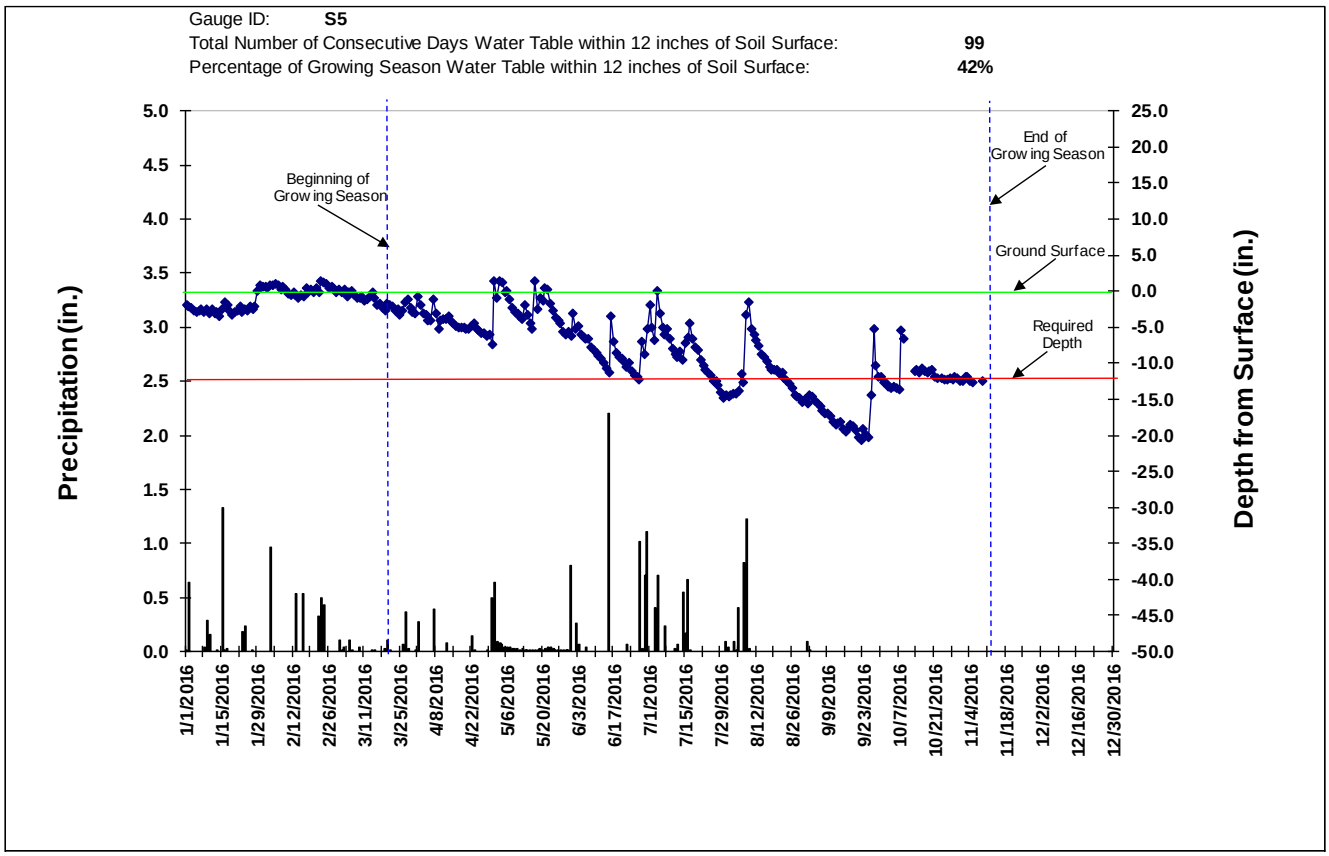
Gauge ID: S5
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 99
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 42%
Precipitation (in.)
Depth from Surface (in.)
Beginning of Growing Season
End of Growing Season
Ground Surface
Required Depth
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
-50.0
1/1/2016
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2/26/2016
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3/25/2016
4/8/2016
4/22/2016
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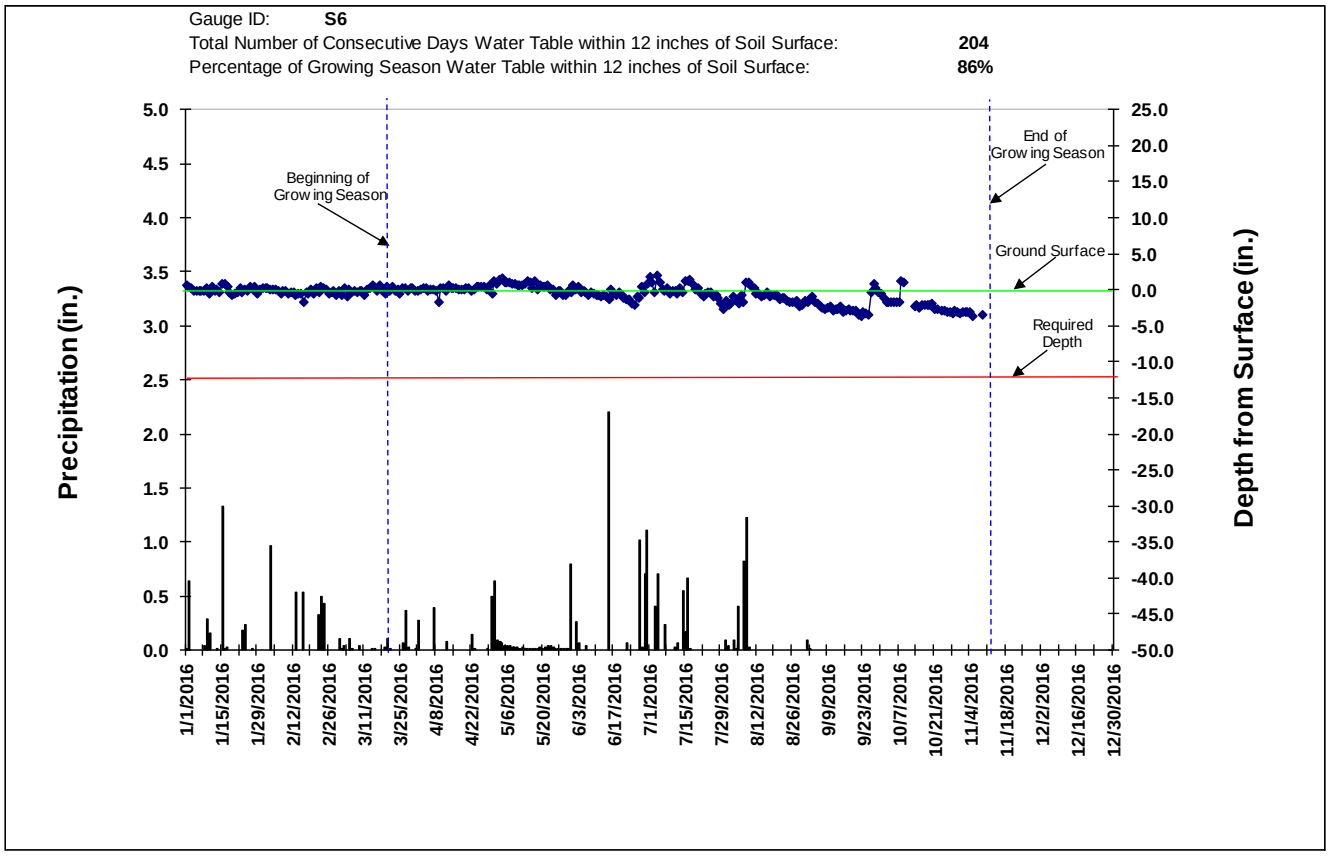
Gauge ID: S6
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 204
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 86%
Precipitation (in.)
Depth from Surface (in.)
Beginning of Growing Season
End of Growing Season
Ground Surface
Required Depth
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
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-50.0
1/1/2016
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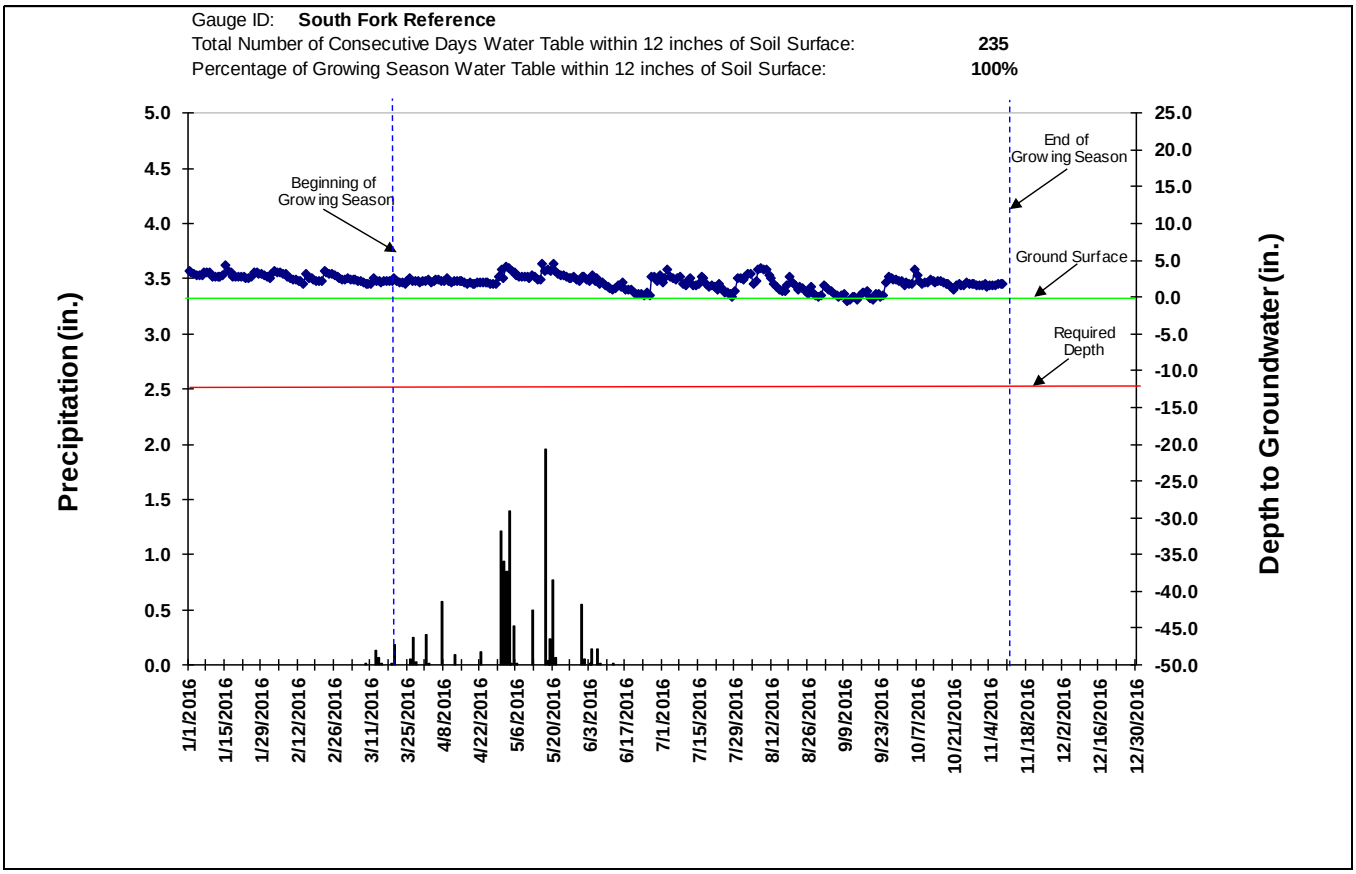
Gauge ID: South Fork Reference
Total Number of Consecutive Days Water Table within 12 inches of Soil Surface: 235
Percentage of Growing Season Water Table within 12 inches of Soil Surface: 100%
Beginning of Growing Season
End of Growing Season
Ground Surface
Required Depth
Precipitation (in.)
Depth to Groundwater (in.)
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
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-45.0
-50.0
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