

North Muddy Creek Stream & Wetland Restoration

Year 1 Final Monitoring Report
Project ID Number: 16-D06115



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1.0 SUMMARY

This Annual Report details the monitoring activities during the 2009 (Year 1) growing season on the North Muddy Creek Mitigation Site. Construction of the site, including planting of trees, was completed in December 2008. The 2009 data represents results from the first year of hydrology and vegetation monitoring for both streams and wetlands.

The stream design for the North Muddy Site involved restoration, enhancement, and preservation associated with five independent stream reaches. Wetland components included riparian and non-riparian wetland restoration, enhancement, and preservation. After construction, it was determined that the project generated 3,974 linear feet of stream restoration, 673 linear feet of stream enhancement, and 3,313 linear feet of stream preservation. Wetlands included 11.4 riparian restoration acres, 3.7 riparian enhancement acres, 2.5 riparian preservation acres, and 2.6 non-riparian restoration acres.

This Annual Report presents the data from 9 cross sections, 3,128 linear feet of longitudinal profile, 3 crest gauges, 8 automated groundwater monitoring stations, 3 automated rain gauges, 11 vegetation monitoring plots, and photographic reference locations; as specified in the approved Mitigation Plan (EBX, 2009).

The Year 1 stream channel data indicates that the restored stream is generally stable and is providing the intended habitat and hydrologic functions. With the exception of some isolated areas of stream bed aggradation and degradation, stream bank erosion, grade control degradation, and thalweg migration; the longitudinal profiles, cross sections, and visual assessments indicate little adjustment in stream dimension between As-built conditions. Stream hydrology monitoring during Year 1 recorded a bankfull event for Unnamed Tributary 6.

Data from the groundwater monitoring stations resulted in all stations exceeding saturation of the upper soil surfaces for seven percent of the growing season. Burke County weather station data in conjunction with on-site rain gauges documented precipitation and was used to validate groundwater monitoring station data. On-site rainfall was within or above the normal range during the majority of the growing season, with below normal recordings during July.

Vegetation plot monitoring during Year 1 indicates survival rates between 243 and 1,215 stems per acre with an average of 689 planted stems per acre for the entire restoration site. Generally speaking, planted stems are surviving at the project site. Only one plot failed to meet the interim success criterion (VP4 at UT6), but planted stems were also low for VP3 at UT1. However, when planted and natural stems are combined, the average stem density for the entire restoration site is over 1,700 stems, which is well above the interim success criterion of 320 stems per acre at the end of the Year 3 monitoring period. With respect to each restoration area, UT1 had an average of 2,539 total stems per acre, UT5 has 2,792, and UT 6 had 599. UT6 should be monitored for further stem loss and supplemental planted if stem densities drop below the minimum success criterion.

2.0 INTRODUCTION

2.1 Project Description

The North Muddy Creek Stream and Wetland Mitigation Site was identified and developed through the North Carolina Ecosystem Enhancement Program (NC EEP) full delivery process. The site is located along the McDowell/Burke County line approximately nine miles east of Marion, North Carolina (**Figure 1**). The project streams lie within the Catawba River Basin (Hydrologic Unit Code 03050101040020) and the North Carolina Division of Water Quality (NCDWQ) sub-basin 03-08-30.

The mitigation site consists of five distinct stream systems totaling 7,960 linear feet and three adjacent wetland areas encompassing 20.2 acres. The five distinct unnamed tributaries (UT) are identified as UT1, UT2, UT4, UT5, and UT6. Unnamed Tributary 1 (UT1) is located just north of Interstate 40 on the McDowell/Burke County line, whereas UT2, UT4, UT5, and UT6 are located south of Interstate 40 on the McDowell/Burke County line. The USGS Marion East and Glen Alpine topographic quadrangles (**Figure 2**) shows UT1 drains to Muddy Creek, UT2 drains to North Muddy, and the subsequent streams drain to South Muddy Creek. All five reaches drain watersheds consisting of predominately forest and agricultural land. On-site topography, soils, and existing wetlands demonstrated that the site historically supported wetlands. The site is defined by conservation easements surrounding the streams and adjacent riparian buffers that total approximately 34.8 acres.

Channel restoration (improved pattern, dimension, and longitudinal profile) was completed on UT1, UT6, and the lower portion of UT5. Stream enhancement activities (improved dimension and longitudinal profile) were limited to the middle reach of UT5. The headwater reaches of UT2, UT4, and UT5 were protected under preservation criteria.

Prior to restoration UT1 and adjacent wetlands were highly disturbed due to the presence of livestock, channelization, and ditching. The lower reach of UT5 had been channelized and portions of the riparian wetland had been impaired due to historical agricultural practices. Channelization, ditching, and riparian disturbances associated with historical agricultural practices had severely degraded UT6 and the associated wetlands.

The 2009 monitoring season represents Year 1 of the monitoring period. Monitoring during 2009 included stream, wetland, and vegetation monitoring stations (**Figure 3**) as approved in the Mitigation Plan (EBX, 2009).

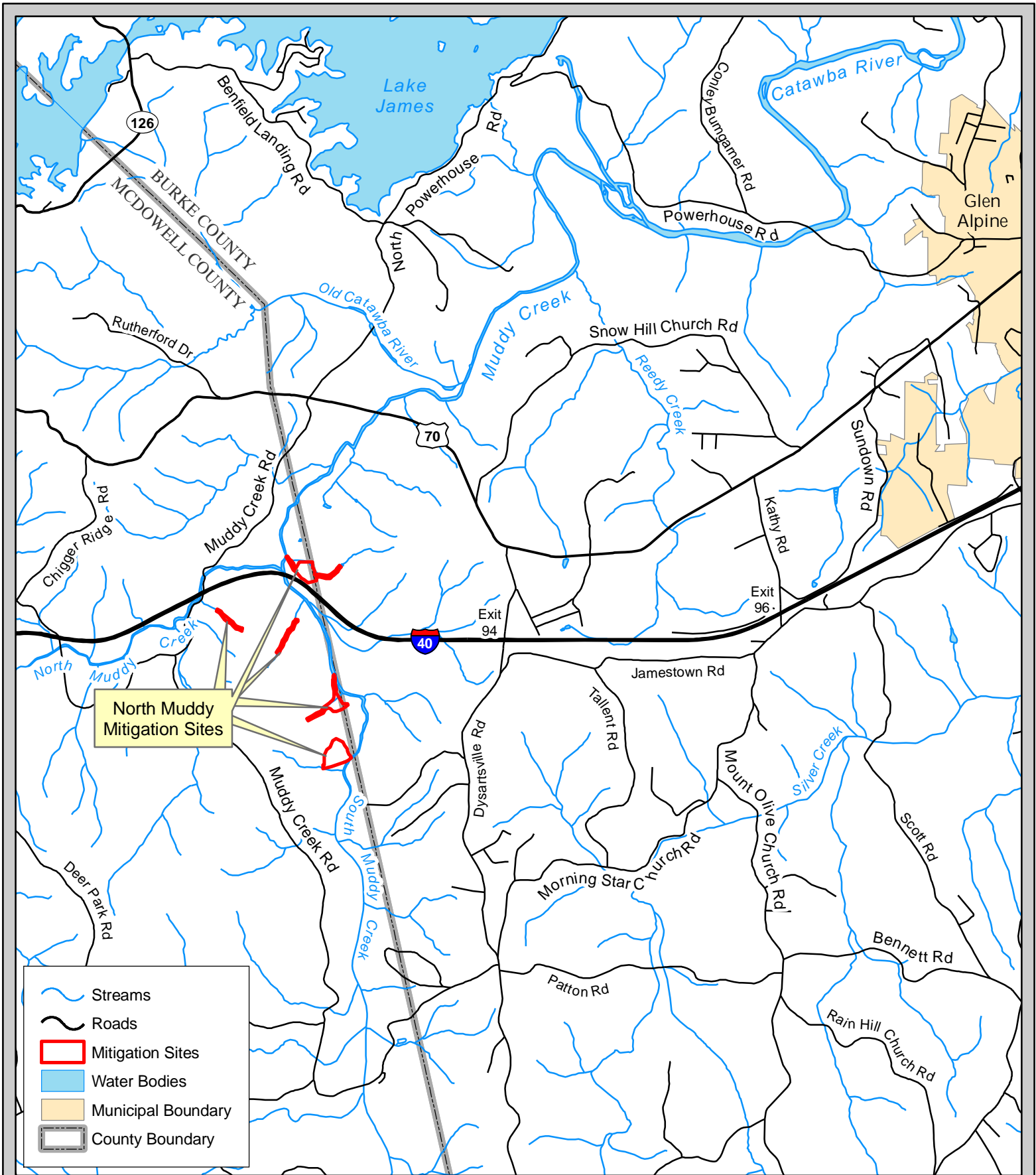
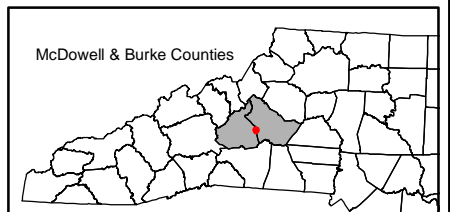
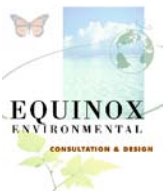
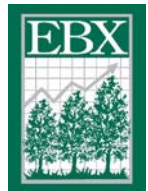


Figure 1
North Muddy Mitigation Site
Project Vicinity Map



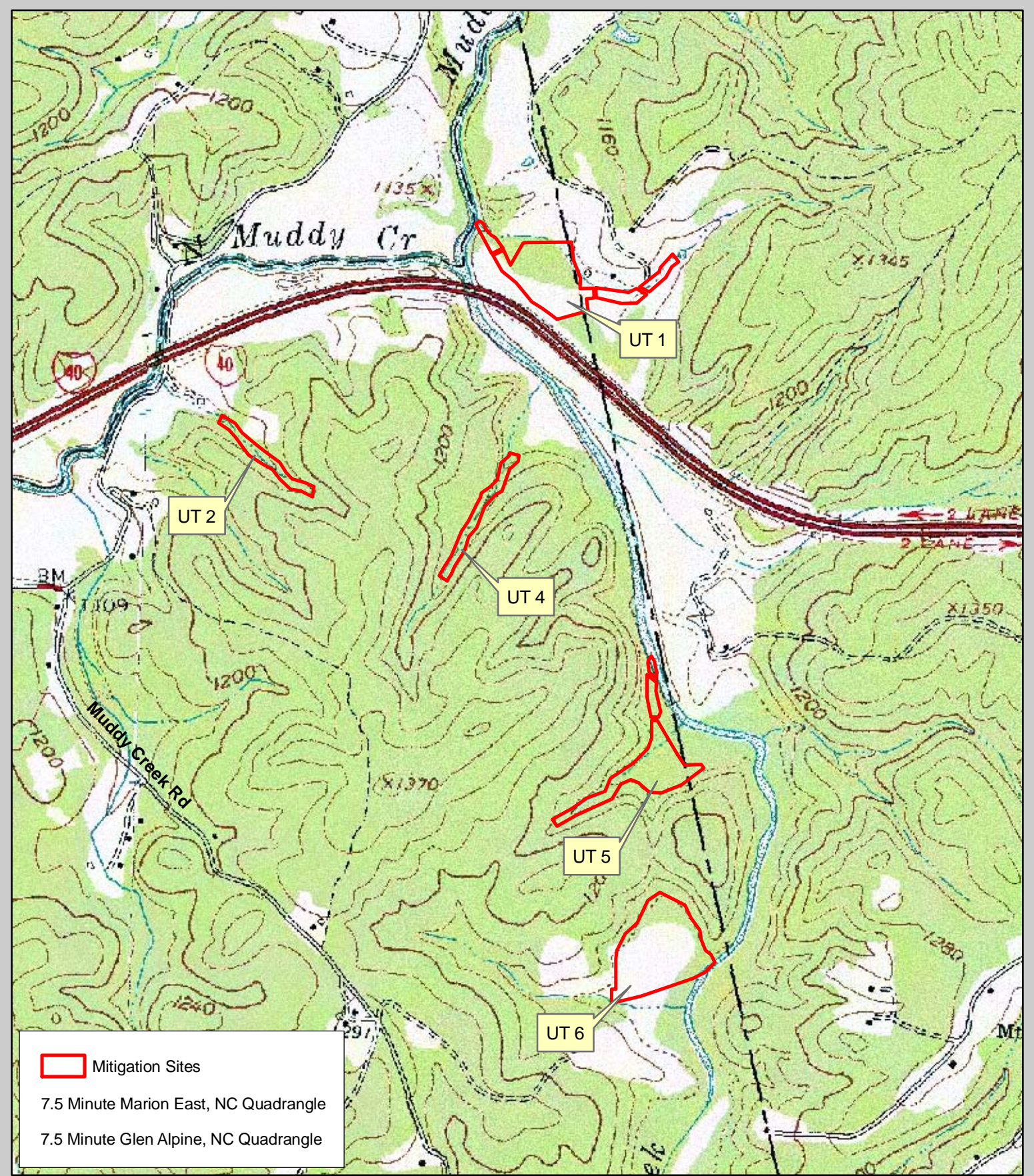
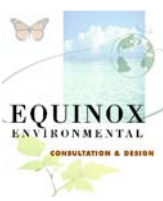
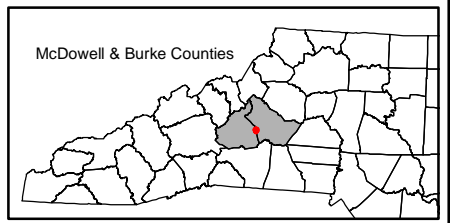
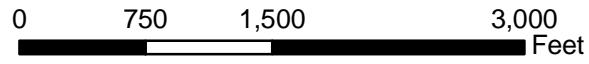
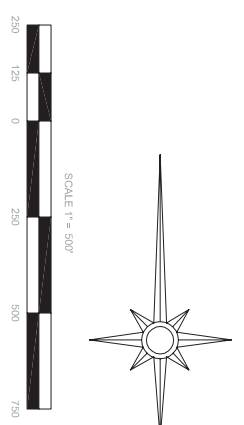
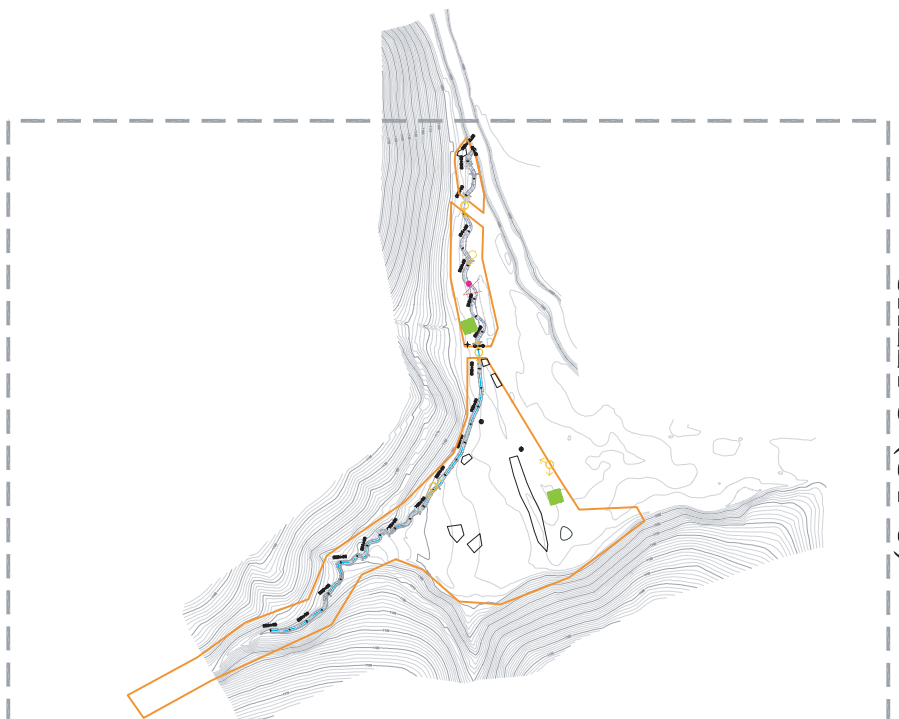
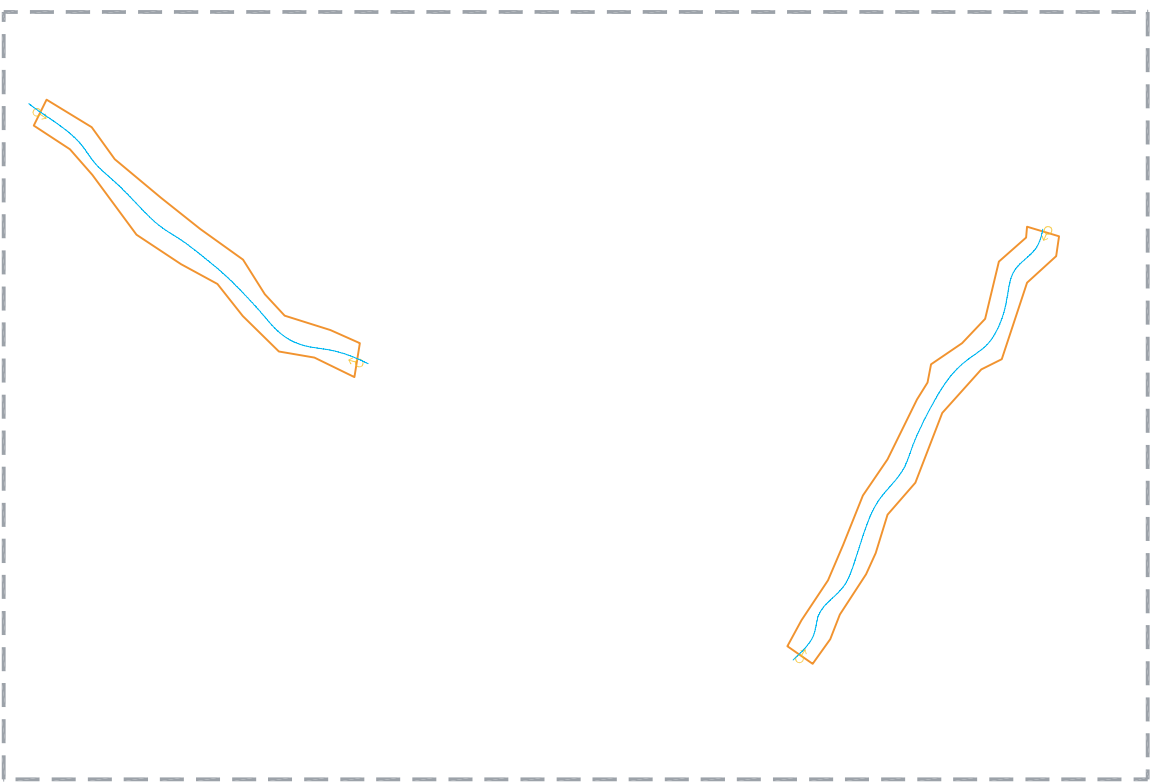
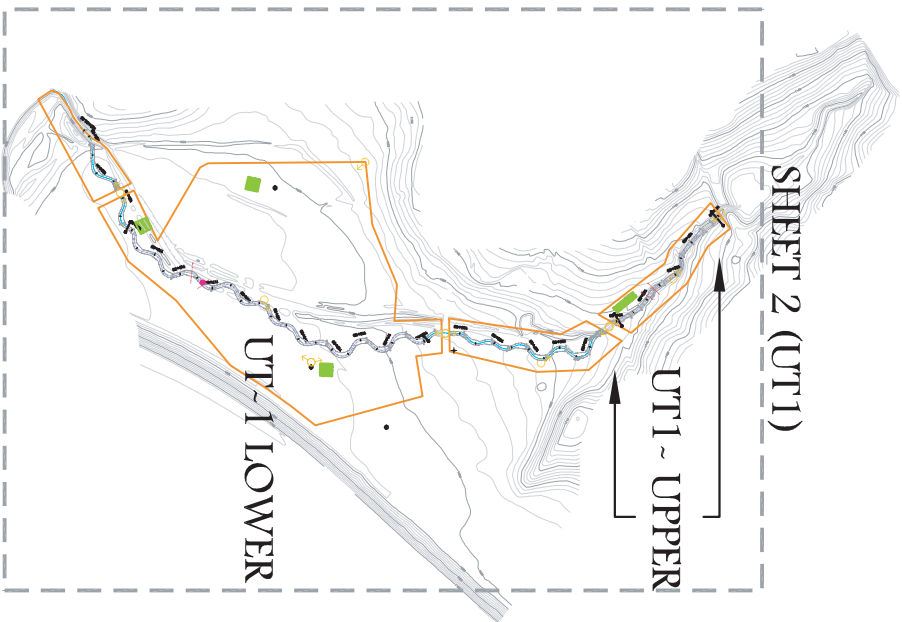


Figure 2
North Muddy Mitigation Site
USGS Map





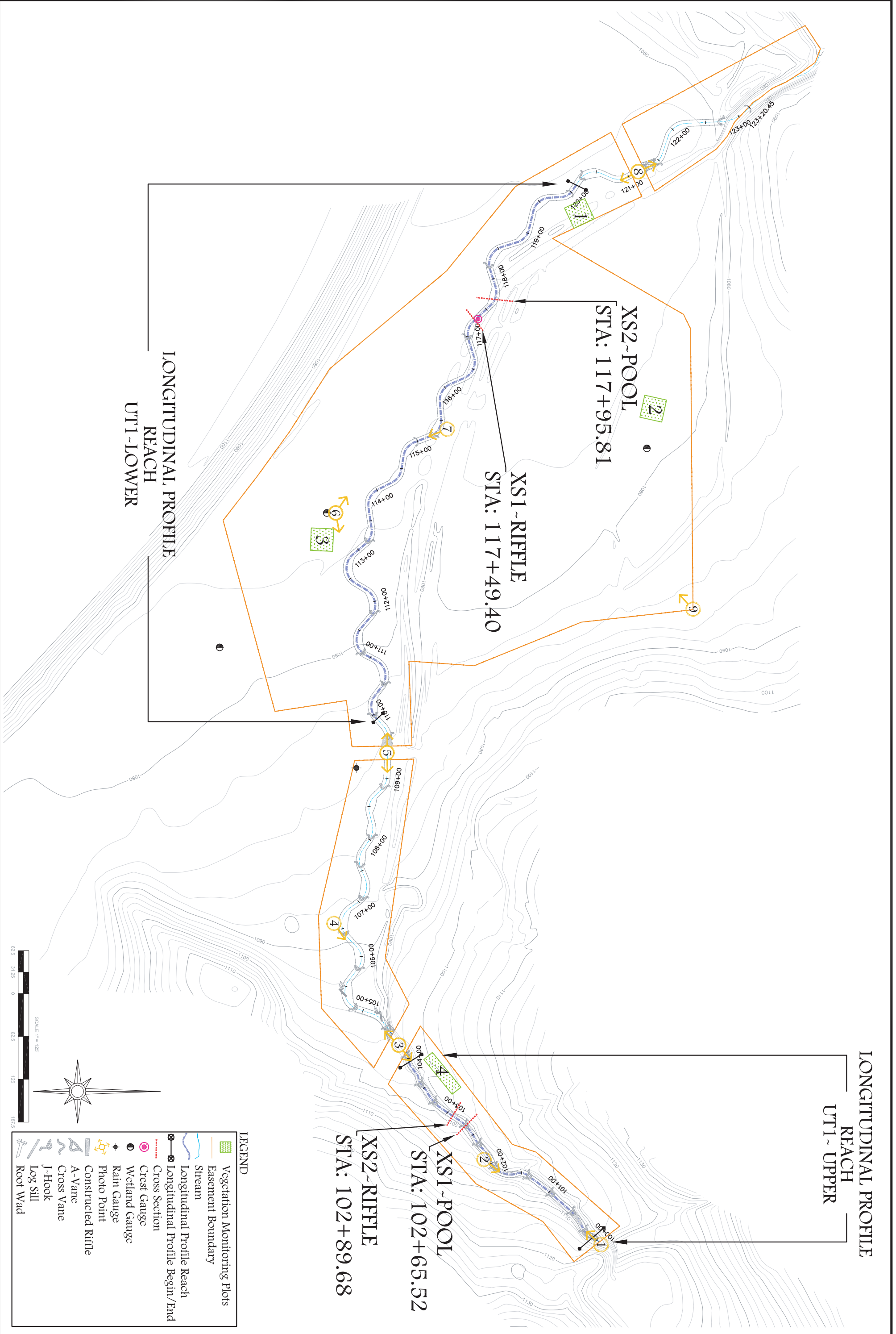
LEGEND

	Vegetation Monitoring Plots
	Easement Boundary
	Stream
	Longitudinal Profile Reach
	Longitudinal Profile Begin/End
	Cross Section
	Crest Gauge
	Wetland Gauge
	Rain Gauge
	Photo Point
	Constructed Riffle
	A-Vane
	Cross Vane
	J-Hook
	Log Still
	Root Wad

North Muddy Creek

Burke & McDowell County, NC

Monitoring Plan FIGURE 3



LONGITUDINAL PROFILE
REACH
UT1 - UPPER

LONGITUDINAL PROFILE
REACH
UT1 - LOWER

XS2-POOL
STA: 117+95.81

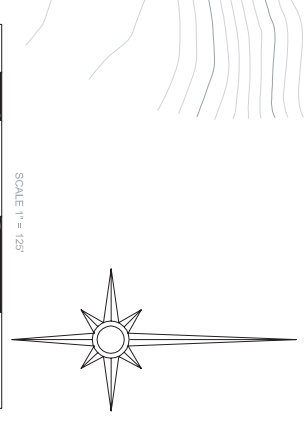
XS1-RIFFLE
STA: 117+49.40

XS2-RIFFLE
STA: 102+89.68

XS1-POOL
STA: 102+65.52

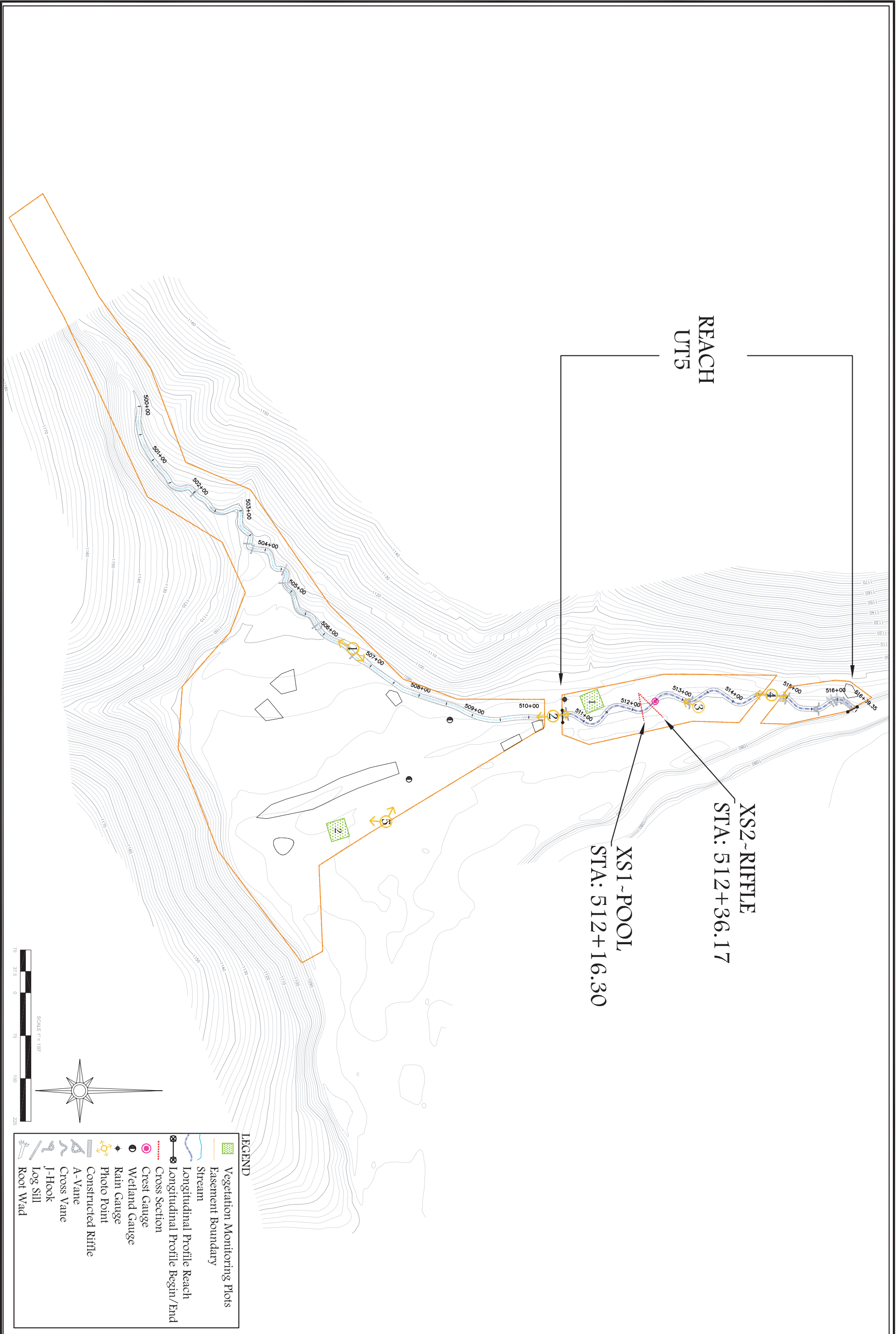
LEGEND

- Vegetation Monitoring Plots
- Easement Boundary
- Stream
- Longitudinal Profile Reach
- Longitudinal Profile Begin/End
- Cross Section
- Crest Gauge
- Wetland Gauge
- Rain Gauge
- Photo Point
- Constructed Riffle
- A-Vane
- Cross Vane
- J-Hook
- Log Sill
- Root Wad



North Muddy Creek
Burke & McDowell County, NC

UT1 Monitoring Plan
FIGURE 3



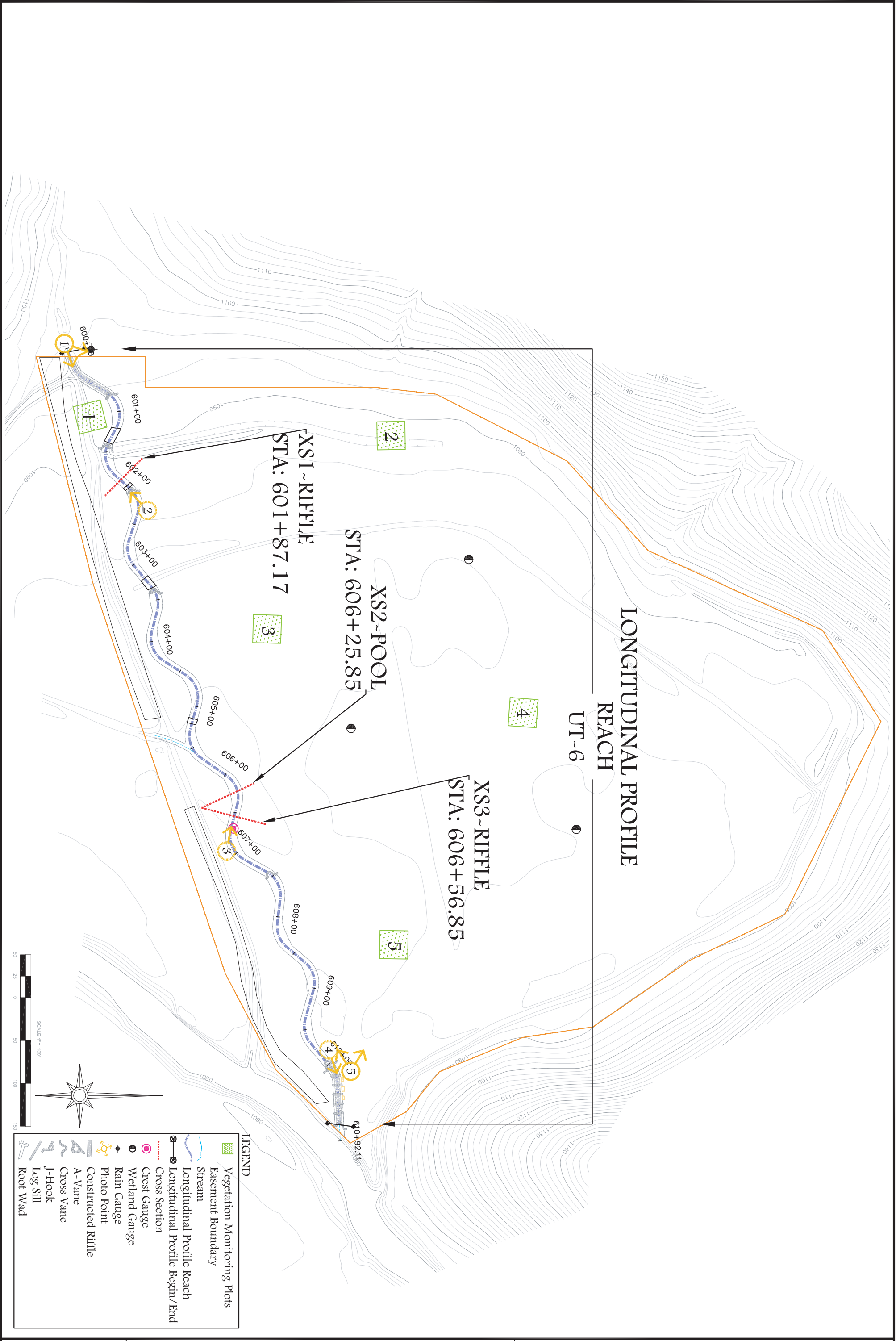
REACH
UT5

XS2~RIFPLE
STA: 512+36.17

XS1~POOL
STA: 512+16.30

LEGEND

- Vegetation Monitoring Plots
- Easement Boundary
- Stream
- Longitudinal Profile Reach
- Longitudinal Profile Begin/End
- Cross Section
- Crest Gauge
- Wetland Gauge
- Rain Gauge
- Photo Point
- Constructed Riffle
- A-Vane
- Cross Vane
- J-Hook
- Log Sill
- Root Wad

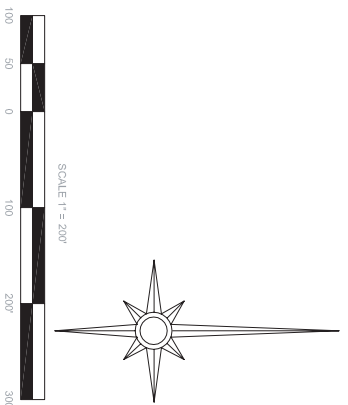
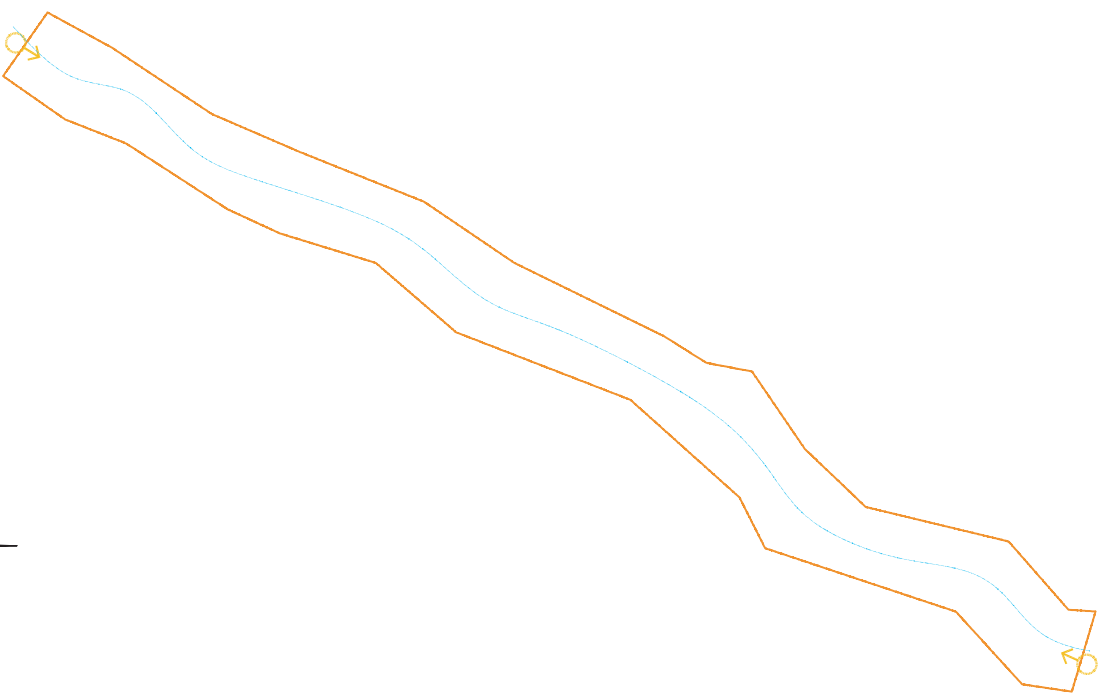
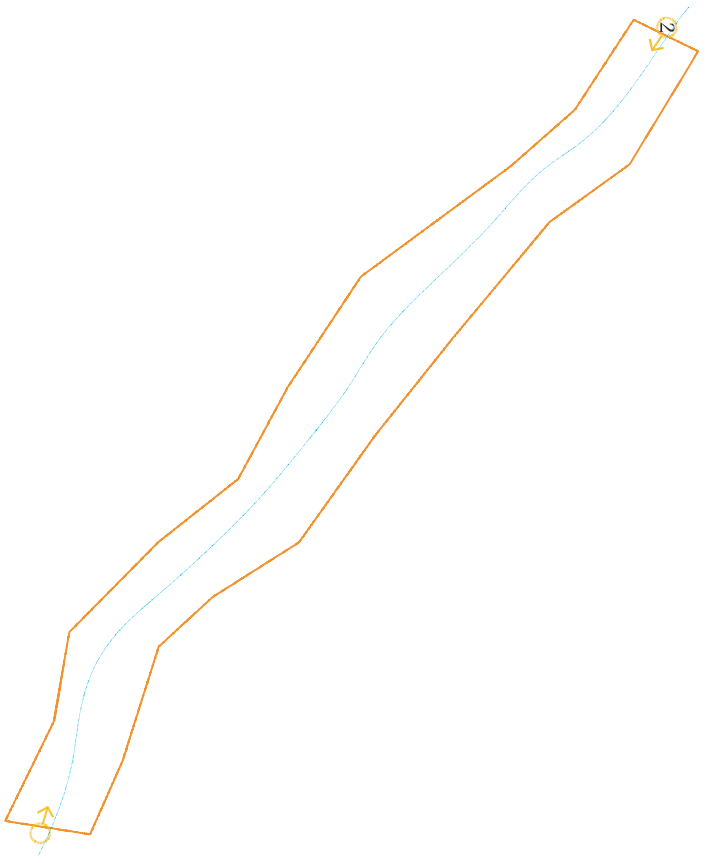





North Muddy Creek

Burke & McDowell County, NC

UT6 Monitoring Plan

FIGURE 3



LEGEND	
	Easement Boundary
	Preservation Stream
	Photo Point

2.2 Project Purpose

The objective of the project was to provide 5,014 stream mitigation units (SMU's), 12.0 acres of riparian wetland mitigation units (WMU's), and 2.4 acres of non-riparian WMU's for the NC EEP full delivery process in the Catawba 03-08-30 Basin. In conjunction with providing mitigation credits; riparian habitat, aquatic habitat, and water quality improvements are expected as a result of the ecological restoration and enhancement practices.

The North Muddy Creek Mitigation Report (EBX, 2009) documented 3,974 linear feet of stream restoration, 337 linear feet of stream enhancement Level I, 336 linear feet of stream enhancement Level II, and 3,313 linear feet of stream preservation resulting in 4,996 SMU's (**Table 1**). Wetland mitigation components stated within the Mitigation Report documented 11.4 riparian restoration acres, 3.7 riparian enhancement acres, 2.5 riparian preservation acres, and 2.6 non-riparian restoration acres resulting in 16.4 WMU's (**Table 1**).

Table 1. Project Mitigation Structure and Objectives

Reach Name	As-Built Length (ft)	Riparian Wetland (ac)	Non-Riparian Wetland (ac)	Total Wetland (ac)	Restoration Approach
UT1	2,257				Restoration
UT2	1,172				Preservation
UT4	1,421				Preservation
UT5	550				Restoration
UT5	337				Enhancement I
UT5	336				Enhancement II
UT5	720				Preservation
UT6	1,167				Restoration
UT1 - Wetland		3.3		6.6	Restoration
UT1 – Wetland		3.0			Enhancement
UT1 – Wetland		0.3			Preservation
UT5 – Wetland		0.7		2.9	Enhancement
UT5 – Wetland		2.2			Preservation
UT6 - Wetland		8.1	2.6	10.7	Restoration
Total Site	7,960	17.6	2.6	20.2	
Total Mitigation Units	4,996	13.8	2.6		

Annual monitoring of the site is required to demonstrate successful mitigation based on criteria established in the Restoration Plan (EBX, 2007) and through a comparison to As-built and reference conditions. The success criteria components adhere to guidance provided by the United States Army Corps of Engineers (USACOE) – Wilmington District (USACE, 2003) and recommendations from the NC EEP. Stream, hydrology, and vegetation monitoring are conducted annually for five years or until success criteria have been met. This Annual Monitoring Report details the results of the monitoring efforts for Year 1 at the North Muddy

Creek Stream and Wetland Mitigation Site. Results from the Year 1 monitoring efforts are included within the following sections and **Appendix A**.

2.3 Project History and Schedule

The project was constructed in the summer and fall of 2008 and the five year monitoring is expected to be completed in the winter of 2013 (**Table 2**). **Table 3** list the project contacts.

Table 2. Project Activity and Reporting History

Month / Year	Activity
September 2007	Restoration Plan
September 2008	Construction Completed
December 2008	Planting Completed
April 2009	Mitigation Plan / As-Built Report
March 2009	Supplemental Planting
December 2009	Year 1 Annual Monitoring Report
December 2010	Year 2 Annual Monitoring Report (Scheduled)
December 2011	Year 3 Annual Monitoring Report (Scheduled)
December 2012	Year 4 Annual Monitoring Report (Scheduled)
December 2013	Year 5 Annual Monitoring Report (Scheduled)

Table 3. Project Contacts

Contact	Provider Information
Full Delivery Service Contractor Norton Webster	Environmental Banc & Exchange 909 Capability Drive Suite 3100 Raleigh, North Carolina 27606 (919) 829-9909
Designer William Wilhelm	Kimley-Horn and Associates, Inc. 4651 Charlotte Park Drive, Suite 300 Charlotte, North Carolina 28217 (704) 333-5131
Construction Contractor Robert Grady	RFG Construction Inc. 1907 Cambridge Drive Kinston, North Carolina 28504 (252) 523-2405
Planting/Seeding Contractor Robert Cato	Superior Wildlife Services 2105 Sparre Drive Kinston, North Carolina 28504 (252) 939-0465
Monitoring Contractor Steve Melton	Equinox Environmental Consultation & Design, Inc. 37 Haywood Street, Suite 100 Asheville, North Carolina 28801 (828) 253-6856

3.0 STREAM MONITORING

3.1 Stream Success Criteria

As stated in the Mitigation Plan, the stream geometry will be considered successful if the cross-section geometry, profile, and sinuosity are stable or reach a dynamic equilibrium. While the channels may not adhere to the design or reference ratios of stream geometry, the streams will be considered stable if the following key indicators are present:

- *Stream Type*: Maintenance of the design stream type or progression toward or conversion to a stable stream type such as B, C, or E will indicate stability.
- *Bank Height Ratio*: Bank height ratio between 1.0 and 1.2 will indicate that flood flows have access to the active floodplain and that higher flows do not apply excessive stresses to stream banks.

A minimum of two bankfull events is required during the 5-year monitoring period. If two bankfull events do not occur the monitoring period may be extended at the discretion of the UACOE.

3.2 Stream Morphology Monitoring Plan

The stream monitoring program will document annual system development and progress towards achieving the success criteria. Monitoring will occur annually for 5-years or until the final success criteria are achieved, whichever is longer. The locations of the individual stream monitoring components are shown in **Figure 3**.

3.2.1 Cross Sections

A total of nine cross-sections were installed during the As-built monitoring efforts. Cross-sections for UT1 include one riffle and one pool for each of the two monitored reaches. The UT5 restoration reach includes one riffle and one pool cross-section and UT6 includes two riffles and one pool cross-section. Each cross-section was marked on both banks with permanent iron pins to establish known annual transects. A common bench mark was established to facilitate comparisons between annual data collection efforts. Annual cross-sectional survey points include all present breaks in slope; including top of bank, bankfull, inner berm, and thalweg. Cross-sectional photos are collected annually to visually document left and right bank conditions.

3.2.2 Longitudinal Profile

Four permanent longitudinal profile reaches were established during the As-built monitoring efforts. UT1 includes an upper (UT1-Upper) and lower reach (UT1-Lower) and UT5 and UT6 include the entire lengths of the restoration reaches. The beginning and end of each longitudinal profile reach was marked on both banks with permanent iron pins to establish bench marks for annual data comparison and analysis. Longitudinal profile measurements include thalweg, water

surface, bankfull, and top of low bank. Annual thalweg and water surface measurements are collected at the head and tail of each bedform type.

3.2.3 Substrate

Bed substrate assessment sites were established at each permanent cross-section location. Annual pebble counts are collected utilizing methods adapted from Harrelson et al (1994). A minimum of 100 particles are selected and measured from each channel feature type sampled. Sampled materials are placed into size classes using the traditional Wentworth scale classes subdivided based on phi scale. These classes are grouped into broader sediment size categories (e.g. sand, gravel or cobble) and are utilized to compare substrate progression from As-built conditions.

3.2.4 Hydrology

Crest gauges installed on each restoration reach tributary will be utilized to document bankfull events during the monitoring period. Crest gauges will be checked during each site visit to document the highest flow between visits. Gauge height readings will be recorded and digital images of floodplain debris lines and sediment deposition will be collected to document annual bankfull events.

3.2.5 Photo Reference Stations

A total of 23 representative photo stations were established throughout the site to subjectively evaluate overall trends in project progression and general site conditions over the duration of the monitoring effort. Additionally, the entire stream project reach will be visually assessed to document any identified areas of concern. Representative photos will be collected to document areas of concern identified during the visual site assessment.

3.3 Stream Morphology Monitoring Results

The Year 1 annual stream morphology data was collected between February and November 2009. Reference station photos were collected in February 2009 prior to the onset of vegetation to document the general conditions of the site. The Year 1 cross-section, longitudinal profile, and substrate data collection efforts occurred in June 2009. Visual assessments and bankfull documentation was noted during each site visit during the annual monitoring effort. A final quantitative site assessment and data collection effort occurred in November 2009.

3.3.1 Cross Sections

Cross-sectional data collected during the Year 1 monitoring effort has been compared with the As-built data (**Appendix B & C**). Compared to the As-built data, the Year 1 channel cross-sectional data shows minimal differences between years indicating that the overall stream dimensions have remained stable.

3.3.2 Longitudinal Profile

Longitudinal profile surveys were conducted along four separate reaches of the restoration project, totaling approximately 3,128 linear feet. The surveys conducted included reach UT1-Upper from STA 100+07 to STA 103+95 (388 linear feet), reach UT1-Lower from STA 109+92 to STA 120+55 (1063 linear feet), reach UT5 from STA 510+59 to STA 516+43 (583 linear feet), and reach UT6 from STA 600+05 to STA 610+99 (1094 linear feet). The longitudinal profiles documented bed elevations, stream features, and in-stream grade control structures as compared to the As-built profiles (**Appendix B & C**). With the exception of some isolated areas of stream bed aggradation and degradation, stream bank erosion, grade control degradation, and thalweg migration; stream profiles between monitoring years indicate little adjustment. Areas requiring observation identified through the profile surveys and visual assessments are included in **Table 5** and **Appendix A**.

3.3.3 Substrate

Pebble count data collected during Year 1 indicates little change in substrate size composition between years. Substrate composition within the stream channels is primarily silt/clay and fine sand particles within both the riffle and pool habitat types. The Year 1 pebble count data summary plots are included in **Appendix B**.

3.3.4 Hydrology

During the Year 1 monitoring efforts bankfull events were documented with crest gauges located on the UT1, UT5, and UT6 restoration reaches (**Table 4**). One bankfull event registering 0.05 feet above bankfull stage was documented for UT6 which occurred between the March and May 2009 site visits. No bankfull events were documented during Year 1 for UT1 and UT5.

Table 4. Crest Gauge Data

Month Recorded	UT1 (ft)	UT5 (ft)	UT6 (ft)
January	---	---	---
February	0.00	0.00	0.00
March	0.00	0.00	0.00
April	---	---	---
May	0.00	0.00	0.05
June	---	---	---
July	0.00	0.00	0.00
August	---	---	---
September	0.00	0.00	0.00
October	---	---	---
November	0.00	0.00	0.00
December	---	---	---

3.3.5 Photo Reference Stations

The Year 1 reference station photos are included in **Appendix D**. Stream areas of concern (SPA) identified through the morphological monitoring and visual assessments include isolated areas of stream bed aggradation and degradation, stream bank erosion, grade control degradation, and thalweg migration (**Table 5**). Representative photos of these areas during the Year 1 monitoring effort are included in **Appendix D**.

Table 5. Stream Areas Requiring Observation

SPA	Feature	Reach	STA	Description
1	Pool	UT1	104+75	Insufficient pool depth due to aggradation
2	Riffle	UT1	105+00	Riffle down cutting
3	Pool	UT1	105+25	Insufficient pool depth due to aggradation
4	Riffle	UT1	105+70	Riffle down cutting
5	Pool	UT1	106+00	Insufficient pool depth due to aggradation
6	Riffle	UT1	107+90	Riffle down cutting
7	Riffle	UT1	110+40	Riffle down cutting
8	Riffle	UT1	111+00	Riffle down cutting
9	Rock Vane	UT5	515+80	Grade control structure piping
10	Pool	UT6	600+10	Insufficient pool depth due to aggradation
11	Riffle	UT6	601+30	Riffle down cutting
12	Pool	UT6	601+60	Insufficient pool depth due to aggradation
13	Riffle	UT6	602+00	Riffle down cutting
14	Riffle	UT6	603+75	Riffle down cutting
15	Rock Vanes & Stream Banks	UT6	610+50	Bank erosion due to back eddies from South Muddy Creek during high flow event

3.4 Stream Conclusions

The Year 1 morphological monitoring and visual assessments primarily indicate a stable system as compared to the As-built conditions. While the majority of pools and riffles were of appropriate depth, stream areas of concern identified during Year 1 were primarily associated with pool aggradation and pool degradation at UT1 and UT6. These areas will continued to be monitored during subsequent monitoring years and recommendations will be made if these areas become problematic to project success. The structure failures and bank erosion within the lower portion of UT6 is of greatest concern and repairs are scheduled for this problem area prior to the start of Year 2 monitoring. **Table 6** and **Table 7** summarize the riffle morphologic parameters between the As-built conditions and Year 1; more detailed morphologic parameters are provided in **Appendix B & C**.

Table 6. Summary of Morphologic Monitoring Parameters – As-Built

Parameter	As-Built UT1 - Upper	As-Built UT1 - Lower	As-Built UT5	As-Built UT6
Average Bankfull Cross Section Area Abkf (sq ft)	4.2	3.1	5.4	6.1
Average Bankfull Width Wbkf (ft)	6.0	5.5	7.2	10.5
Bankfull Width / Depth Ratio	8.6	9.9	9.7	14.5
Bankfull Mean Depth Dbkf (ft)	0.7	0.6	0.7	0.7
Bankfull Max Depth Dmax (ft)	1.2	1.0	1.2	1.3

Table 7. Summary of Morphologic Monitoring Parameters – Year 1

Parameter	Year 1 UT1 - Upper	Year 1 UT1 - Lower	Year 1 UT5	Year 1 UT6
Average Bankfull Cross Section Area Abkf (sq ft)	4.2	3.1	5.0	7.7
Average Bankfull Width Wbkf (ft)	5.8	6.2	7.2	10.5
Bankfull Width / Depth Ratio	8.0	12.2	10.3	14.7
Bankfull Mean Depth Dbkf (ft)	0.7	0.5	0.7	0.7
Bankfull Max Depth Dmax (ft)	1.2	1.0	1.2	1.4

4.0 HYDROLOGY

4.1 Hydrologic Success Criteria

As stated in the Restoration Plan, the hydrology success criterion for the site is based on improvements to the frequency and duration of saturated soils as compared to the reference wetlands. The groundwater hydrology of reference sites serve as the site's hydrology reference for target groundwater hydrology because these areas met wetland hydrology criteria prior to construction. They also are in similar landscape positions and should have hydrological responses similar to the restored wetlands. The minimum requirement for the restoration wetland hydrology will also be based on the UACOE guidelines (USACOE, 1987) including saturation of the upper surface soils (12 inches) for 7 percent of the growing season. The growing season for McDowell County extends from March 28 to November 4 (222 days). The growing season is based on the fifty percent probability of a 28°F or greater minimum temperature between these dates (NRCS, October 2009).

4.2 Description of Hydrology Monitoring Efforts

Prior to the 2009 growing season eight Infinities automated groundwater gauges were installed within the wetland project areas (**Figure 3**). The UT1 wetland project includes two gauges within the restoration sites and one reference gauge within a fully functional wetland immediately adjacent to the project site. The UT5 wetland project contains one gauge within the enhancement wetland and one within the preservation wetland. Finally, three gauges were installed within the UT6 wetland restoration area. Additionally, prior to the growing season an Ecotone automated rain gauge was installed at each project area. The monitoring protocol for the site specified that automated monitoring stations be downloaded and checked for malfunctions on a bi-monthly basis. During the 2009 growing season, there were no data gaps for the eight groundwater gauges. However, due to rain gauge malfunction at UT5 and UT6 data gaps and daily calculation errors did occur for rainfall events during the growing season.

Automated Gauges

Groundwater gauges were installed to a minimum depth of 23 inches below the ground surface. Automated gauges compensate for changes in atmospheric pressure and were set to record water elevation above the bottom of the sensor twice daily at 08:00 and 20:00 hours. Automated rain gauges were installed within open areas to prevent over head interference with daily rain recordings. Gauges automatically record rainfall with a tipping bucket calculated to record to the 0.01 of an inch.

Data Interpretation

Unless erroneous readings were observed between the two daily groundwater readings, the 08:00 daily reading was utilized for the daily hydrology level. For days in which a significant difference between the 08:00 and 12:00 reading was observed (N = 1), the data was compared to prior and post ground water levels to eliminate erroneous readings. Daily rainfall readings were summed to obtain the 24-hour total.

During monitoring years in which below normal precipitation results in groundwater gauges not meeting hydrologic requirements, the groundwater hydrology from the reference gauges will be compared to the restoration and enhancement gauges to determine if there is a positive correlation.

4.3 Results of Hydrology Monitoring

The following Year 1 hydroperiod statistics were calculated for each monitoring station following the first growing season: 1) most consecutive days and percent of the growing season that the water table was within 12 inches of the soil surface; 2) cumulative number of days and percent of growing season that the water table was within 12 inches of the soil surface; and 3) number of times the water table rose to within 12 inches of the soil surface (**Table 8**). Individual groundwater graphs and raw hydrograph data collected from the monitoring gauges are provided in **Appendix E**.

Table 8. Hydrologic Monitoring Results

2009 Max Hydroperiod (Growing Season March 28 – November 4, 222 Days)					
Gauge ID	Consecutive		Cumulative		Occurrences
	Days	Percent of Growing Season	Days	Percent of Growing Season	
UT1 – 1	51	23.0	150	67.6	8
UT1 – 2	88	39.6	155	69.8	5
UT1 - 3	22	9.9	86	38.7	17
UT5 – 1	96	43.2	178	80.2	3
UT5 - 2	89	40.1	136	61.3	5
UT6 - 1	112	50.5	192	86.5	2
UT6 - 2	115	51.8	197	88.7	3
UT6 - 3	111	50.0	191	86.0	2

During Year 1 all groundwater monitoring gauges met the success criteria as stated in the Restoration Plan. Gauge data results for the UT1 wetland project ranged from approximately 10 to 40 percent hydroperiod attainment during the growing season with the reference gauge (UT1 – 1) meeting criteria for 23 percent of the season. Gauge data for the UT5 wetland project, including the reference gauge (UT5 – 1), resulted in a consecutive hydroperiod range between 40 and 43 percent during the growing season. The UT6 wetland project gauges met criteria for approximately 50 percent of the growing season.

4.3.1 Site Data

Groundwater depths and daily precipitation for individual monitoring gauges are graphed in (**Appendix E**). This hydrography demonstrates the reaction of groundwater level to specific rainfall events at each monitoring location.

4.3.2 Climate Data

On-site monthly rainfall for 2009 was compared to historical and observed precipitation recorded for Burke County (**Table 9 and Figure 4**). Historical and observed precipitation data reported here in is from the Burke County Bridgewater hydro station (NR CRONOS, October 2009). The Bridgewater station data for 2009 exceeded historical limits in August and was below normal limits in February and July. On-site rain gauges documented similar results in which rainfall exceeded normal limits in May and August while below normal limits were recorded in February and July.

Table 9. Comparison of Normal Rainfall to Observed Rainfall

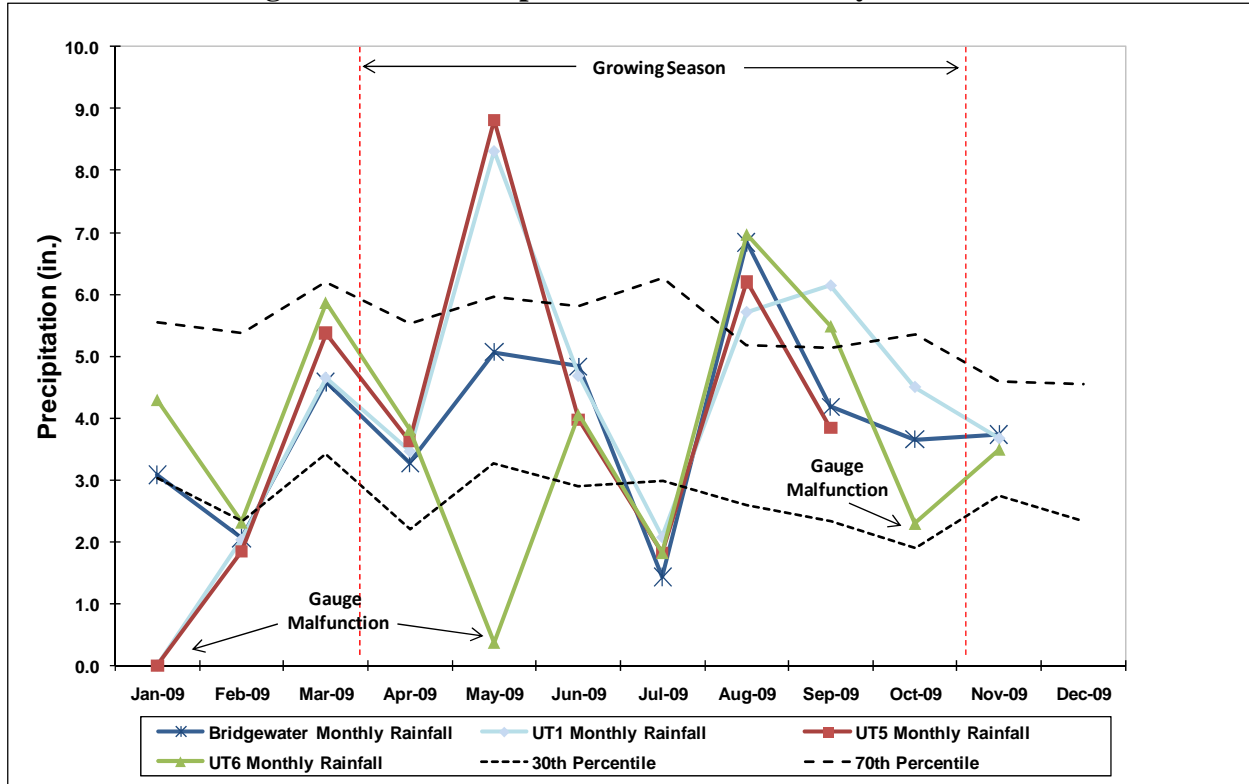
Month	Average	Normal Limits		Burke Precipitation	UT1 Precipitation	UT5 Precipitation	UT6 Precipitation
		30 Percent	70 Percent				
January	4.22	3.03	5.54	3.08	*	*	4.29
February	3.95	2.32	5.37	2.06	**2.03	**1.84	2.31
March	4.96	3.41	6.20	4.58	4.67	5.37	5.86
April	4.08	2.20	5.52	3.08	3.46	3.63	3.81
May	4.86	3.26	5.96	4.30	8.31	8.82	**
June	4.52	2.90	5.80	4.83	4.68	3.97	4.05
July	4.82	2.99	6.27	1.43	2.07	1.83	1.83
August	4.17	2.60	5.17	6.84	5.71	6.20	6.96
September	4.24	2.34	5.13	4.18	6.14	3.84	5.48
October	3.88	1.90	5.34	3.65	4.50	*	**2.29
November	3.85	2.74	4.59	***3.73	***3.67	*	***3.49
December	3.67	2.33	4.55	---	---	---	---
Annual	---	32.02	65.44	---	---	---	---
Total	51.22	---	---	41.76	45.24	35.50	40.37

*Gauge malfunction no data collected.

**Gauge malfunction for portion of the month.

***Data from November 1st to November 17th.

Figure 4. 2009 Precipitation for North Muddy Creek Site



4.4 Hydrologic Conclusions

Data collected from the groundwater monitoring gauges in 2009 indicate that all of the hydrologic monitoring stations recorded saturation of the upper surface soils (12 inches) for at least 7 percent of the growing season. Saturation of the upper surface soils ranged from 22 (9.9%) to 88 (39.6%) consecutive days during the growing season for the UT1 wetland project. The cumulative number of days in which groundwater levels were recorded within or above 12 inches of the soil surface ranged from 86 to 155 at UT1. Upper surface soil saturation for UT5 ranged from 89 (40.1%) to 96 (43.2%) consecutive days during the growing season with the cumulative days ranging from 136 to 178. Wetland hydrology attainment was greatest for the UT6 project with soil saturation ranging from 111 (50.0%) to 115 (51.8%) consecutive days during the growing season. Cumulative days meeting hydrology for the UT6 project ranged from 191 to 197 days.

The Bridgewater weather station and on-site rainfall data indicated that the 2009 growing season rainfall amounts were normal to above normal for most of the growing season. Both the Bridgewater and on-site stations recorded below normal limits during July.

5.0 VEGETATION

5.1 Vegetation Success Criteria

Successful establishment of vegetation for the North Muddy Creek Stream and Wetland Restoration Project will be the survival of 260 stems at the end of Year 5 monitoring. The site must also meet the interim success criterion of the minimum survival of 320 planted stems per acre at the end of the Year 3 monitoring period.

5.2 Description of Species and Vegetation Monitoring

Eleven plots, or approximately 1% of all three restoration areas combined, were established within the project easement area: ten standard (10m x 10m) plots and one non-standard (5m x 20m) plot (**Figure 3**). Four plots were established at UT1, two at UT5, and five at UT6. Vegetation monitoring plots at UT1 comprise 1% of the restoration area for this tributary, 2.5% for UT5, and 1% for UT6, respectively. These plots were established in accordance with the CVS-EEP Level II monitoring protocol (Lee et. al 2008) within the planted restoration areas. Approximately 0.025-acre in size, vegetation plots were monitored to determine the success of planted vegetation and the overall trajectory of woody plant restoration and regeneration at the project site. Plots were placed within the applicable planting zones to capture the heterogeneity of the designed vegetative communities. However, given that several planting zones were too narrow to accommodate the standard or non-standard plots, all vegetation plots were placed within riparian, wetland, and upland planting zones. A total of 10 tree species were planted on the site (**Table 10**).

Table 10. Planted Tree Species

Common Name	Scientific Name	FAC Status
Willow Oak	<i>Quercus phellos</i>	FACW-
Water Oak	<i>Quercus nigra</i>	FAC
Swamp Chestnut Oak	<i>Quercus michauxii</i>	FACW-
Cherrybark Oak	<i>Quercus pagoda</i>	FAC+
Shagbark Hickory	<i>Carya ovata</i>	FACU
River Birch	<i>Betula nigra</i>	FACW
Common Pawpaw	<i>Asimina triloba</i>	FAC
American Sycamore	<i>Platanus occidentalis</i> var. <i>occidentalis</i>	FACW-
Green Ash	<i>Fraxinus pennsylvanica</i>	FACW
Buttonbush	<i>Cepalanthus occidentalis</i>	OBL

5.3 Results of Vegetation Monitoring

Stem counts for each of the eleven vegetation monitoring plots were recorded by species (**Table 11**). Year 1 monitoring documented a wide survivability range of 243 to 1,215 planted stems per acre across all vegetation plots. The average stem density for the entire restoration site is 689 stems per acre. With respect to each restoration reach, UT1 had an average of 668 stems per

acre, UT5 had 1,053 stems per acre, and UT6 had 559 stems per acre (**Table 12**). The majority (57%) of planted stems for the entire restoration site had fair, unlikely to survive, or dead vigor scores, particularly at UT6 where over 30 stems were either dead or missing. Of these, pawpaw had the highest mortality rates, followed by willow oak and shagbark hickory. In particular, there was considerable planted stem mortality at VP4 and VP5 at UT6. The Year 1 monitoring results indicated the stem density at VP4 decreased by 65% and 43% at VP5, respectively.

Table 11. Results of 2009 Vegetation Monitoring by Plot

Species	UT1				UT5		UT6				
	Plot ID				Plot ID		Plot ID				
	VP1	VP2	VP3	VP4	VP1	VP2	VP1	VP2	VP3	VP4	VP5
<i>Asimina triloba</i>					5		2		2	1	8
<i>Betula nigra</i>	3						2		2		2
<i>Carya ovata</i>			1						3		
<i>Cephalanthus occidentalis</i>	6	11		6	9	2		11		2	7
<i>Fraxinus pennsylvanica</i>			2				7			1	
<i>Platanus occidentalis var. occidentalis</i>	2	5				2	1		1	1	
<i>Quercus michauxii</i>	5	4			5	3		1	4		
<i>Quercus nigra</i>	2		5	2					2		
<i>Quercus pagoda</i>						4					
<i>Quercus phellos</i>	4		2	6	3	19	2	2	4	1	

Table 12. Summary of Vegetation Monitoring Results

Reach ID	Plot ID	Stems Planted	2009 Stems	Percent Survival	Stems per Acre					
					Stems Planted	2009	2010	2011	2012	2013
						Year 1	Year 2	Year 3	Year 4	Year 5
UT1	VP1	26	22	85%	1,053	891				
	VP2	20	20	100%	810	810				
	VP3	15	10	67%	607	405				
	VP4	16	14	88%	648	567				
UT5	VP1	26	22	85%	1,053	891				
	VP2	35	30	86%	1,417	1,215				
UT6	VP1	16	14	88%	648	567				
	VP2	14	14	100%	567	567				
	VP3	23	18	78%	931	729				
	VP4	17	6	35%	688	243				
	VP5	30	17	57%	1,215	688				

Average stems per acre: 689

Range of stems per acre: 243-1,215

A visual estimate of herbaceous vegetation cover within the monitoring plots is provided to assess the overall stability of the restoration site (**Table 13**). On average, herbaceous vegetation coverage is 87% within the plots, but was slightly less for UT6 (82%) and UT5 (75%).

Observations of herbaceous cover throughout the project area were noted during the visual assessment and are documented within **Appendix A** and representative photos are included in **Appendix D**. Herbaceous cover in bare areas is expected to increase as a result of natural recruitment from adjacent wooded areas and no remedial action is recommended at this time. Herbaceous cover typically consists of annual ragweed (*Ambrosia artemisiifolia*), dogfennel (*Eupatorium capillifolium*), hollow-stem Joe-pye-weed (*Eutrochium fistulosum*), narrow-leaved sunflower (*Helianthus angustifolius*), goldenrod (*Solidago sp.*), and partridge pea (*Chamaecrista fasciculata var. fasciculata*).

Table 13. Estimated Herbaceous Total Percent Cover

Reach ID	Plot ID	Estimated Herbaceous Cover (%)
UT1	VP1	100%
	VP2	100%
	VP3	100%
	VP4	100%
UT5	VP1	65%
	VP2	85%
UT6	VP1	35%
	VP2	90%
	VP3	90%
	VP4	100%
	VP5	95%

Commonly encountered woody volunteer species are also monitored throughout the five-year monitoring period (**Table 14**). Recruitment was highest at UT1, particularly VP1 where American sycamore and green ash seedlings contributed over 100 stems. Other dominant recruits included Eastern Box Elder and Sweet Gum. Woody volunteers were low or absent at UT6, most likely due to frequent inundation and longer distances from mature seed sources.

Table 14. Volunteer Tree Species

Reach ID	Common Name	Scientific Name	FAC Status
UT1	Eastern Box Elder	<i>Acer negundo var. negundo</i>	FACW
	Green Ash	<i>Fraxinus pennsylvanica</i>	FACW
	American Sycamore	<i>Platanus occidentalis var. occidentalis</i>	FACW-
	Yellow Poplar	<i>Liriodendron tulipifera var. tulipifera</i>	FACU
	Buttonbush	<i>Cephalanthus occidentalis</i>	OBL
	Black Cherry	<i>Prunus serotina var. serotina</i>	FACU
UT5	Sweet Gum	<i>Liquidambar styraciflua</i>	FAC+
	American Sycamore	<i>Platanus occidentalis var. occidentalis</i>	FACW-
	Yellow Poplar	<i>Liriodendron tulipifera var. tulipifera</i>	FACU
	Tag Alder	<i>Alnus serrulata</i>	FACW
	Black Cherry	<i>Prunus serotina var. serotina</i>	FACU
	Eastern Red Maple	<i>Acer rubrum var. rubrum</i>	FAC
	Green Ash	<i>Fraxinus pennsylvanica</i>	FACW
	American Persimmon	<i>Diospyros virginiana</i>	FAC
River Birch	<i>Betula nigra</i>	FACW	
UT6	American Sycamore	<i>Platanus occidentalis var. occidentalis</i>	FACW-
	Silky Dogwood	<i>Cornus amomum</i>	FACW+
	Smooth Sumac	<i>Rhus glabra</i>	UPL

5.4 Vegetation Observations and Conclusions

Overall, planted stems are surviving at the North Muddy Creek Stream and Wetland Restoration Site. Nearly 16% of planted stems were dead and 6% were missing during Year 1 monitoring. Buttonbush, Willow Oak, and Pawpaw were the most damaged species, a considerable amount of which was attributed to insects. Considerable deer browse on planted stems was documented in most vegetation monitoring plots at UT1. In addition, invasive exotic plants such as multiflora rose (*Rosa multiflora*), Johnson grass (*Sorghum halepense*), Japanese honeysuckle (*Lonicera japonica*), and privet (*Ligustrum sp.*) were observed in VP2 at UT1, VP1 at UT5, and VP2 at UT6. Of immediate concern is a small, encroaching patch of kudzu (*Pueraria montana var. lobata*) along the easement boundary with VP1 at UT1. This population should be controlled to prevent further expansion into the restoration area. Invasive exotic plant species as noted above were also documented outside of the vegetation monitoring plots but within the easement boundary (**Appendix A**). Representative photos of these areas during the Year 1 monitoring effort are included in **Appendix D**.

Stem loss in the 2009 monitoring period may be partly because vegetation plots were established in riparian, wetland, and upland planting zones and the number of stems recorded in these plots

was extrapolated across the entire restoration area. Therefore, it is assumed that these zones are representative of the full restoration area. While this may largely be true, it is likely that other, smaller planting zones are underrepresented. For example, if the vegetation plots had captured stream bank vegetation, which is planted at higher densities with live stake plant material, planted stem survivability might be much greater.

Excluding VP4 at UT6, which only had an average of 243 planted stems per acre, all vegetation monitoring plots meet success criteria and generally had good herbaceous cover (**Appendix A**). Planted stems were also low for VP3 at UT1 with 405 stems per acre, but the number of total stems nearly doubled when woody recruits were included. When planted and natural stems are combined, the average stem density for the entire restoration site is over 1,700 stems per acre, which is well above the interim success criterion of 320 stems per acre at the end of the Year 3 monitoring period. With respect to each restoration area, UT1 had an average of 2,539 total stems per acre, UT5 has 2,792, and UT 6 had 599. UT6 should be monitored for further stem loss and supplemental planted if stem densities drop below the minimum success criteria.

6.0 CONCLUSIONS AND RECOMENDATIONS

- Morphologic data collected and observations of stream conditions at the site primarily indicate stable conditions between As-built and Year 1 monitoring. While several areas of concern were identified, the structure failures and bank erosion within the lower portion of UT6 is of greatest concern. Repairs are scheduled for this problem area prior to the start of Year 2 monitoring. The additional areas of concern identified within the stream reaches will continued to be monitored during subsequent monitoring years and recommendations will be made if these areas prevent criteria attainment achievement as specified in the Restoration Plan (EBX, 2007).
- Data collected from the groundwater monitoring gauges in 2009 indicate that the wetland project components are currently meeting wetland threshold hydrology. The Bridgewater hydro station and on-site rain gauges indicated that the 2009 rainfall amounts were normal to above normal for the majority of the growing season. The Bridgewater station data exceeded historical limits in August and was below normal limits in February and July. On-site rain gauges documented similar results in which rainfall exceeded normal limits in May and August while below normal limits were recorded in February and July.
- Vegetation monitoring efforts have documented the average number of planted stems per acre for the entire restoration site to be 689 stems per acre for the 2009 monitoring year, which is a survival rate of 76%. With respect to each restoration reach, UT1 had an average of 668 planted stems per acre, UT5 had 1,053 stems per acre, and UT6 had 559 stems per acre for the 2009 monitoring year, which represents a survival rate of 86% for UT1, 85% for UT5, and 69% for UT6. There is, however, considerable native woody plant recruitment for the restoration site, particularly at UT1. In general, planted stems are surviving at the project site. Deer browse is prevalent at UT1, but thus far doesn't appear to be affecting stem density levels. VP4 at UT6 failed to meet the target success criteria and may require supplemental planting. Planted stems were also low for VP3 at UT1 with 404 stems per acre and should be monitored for additional stem loss. Lastly, expansion of invasive exotic plant populations should be monitored both within the vegetation plots in which they occur and within the larger restoration area. The small patch of kudzu at VP1-UTI should be eradicated as soon as possible.
- Stream, hydrologic, and vegetation monitoring will continue through 2013.

7.0 REFERENCES

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APPENDIX A

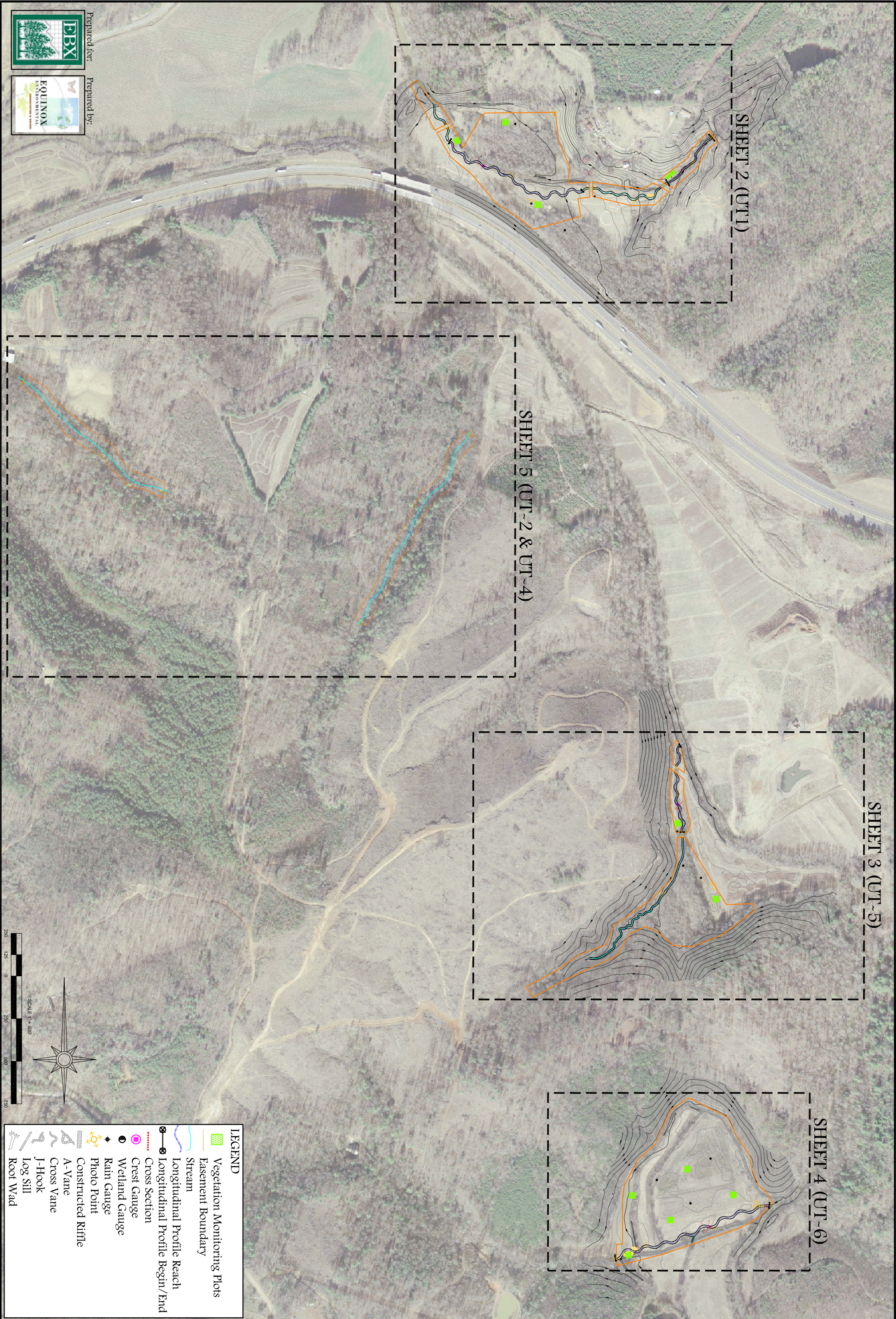
Current Condition Plan View



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Prepared by:

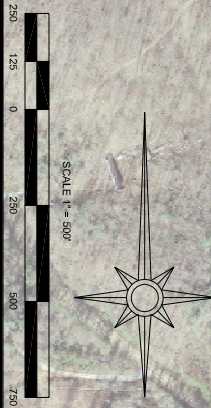


SHEET 2 (UT-1)

SHEET 5 (UT-2 & UT-4)

SHEET 3 (UT-5)

SHEET 4 (UT-6)



LEGEND	
	Vegetation Monitoring Plots
	Easement Boundary
	Stream
	Longitudinal Profile Reach
	Longitudinal Profile Begin/End
	Crest Section
	Wetland Gauge
	Rain Gauge
	Photo Point
	Constructed Riffle
	A-Vane
	Cross Vane
	J-Hook
	Log Sill
	Root Wad

- Notes:
- Coordinate System is State Plane Feet NAD 83
 - Base map information provided by Kimley Horn.
 - Dwg title: ACAD-018336001-BASE3.dwg
 - Aerial photography is McDowell County 2005

Date:
December 2009

Integrated Current Condition Plan View
Final
YEAR 1 Monitoring-2009
OVERVIEW

North Muddy Creek

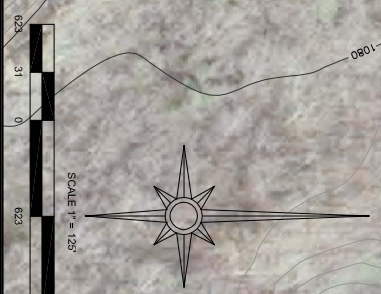
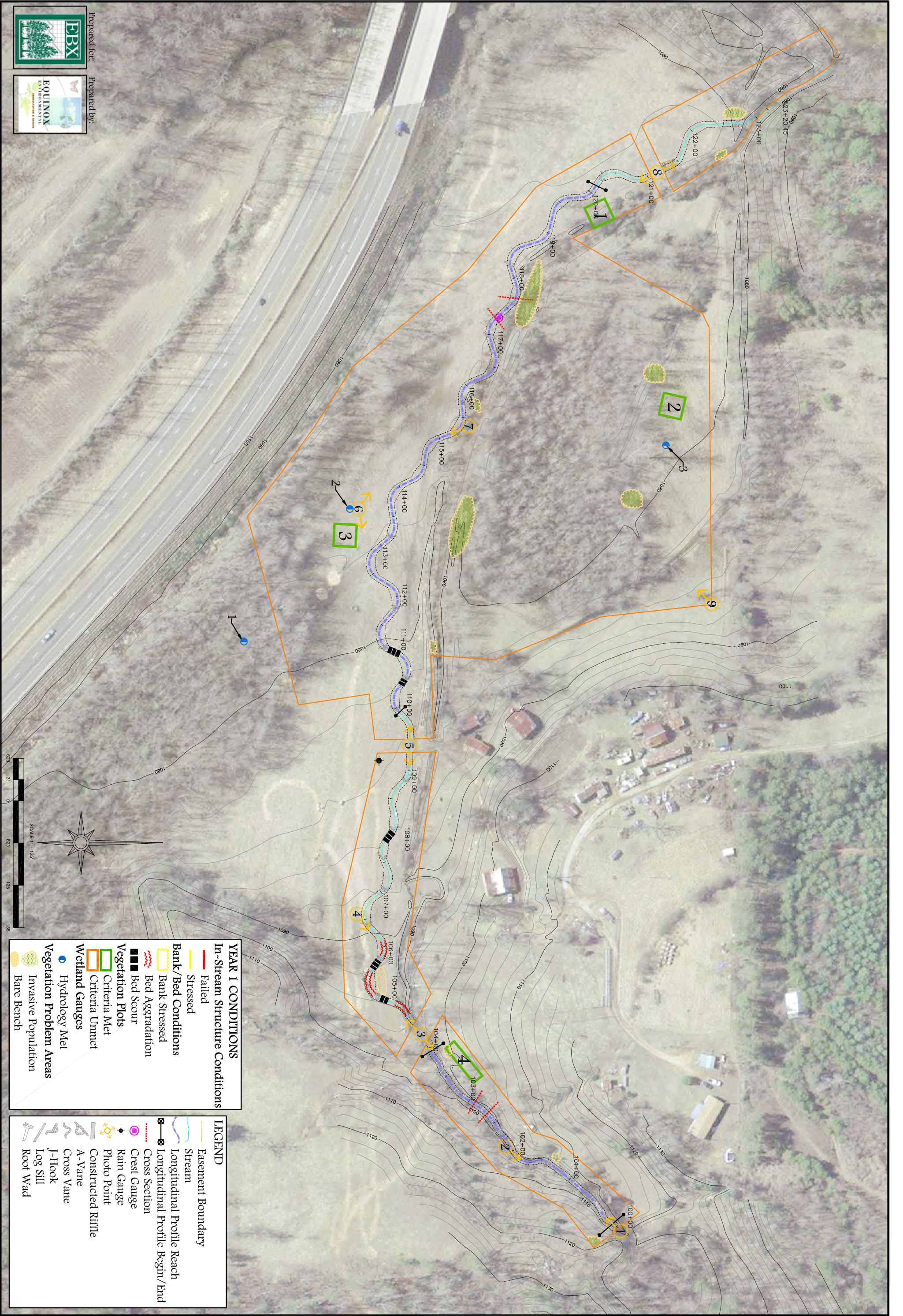
Burke & McDowell Counties, NC



Prepared for:



Prepared by:



YEAR 1 CONDITIONS

In-Stream Structure Conditions

Red line	Failed
Yellow line	Stressed
Blue line	Bank/Bed Conditions
Red wavy line	Bank Stressed
Yellow wavy line	Bed Aggradation
Black wavy line	Bed Scour
Black square	Criteria Met
Green square	Criteria Unmet
Blue circle	Hydrology Met
Green circle	Vegetation Problem Areas
Yellow circle	Invasive Population
Orange circle	Bare Bench

LEGEND

Orange line	Easement Boundary
Blue line	Stream
Blue dashed line	Longitudinal Profile Reach
Black dashed line	Longitudinal Profile Begin/End
Black line	Crest Section
Red line	Rain Gauge
Yellow line	Photo Point
Black line	Constructed Riffle
Black line	A-Vane
Black line	Cross Vane
Black line	J-Hook
Black line	Log Sill
Black line	Root Wad

Date: December 2009

Sheet: **2** of 5

Integrated Current Condition Plan View
Final
YEAR 1 Monitoring~2009
UT- 1

North Muddy Creek
 Burke & McDowell Counties, NC

Notes:

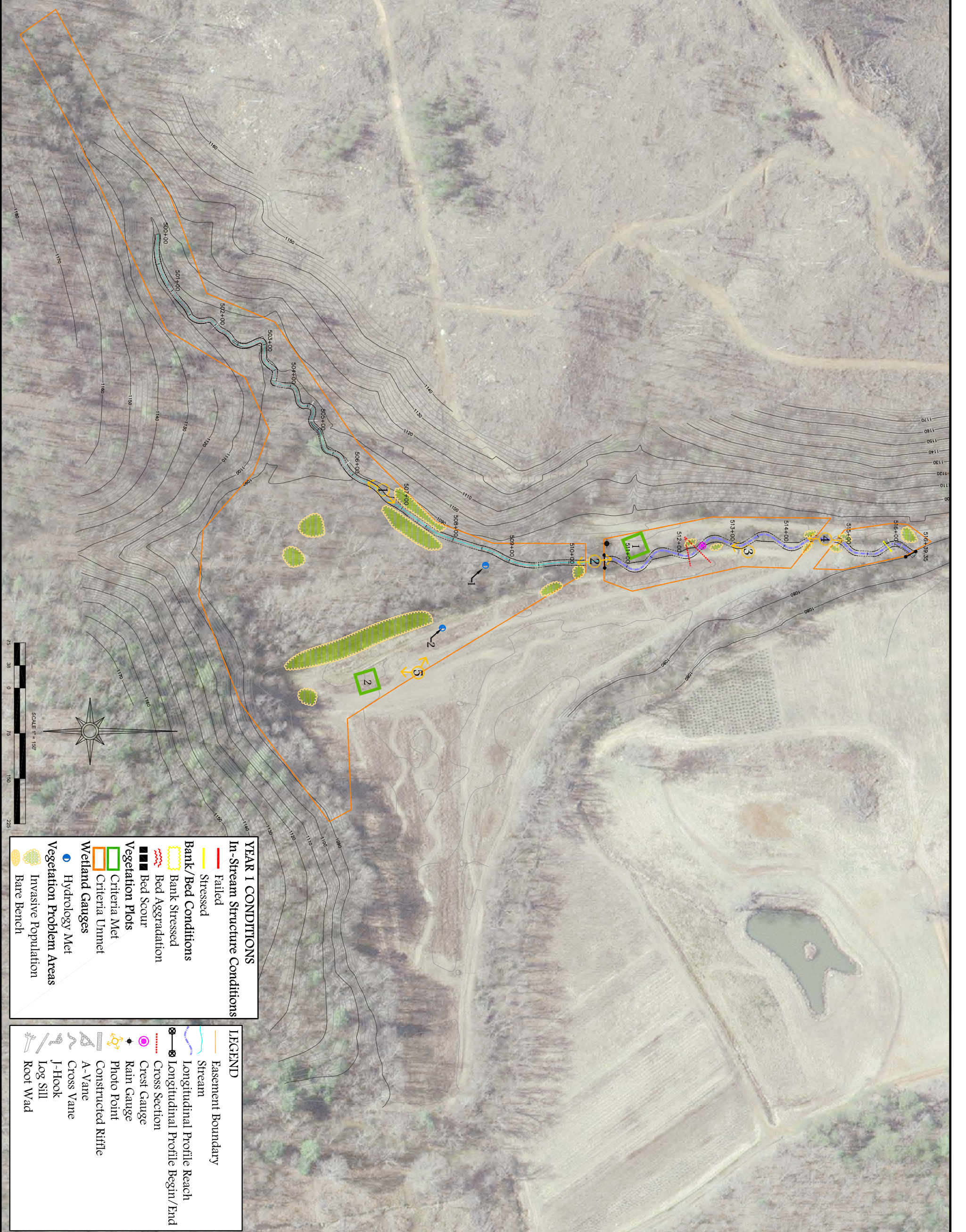
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Prepared for:



Prepared by:

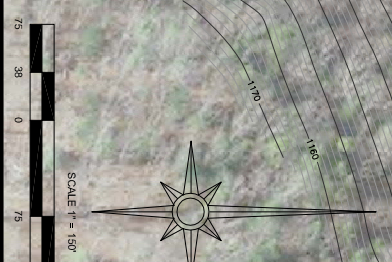


YEAR 1 CONDITIONS

	Failed
	Stressed
	Bank/Bed Conditions
	Bank Stressed
	Bed Scour
	Bed Aggradation
	Vegetation Plots
	Criteria Met
	Criteria Unmet
	Wetland Gauges
	Hydrology Met
	Vegetation Problem Areas
	Invasive Population
	Bare Bench

LEGEND

	Easement Boundary
	Stream
	Longitudinal Profile Reach
	Longitudinal Profile Begin/End
	Cross Section
	Rain Gauge
	Photo Point
	Constructed Riffle
	A-Vane
	Cross Vane
	J-Hook
	Log Sill
	Root Wad



Sheet: 3 of 5
Date: December 2009

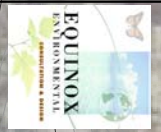
Integrated Current Condition Plan View
Final
YEAR 1 Monitoring-2009
UT-5

North Muddy Creek
Burke & McDowell Counties, NC

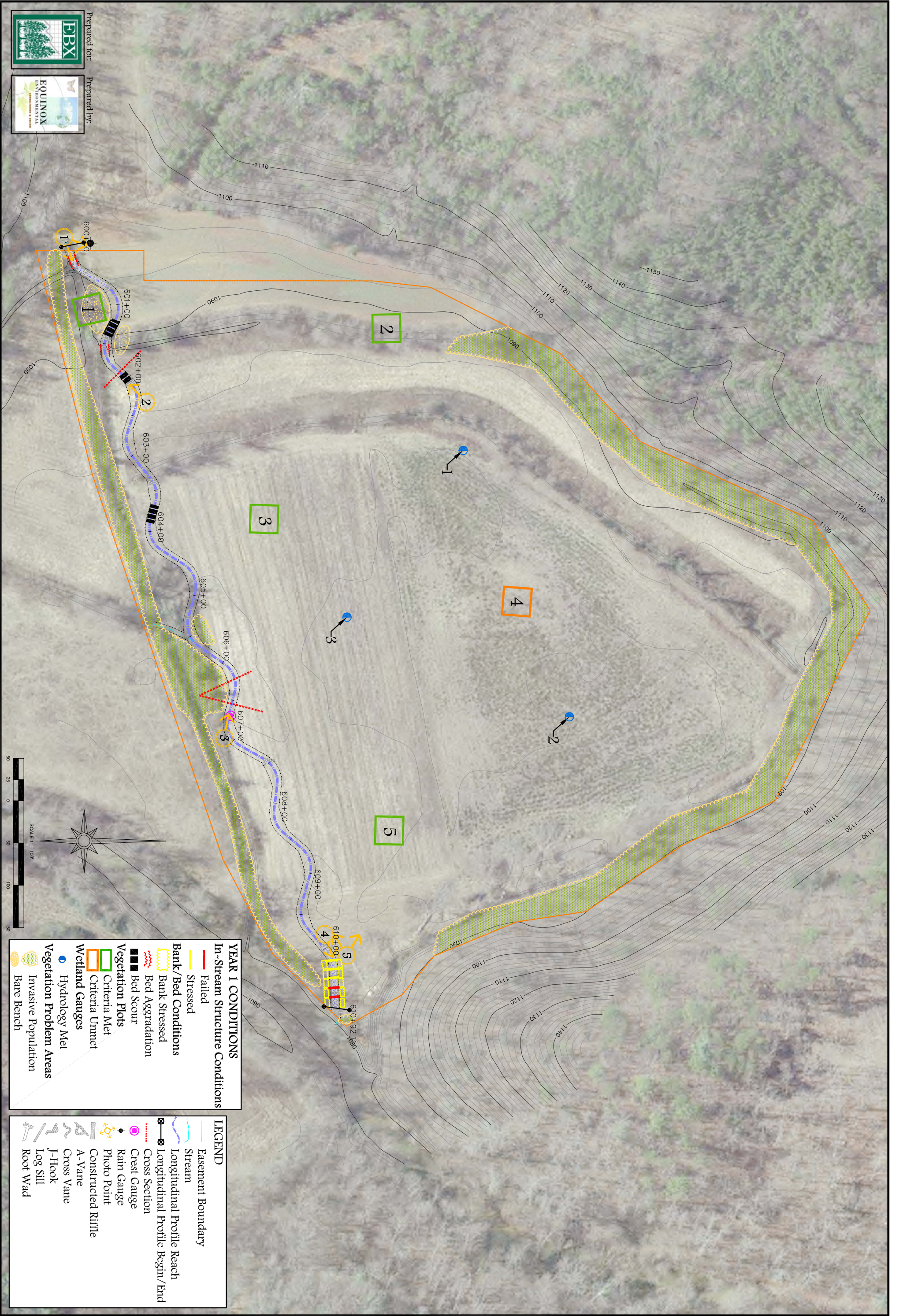
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3. Aerial photography is McDowell County 2005



Prepared for:



Prepared by:



YEAR 1 CONDITIONS

In-Stream Structure Conditions

- Failed
- Stressed

Bank/Bed Conditions

- Bank Stressed
- Bed Aggradation
- Bed Scour

Vegetation Plots

- Criteria Met
- Criteria Unmet

Wetland Gauges

- Hydrology Met
- Vegetation Problem Areas
- Invasive Population
- Bare Bench

LEGEND

- Easement Boundary
- Stream
- Longitudinal Profile Reach
- Longitudinal Profile Begin/End
- Cross Section
- Crest Gauge
- Rain Gauge
- Photo Point
- Constructed Riffle
- A-Vane
- Cross Vane
- J-Hook
- Log Sill
- Root Wad

Date: December 2009

Sheet: 4 of 5

Integrated Current Condition Plan View
Final
YEAR 1 Monitoring-2009
UT-6

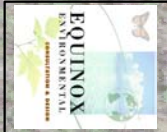
North Muddy Creek
 Burke & McDowell Counties, NC

Notes:

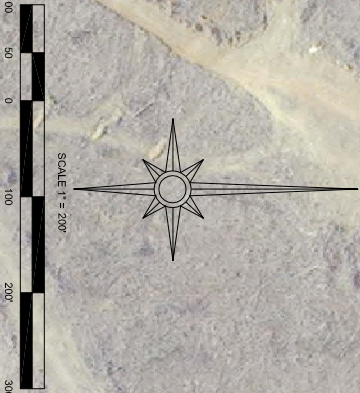
- Coordinate System is State Plane Feet NAD 83
- Base map information including stationing provided by Kimley Horn.
- Dwg title: ACAD-Q18336001-BASE3.dwg
- Aerial photography is McDowell County 2005



Prepared for:



Prepared by:



	Easement Boundary
	Preservation Stream
	Photo Point

Sheet: **5**
 Date: December 2009
 of 5

Integrated Current Condition Plan View
Final
YEAR 1 Monitoring-2009
UT-2 & UT-4

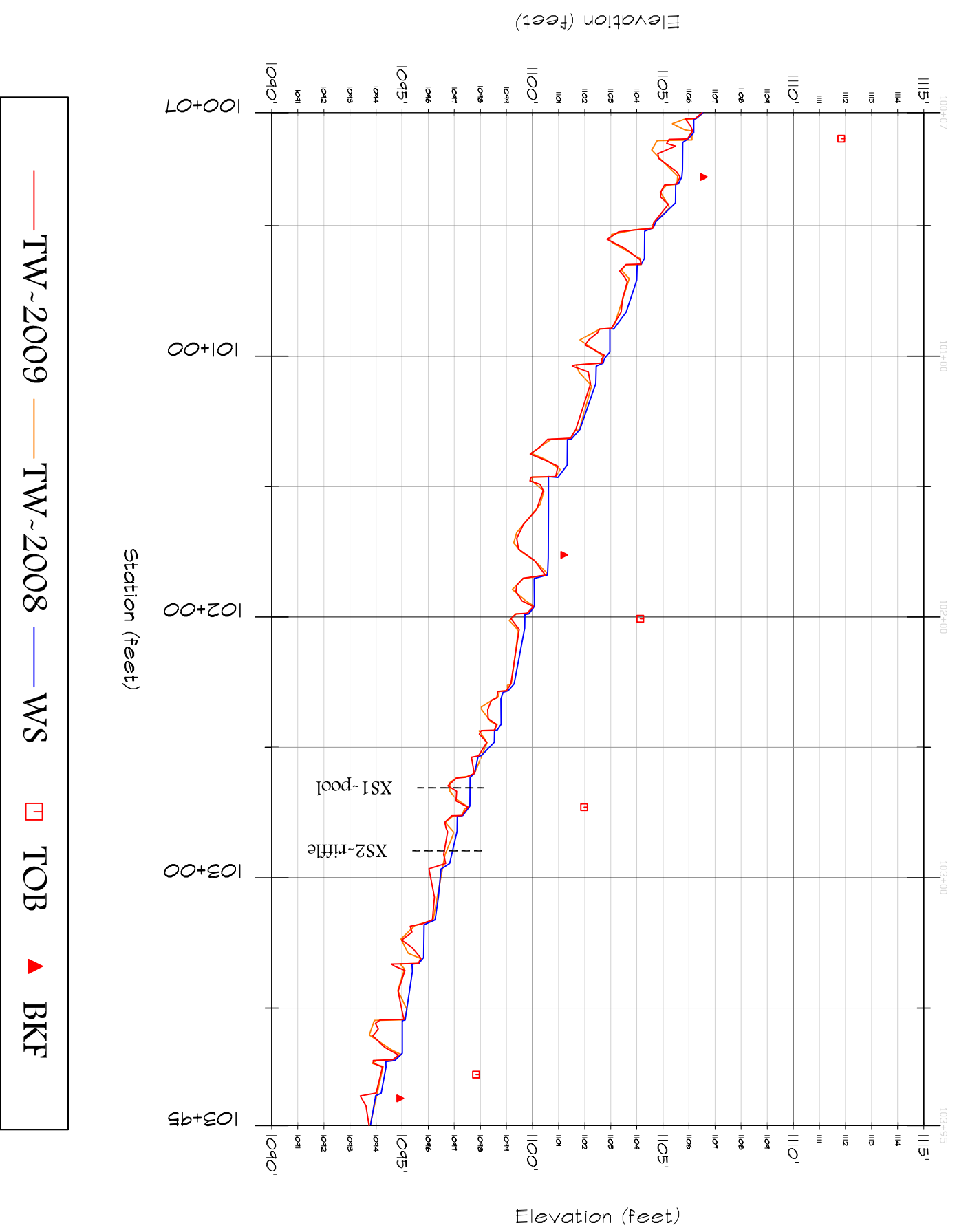
North Muddy Creek
 Burke & McDowell Counties, NC

Notes:
 1. Coordinate System is State Plane Feet NAD 83
 2. Base map information provided by Kimley Horn.
 Dwg title: ACAD-018336001-BASE3.dwg
 3. Aerial photography is McDowell County 2005

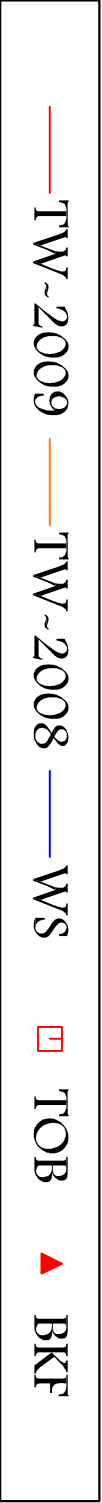
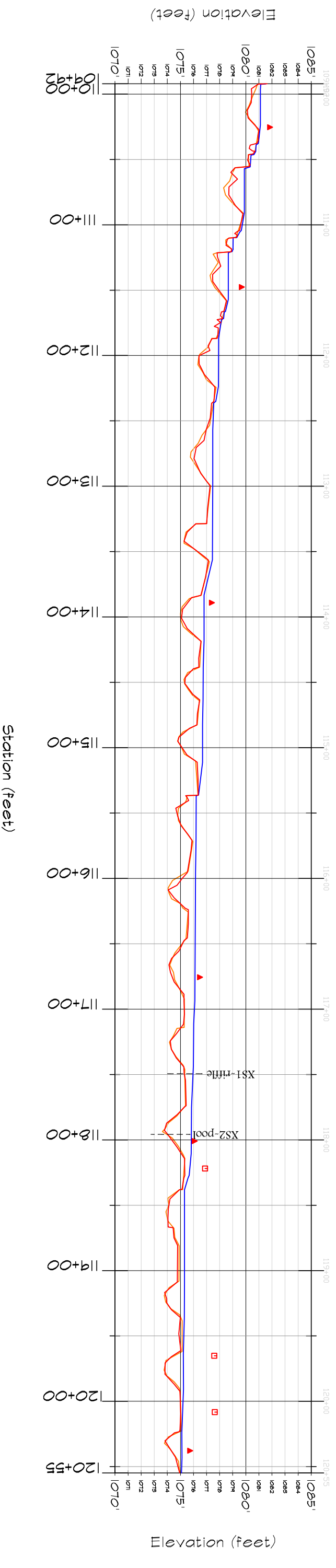
APPENDIX B

2009 Profile, Cross Section, and Substrate Data

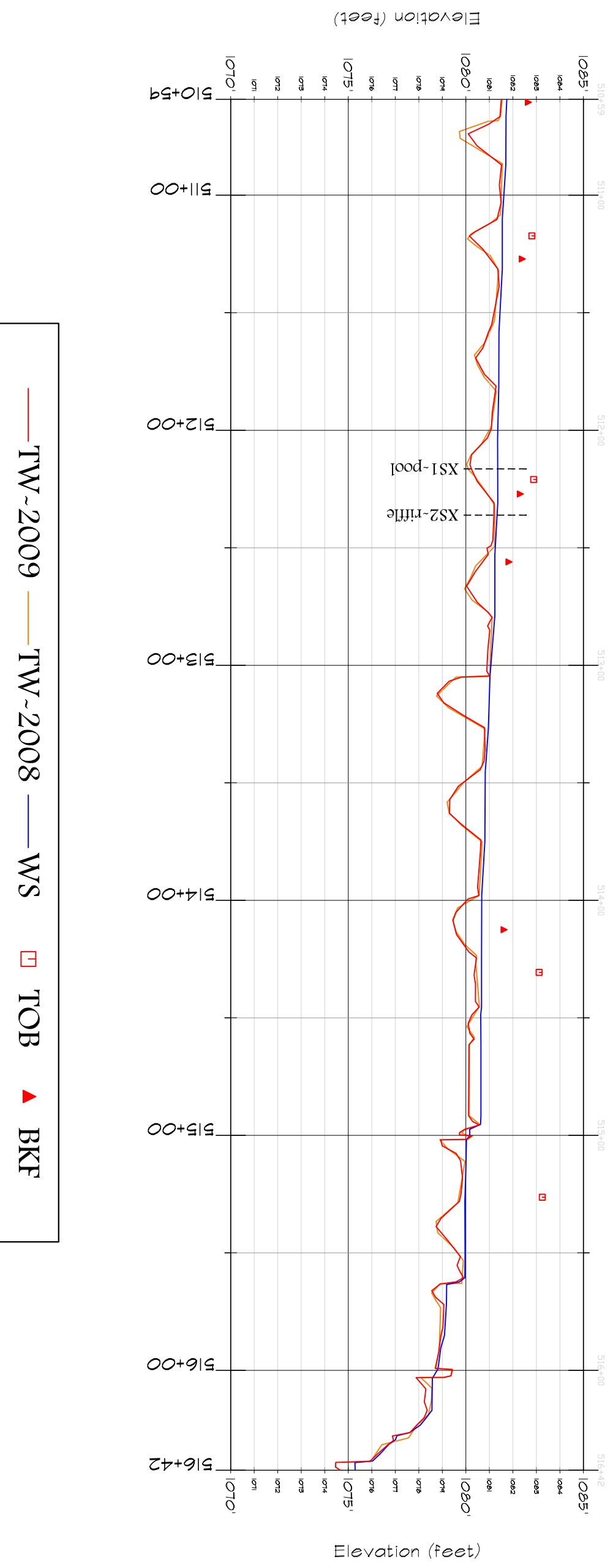
NORTH MUDDY CREEK UT1 ~ Upper LONGITUDINAL PROFILE



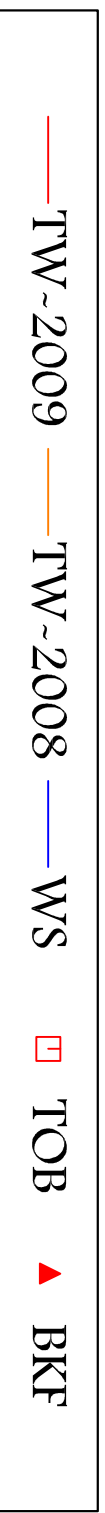
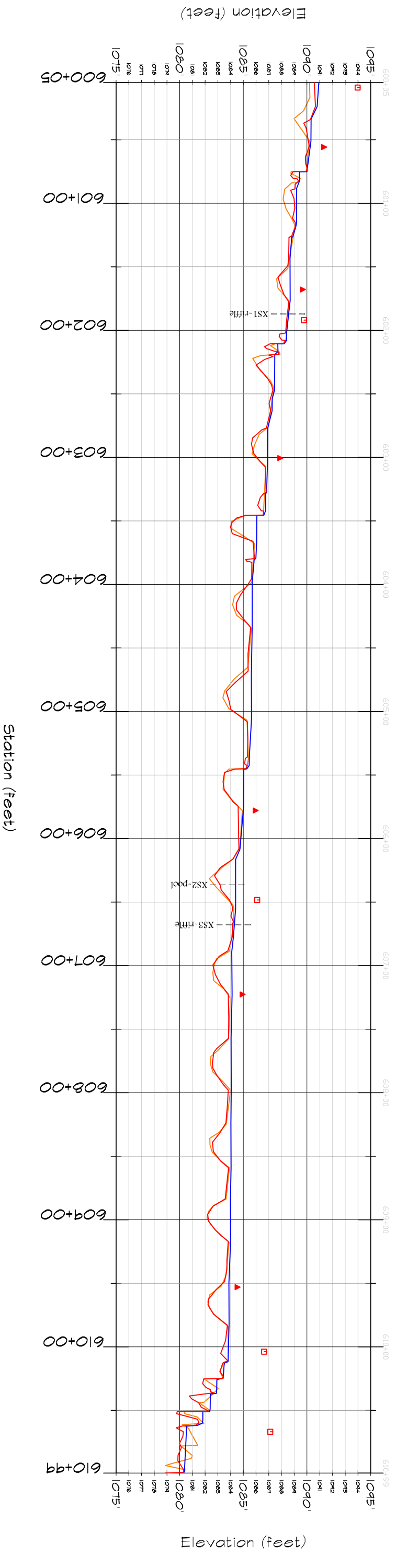
NORTH MUDDY CREEK UT1~Lower LONGITUDINAL PROFILE



NORTH MUDDY CREEK UT5 LONGITUDINAL PROFILE



NORTH MUDDY CREEK UT6 LONGITUDINAL PROFILE



UT1 Upper – Cross Section #1 – Pool

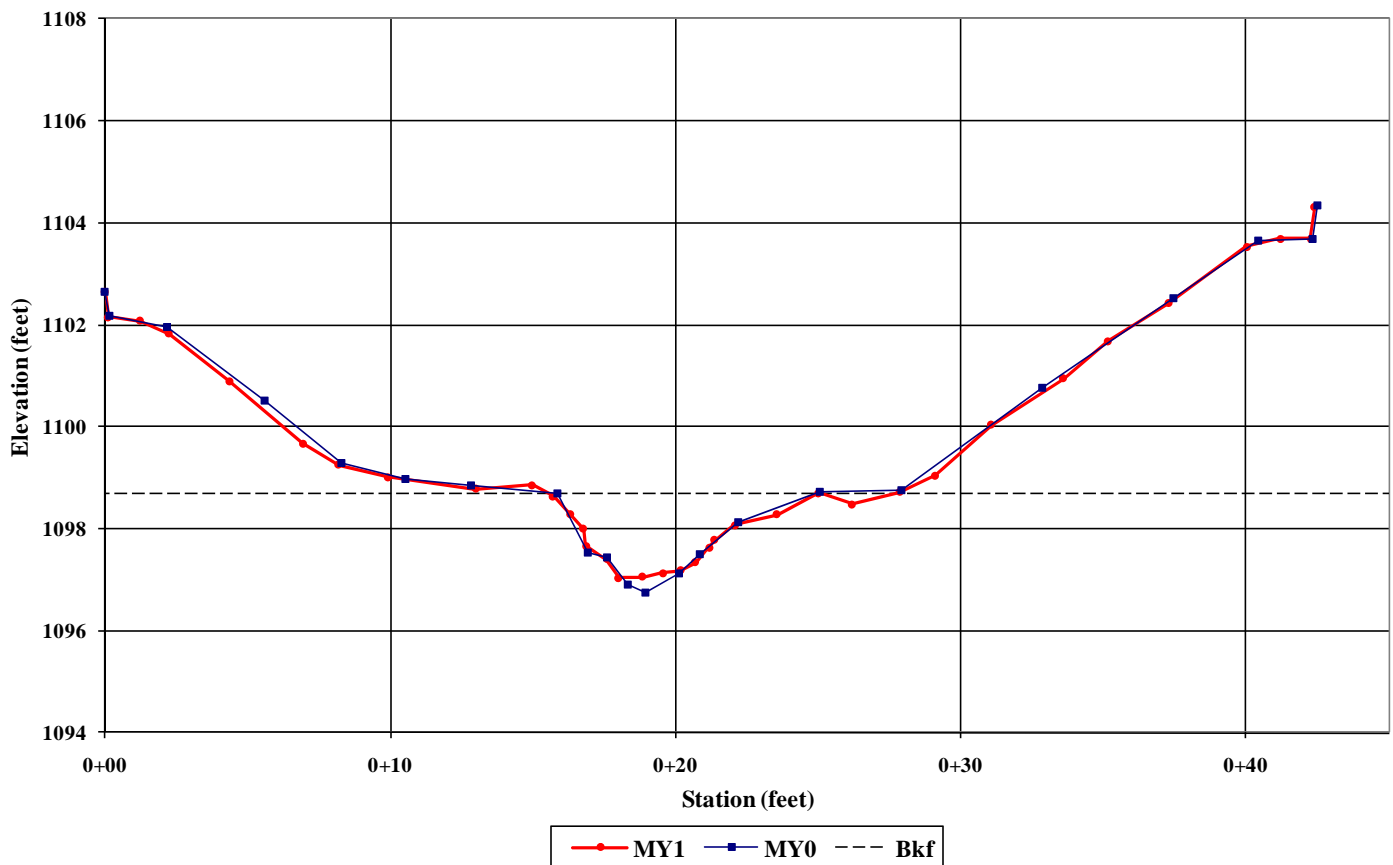


Looking at Left Bank



Looking at Right Bank

**North Muddy UT1-Upper
Cross-Section #1 - Pool**



UT1 Upper – Cross Section #2 – Riffle

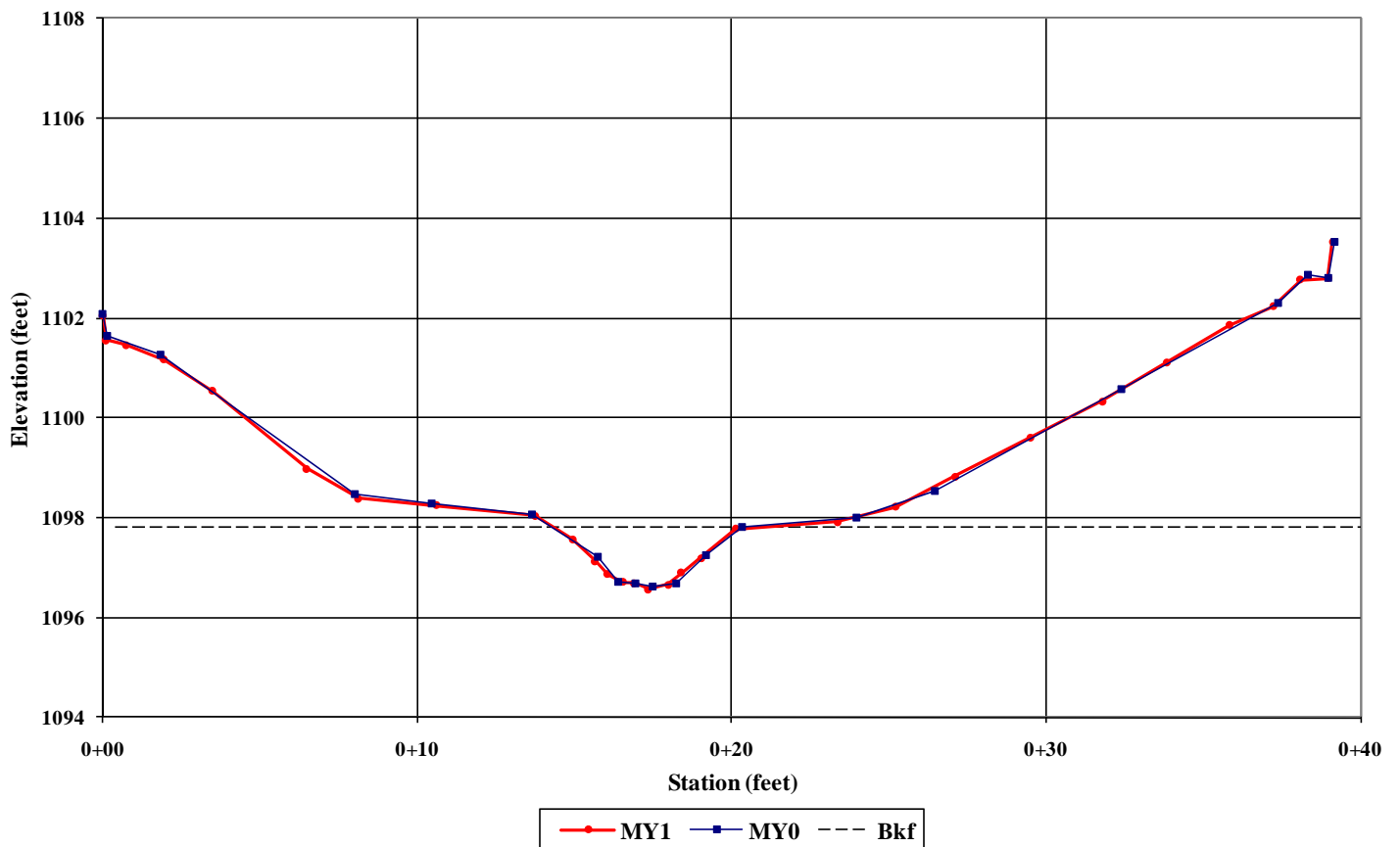


Looking at Left Bank



Looking at Right Bank

**North Muddy UT1-Upper
Cross-Section #2 - Riffle**



UT1 Lower – Cross Section #1 – Riffle

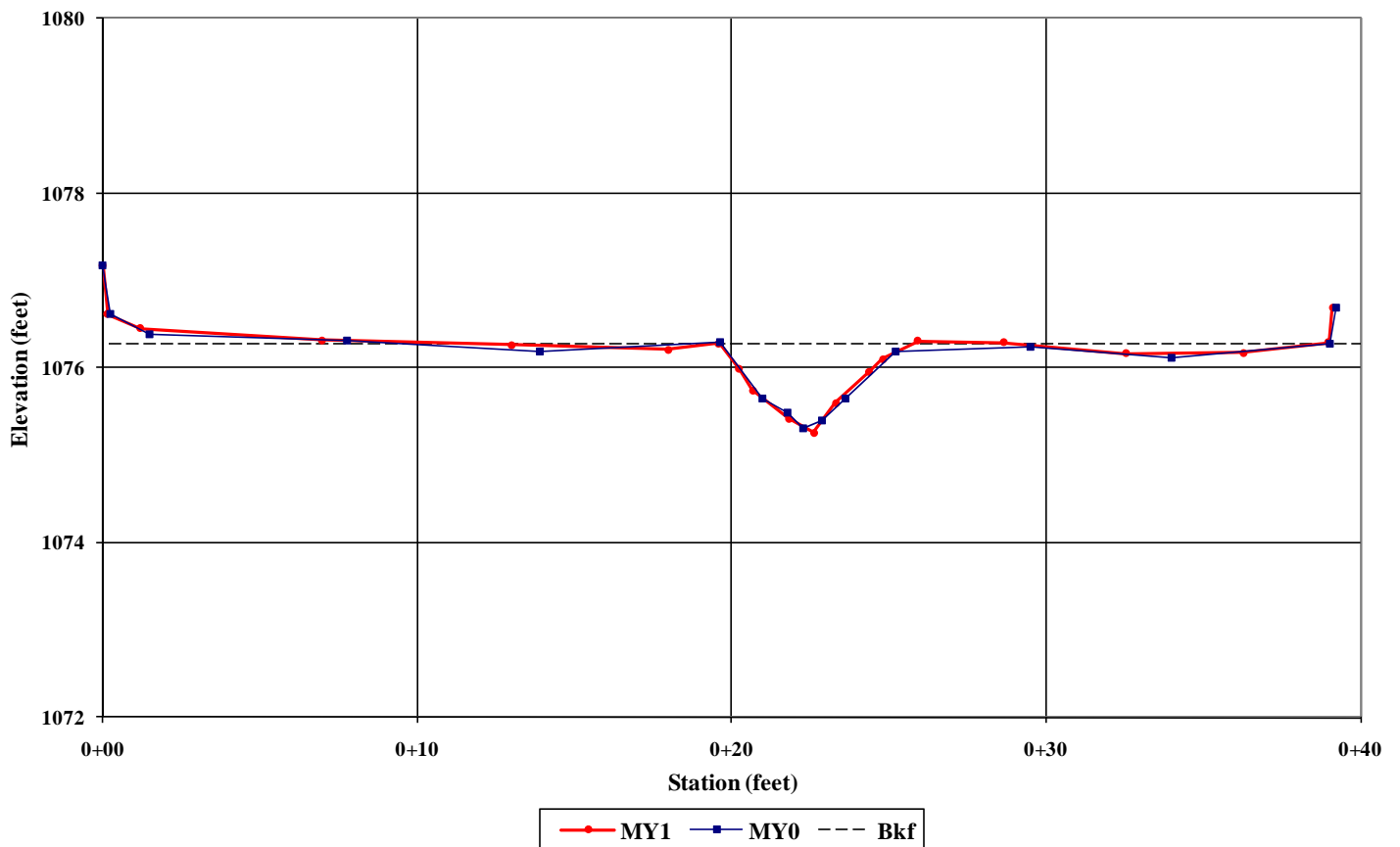


Looking at Left Bank



Looking at Right Bank

**North Muddy UT1-Lower
Cross-Section #1 - Riffle**



UT1 Lower – Cross Section #2 – Pool

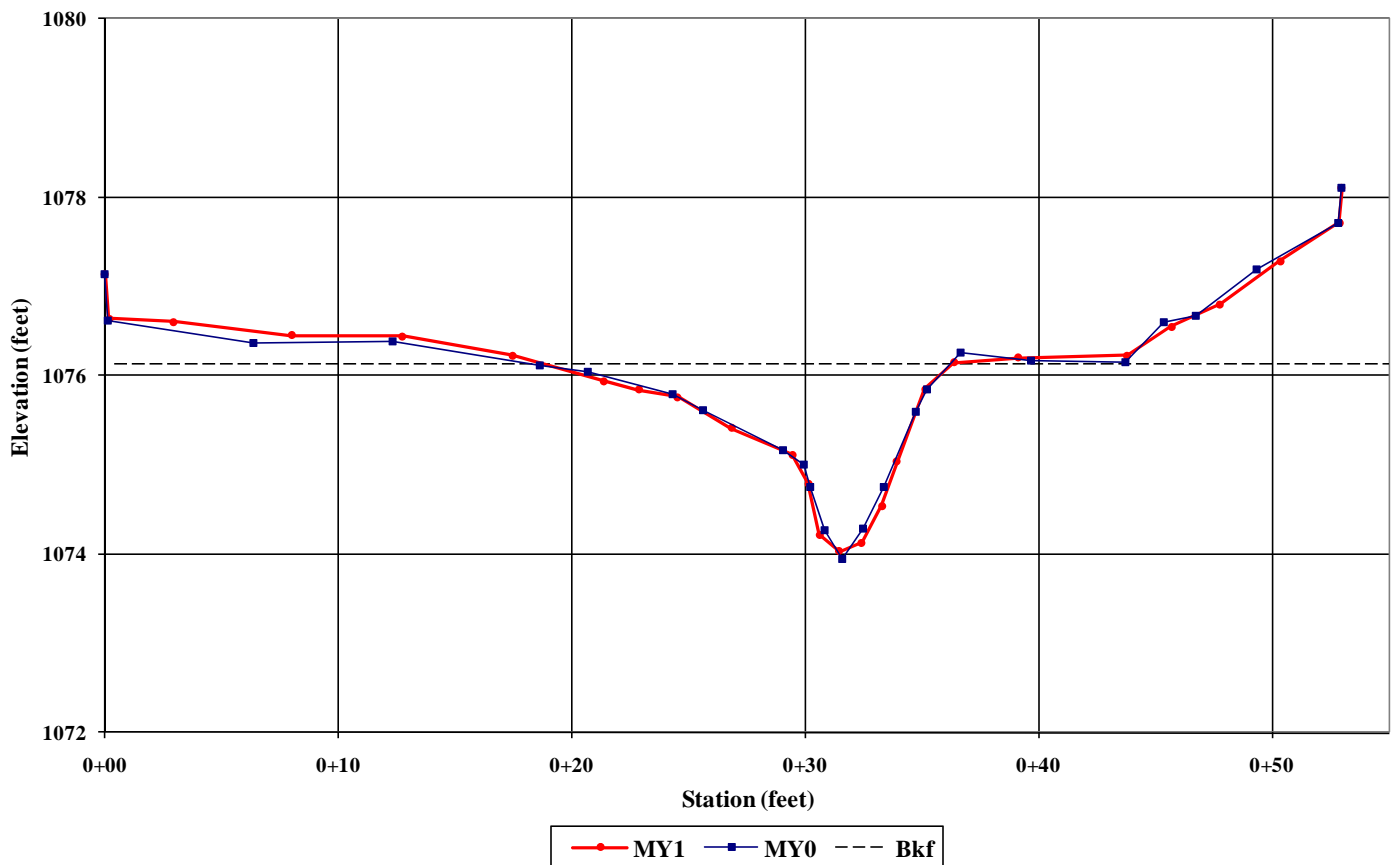


Looking at Left Bank



Looking at Right Bank

**North Muddy UT1-Lower
Cross-Section #2 - Pool**



UT5 – Cross Section #1 – Pool

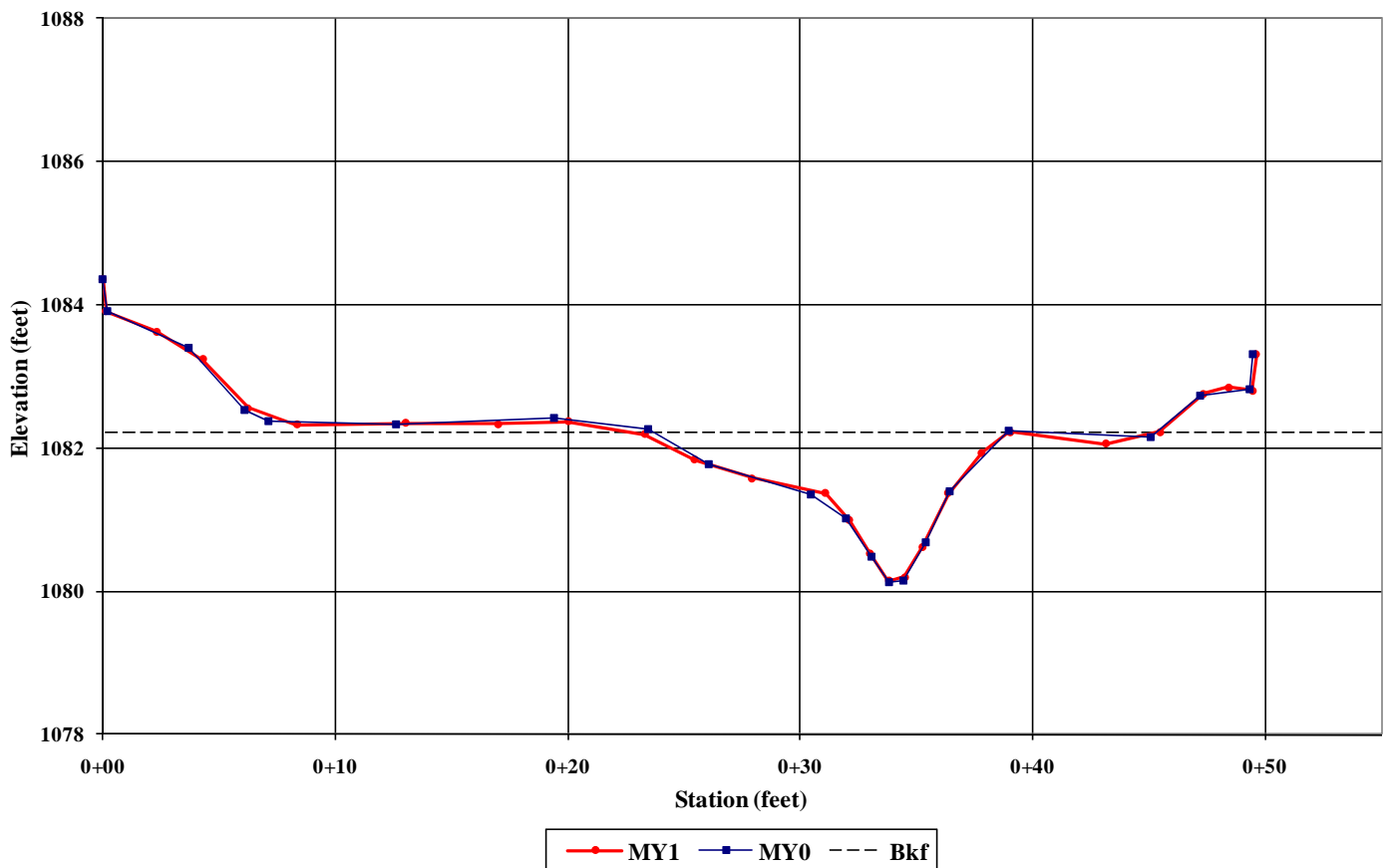


Looking at Left Bank



Looking at Right Bank

**North Muddy UT5
Cross-Section #1 - Pool**



UT5 – Cross Section #2 – Riffle

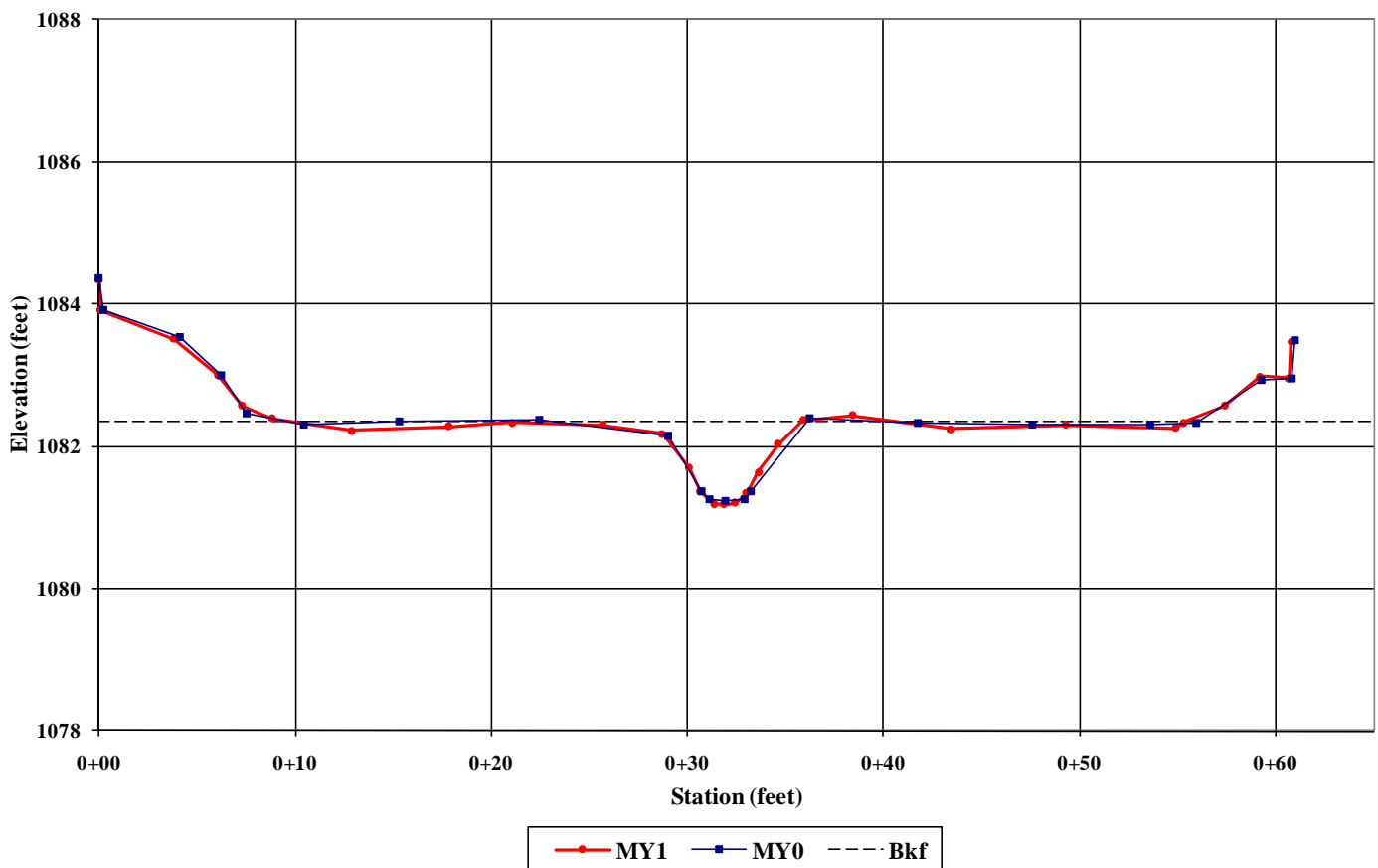


Looking at Left Bank



Looking at Right Bank

**North Muddy UT5
Cross-Section #2 - Riffle**



UT6 – Cross Section #1 – Riffle

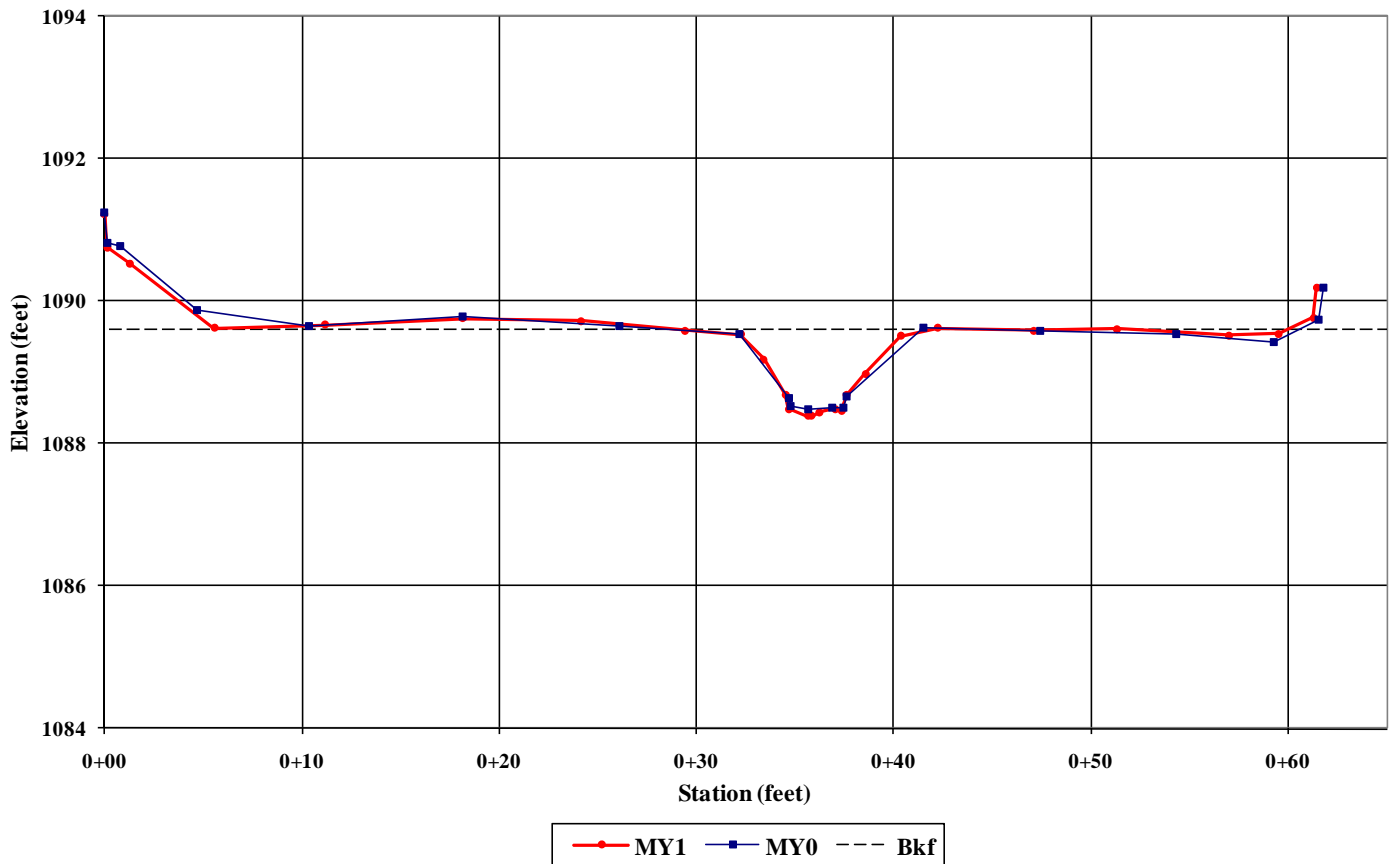


Looking at Left Bank



Looking at Right Bank

**North Muddy UT6
Cross-Section #1 - Riffle**



UT6 – Cross Section #2 – Pool

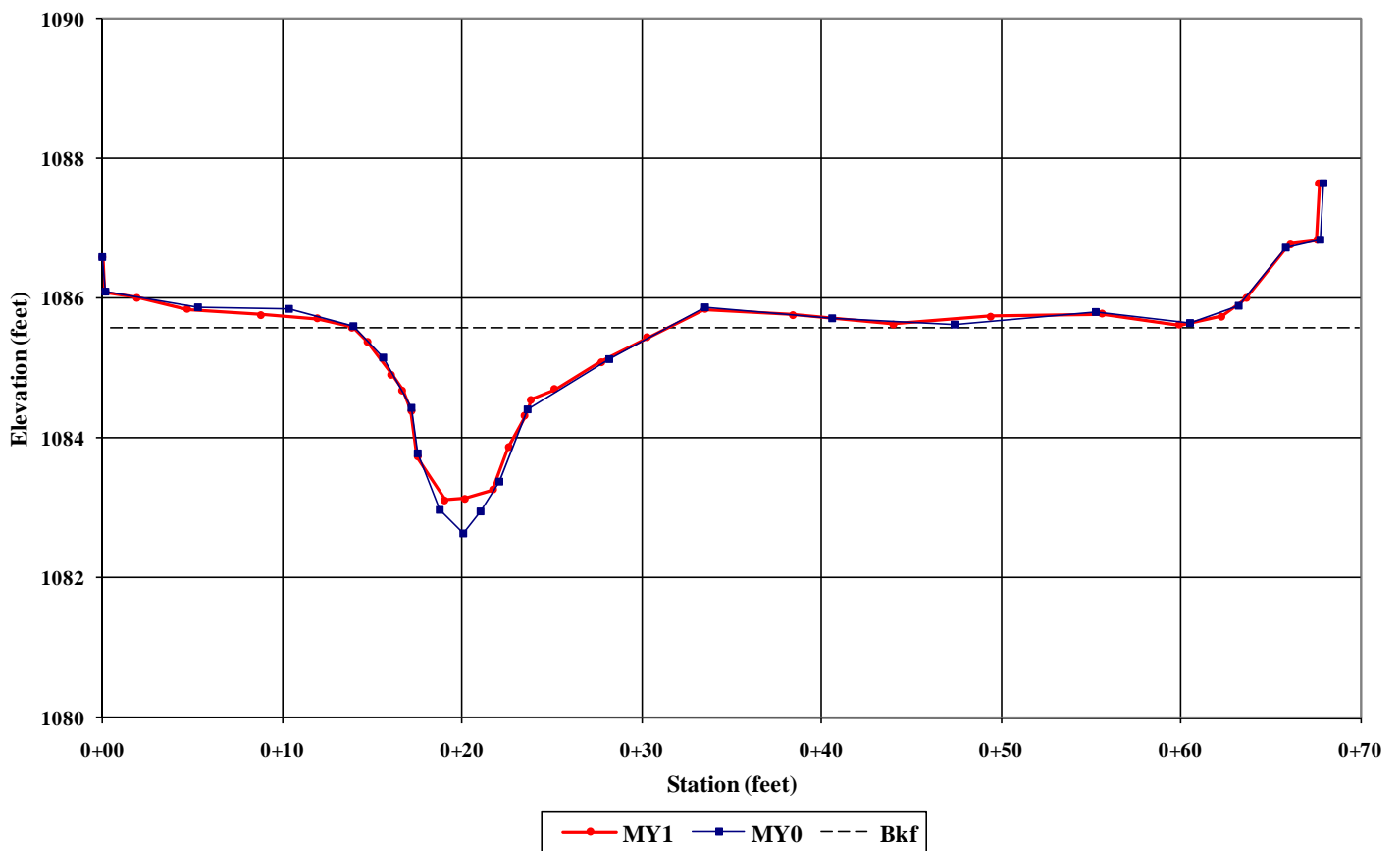


Looking at Left Bank



Looking at Right Bank

**North Muddy UT6
Cross-Section #2 - Pool**



UT6 – Cross Section #3 – Riffle

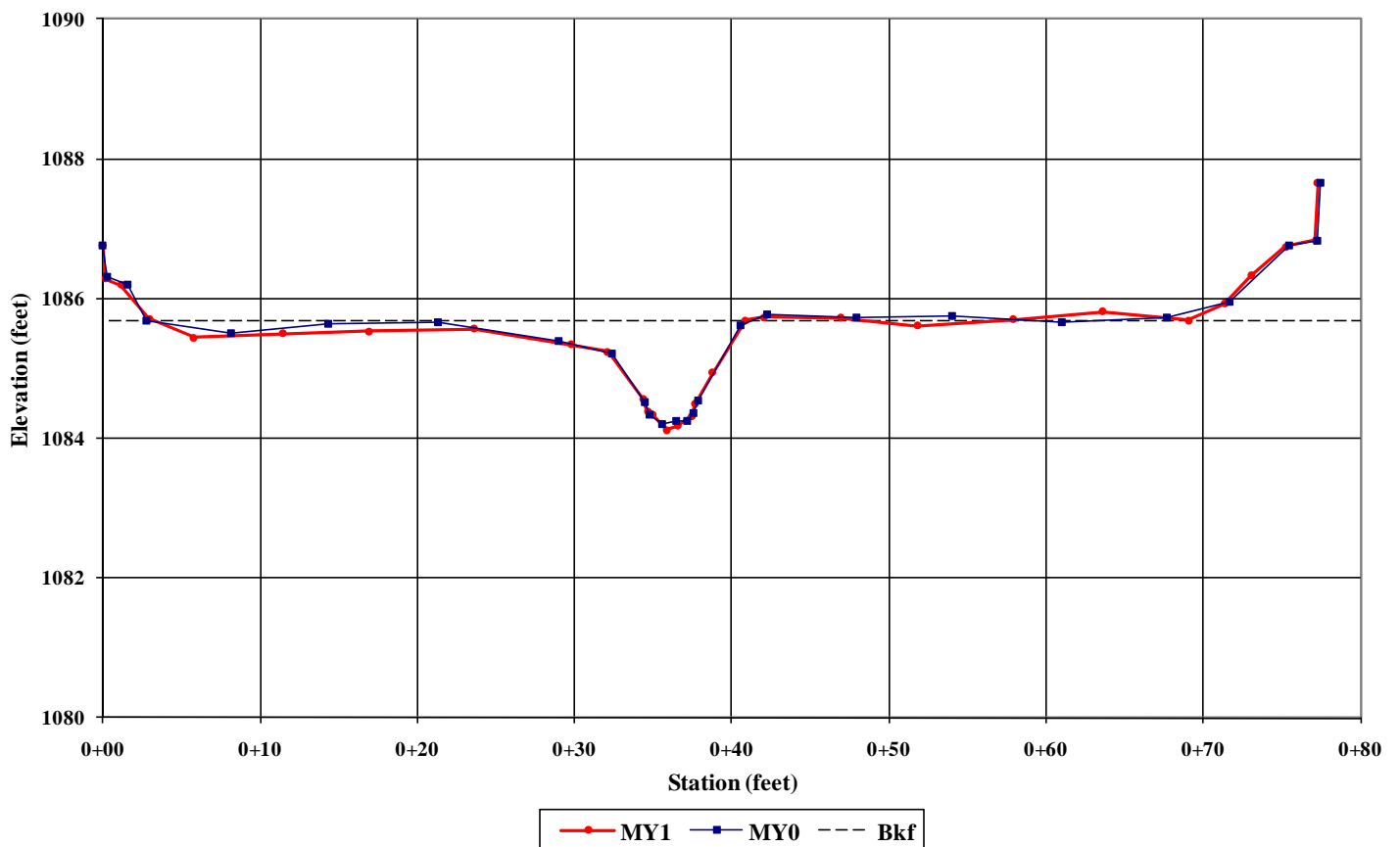


Looking at Left Bank

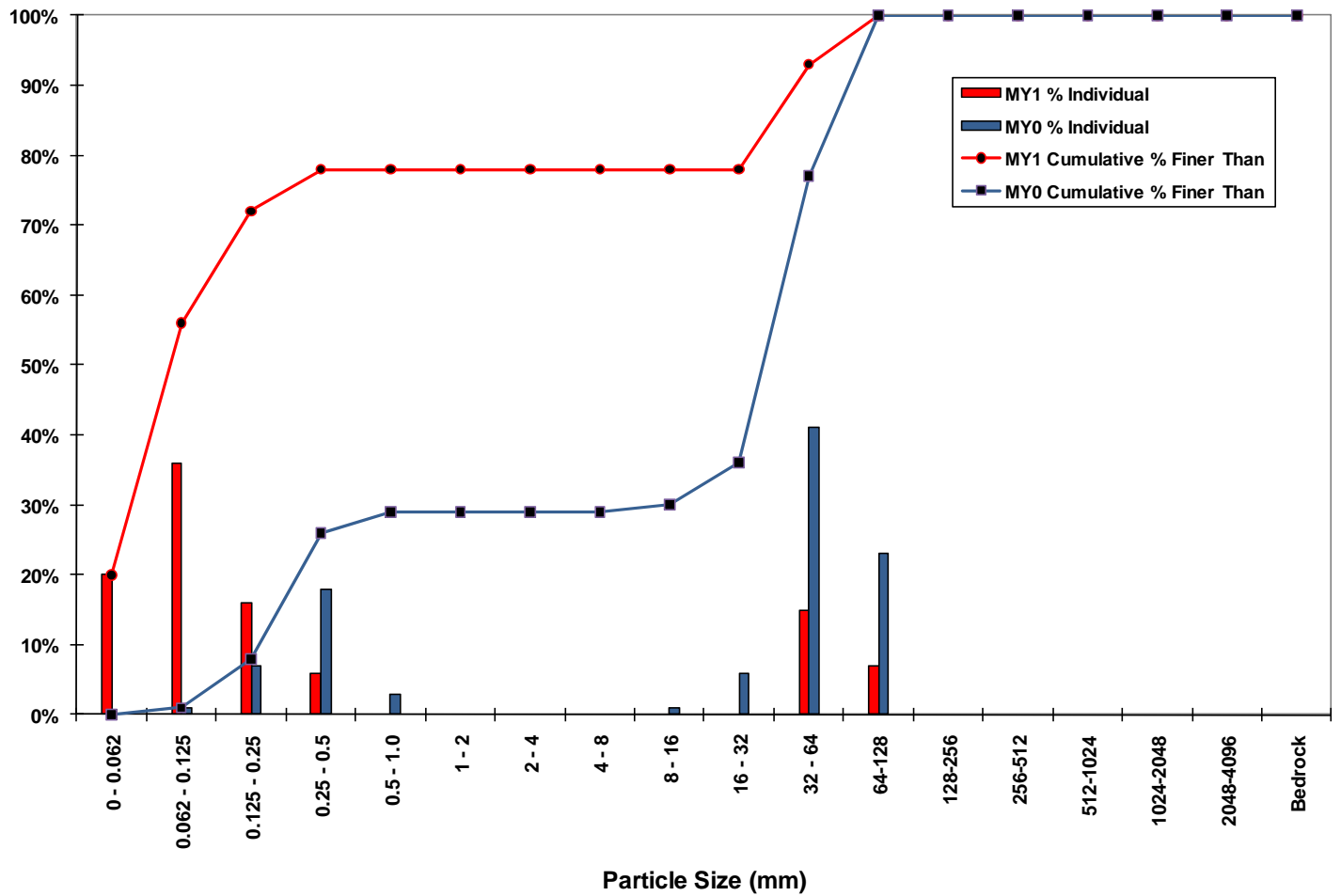


Looking at Right Bank

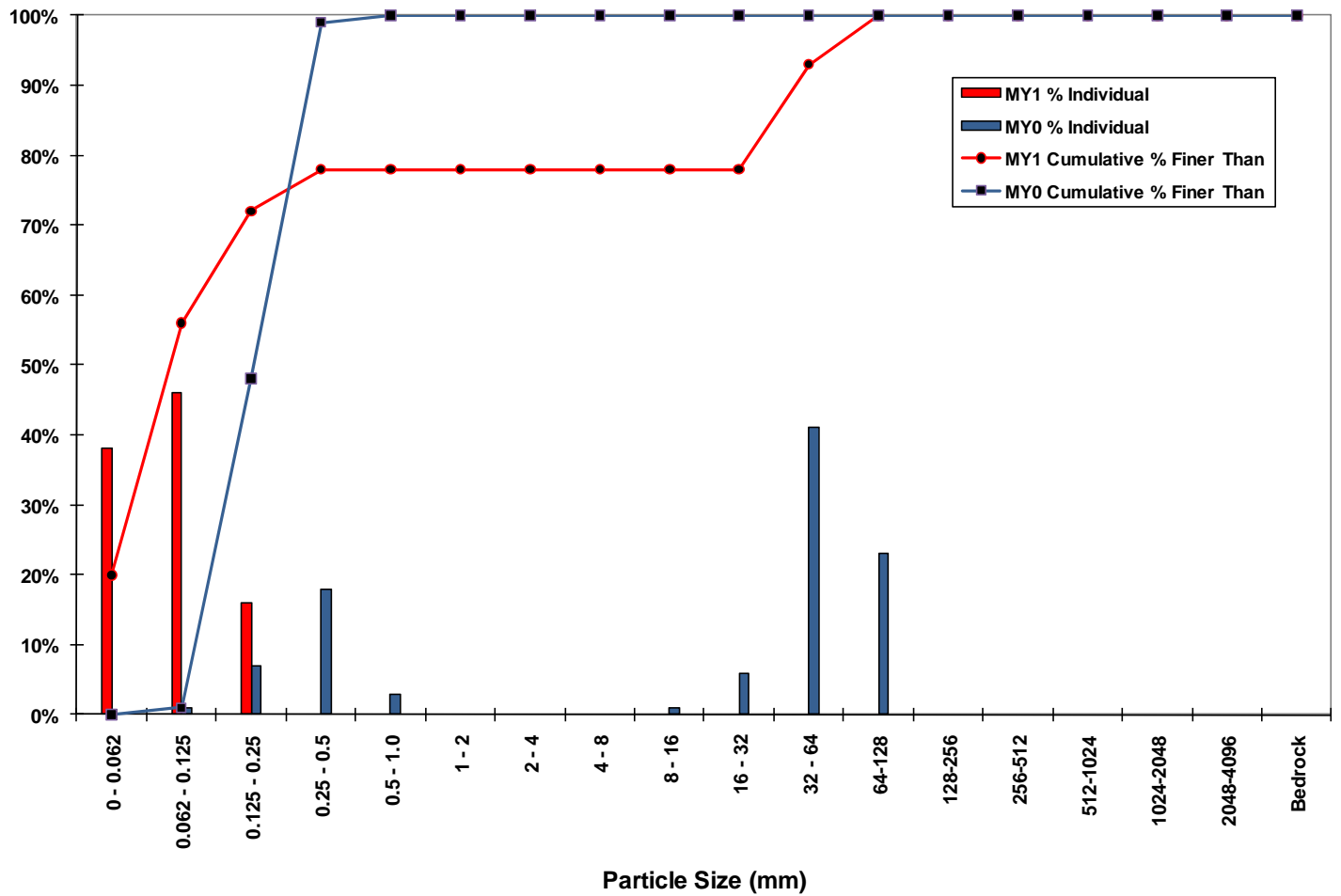
**North Muddy UT6
Cross-Section #3 - Riffle**



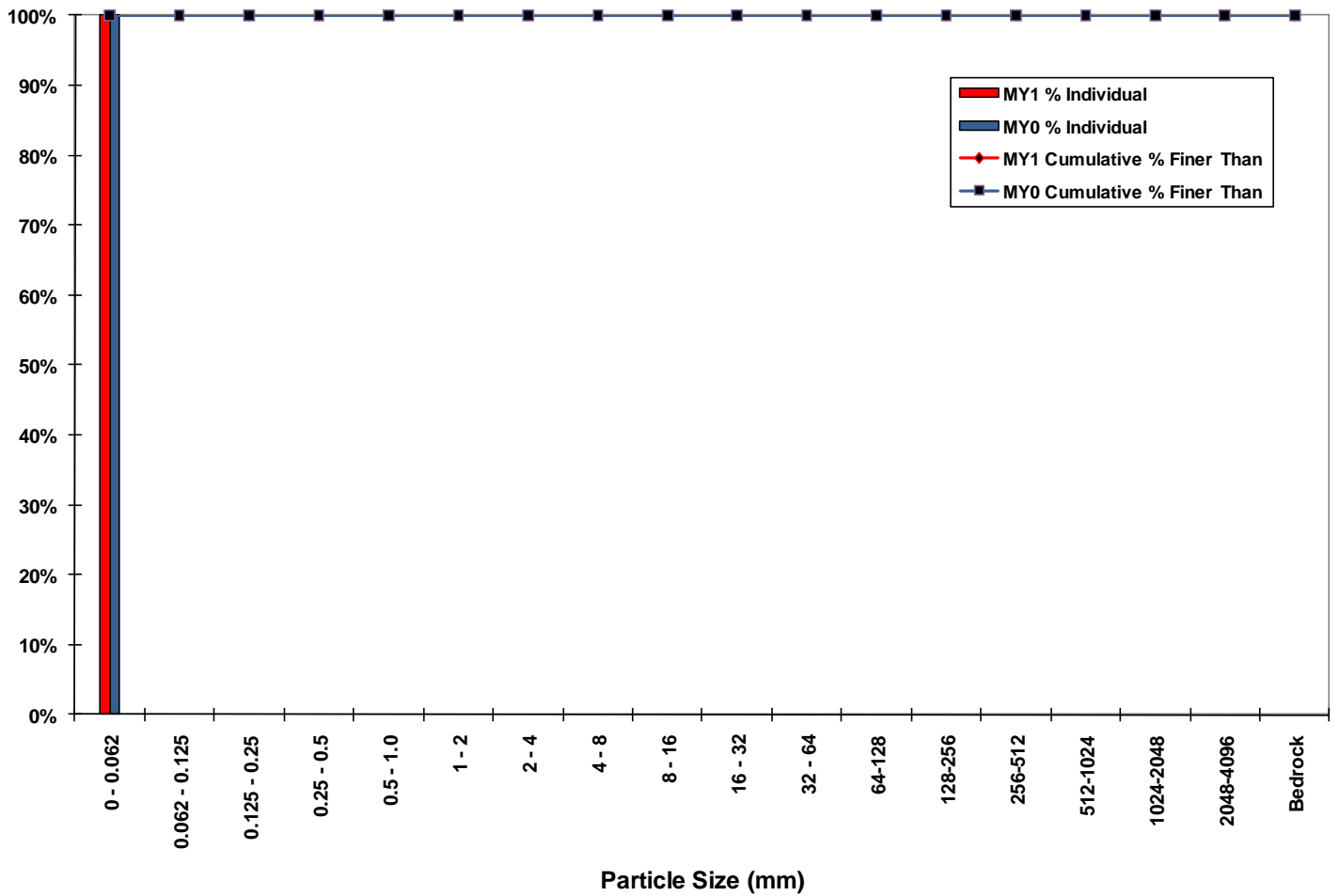
UT1 Upper – Cross Section #1 – Pool Pebble Count



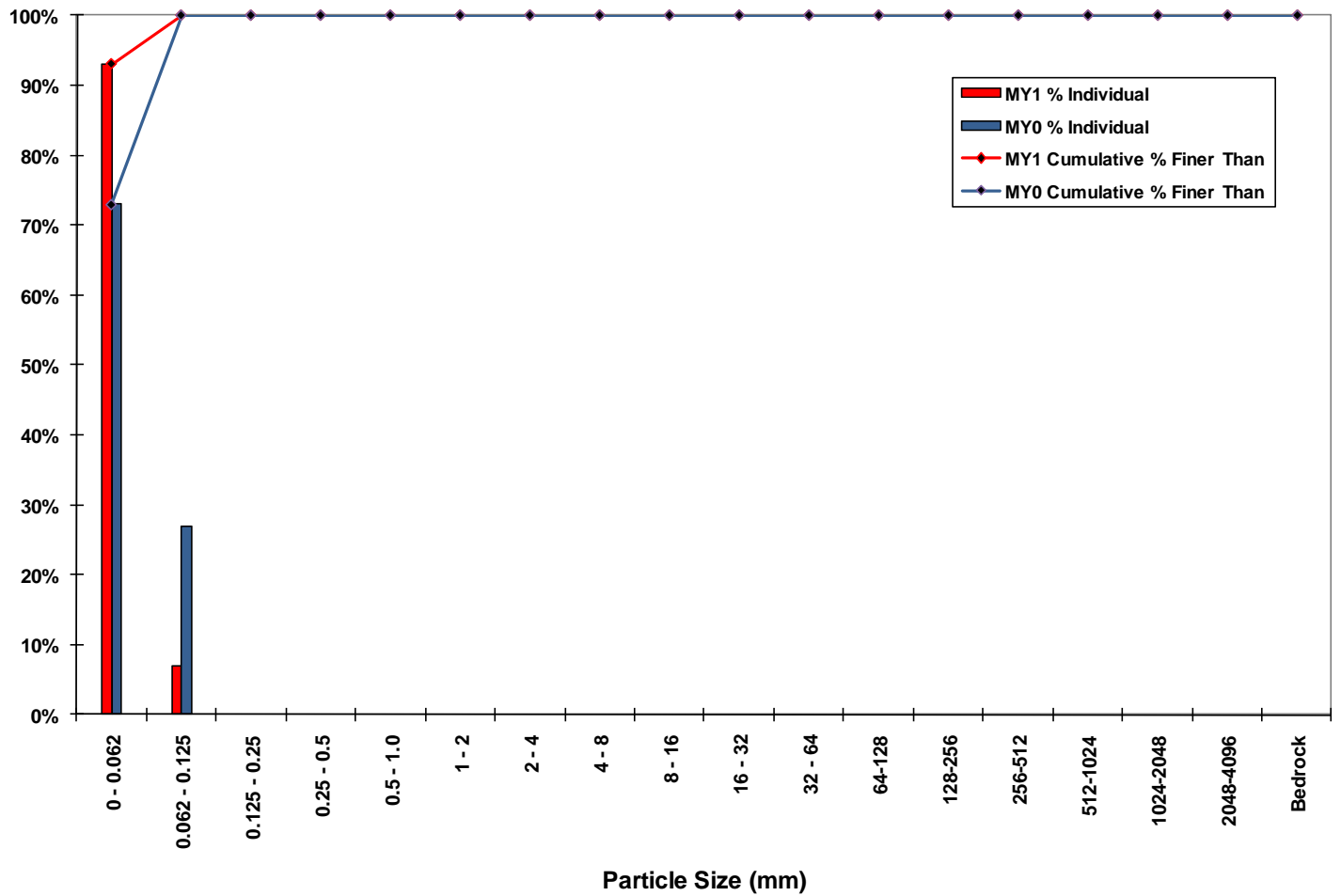
UT1 Upper – Cross Section #2 – Riffle Pebble Count



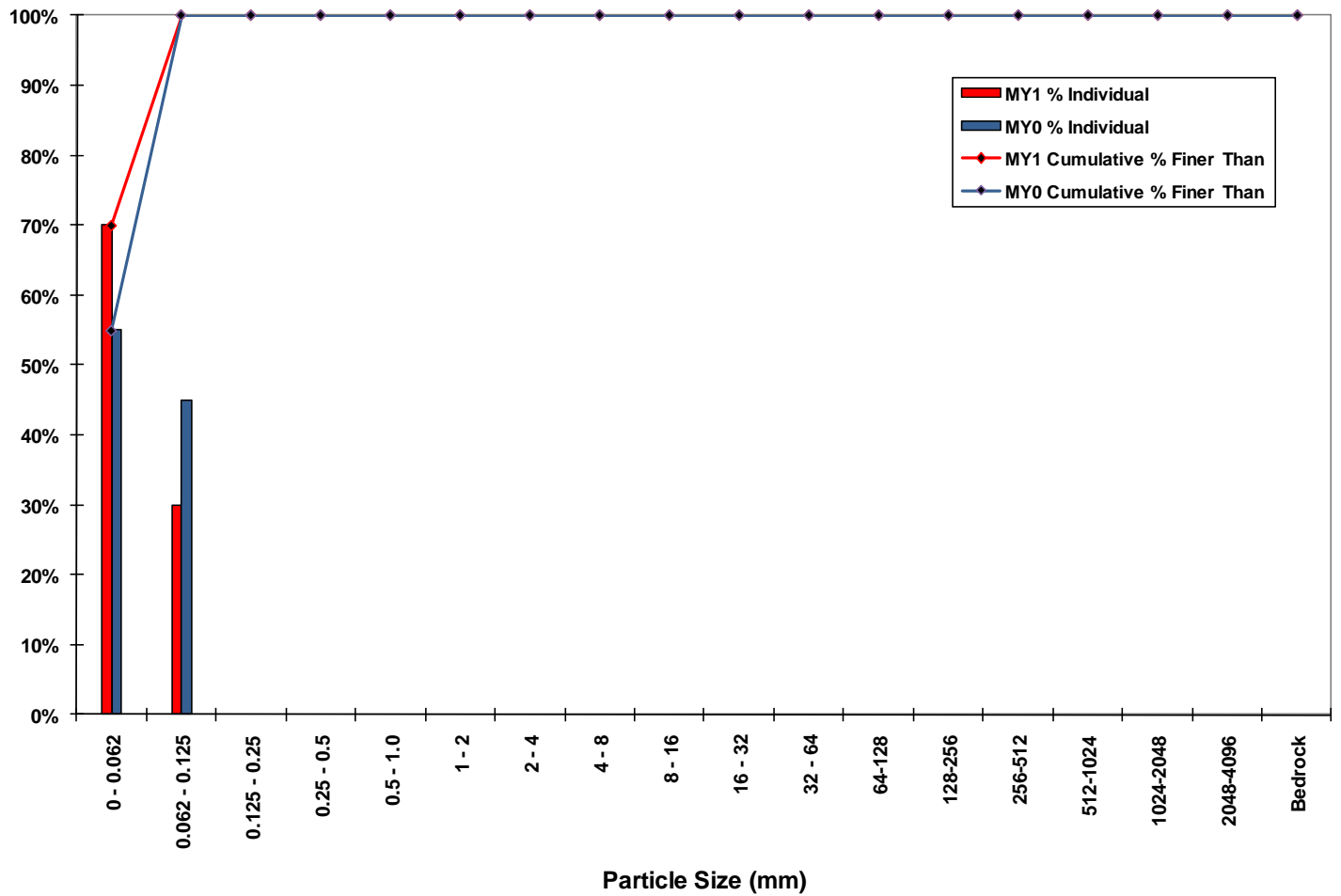
UT1 Lower – Cross Section #1 – Riffle Pebble Count



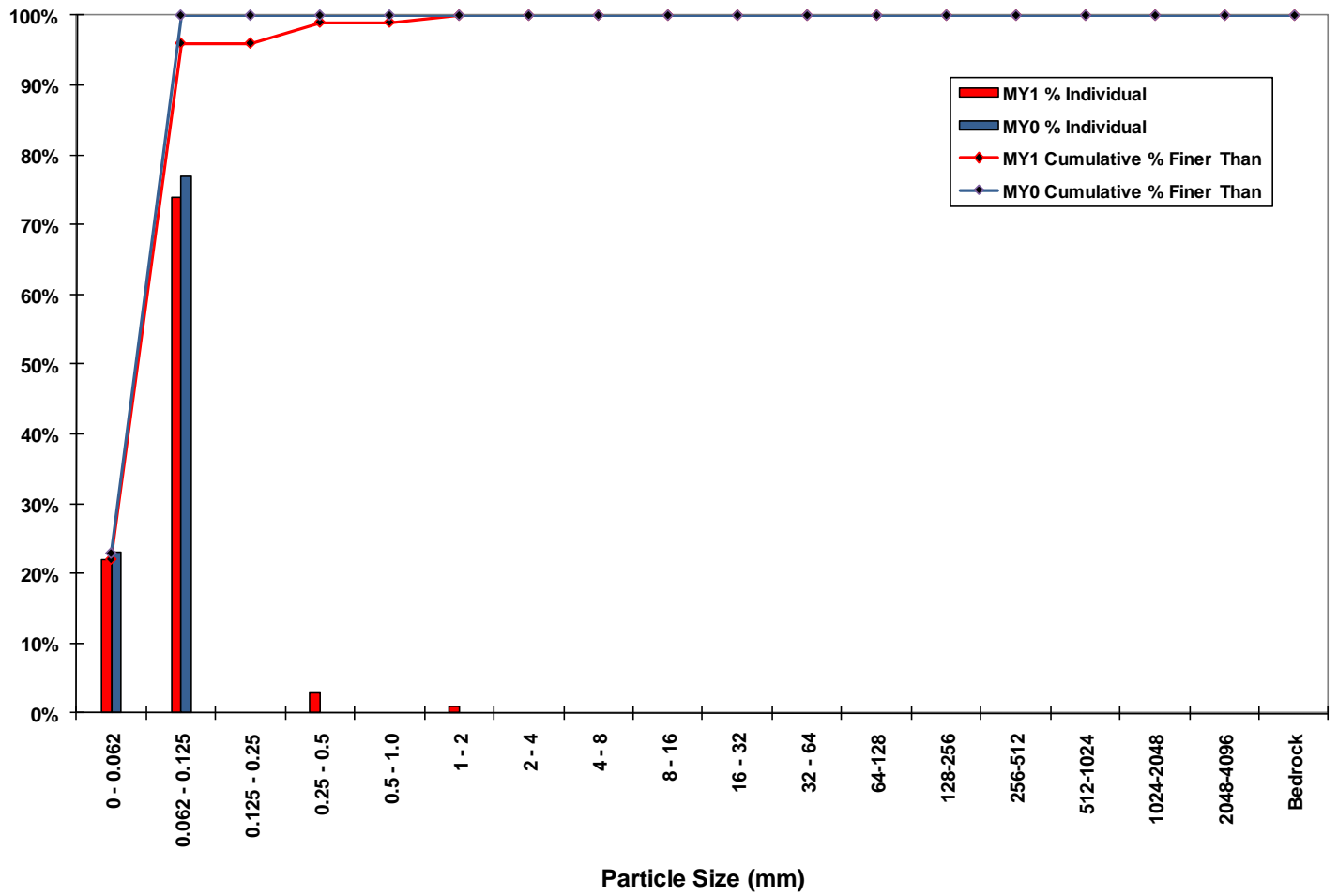
UT1 Lower – Cross Section #2 – Pool Pebble Count



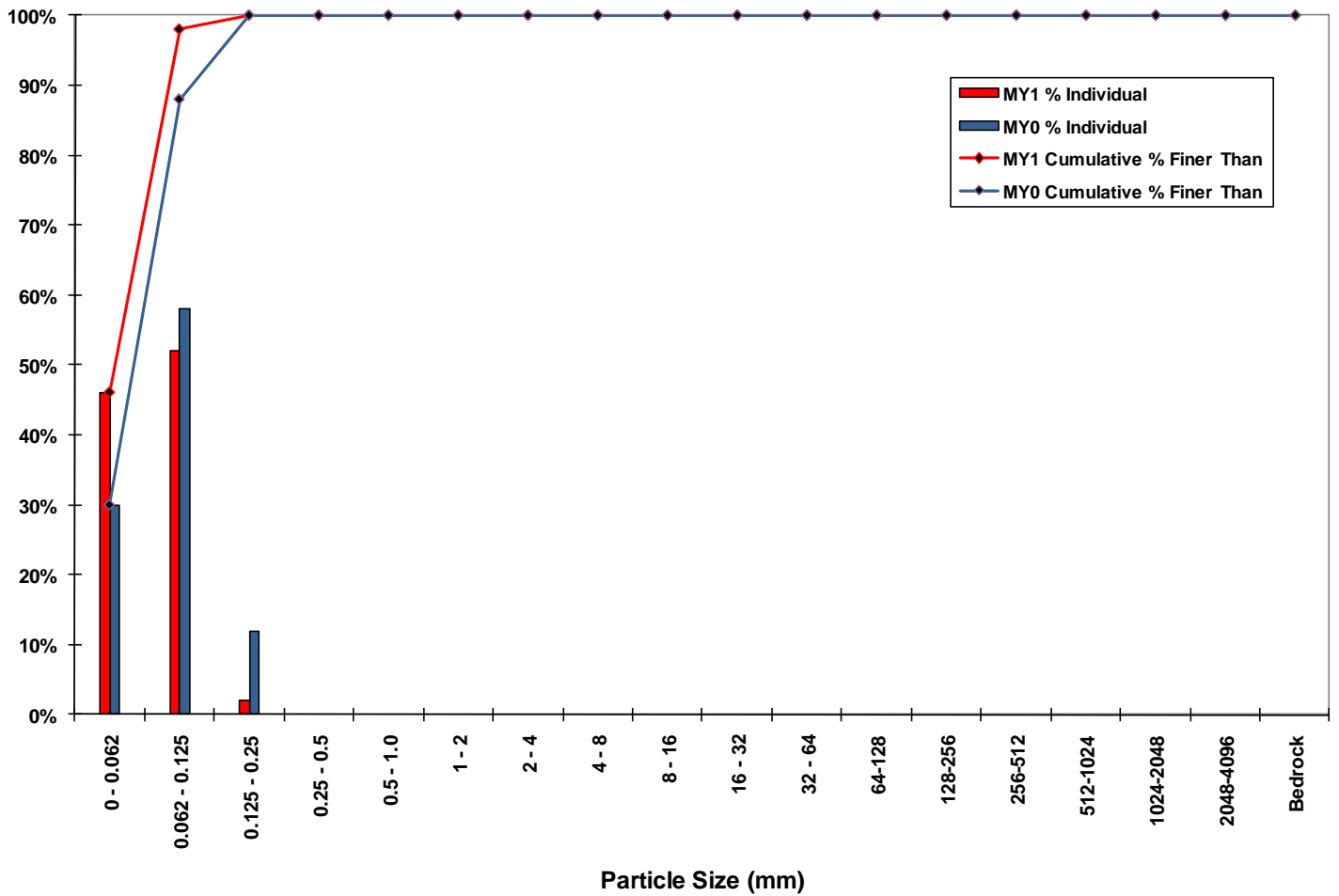
UT5 – Cross Section #1 – Pool Pebble Count



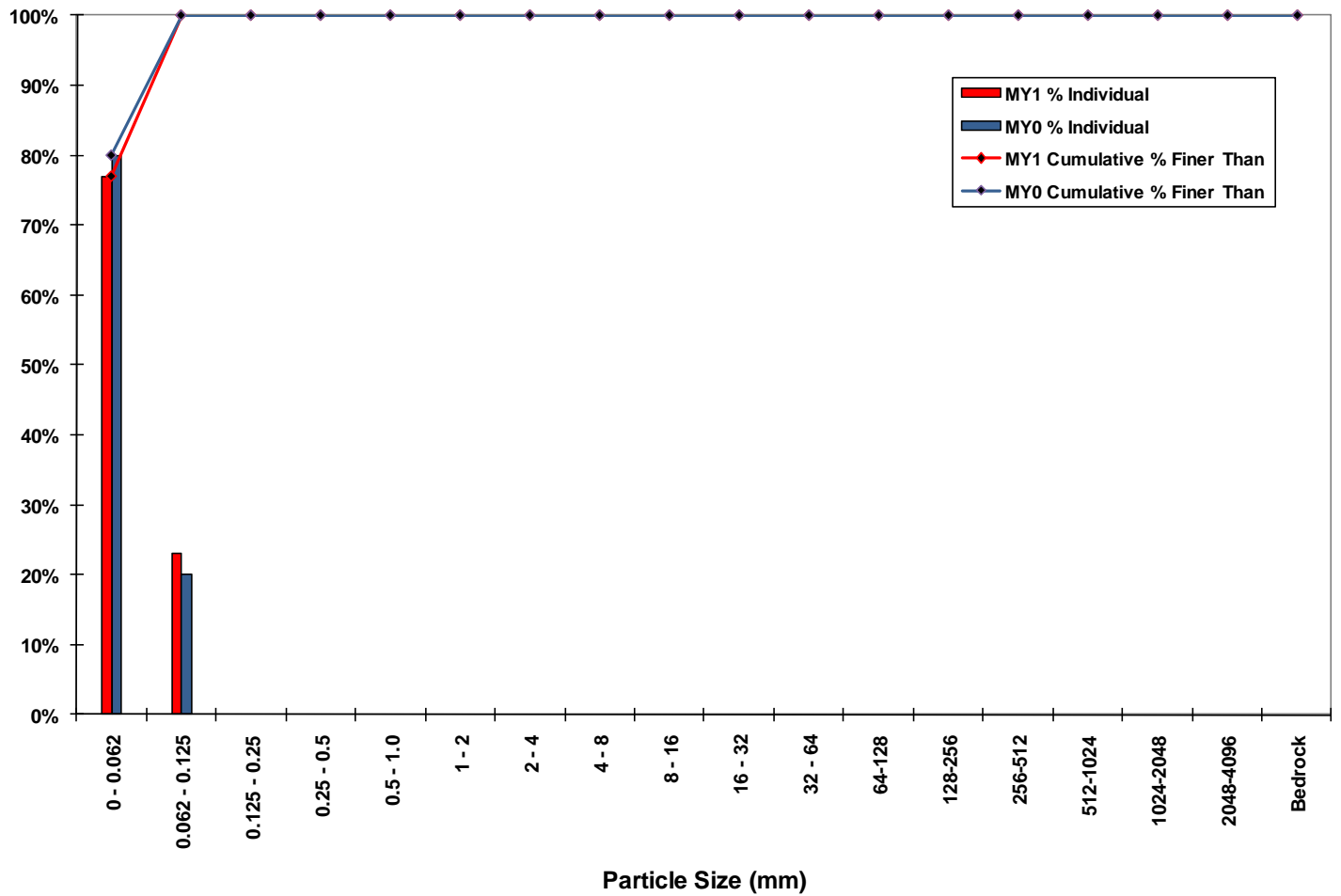
UT5 – Cross Section #2 – Riffle Pebble Count



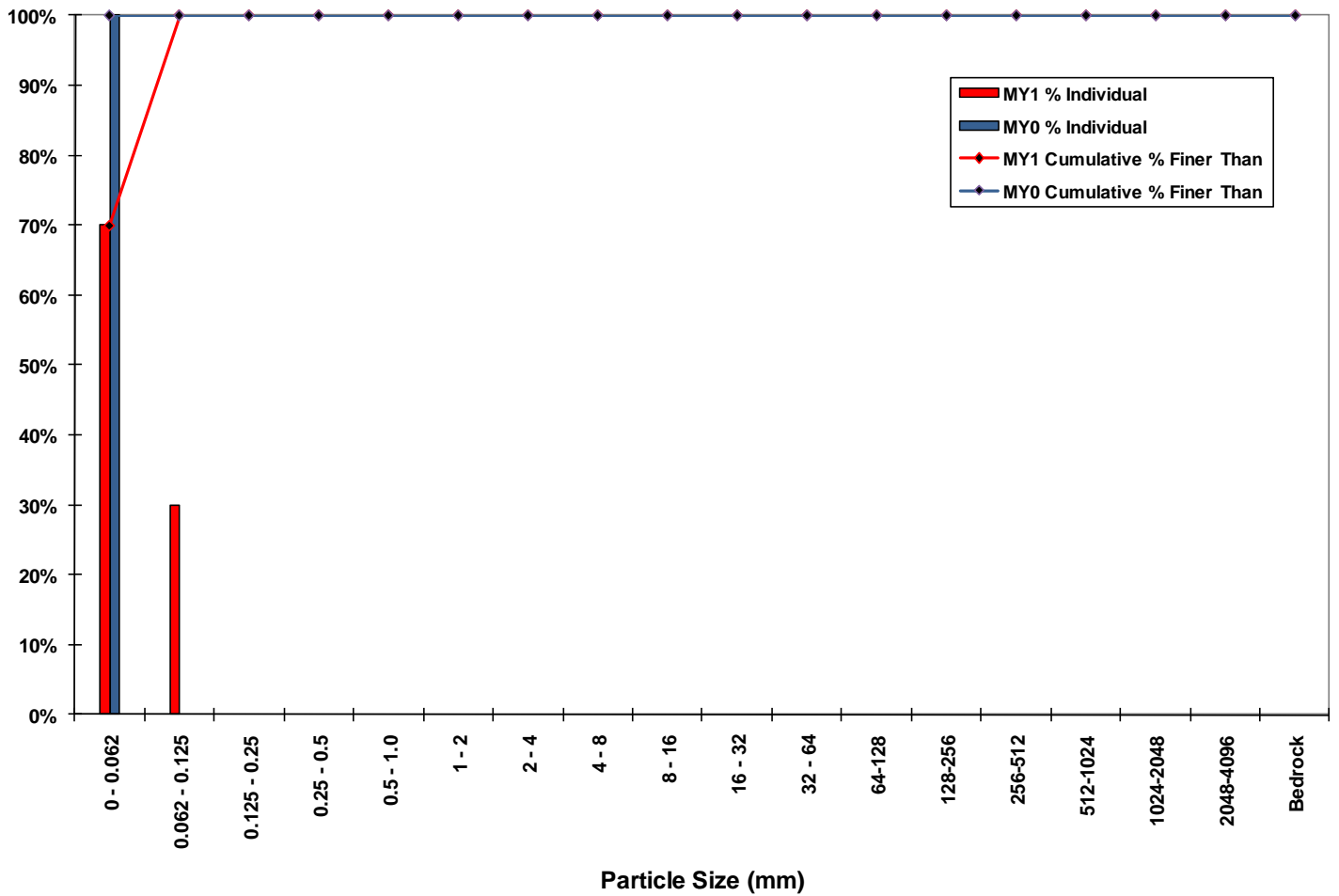
UT6 – Cross Section #1 – Riffle Pebble Count



UT6 – Cross Section #2 – Pool Pebble Count



UT6 – Cross Section #3 – Riffle Pebble Count



APPENDIX C

2009 Morphologic Monitoring Parameters

Unnamed Tributary 1 – Upper Reach													
Parameter	Cross Section 1 Pool						Cross Section 2 Riffle						
	Dimension	Base	MY1	MY2	MY3	MY4	MY5	Base	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	9.2	9.3						6.0	5.8				
Floodprone Width (ft)	23.4	24.1						21.0	21.5				
BF Cross Sectional Area (ft ²)	9.0	8.7						4.2	4.2				
BF Mean Depth (ft)	1.0	0.9						0.7	0.7				
BF Max Depth (ft)	2.0	1.7						1.2	1.2				
Width/Depth Ratio	9.3	9.9						8.6	8.0				
Entrenchment Ration	2.5	2.6						3.5	3.7				
Wetted Perimeter (ft)	10.3	10.2						6.6	6.4				
Hydraulic Radius (ft)	0.9	0.9						0.6	0.7				

Unnamed Tributary 1 – Lower Reach													
Parameter	Cross Section 1 Riffle						Cross Section 2 Pool						
	Dimension	Base	MY1	MY2	MY3	MY4	MY5	Base	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	5.5	6.2						15.7	15.0				
Floodprone Width (ft)	>50.0	>50.0						>50.0	>50.0				
BF Cross Sectional Area (ft ²)	3.1	3.1						13.2	13.2				
BF Mean Depth (ft)	0.6	0.5						0.8	0.9				
BF Max Depth (ft)	1.0	1.0						2.2	2.1				
Width/Depth Ratio	9.9	12.2						18.7	17.0				
Entrenchment Ration	>9.0	>8.1						>3.2	>3.3				
Wetted Perimeter (ft)	5.9	6.6						16.6	15.9				
Hydraulic Radius (ft)	0.5	0.5						0.8	0.8				

Unnamed Tributary 5												
Parameter	Cross Section 1 Pool						Cross Section 2 Riffle					
	Base	MY1	MY2	MY3	MY4	MY5	Base	MY1	MY2	MY3	MY4	MY5
Dimension												
BF Width (ft)	15.4	15.7					7.2	7.2				
Floodprone Width (ft)	>50.0	>50.0					>60.0	>60.0				
BF Cross Sectional Area (ft ²)	13.4	13.1					5.4	5.0				
BF Mean Depth (ft)	0.9	0.8					0.7	0.7				
BF Max Depth (ft)	2.1	2.1					1.2	1.2				
Width/Depth Ratio	17.6	18.8					9.7	10.3				
Entrenchment Ration	>3.3	>3.2					>8.3	>8.4				
Wetted Perimeter (ft)	16.2	16.5					7.6	7.6				
Hydraulic Radius (ft)	0.8	0.8					0.7	0.7				

Unnamed Tributary 6																			
Parameter	Cross Section 1 Riffle						Cross Section 2 Pool						Cross Section 3 Riffle						
	Dimension	Base	MY1	MY2	MY3	MY4	MY5	Base	MY1	MY2	MY3	MY4	MY5	Base	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	9.3	9.8					17.6	17.6					11.6	11.1					
Floodprone Width (ft)	>100	>100					>100	>100					>100	>100					
BF Cross Sectional Area (ft ²)	6.5	6.1					20.9	19.5					5.6	9.2					
BF Mean Depth (ft)	0.7	0.6					1.2	1.1					0.7	0.8					
BF Max Depth (ft)	1.2	1.2					3.0	2.5					1.4	1.6					
Width/Depth Ratio	13.3	15.9					14.8	15.9					15.7	13.5					
Entrenchment Ration	>10.7	>10.2					>5.7	>5.7					>8.6	>9.0					
Wetted Perimeter (ft)	9.7	10.3					19.0	18.8					12.1	11.6					
Hydraulic Radius (ft)	0.7	0.6					1.1	1.0					0.7	0.8					

Unnamed Tributary 1 – Upper Reach

Parameter	Baseline			MY1			MY2			MY3			MY4			MY5		
	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Pattern																		
Channel Beltwidth (ft)	18.2	31.2	21.4	18.2	31.2	21.4												
Radius of Curvature (ft)	27.8	89.4	36.9	27.8	89.4	36.9												
Meander Wavelength (ft)	30	54	38	30	54	38												
Meander Width Ratio	3.57			3.69														
Profile																		
Riffle Length (ft)	7.82	33.04	17.06	4.68	20.84	10.08												
Riffle Slope (ft/ft)	0.0134	0.0735	0.0317	0.0146	0.1044	0.0290												
Pool Length (ft)	3.36	32.88	9.54	3.63	18.90	8.94												
Pool Spacing (ft)	8.98	44.60	18.26	8.16	34.83	16.33												
Additional Reach Parameters																		
Valley Length (ft)	369			369														
Channel Length (ft)	386			388														
Sinuosity	1.05			1.05														
Water Surface Slope (ft/ft)	0.0322			0.0328														
BF Slope (ft/ft)	0.0341			0.0340														
Rosgen Classification	B/C5			B/C6														

Unnamed Tributary 1 – Lower Reach

Parameter	Baseline			MY1			MY2			MY3			MY4			MY5		
	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Pattern																		
Channel Beltwidth (ft)	28.5	82.1	55.7	28.5	82.1	55.7												
Radius of Curvature (ft)	18.2	26.3	21.9	18.2	26.3	21.9												
Meander Wavelength (ft)	86	113	101	86	113	101												
Meander Width Ratio	10.13			8.98														
Profile																		
Riffle Length (ft)	15.35	31.11	22.27	9.78	36.29	22.37												
Riffle Slope (ft/ft)	0.0000	0.0350	0.0053	0.0003	0.0241	0.0050												
Pool Length (ft)	8.19	41.82	31.80	4.17	36.32	25.79												
Pool Spacing (ft)	27.09	70.09	57.33	28.99	78.41	58.27												
Additional Reach Parameters																		
Valley Length (ft)	833			833														
Channel Length (ft)	1062			1063														
Sinuosity	1.27			1.28														
Water Surface Slope (ft/ft)	0.0062			0.0062														
BF Slope (ft/ft)	0.0067			0.0070														
Rosgen Classification	C6			C6														

Unnamed Tributary 5																		
Parameter	Baseline			MY1			MY2			MY3			MY4			MY5		
Pattern	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Channel Beltwidth (ft)	28.3	55.5	41.4	28.3	55.5	41.4												
Radius of Curvature (ft)	14.7	25.5	22.2	14.7	25.5	22.2												
Meander Wavelength (ft)	77	105	88	77	105	88												
Meander Width Ratio	5.75			5.75														
Profile																		
Riffle Length (ft)	13.64	22.74	17.96	16.19	24.41	21.24												
Riffle Slope (ft/ft)	0.0005	0.0105	0.0058	0.0054	0.0129	0.0065												
Pool Length (ft)	7.57	30.38	21.59	5.16	26.03	20.24												
Pool Spacing (ft)	34.70	53.09	45.90	27.25	51.85	45.48												
Additional Reach Parameters																		
Valley Length (ft)	507			507														
Channel Length (ft)	578			583														
Sinuosity	1.14			1.15														
Water Surface Slope (ft/ft)	0.0027 – 0.0331			0.0031 – 0.0321														
BF Slope (ft/ft)	0.0019			0.0025														
Rosgen Classification	*C6			*C6														

*Low width/depth ratio C stream type.

Unnamed Tributary 6																		
Parameter	Baseline			MY1			MY2			MY3			MY4			MY5		
Pattern	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Channel Beltwidth (ft)	30.6	60.7	48.1	31.8	60.9	48.4												
Radius of Curvature (ft)	20.2	38.1	30.1	16.7	31.8	27.0												
Meander Wavelength (ft)	111	126	117	109	127	116												
Meander Width Ratio	4.15	5.17	4.66	4.36	4.93	4.65												
Profile																		
Riffle Length (ft)	22.91	35.94	28.92	12.59	34.27	28.14												
Riffle Slope (ft/ft)	0.0001	0.0173	0.0085	0.006	0.0380	0.0030												
Pool Length (ft)	3.84	38.32	26.58	3.19	36.78	25.57												
Pool Spacing (ft)	8.24	74.02	59.15	11.70	77.07	61.97												
Additional Reach Parameters																		
Valley Length (ft)	955			955														
Channel Length (ft)	1072			1094														
Sinuosity	1.12			1.15														
Water Surface Slope (ft/ft)	0.0066 – 0.0436			0.0070 – 0.0395														
BF Slope (ft/ft)	0.0089			0.0086														
Rosgen Classification	C6			C6														

APPENDIX D

2009 Site Photos

Unnamed Tributary 1 Permanent Photo Points



Unnamed Tributary 1 – Permanent Photo Point #1
Looking Downstream



Unnamed Tributary 1 – Permanent Photo Point #2
Looking Upstream

Unnamed Tributary 1 Permanent Photo Points



Unnamed Tributary 1 – Permanent Photo Point #3
Looking Upstream



Unnamed Tributary 1 – Permanent Photo Point #3
Looking Downstream

Unnamed Tributary 1 Permanent Photo Points



Unnamed Tributary 1 – Permanent Photo Point #4
Looking Upstream



Unnamed Tributary 1 – Permanent Photo Point #5
Looking Upstream

Unnamed Tributary 1 Permanent Photo Points



Unnamed Tributary 1 – Permanent Photo Point #5
Looking Downstream



Unnamed Tributary 1 – Permanent Photo Point #6
Looking 80 Degrees

Unnamed Tributary 1 Permanent Photo Points



Unnamed Tributary 1 – Permanent Photo Point #6
Looking 300 Degrees



Unnamed Tributary 1 – Permanent Photo Point #7
Looking Upstream

Unnamed Tributary 1 Permanent Photo Points



Unnamed Tributary 1 – Permanent Photo Point #8
Looking Upstream



Unnamed Tributary 1 – Permanent Photo Point #8
Looking Downstream

Unnamed Tributary 1 Permanent Photo Points



Unnamed Tributary 1 – Permanent Photo Point #9
Looking 220 Degrees

Unnamed Tributary 2 Permanent Photo Points



Feb-05-2009

Unnamed Tributary 2 – Permanent Photo Point #1
Looking Downstream



Feb-05-2009

Unnamed Tributary 2 – Permanent Photo Point #2
Looking Upstream

Unnamed Tributary 4 Permanent Photo Points



Unnamed Tributary 4 – Permanent Photo Point #1
Looking Downstream



Unnamed Tributary 4 – Permanent Photo Point #2
Looking Upstream

Unnamed Tributary 5 Permanent Photo Points



Unnamed Tributary 5 – Permanent Photo Point #1
Looking Upstream



Unnamed Tributary 5 – Permanent Photo Point #1
Looking Downstream

Unnamed Tributary 5 Permanent Photo Points



Unnamed Tributary 5 – Permanent Photo Point #2
Looking Upstream



Unnamed Tributary 5 – Permanent Photo Point #2
Looking Downstream

Unnamed Tributary 5 Permanent Photo Points



Unnamed Tributary 5 – Permanent Photo Point #3
Looking Upstream



Unnamed Tributary 5 – Permanent Photo Point #4
Looking Upstream

Unnamed Tributary 5 Permanent Photo Points



Unnamed Tributary 5 – Permanent Photo Point #4
Looking Downstream



Unnamed Tributary 5 – Permanent Photo Point #5
Looking 180 Degrees

Unnamed Tributary 5 Permanent Photo Points



Unnamed Tributary 5 – Permanent Photo Point #5
Looking 305 Degrees

Unnamed Tributary 6 Permanent Photo Points



Unnamed Tributary 6 – Permanent Photo Point #1
Looking 35 Degrees



Unnamed Tributary 6 – Permanent Photo Point #1
Looking Downstream

Unnamed Tributary 6 Permanent Photo Points



Unnamed Tributary 6 – Permanent Photo Point #2
Looking Upstream



Unnamed Tributary 6 – Permanent Photo Point #3
Looking Upstream

Unnamed Tributary 6 Permanent Photo Points



Unnamed Tributary 6 – Permanent Photo Point #4
Looking Downstream



Unnamed Tributary 6 – Permanent Photo Point #5
Looking Upstream

Unnamed Tributary 6 Permanent Photo Points



Unnamed Tributary 6 – Permanent Photo Point #5
Looking 310 Degrees

Unnamed Tributary 1 Vegetation Plots



UT1 – Vegetation Plot 1



UT1 – Vegetation Plot 2

Unnamed Tributary 1 Vegetation Plots



UT1 – Vegetation Plot 3



UT1 – Vegetation Plot 4

Unnamed Tributary 5 Vegetation Plots



UT5 – Vegetation Plot 1



UT5 – Vegetation Plot 2

Unnamed Tributary 6 Vegetation Plots



UT6 – Vegetation Plot 1



UT6 – Vegetation Plot 2

Unnamed Tributary 6 Vegetation Plots



UT6 – Vegetation Plot 3



UT6 – Vegetation Plot 4

Unnamed Tributary 6 Vegetation Plots



UT6 – Vegetation Plot 5

Unnamed Tributary 1 Representative Photos of Stream and Vegetation Areas Requiring Observation



SPA2 UT1 Sta. 105+00 – Riffle Bed Scour



SPA5 UT1 Sta. 106+00 – Pool Aggradation

Unnamed Tributary 1 Representative Photos of Stream and Vegetation Areas Requiring Observation



UT1 – Bare Bench



UT1 – Isolated Area of Privet (*Ligustrum sp.*)

Unnamed Tributary 5 Representative Photos of Stream and Vegetation Areas Requiring Observation



UT5 – Isolated Area of Japanese honeysuckle (*Lonicera japonica*)

Unnamed Tributary 6 Representative Photos of Stream and Vegetation Areas Requiring Observation



SPA10 UT6 Sta. 600+10 – Pool Aggradation



SPA14 UT6 Sta. 603+75 – Riffle Bed Scour

Unnamed Tributary 6 Representative Photos of Stream and Vegetation Areas Requiring Observation



SPA15 UT6 Sta. 610+50 – Bank Erosion and Grade Control Degradation



UT6 – Bare Bench

Unnamed Tributary 6 Representative Photos of Stream and Vegetation Areas Requiring Observation

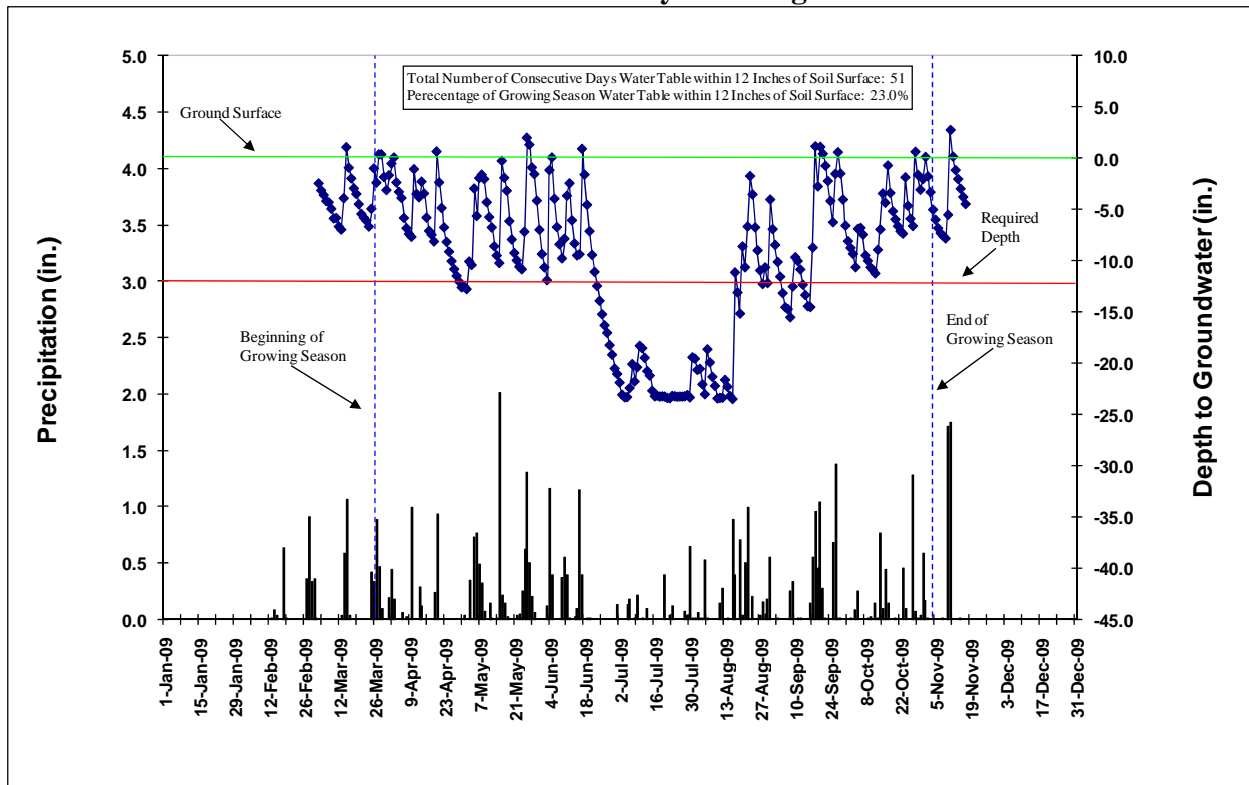


UT5 – Isolated Area of Japanese honeysuckle (*Lonicera japonica*)

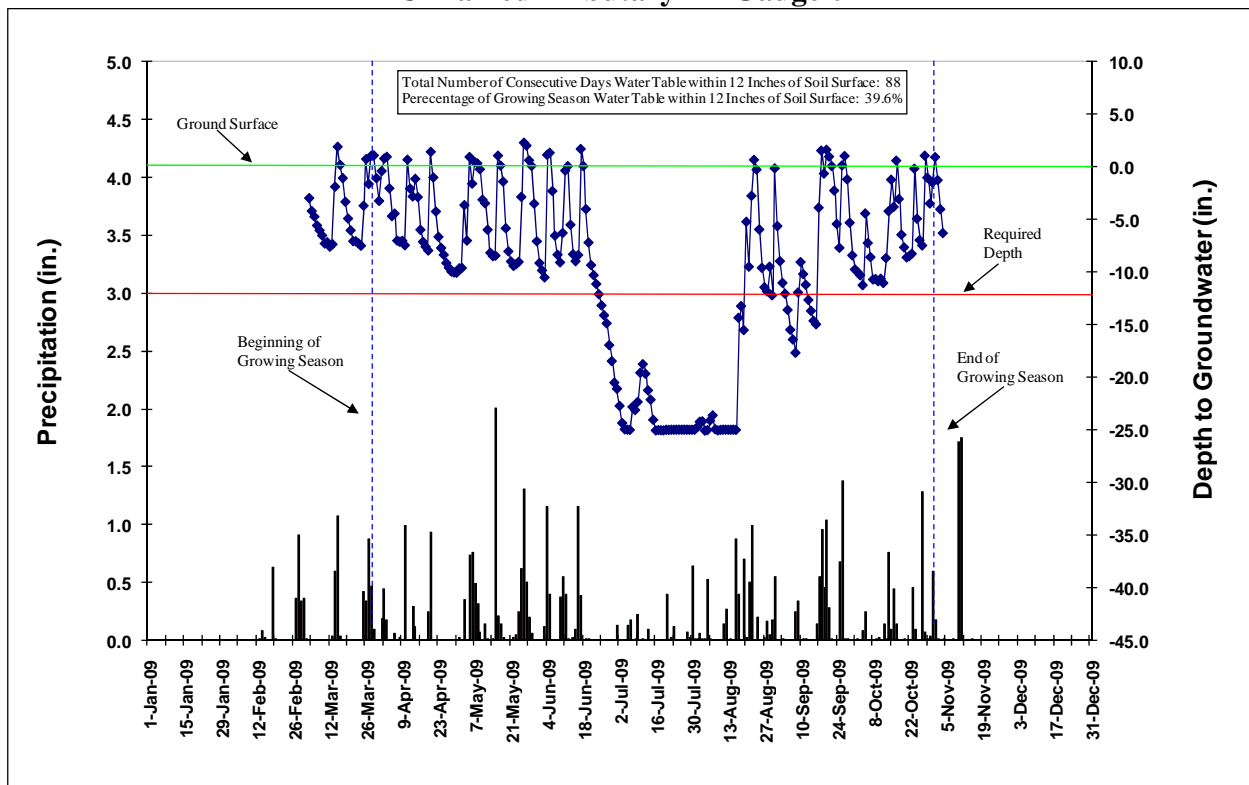
APPENDIX E

2009 Gauge Data

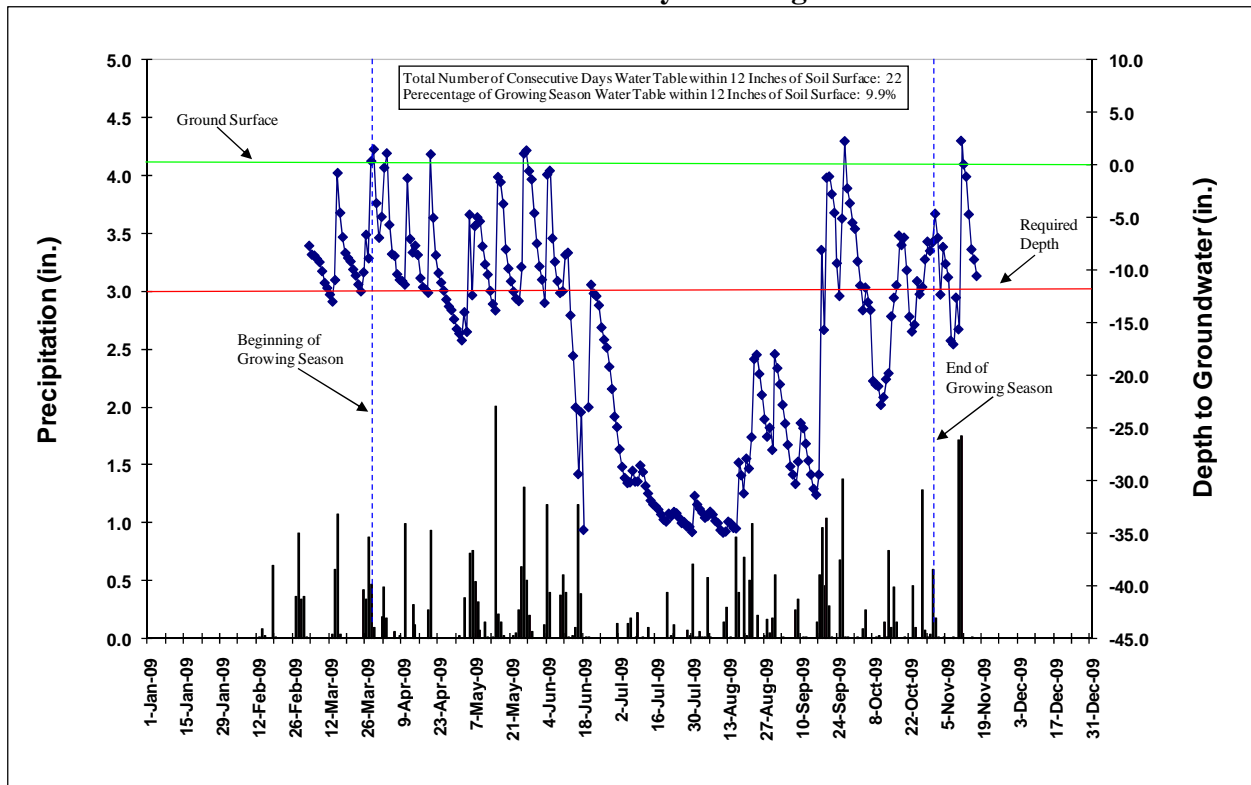
Unnamed Tributary 1 – Gauge 01



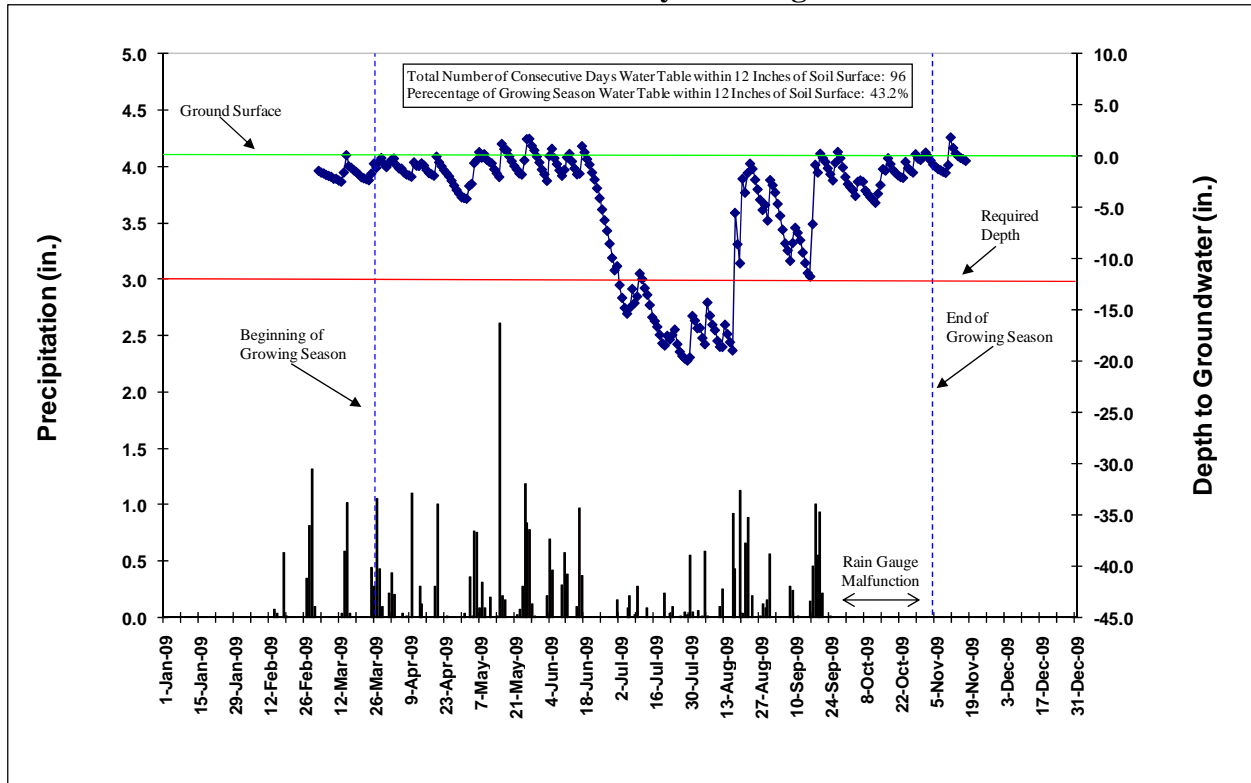
Unnamed Tributary 1 – Gauge 02



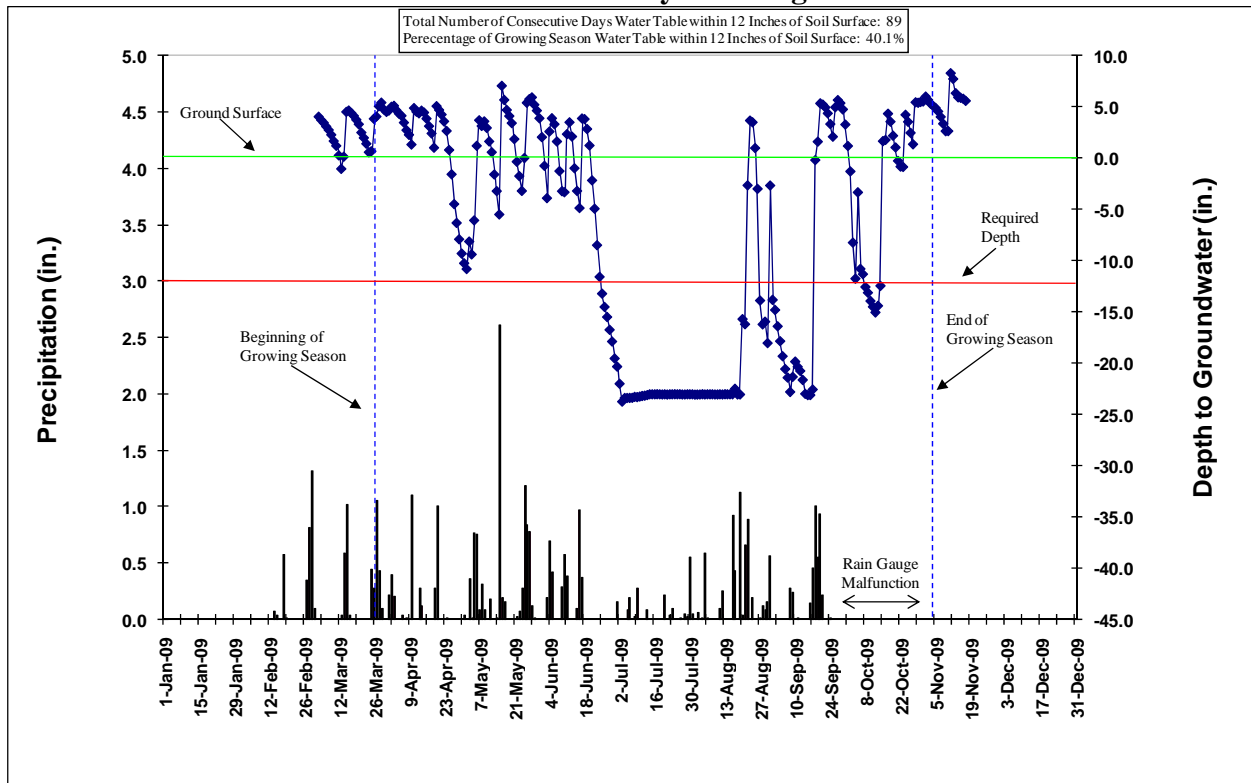
Unnamed Tributary 1 – Gauge 03



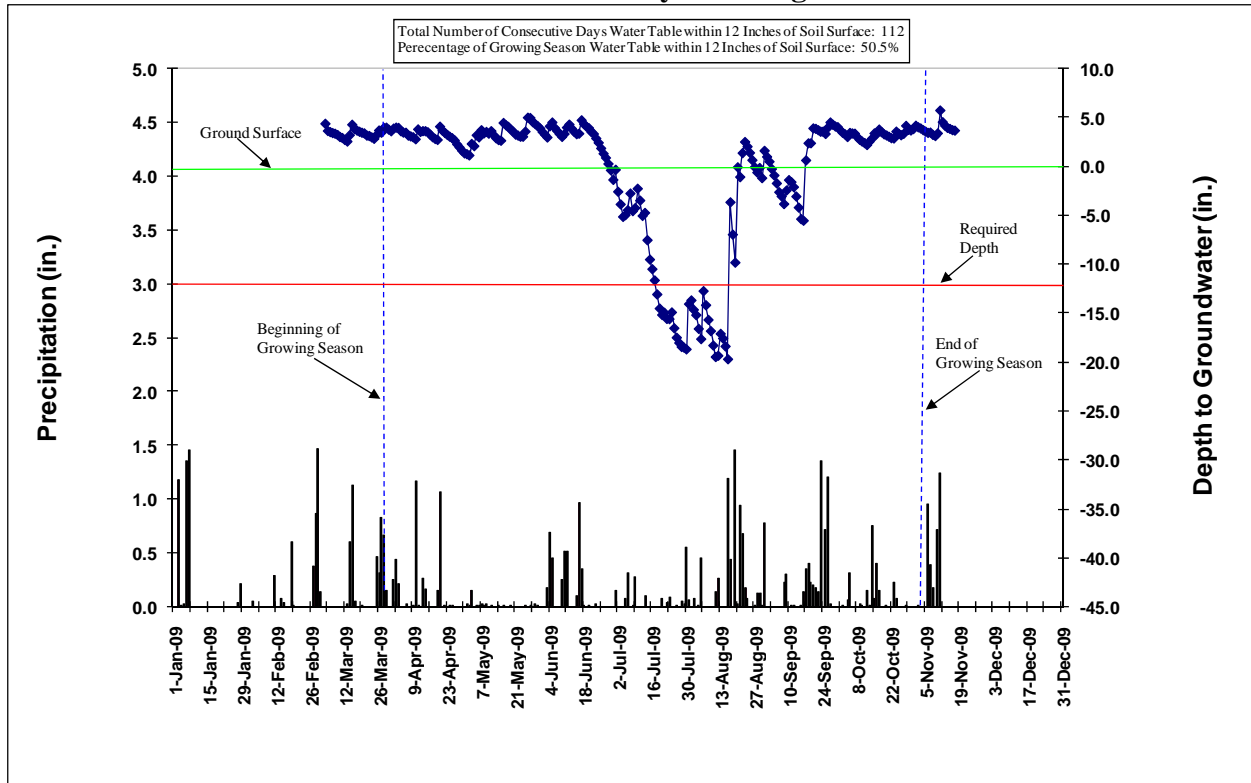
Unnamed Tributary 5 – Gauge 01



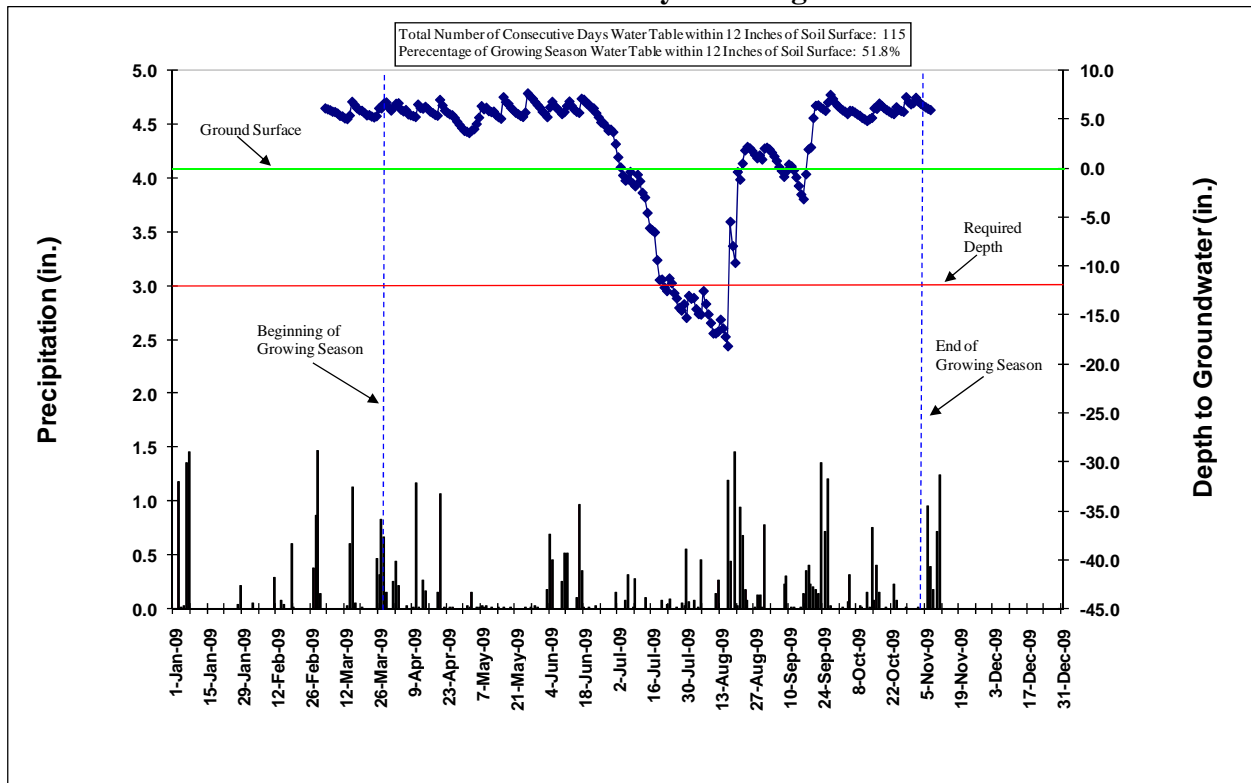
Unnamed Tributary 5 – Gauge 02



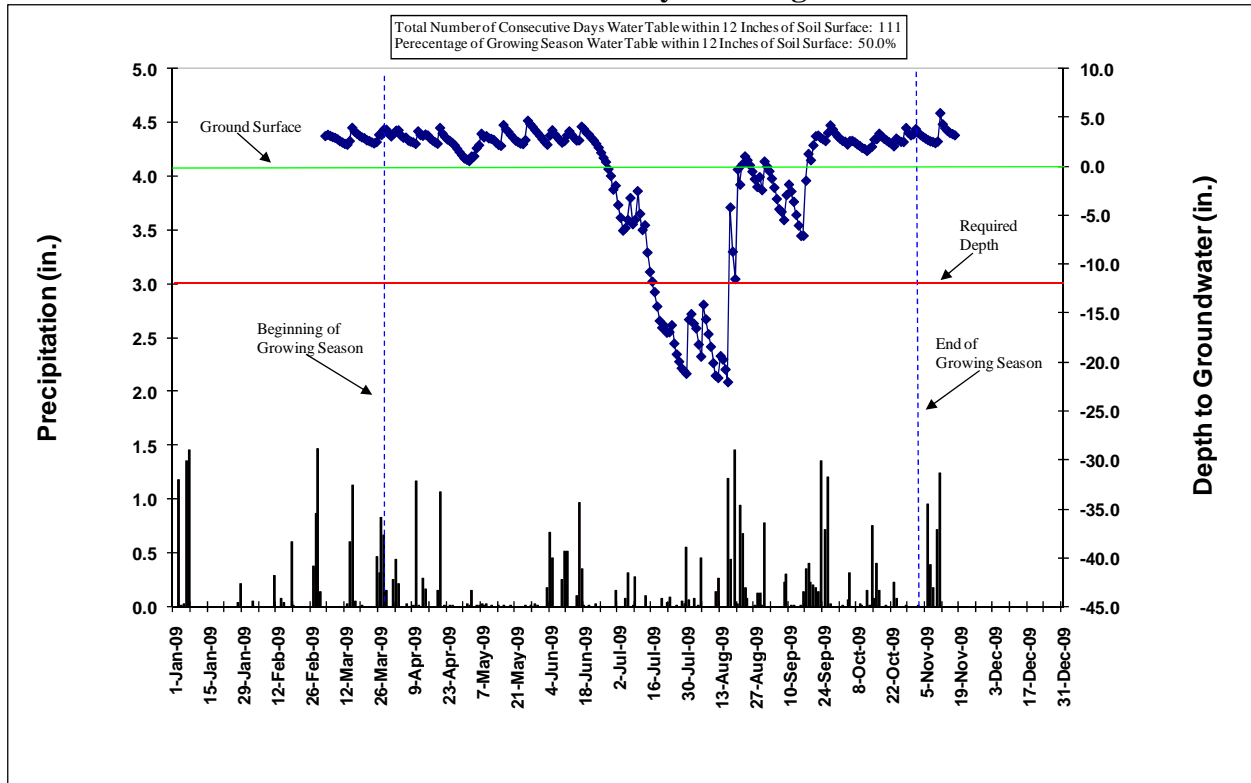
Unnamed Tributary 6 – Gauge 01



Unnamed Tributary 6 – Gauge 02



Unnamed Tributary 6 – Gauge 03



Date	Time	Water Level (inches)							
		UT1 - 01	UT1 - 02	UT1 - 03	UT5 - 01	UT5 - 02	UT6 - 01	UT6 - 02	UT6 - 03
04-Mar-2009	20:00:00	-2.51	-2.97	-7.74	-1.42	4.04	4.34	6.03	3.11
05-Mar-2009	08:00:00	-3.19	-4.2	-8.57	-1.59	3.71	3.6	5.93	3.24
05-Mar-2009	20:00:00	-3.23	-4.4	-8.34	-1.59	3.71	3.61	5.86	3.18
06-Mar-2009	08:00:00	-3.65	-4.73	-8.66	-1.67	3.44	3.49	5.84	3.12
06-Mar-2009	20:00:00	-3.61	-5.44	-8.72	-1.72	3.36	3.46	5.8	3.04
07-Mar-2009	08:00:00	-4.23	-5.57	-8.99	-1.82	3.09	3.39	5.69	3.01
07-Mar-2009	20:00:00	-4.03	-6.23	-9.05	-1.85	3.04	3.33	5.7	2.92
08-Mar-2009	08:00:00	-4.35	-6.04	-9.29	-1.91	2.74	3.32	5.66	2.92
08-Mar-2009	20:00:00	-4.63	-6.95	-9.79	-1.94	2.58	3.15	5.53	2.76
09-Mar-2009	08:00:00	-4.98	-6.52	-10.15	-2	2.27	3.19	5.51	2.78
09-Mar-2009	20:00:00	-5.38	-7.85	-11.08	-2.09	2.07	3.03	5.32	2.61
10-Mar-2009	08:00:00	-5.92	-7.28	-11.27	-2.19	1.67	2.99	5.27	2.58
10-Mar-2009	20:00:00	-5.75	-7.89	-11.65	-2.17	1.57	2.95	5.25	2.49
11-Mar-2009	08:00:00	-5.88	-7.16	-11.75	-2.2	1.2	2.89	5.21	2.45
11-Mar-2009	20:00:00	-6.36	-8.22	-12.21	-2.28	0.93	2.75	5.08	2.36
12-Mar-2009	08:00:00	-6.72	-7.58	-12.38	-2.36	0.27	2.69	5	2.31
12-Mar-2009	20:00:00	-6.84	-8.06	-13.01	-2.42	-0.33	2.58	5	2.26
13-Mar-2009	08:00:00	-7.01	-7.35	-13.04	-2.47	-1.05	2.52	4.94	2.22
13-Mar-2009	20:00:00	-6.82	-6.69	-13.04	-2.41	-1.4	2.61	4.97	2.26
14-Mar-2009	08:00:00	-3.95	-1.88	-10.99	-1.59	0.14	3.17	5.3	2.6
14-Mar-2009	20:00:00	-1.93	0.21	-10.07	-1.12	3.29	3.54	5.89	3.13
15-Mar-2009	08:00:00	1.02	1.91	-0.82	0.11	4.51	4.24	6.7	3.95
15-Mar-2009	20:00:00	0.04	0.98	-1.44	-0.72	4.78	3.93	6.57	3.84
16-Mar-2009	08:00:00	-0.98	0.19	-4.6	-0.97	4.64	3.8	6.4	3.57
16-Mar-2009	20:00:00	-1.27	-0.21	-5.53	-0.99	4.55	3.8	6.33	3.52
17-Mar-2009	08:00:00	-2.03	-1.07	-6.92	-1.12	4.4	3.64	6.04	3.34
17-Mar-2009	20:00:00	-2.52	-2.62	-8.19	-1.24	4.33	3.57	5.85	3.18
18-Mar-2009	08:00:00	-2.99	-3.32	-8.42	-1.37	4.12	3.52	5.84	3.13
18-Mar-2009	20:00:00	-3.05	-4.56	-8.68	-1.41	4.06	3.46	5.83	3.01
19-Mar-2009	08:00:00	-3.53	-4.91	-8.9	-1.53	3.74	3.42	5.78	2.97
19-Mar-2009	20:00:00	-4.07	-5.76	-9.05	-1.62	3.61	3.36	5.57	2.85
20-Mar-2009	08:00:00	-4.54	-6.03	-9.23	-1.77	3.3	3.36	5.57	2.89
20-Mar-2009	20:00:00	-4.98	-7.25	-9.72	-1.89	3.03	3.2	5.39	2.73
21-Mar-2009	08:00:00	-5.48	-7.06	-9.99	-2.04	2.5	3.13	5.32	2.67
21-Mar-2009	20:00:00	-5.45	-7.37	-10.16	-2.06	2.4	3.12	5.37	2.63
22-Mar-2009	08:00:00	-5.85	-7.07	-10.57	-2.14	1.98	3.09	5.35	2.6
22-Mar-2009	20:00:00	-5.68	-7.87	-11.12	-2.14	1.88	2.94	5.25	2.49
23-Mar-2009	08:00:00	-6.15	-7.25	-11.41	-2.23	1.41	2.95	5.2	2.46
23-Mar-2009	20:00:00	-6.08	-8.09	-11.62	-2.25	1.2	2.83	5.14	2.39
24-Mar-2009	08:00:00	-6.72	-7.49	-12.07	-2.33	0.57	2.8	5.11	2.36
24-Mar-2009	20:00:00	-6.63	-8.37	-11.54	-2.38	0.09	2.64	4.99	2.25
25-Mar-2009	08:00:00	-4.99	-3.69	-10.26	-1.7	0.67	3.19	5.23	2.5
25-Mar-2009	20:00:00	-3.57	-1.35	-9.56	-1.43	2.58	3.27	5.54	2.75
26-Mar-2009	08:00:00	-1.04	0.74	-6.69	-0.72	3.84	3.65	6.04	3.23
26-Mar-2009	20:00:00	-1.65	-0.23	-7.99	-0.97	4.1	3.52	6.07	3.27
27-Mar-2009	08:00:00	-2.44	-1.63	-8.93	-1.12	4.05	3.43	6.03	3.21
27-Mar-2009	20:00:00	1.5	2.3	1.85	0.32	5.18	4.26	6.97	4.15
28-Mar-2009	08:00:00	0.32	1.07	0.31	-0.52	5.05	3.92	6.53	3.77
28-Mar-2009	20:00:00	0.92	1.49	1.61	-0.16	5.4	4.08	6.79	3.96
29-Mar-2009	08:00:00	0.32	1.09	1.43	-0.17	5.41	3.94	6.64	3.76
29-Mar-2009	20:00:00	-1.12	-0.25	-1.69	-0.53	5.02	3.77	6.23	3.45
30-Mar-2009	08:00:00	-1.89	-1.08	-3.69	-0.73	4.74	3.74	6.11	3.33
30-Mar-2009	20:00:00	-2.49	-2.81	-6.08	-0.89	4.7	3.62	5.91	3.13
31-Mar-2009	08:00:00	-3.16	-3.23	-6.98	-1.05	4.51	3.58	5.81	3.07
31-Mar-2009	20:00:00	-2.91	-3.49	-7.22	-1.05	4.53	3.63	5.96	3.11
01-Apr-2009	08:00:00	-1.71	-0.4	-4.98	-0.69	4.64	3.85	6.15	3.34
01-Apr-2009	20:00:00	-2.06	-1.68	-4.85	-0.84	4.69	3.71	6.13	3.31
02-Apr-2009	08:00:00	-0.58	0.79	-0.32	-0.35	5.01	3.95	6.5	3.66

Date	Time	Water Level (inches)							
		UT1 - 01	UT1 - 02	UT1 - 03	UT5 - 01	UT5 - 02	UT6 - 01	UT6 - 02	UT6 - 03
02-Apr-2009	20:00:00	-0.14	0.67	-0.05	-0.46	5.04	3.83	6.47	3.58
03-Apr-2009	08:00:00	0.01	0.96	1.05	-0.21	5.1	3.92	6.56	3.69
03-Apr-2009	20:00:00	-1.72	-1.03	-3.16	-0.66	4.84	3.64	6.07	3.34
04-Apr-2009	08:00:00	-2.42	-2.04	-5.75	-0.87	4.67	3.58	5.91	3.16
04-Apr-2009	20:00:00	-2.86	-4.46	-7.59	-1.04	4.58	3.47	5.74	2.97
05-Apr-2009	08:00:00	-3.33	-4.68	-8.53	-1.18	4.34	3.44	5.73	2.94
05-Apr-2009	20:00:00	-3.84	-6.4	-8.96	-1.25	4.25	3.3	5.7	2.81
06-Apr-2009	08:00:00	-3.92	-4.44	-8.69	-1.2	4.13	3.42	5.87	2.95
06-Apr-2009	20:00:00	-5.18	-7.09	-9.86	-1.46	3.83	3.19	5.45	2.68
07-Apr-2009	08:00:00	-5.87	-7.01	-10.44	-1.57	3.47	3.13	5.42	2.64
07-Apr-2009	20:00:00	-6.49	-7.69	-10.76	-1.71	3.11	3.03	5.23	2.51
08-Apr-2009	08:00:00	-6.87	-7.11	-10.98	-1.77	2.73	3.05	5.33	2.54
08-Apr-2009	20:00:00	-6.85	-8.1	-10.9	-1.82	2.66	2.92	5.24	2.41
09-Apr-2009	08:00:00	-7.43	-7.02	-11.1	-1.87	2.27	2.96	5.25	2.46
09-Apr-2009	20:00:00	-7.54	-8.64	-11.14	-1.95	1.92	2.74	5.09	2.26
10-Apr-2009	08:00:00	-7.71	-7.45	-11.43	-1.99	1.33	2.76	5.15	2.3
10-Apr-2009	20:00:00	1.13	2.24	1.75	0.53	4.52	4.66	6.99	4.04
11-Apr-2009	08:00:00	-1.12	0.69	-1.32	-0.59	4.88	3.77	6.42	3.59
11-Apr-2009	20:00:00	-2.64	-0.77	-4.63	-0.79	4.73	3.57	6.09	3.31
12-Apr-2009	08:00:00	-3.53	-2.06	-7.09	-0.92	4.53	3.5	6.07	3.21
12-Apr-2009	20:00:00	-3.97	-4.28	-9.81	-1.03	4.47	3.37	5.86	2.99
13-Apr-2009	08:00:00	-3.86	-2.81	-8.37	-0.94	4.37	3.59	6.01	3.13
13-Apr-2009	20:00:00	-2.61	-0.92	-7.15	-0.65	4.48	3.65	6.11	3.19
14-Apr-2009	08:00:00	-2.34	-1.14	-7.72	-0.68	4.63	3.58	6.19	3.27
14-Apr-2009	20:00:00	-2.13	-0.92	-7.43	-0.62	4.67	3.61	6.16	3.3
15-Apr-2009	08:00:00	-3.49	-2.87	-8.61	-0.9	4.45	3.47	5.97	3.17
15-Apr-2009	20:00:00	-4.92	-5.83	-10.93	-1.16	4.22	3.26	5.74	2.95
16-Apr-2009	08:00:00	-5.84	-5.98	-10.81	-1.34	3.85	3.22	5.71	2.85
16-Apr-2009	20:00:00	-6.47	-7.73	-11.37	-1.5	3.65	3.01	5.56	2.68
17-Apr-2009	08:00:00	-7.13	-7.12	-11.67	-1.64	3.12	2.96	5.55	2.64
17-Apr-2009	20:00:00	-7.38	-8.74	-11.77	-1.71	2.93	2.82	5.4	2.47
18-Apr-2009	08:00:00	-7.51	-7.58	-11.92	-1.76	2.41	2.79	5.36	2.47
18-Apr-2009	20:00:00	-7.96	-9.34	-12.08	-1.84	1.96	2.68	5.27	2.31
19-Apr-2009	08:00:00	-8.17	-7.95	-12.2	-1.89	1.02	2.69	5.28	2.32
19-Apr-2009	20:00:00	-7.39	-5.88	-11.01	-1.66	1.16	2.95	5.42	2.46
20-Apr-2009	08:00:00	0.6	1.43	0.96	-0.03	5.07	4.05	6.9	3.94
20-Apr-2009	20:00:00	-1.5	0.07	-2.03	-0.55	4.79	3.71	6.33	3.48
21-Apr-2009	08:00:00	-2.41	-1	-5.08	-0.58	4.69	3.64	6.33	3.37
21-Apr-2009	20:00:00	-3.82	-3.43	-6.95	-0.78	4.51	3.46	5.98	3.12
22-Apr-2009	08:00:00	-4.9	-4.24	-8.64	-0.97	4.25	3.4	5.8	3.02
22-Apr-2009	20:00:00	-6.13	-6.76	-10.91	-1.2	4.05	3.21	5.67	2.81
23-Apr-2009	08:00:00	-6.79	-6.65	-10.33	-1.36	3.58	3.19	5.6	2.76
23-Apr-2009	20:00:00	-7.86	-8.6	-11.55	-1.55	3.33	3.06	5.43	2.58
24-Apr-2009	08:00:00	-8.21	-7.7	-11.24	-1.65	2.65	3.02	5.43	2.61
24-Apr-2009	20:00:00	-9.19	-9.85	-12.16	-1.86	2.02	2.96	5.43	2.48
25-Apr-2009	08:00:00	-9.16	-8.36	-12	-1.96	0.8	2.87	5.33	2.41
25-Apr-2009	20:00:00	-10.25	-10.97	-12.85	-2.29	-0.29	2.64	5.07	2.18
26-Apr-2009	08:00:00	-10.08	-9.14	-12.84	-2.38	-1.58	2.63	5.05	2.16
26-Apr-2009	20:00:00	-11.18	-11.58	-13.55	-2.78	-3.24	2.31	4.77	1.88
27-Apr-2009	08:00:00	-10.86	-9.59	-13.5	-2.85	-4.48	2.23	4.68	1.81
27-Apr-2009	20:00:00	-11.97	-12.05	-13.3	-3.28	-5.52	1.92	4.42	1.54
28-Apr-2009	08:00:00	-11.51	-9.95	-13.85	-3.28	-6.31	1.92	4.35	1.47
28-Apr-2009	20:00:00	-12.63	-12.2	-14.72	-3.68	-7.3	1.58	4.14	1.22
29-Apr-2009	08:00:00	-12.07	-10.03	-14.71	-3.65	-7.91	1.59	4.03	1.15
29-Apr-2009	20:00:00	-13.23	-12.05	-15.83	-4.06	-8.57	1.32	3.85	0.92
30-Apr-2009	08:00:00	-12.63	-10.06	-15.64	-4.01	-9.3	1.31	3.73	0.82
30-Apr-2009	20:00:00	-13.37	-11.11	-16.36	-4.25	-9.89	1.17	3.67	0.7
01-May-2009	08:00:00	-12.54	-9.64	-16.09	-4.06	-10.24	1.23	3.65	0.69
01-May-2009	20:00:00	-13.51	-11.06	-16.7	-4.33	-10.57	1	3.6	0.52

Date	Time	Water Level (inches)							
		UT1 - 01	UT1 - 02	UT1 - 03	UT5 - 01	UT5 - 02	UT6 - 01	UT6 - 02	UT6 - 03
02-May-2009	08:00:00	-12.81	-9.6	-16.72	-4.14	-10.81	1.11	3.51	0.55
02-May-2009	20:00:00	-13.51	-10.29	-17.74	-4.42	-11.16	0.95	3.46	0.41
03-May-2009	08:00:00	-10.11	-3.63	-14.05	-2.89	-8.13	2.28	3.78	1.02
03-May-2009	20:00:00	-10.46	-6.06	-15.77	-2.8	-8.93	2.22	3.94	1.07
04-May-2009	08:00:00	-10.45	-7.01	-15.92	-2.69	-9.38	2.05	3.91	1.04
04-May-2009	20:00:00	-11.86	-8.66	-16.28	-3.05	-9.74	1.76	3.72	0.85
05-May-2009	08:00:00	-3.01	0.94	-4.78	-0.66	-6.07	3.16	4.43	1.86
05-May-2009	20:00:00	-4.15	0.24	-10.73	-0.18	1.16	3.1	4.97	2.08
06-May-2009	08:00:00	-5.68	-1.59	-12.44	-0.38	1.2	2.95	5.09	2.17
06-May-2009	20:00:00	-0.95	1.16	-4.47	0.59	3.64	3.69	6.2	3.26
07-May-2009	08:00:00	-1.99	0.46	-5.86	0.41	3.7	3.68	6.26	3.34
07-May-2009	20:00:00	-0.22	1.5	-1.82	0	3.49	3.44	5.97	3.06
08-May-2009	08:00:00	-1.66	0.34	-5.03	-0.13	3.14	3.36	5.94	2.97
08-May-2009	20:00:00	-1.09	0.86	-2.98	0.36	3.82	3.61	6.16	3.19
09-May-2009	08:00:00	-2.09	-0.23	-5.41	0.21	3.58	3.51	6.1	3.11
09-May-2009	20:00:00	-3.29	-1.56	-6.71	-0.15	3.37	3.42	5.89	2.96
10-May-2009	08:00:00	-4.34	-3.11	-7.79	-0.34	2.95	3.33	5.75	2.88
10-May-2009	20:00:00	-6.47	-6.31	-9.8	-0.85	2.25	3.09	5.56	2.67
11-May-2009	08:00:00	-5.79	-3.46	-9.5	-0.52	1.63	3.58	5.66	2.82
11-May-2009	20:00:00	-6.12	-4.74	-10.06	-0.61	1.44	3.34	5.74	2.81
12-May-2009	08:00:00	-6.8	-5.98	-10.47	-0.68	0.58	3.18	5.7	2.71
12-May-2009	20:00:00	-8.6	-8.6	-11.12	-1.19	-0.52	2.91	5.51	2.54
13-May-2009	08:00:00	-8.63	-8.16	-12.03	-1.26	-1.59	2.85	5.33	2.43
13-May-2009	20:00:00	-9.98	-9.63	-12.62	-1.69	-2.45	2.69	5.24	2.29
14-May-2009	08:00:00	-9.53	-8.48	-13.27	-1.66	-3.21	2.68	5.14	2.21
14-May-2009	20:00:00	-11.04	-10.08	-14.13	-2.15	-4.46	2.46	4.98	2.06
15-May-2009	08:00:00	-10.27	-8.44	-13.88	-2.02	-5.49	2.61	4.97	2.11
15-May-2009	20:00:00	4.37	4.82	2.37	3.06	3.26	6.34	8.89	5.99
16-May-2009	08:00:00	-0.31	1.07	-1.2	1.21	7.05	4.42	7.17	4.23
16-May-2009	20:00:00	-1.84	0.48	-2.11	0.72	6.24	4.3	6.8	3.88
17-May-2009	08:00:00	-1.96	0.12	-1.68	0.71	5.67	4.19	6.67	3.79
17-May-2009	20:00:00	-2.49	-0.03	-1.86	0.71	5.14	4.23	6.48	3.7
18-May-2009	08:00:00	-3.22	-1.4	-3.75	0.6	4.69	4.03	6.5	3.55
18-May-2009	20:00:00	-5.71	-4.76	-7.07	0.15	4.35	3.86	6.24	3.28
19-May-2009	08:00:00	-6.19	-5.83	-8.07	-0.01	4.1	3.74	6.08	3.2
19-May-2009	20:00:00	-7.97	-8.41	-9.04	-0.38	3.82	3.56	5.88	2.98
20-May-2009	08:00:00	-7.97	-8.03	-9.89	-0.48	3.42	3.53	5.86	2.92
20-May-2009	20:00:00	-9.67	-10.2	-10.81	-0.9	2.81	3.27	5.66	2.71
21-May-2009	08:00:00	-9.29	-8.98	-11.11	-0.95	1.86	3.23	5.59	2.63
21-May-2009	20:00:00	-10.64	-10.73	-11.88	-1.31	0.58	3.13	5.51	2.52
22-May-2009	08:00:00	-10.01	-9.41	-12.08	-1.28	-0.35	3.13	5.44	2.5
22-May-2009	20:00:00	-11.49	-11.07	-12.83	-1.78	-1.13	2.95	5.28	2.33
23-May-2009	08:00:00	-10.62	-9.24	-12.76	-1.66	-1.75	3.02	5.26	2.34
23-May-2009	20:00:00	-11.77	-10.04	-13.01	-1.91	-2.23	3.02	5.24	2.32
24-May-2009	08:00:00	-10.88	-9.03	-12.99	-1.78	-3.19	3.01	5.16	2.28
24-May-2009	20:00:00	-9.15	-5.03	-11.32	-0.97	-0.87	3.28	5.33	2.4
25-May-2009	08:00:00	-7.21	-2.85	-9.75	-0.38	0.01	3.54	5.6	2.69
25-May-2009	20:00:00	-0.77	1.74	-0.15	0.73	3.53	4.15	6.36	3.45
26-May-2009	08:00:00	1.94	2.3	1.02	1.67	5.4	4.96	7.56	4.67
26-May-2009	20:00:00	-1.01	0.75	-1.08	0.72	5.43	4.32	6.84	3.94
27-May-2009	08:00:00	1.26	2.03	1.32	1.71	5.76	4.93	7.23	4.32
27-May-2009	20:00:00	-0.4	1.03	-0.39	1.01	6.16	4.46	7	4.02
28-May-2009	08:00:00	-0.96	0.62	-0.63	1.02	5.92	4.5	7.01	4.02
28-May-2009	20:00:00	-0.66	1.02	-0.33	0.83	5.51	4.42	6.87	3.88
29-May-2009	08:00:00	-1.6	0.09	-1.43	0.59	5.21	4.31	6.67	3.7
29-May-2009	20:00:00	-3.56	-2.08	-1.93	0.12	4.85	4.15	6.41	3.5
30-May-2009	08:00:00	-4.19	-3.5	-4.64	-0.02	4.63	4.11	6.36	3.41
30-May-2009	20:00:00	-7.12	-7.18	-6.74	-0.59	4.3	3.83	6.13	3.16
31-May-2009	08:00:00	-7.03	-7.07	-7.53	-0.6	3.88	3.87	6.09	3.12

Date	Time	Water Level (inches)							
		UT1 - 01	UT1 - 02	UT1 - 03	UT5 - 01	UT5 - 02	UT6 - 01	UT6 - 02	UT6 - 03
31-May-2009	20:00:00	-9.97	-10.34	-9.42	-1.27	3.18	3.48	5.75	2.82
01-Jun-2009	08:00:00	-9.39	-9.14	-9.7	-1.29	2.05	3.49	5.67	2.77
01-Jun-2009	20:00:00	-11.63	-11.47	-11.18	-1.87	0.44	3.22	5.54	2.56
02-Jun-2009	08:00:00	-10.69	-9.84	-10.96	-1.76	-0.75	3.21	5.47	2.49
02-Jun-2009	20:00:00	-12.95	-12.15	-12.77	-2.53	-2.07	2.9	5.21	2.26
03-Jun-2009	08:00:00	-11.94	-10.5	-13.16	-2.39	-3.9	2.94	5.14	2.22
03-Jun-2009	20:00:00	-13.95	-12.71	-14.43	-3.18	-6.43	2.61	4.99	1.97
04-Jun-2009	08:00:00	-1.21	1.14	-0.97	0.04	2.59	4.08	6.13	3.15
04-Jun-2009	20:00:00	-3.11	0.02	-3.39	-0.3	2.95	3.99	6.23	3.21
05-Jun-2009	08:00:00	0.02	1.34	-0.6	0.73	3.89	4.47	6.7	3.7
05-Jun-2009	20:00:00	-3.21	-0.52	-4.68	-0.03	3.75	4.06	6.41	3.45
06-Jun-2009	08:00:00	-4	-2.3	-7.03	-0.18	3.31	3.92	6.27	3.29
06-Jun-2009	20:00:00	-6.67	-6.11	-8.82	-0.72	2.57	3.63	6.09	3.07
07-Jun-2009	08:00:00	-6.76	-6.54	-9.26	-0.76	1.62	3.61	6.02	3
07-Jun-2009	20:00:00	-9.01	-9.13	-10.6	-1.4	0.08	3.27	5.75	2.75
08-Jun-2009	08:00:00	-8.45	-8.35	-11.09	-1.37	-1.26	3.29	5.76	2.71
08-Jun-2009	20:00:00	-10.56	-10.16	-12.05	-1.96	-2.28	3.06	5.54	2.5
09-Jun-2009	08:00:00	-9.81	-9.08	-12.22	-1.9	-3.22	3	5.45	2.43
09-Jun-2009	20:00:00	-7.83	-4.32	-11.28	-1.33	-1.82	3.34	5.66	2.66
10-Jun-2009	08:00:00	-7.9	-6.28	-12.06	-1.32	-3.32	3.29	5.65	2.6
10-Jun-2009	20:00:00	-2.24	1.06	-2.97	0.26	1.3	4.19	6.29	3.24
11-Jun-2009	08:00:00	-3.71	-0.35	-8.6	-0.11	2.34	3.94	6.26	3.17
11-Jun-2009	20:00:00	-0.98	1.49	-4.34	0.54	3.37	4.45	6.78	3.71
12-Jun-2009	08:00:00	-2.5	0.07	-8.4	0.24	3.49	4.25	6.74	3.6
12-Jun-2009	20:00:00	-5.87	-4.09	-12.74	-0.37	2.95	3.89	6.4	3.31
13-Jun-2009	08:00:00	-6.11	-5.5	-14.35	-0.5	2.11	3.83	6.27	3.22
13-Jun-2009	20:00:00	-8.82	-8.77	-15.4	-1.13	0.65	3.57	6.09	3
14-Jun-2009	08:00:00	-8.36	-8.3	-18.2	-1.18	-0.98	3.5	5.91	2.91
14-Jun-2009	20:00:00	-10.34	-9.85	-20.8	-1.81	-2.16	3.25	5.78	2.73
15-Jun-2009	08:00:00	-9.52	-8.96	-23.1	-1.76	-3.2	3.27	5.69	2.65
15-Jun-2009	20:00:00	-10.13	-8.79	-26.15	-1.77	-3.67	3.42	5.68	2.74
16-Jun-2009	08:00:00	-9.41	-8.38	-29.44	-1.69	-4.87	3.33	5.57	2.66
16-Jun-2009	20:00:00	-11.13	-10.5	-33.76	-2.22	-5.91	3.12	5.45	2.51
17-Jun-2009	08:00:00	0.86	1.7	-23.55	0.99	3.87	4.69	7.01	4.07
17-Jun-2009	20:00:00	-0.81	0.85	-28.96	0.45	3.96	4.51	7.11	4
18-Jun-2009	08:00:00	-1.65	0.08	-34.74	0.39	3.81	4.31	6.92	3.82
18-Jun-2009	20:00:00	-4.05	-2.75	125.63	-0.13	3.35	4.13	6.64	3.59
19-Jun-2009	08:00:00	-4.6	-4.01	125.63	-0.27	2.84	4.04	6.52	3.45
19-Jun-2009	20:00:00	-7.25	-6.96	-21.18	-0.76	2.21	3.87	6.52	3.29
20-Jun-2009	08:00:00	-7.16	-7.19	-23.08	-0.81	1.23	3.89	6.42	3.26
20-Jun-2009	20:00:00	-10.19	-10.47	-23.54	-1.59	-0.83	3.5	6.19	2.97
21-Jun-2009	08:00:00	-9.47	-9.33	-11.44	-1.59	-2.17	3.49	6.05	2.9
21-Jun-2009	20:00:00	-12.01	-11.78	-12.83	-2.35	-3.67	3.27	6.1	2.7
22-Jun-2009	08:00:00	-11.13	-10.29	-12.27	-2.27	-4.93	3.3	6.03	2.67
22-Jun-2009	20:00:00	-13.52	-12.68	-12.86	-3.23	-7.5	2.9	5.89	2.38
23-Jun-2009	08:00:00	-12.5	-11.13	-12.52	-3.12	-8.48	2.84	5.54	2.32
23-Jun-2009	20:00:00	-14.9	-13.87	-13.74	-4.32	-10.92	2.42	5.56	1.96
24-Jun-2009	08:00:00	-13.94	-12.1	-13.39	-4.08	-11.57	2.4	5.12	1.92
24-Jun-2009	20:00:00	-16.23	-14.99	-16.12	-5.68	-12.77	1.82	5.01	1.45
25-Jun-2009	08:00:00	-15.25	-13.16	-15.5	-5.19	-13.21	1.82	4.59	1.4
25-Jun-2009	20:00:00	-17.48	-15.87	-17.36	-6.94	-14.22	1.17	4.88	0.82
26-Jun-2009	08:00:00	-16.33	-14.1	-16.66	-6.23	-14.5	1.28	4.53	0.88
26-Jun-2009	20:00:00	-18.21	-16.29	-18.18	-7.66	-15.26	0.76	4.55	0.46
27-Jun-2009	08:00:00	-17.06	-14.87	-17.41	-7.27	-15.48	0.85	4.19	0.45
27-Jun-2009	20:00:00	-19.52	-17.91	-20.01	-9.34	-16.6	-0.07	4.19	-0.28
28-Jun-2009	08:00:00	-18.26	-16.94	-19.23	-8.53	-16.73	0.24	3.75	-0.26
28-Jun-2009	20:00:00	-20.26	-18.91	-21.71	-10.28	-17.68	-0.56	4.27	-0.99
29-Jun-2009	08:00:00	-19.19	-18.45	-21.35	-9.9	-17.87	-0.42	3.86	-0.97
29-Jun-2009	20:00:00	-21.64	-20.83	-23.96	-11.83	-19.14	-1.9	3.67	-2.66

Date	Time	Water Level (inches)							
		UT1 - 01	UT1 - 02	UT1 - 03	UT5 - 01	UT5 - 02	UT6 - 01	UT6 - 02	UT6 - 03
30-Jun-2009	08:00:00	-20.54	-20.5	-23.97	-11.12	-19.53	-1.39	3.6	-2.38
30-Jun-2009	20:00:00	-22.64	-22.31	-25.82	-12.98	-20.71	-2.79	3.31	-4.41
01-Jul-2009	08:00:00	-21.07	-21.09	-24.97	-10.72	-20.32	-0.36	2.38	-1.97
01-Jul-2009	20:00:00	-22.98	-22.72	-26.82	-13.23	-21.5	-3.02	2.23	-4.65
02-Jul-2009	08:00:00	-21.91	-22.71	-27.07	-12.55	-21.99	-2.61	1.03	-3.94
02-Jul-2009	20:00:00	-23.29	-24.11	-28.26	-14.34	-23.05	-4.36	0.56	-6.21
03-Jul-2009	08:00:00	-23.1	-24.34	-28.75	-13.81	-23.73	-3.9	0	-5.24
03-Jul-2009	20:00:00	-23.37	-24.98	-29.24	-15.49	-23.37	-6.32	-0.6	-8.11
04-Jul-2009	08:00:00	-23.34	-24.93	-29.8	-14.78	-23.38	-5.17	-0.81	-6.56
04-Jul-2009	20:00:00	-23.3	-24.94	-30.16	-16.21	-23.37	-7.22	-1.23	-8.78
05-Jul-2009	08:00:00	-23.32	-24.96	-30.28	-15.35	-23.38	-4.99	-1.35	-6.3
05-Jul-2009	20:00:00	-23.28	-24.97	-30.15	-15.42	-23.37	-5.44	-1.04	-6.57
06-Jul-2009	08:00:00	-22.44	-24.99	-30.22	-14.78	-23.37	-4.49	-1.21	-5.47
06-Jul-2009	20:00:00	-21.23	-24.25	-29.26	-13.31	-23.38	-1.99	-0.36	-2.5
07-Jul-2009	08:00:00	-20.11	-22.8	-29.11	-12.93	-23.36	-2.78	-0.45	-3.23
07-Jul-2009	20:00:00	-22.71	-23.35	-30.46	-15.08	-23.23	-5.01	-1.22	-6.72
08-Jul-2009	08:00:00	-21.8	-23.11	-30.15	-14.31	-23.27	-4.58	-1.63	-5.91
08-Jul-2009	20:00:00	-21.3	-22.96	-30.53	-14.14	-23.27	-4.54	-1.78	-5.8
09-Jul-2009	08:00:00	-20.42	-22.33	-30.14	-13.67	-23.29	-4.27	-1.93	-5.45
09-Jul-2009	20:00:00	-20.19	-21.41	-29.91	-11.89	-23.28	-0.19	-0.83	-2.16
10-Jul-2009	08:00:00	-18.32	-19.56	-28.61	-11.43	-23.24	-2.29	-0.75	-2.52
10-Jul-2009	20:00:00	-19.54	-19.47	-29.15	-12.63	-23.21	-3.77	-1.27	-5.09
11-Jul-2009	08:00:00	-18.56	-18.74	-29.24	-11.98	-23.18	-3.51	-1.42	-4.85
11-Jul-2009	20:00:00	-20.59	-20.15	-30.08	-13.74	-23.17	-5.83	-2.46	-7.63
12-Jul-2009	08:00:00	-19.5	-19.65	-30.56	-12.85	-23.15	-5.07	-2.6	-6.5
12-Jul-2009	20:00:00	-22.02	-21.73	-31.22	-14.98	-23.12	-8.2	-3.76	-9.74
13-Jul-2009	08:00:00	-20.79	-21.23	-31.27	-13.5	-23.09	-4.77	-3.07	-6.01
13-Jul-2009	20:00:00	-22.08	-22.29	-31.66	-15.2	-22.99	-8.21	-4.23	-9.58
14-Jul-2009	08:00:00	-21.22	-22.12	-31.94	-14.5	-23.02	-7.55	-4.66	-8.8
14-Jul-2009	20:00:00	-23.49	-23.88	-32.31	-16.59	-23.02	-10.58	-6.1	-11.94
15-Jul-2009	08:00:00	-22.7	-24.03	-32.32	-15.69	-23.02	-9.53	-6.21	-10.78
15-Jul-2009	20:00:00	-23.3	-25.09	-32.47	-17.18	-23.01	-11.89	-6.77	-13.08
16-Jul-2009	08:00:00	-23.24	-25.04	-32.51	-16.07	-23.02	-10.51	-6.42	-11.77
16-Jul-2009	20:00:00	-23.23	-25.02	-32.7	-17.88	-23.02	-12.75	-7.25	-13.98
17-Jul-2009	08:00:00	-23.19	-25.01	-32.81	-16.63	-23.01	-11.66	-6.64	-12.84
17-Jul-2009	20:00:00	-23.25	-25.02	-33.2	-18.39	-23.02	-13.79	-7.82	-14.88
18-Jul-2009	08:00:00	-23.27	-25.02	-33.27	-17.41	-23.02	-13.09	-9.48	-14.31
18-Jul-2009	20:00:00	-23.29	-25.05	-33.66	-19.23	-23.03	-15.28	-10.66	-16.42
19-Jul-2009	08:00:00	-23.25	-25.04	-33.76	-18.24	-23.03	-14.53	-11.5	-15.78
19-Jul-2009	20:00:00	-23.18	-25.04	-33.93	-19.62	-23.03	-15.83	-11.07	-17.08
20-Jul-2009	08:00:00	-23.27	-24.98	-33.95	-18.45	-23.02	-15.19	-11.45	-16.49
20-Jul-2009	20:00:00	-23.29	-24.97	-34.25	-19.85	-23.03	-16.54	-11.82	-17.84
21-Jul-2009	08:00:00	-23.4	-24.99	-33.19	-17.5	-23.04	-14.97	-12.27	-16.31
21-Jul-2009	20:00:00	-23.35	-24.98	-33.11	-18.84	-23.02	-16.35	-11.93	-17.71
22-Jul-2009	08:00:00	-23.44	-24.98	-33.44	-17.88	-23.02	-15.59	-12.63	-17
22-Jul-2009	20:00:00	-23.26	-24.97	-33.4	-18.44	-23.01	-16.12	-11.63	-17.43
23-Jul-2009	08:00:00	-23.21	-24.98	-33.03	-17.42	-23.02	-15.62	-11.34	-16.94
23-Jul-2009	20:00:00	-23.18	-24.97	-33.16	-17.5	-23.02	-15.27	-10.98	-16.58
24-Jul-2009	08:00:00	-23.24	-24.97	-33.16	-16.9	-23.01	-14.93	-11.83	-16.22
24-Jul-2009	20:00:00	-23.24	-24.98	-33.61	-19.55	-23.02	-16.83	-12.25	-18.35
25-Jul-2009	08:00:00	-23.29	-24.97	-33.58	-18.32	-23.02	-16.54	-12.86	-18.11
25-Jul-2009	20:00:00	-23.23	-24.96	-33.98	-20.38	-23.02	-17.77	-12.83	-19.41
26-Jul-2009	08:00:00	-23.26	-24.97	-34.09	-19.06	-23.01	-17.51	-13.38	-19.21
26-Jul-2009	20:00:00	-23.16	-24.98	-34.39	-20.9	-23.01	-18.39	-13.15	-20.14
27-Jul-2009	08:00:00	-23.28	-24.97	-34	-19.48	-23.03	-18.05	-14.35	-19.96
27-Jul-2009	20:00:00	-23.23	-24.97	-34.59	-21.29	-23.02	-18.94	-14.15	-20.81
28-Jul-2009	08:00:00	-23.24	-24.97	-34.42	-19.73	-23.03	-18.46	-14.63	-20.62
28-Jul-2009	20:00:00	-23.17	-24.99	-34.75	-21.76	-23.03	-19.35	-14.34	-21.39
29-Jul-2009	08:00:00	-23.12	-24.98	-34.44	-19.92	-23.02	-18.52	-13.98	-20.9

Date	Time	Water Level (inches)							
		UT1 - 01	UT1 - 02	UT1 - 03	UT5 - 01	UT5 - 02	UT6 - 01	UT6 - 02	UT6 - 03
29-Jul-2009	20:00:00	-22.94	-24.98	-34.87	-20.97	-23.02	-19.19	-14.22	-21.38
30-Jul-2009	08:00:00	-23.35	-24.98	-34.94	-19.61	-23.02	-18.7	-15.37	-21.19
30-Jul-2009	20:00:00	-23.29	-24.98	-32.56	-13.31	-21.06	-10.61	-13.79	-17.67
31-Jul-2009	08:00:00	-19.45	-24.98	-31.5	-15.57	-23.02	-14.08	-13.12	-15.66
31-Jul-2009	20:00:00	-20.06	-24.98	-31.92	-16.23	-23.03	-13.77	-13.39	-15.23
01-Aug-2009	08:00:00	-19.58	-24.73	-32.32	-16.02	-23.05	-13.7	-13.42	-15.09
01-Aug-2009	20:00:00	-21.53	-24.58	-32.68	-17.46	-23.04	-14.89	-13.93	-16.35
02-Aug-2009	08:00:00	-20.67	-24.22	-32.75	-16.77	-23.04	-14.67	-13.33	-16.06
02-Aug-2009	20:00:00	-21.29	-24.4	-32.83	-17.45	-23.05	-15.12	-13.75	-16.5
03-Aug-2009	08:00:00	-20.57	-24.18	-33.11	-16.73	-23.03	-15.21	-14.48	-16.56
03-Aug-2009	20:00:00	-22.79	-25.08	-33.48	-18.77	-23.01	-16.54	-14.64	-18.05
04-Aug-2009	08:00:00	-22.08	-25.06	-33.58	-17.72	-23.01	-16.61	-14.98	-18.21
04-Aug-2009	20:00:00	-23.38	-25.01	-33.92	-19.72	-23.02	-17.78	-15.42	-19.33
05-Aug-2009	08:00:00	-23.05	-25.01	-33.43	-18.32	-23.03	-17.66	-15.03	-19.44
05-Aug-2009	20:00:00	-21.2	-24.97	-33.23	-13.11	-23.01	-12.7	-11.57	-14.78
06-Aug-2009	08:00:00	-18.67	-24.09	-33.01	-14.26	-23.02	-12.75	-12.64	-14.14
06-Aug-2009	20:00:00	-20.65	-23.87	-33.2	-16.02	-23.02	-14.05	-13.92	-15.47
07-Aug-2009	08:00:00	-19.94	-23.61	-33.28	-15.54	-23.02	-14.2	-13.95	-15.62
07-Aug-2009	20:00:00	-22.04	-24.74	-33.7	-17.22	-23.02	-15.6	-15.1	-16.99
08-Aug-2009	08:00:00	-21.35	-24.93	-33.88	-16.42	-23.02	-15.69	-15.02	-17.14
08-Aug-2009	20:00:00	-22.98	-25.06	-33.95	-18	-23.02	-16.84	-16.06	-18.28
09-Aug-2009	08:00:00	-22.23	-25.04	-34.09	-16.96	-23.03	-16.84	-15.91	-18.43
09-Aug-2009	20:00:00	-23.43	-25.01	-34.52	-19.47	-23.04	-18.63	-17.04	-19.95
10-Aug-2009	08:00:00	-23.45	-24.99	-34.75	-18	-23.03	-18.31	-16.97	-20.1
10-Aug-2009	20:00:00	-23.4	-24.97	-35.17	-20.27	-23.02	-19.97	-16.84	-21.29
11-Aug-2009	08:00:00	-23.4	-24.97	-35	-18.58	-23.02	-19.48	-16.96	-21.4
11-Aug-2009	20:00:00	-23.39	-24.99	-35.19	-19.99	-23.03	-20.21	-16.59	-21.91
12-Aug-2009	08:00:00	-23.39	-24.97	-34.9	-18.59	-23.03	-19.35	-16.77	-21.63
12-Aug-2009	20:00:00	-22.82	-24.98	-34.27	-16.67	-23.02	-17.43	-15.37	-20.07
13-Aug-2009	08:00:00	-21.64	-24.98	-33.96	-16.42	-23.01	-17.12	-15.56	-19.38
13-Aug-2009	20:00:00	-23.13	-24.97	-34.19	-18.12	-23.03	-17.98	-16.65	-20.02
14-Aug-2009	08:00:00	-22.31	-24.98	-34.12	-17.33	-23.02	-17.59	-16.45	-19.74
14-Aug-2009	20:00:00	-23.47	-24.99	-34.55	-19.34	-23.03	-18.76	-17.58	-20.77
15-Aug-2009	08:00:00	-23.22	-24.97	-34.55	-18.12	-23.02	-18.4	-17.31	-20.76
15-Aug-2009	20:00:00	-23.46	-24.98	-34.57	-20.36	-23.02	-20.13	-18.61	-21.96
16-Aug-2009	08:00:00	-23.51	-24.99	-34.6	-18.93	-23.02	-19.71	-18.27	-22.05
16-Aug-2009	20:00:00	-14.77	-22.92	-29.62	-7.87	-22.88	-5.56	-7.29	-7.71
17-Aug-2009	08:00:00	-11.18	-14.34	-28.34	-5.52	-22.48	-3.68	-5.56	-4.19
17-Aug-2009	20:00:00	-13.4	-13.96	-28.89	-8.06	-23.03	-5.99	-7.63	-7.8
18-Aug-2009	08:00:00	-13.13	-13.23	-29.55	-8.58	-23.03	-6.98	-8.04	-8.72
18-Aug-2009	20:00:00	-15.83	-15.59	-30.74	-10.54	-23.03	-9.4	-9.64	-11.19
19-Aug-2009	08:00:00	-15.19	-15.51	-31.27	-10.44	-23.03	-9.85	-9.76	-11.51
19-Aug-2009	20:00:00	-9.02	-3.34	-28.82	-1.71	-0.61	1.57	-0.5	0.21
20-Aug-2009	08:00:00	-8.65	-5.21	-27.96	-2.2	-15.69	-0.1	-0.47	-0.32
20-Aug-2009	20:00:00	-11.12	-9.13	-28.55	-3.29	-16.13	-1	-1.09	-1.43
21-Aug-2009	08:00:00	-10.68	-9.49	-28.91	-3.55	-16.19	-1.11	-1.25	-1.87
21-Aug-2009	20:00:00	-5.9	-0.36	-27.2	-1.05	-2.53	1.74	0.46	0.62
22-Aug-2009	08:00:00	-6.71	-2.75	-25.92	-1.63	-2.65	1.34	0.39	0.23
22-Aug-2009	20:00:00	-9.89	-8.18	-27.63	-2.7	-3.08	0.65	-0.11	-0.52
23-Aug-2009	08:00:00	-1.79	0.67	-18.5	-0.72	3.66	2.48	1.74	1.03
23-Aug-2009	20:00:00	-4.81	-1.27	-19.92	-1.54	3.2	2.09	1.89	0.66
24-Aug-2009	08:00:00	-3.59	-0.26	-18.09	-1.23	3.49	2	2.1	0.64
24-Aug-2009	20:00:00	-6.42	-4.34	-19.84	-2.06	2.57	1.63	1.99	0.27
25-Aug-2009	08:00:00	-6.79	-5.95	-19.92	-2.29	0.98	1.37	1.95	0.13
25-Aug-2009	20:00:00	-9.05	-9.44	-21.88	-3.04	-0.86	0.79	1.72	-0.39
26-Aug-2009	08:00:00	-9.03	-9.59	-21.91	-3.23	-2.99	0.62	1.65	-0.52
26-Aug-2009	20:00:00	-11.33	-12.2	-24.35	-4.09	-11.1	-0.04	1.34	-1.2
27-Aug-2009	08:00:00	-10.98	-11.44	-24.22	-4.24	-13.88	-0.11	1.28	-1.29
27-Aug-2009	20:00:00	-13.15	-13.38	-26.25	-5.24	-15.63	-0.84	0.97	-2.23

Date	Time	Water Level (inches)							
		UT1 - 01	UT1 - 02	UT1 - 03	UT5 - 01	UT5 - 02	UT6 - 01	UT6 - 02	UT6 - 03
28-Aug-2009	08:00:00	-12.31	-11.83	-25.88	-5.24	-16.2	-0.64	0.94	-2.1
28-Aug-2009	20:00:00	-12.9	-12.23	-26.51	-5.49	-16.89	-0.1	0.9	-2.08
29-Aug-2009	08:00:00	-10.69	-9.48	-25.02	-4.74	-15.94	-0.18	1.22	-1.09
29-Aug-2009	20:00:00	-12.88	-12.68	-27.04	-6.16	-17.45	-1.16	0.85	-2.23
30-Aug-2009	08:00:00	-12.22	-12.2	-27.14	-6.26	-18.03	-1.21	0.81	-2.43
30-Aug-2009	20:00:00	-14.07	-14.17	-28.48	-7.49	-19.11	-1.88	0.44	-3.66
31-Aug-2009	08:00:00	-4.08	-0.13	-18.03	-2.32	-2.67	1.57	1.93	0.5
31-Aug-2009	20:00:00	-6.15	-3.4	-18.9	-2.65	-13.35	1.12	1.98	0.18
22-Aug-2009	20:00:00	-9.89	-5.63	-19.37	-2.82	-13.81	0.95	2.01	-0.01
23-Aug-2009	08:00:00	-1.79	-8.42	-20.8	-3.38	-14.39	0.59	1.88	-0.36
23-Aug-2009	20:00:00	-4.81	-8.96	-20.91	-3.53	-14.8	0.47	1.84	-0.49
24-Aug-2009	08:00:00	-3.59	-11.5	-22.95	-4.37	-15.91	-0.2	1.55	-1.17
24-Aug-2009	20:00:00	-6.42	-11.02	-22.85	-4.64	-16.39	-0.28	1.51	-1.25
25-Aug-2009	08:00:00	-6.79	-12.99	-24.75	-5.58	-17.47	-0.9	1.18	-2.14
25-Aug-2009	20:00:00	-9.05	-12.05	-24.63	-5.8	-17.84	-0.94	1.12	-2.17
26-Aug-2009	08:00:00	-9.03	-14.29	-26.79	-7.04	-18.92	-1.69	0.75	-3.55
26-Aug-2009	20:00:00	-11.33	-13.59	-26.65	-7.16	-19.31	-1.75	0.66	-3.33
27-Aug-2009	08:00:00	-10.98	-15.88	-28.53	-8.58	-20.21	-2.7	0.15	-5.02
27-Aug-2009	20:00:00	-13.15	-15.48	-28.71	-8.49	-20.55	-2.65	0.02	-4.37
28-Aug-2009	08:00:00	-12.31	-16.66	-29.54	-9.24	-21.12	-3.11	-0.25	-5.06
28-Aug-2009	20:00:00	-12.9	-16.4	-29.48	-9.18	-21.39	-3.08	-0.36	-4.63
29-Aug-2009	08:00:00	-10.69	-17.81	-29.88	-10.32	-22.27	-3.94	-0.77	-5.98
29-Aug-2009	20:00:00	-12.88	-17.66	-30.37	-10.2	-22.79	-3.86	-0.96	-5.48
01-Sep-2009	08:00:00	-6.96	-13.78	-29.67	-7.77	-20.89	-1.01	-0.65	-2.95
01-Sep-2009	20:00:00	-8.58	-11.93	-28.25	-8.45	-21.32	-2.47	-0.41	-2.93
02-Sep-2009	08:00:00	-8.5	-7.88	-25.6	-6.66	-18.52	-0.84	0.28	-1.52
02-Sep-2009	20:00:00	-10.54	-9.04	-24.58	-6.97	-19.83	-1.41	0.3	-1.85
03-Sep-2009	08:00:00	-10.16	-10.16	-25.17	-7.53	-20.32	-1.58	0.22	-2.28
03-Sep-2009	20:00:00	-11.89	-10.18	-25.07	-7.46	-20.33	-1.62	0.11	-2.55
04-Sep-2009	08:00:00	-11.59	-11.65	-26.61	-8.36	-20.75	-2.11	-0.2	-3.65
04-Sep-2009	20:00:00	-13.51	-11.2	-26.55	-8.19	-20.74	-2.13	-0.3	-3.61
05-Sep-2009	08:00:00	-13.2	-8.18	-27.63	-2.7	-3.08	0.65	-0.11	-0.52
05-Sep-2009	20:00:00	-15.15	0.67	-18.5	-0.72	3.66	2.48	1.74	1.03
06-Sep-2009	08:00:00	-14.57	-1.27	-19.92	-1.54	3.2	2.09	1.89	0.66
06-Sep-2009	20:00:00	-15.43	-0.26	-18.09	-1.23	3.49	2	2.1	0.64
07-Sep-2009	08:00:00	-14.75	-4.34	-19.84	-2.06	2.57	1.63	1.99	0.27
07-Sep-2009	20:00:00	-16.22	-5.95	-19.92	-2.29	0.98	1.37	1.95	0.13
08-Sep-2009	08:00:00	-15.55	-9.44	-21.88	-3.04	-0.86	0.79	1.72	-0.39
08-Sep-2009	20:00:00	-14.5	-9.59	-21.91	-3.23	-2.99	0.62	1.65	-0.52
09-Sep-2009	08:00:00	-12.56	-12.2	-24.35	-4.09	-11.1	-0.04	1.34	-1.2
09-Sep-2009	20:00:00	-9.91	-11.44	-24.22	-4.24	-13.88	-0.11	1.28	-1.29
10-Sep-2009	08:00:00	-9.7	-13.38	-26.25	-5.24	-15.63	-0.84	0.97	-2.23
10-Sep-2009	20:00:00	-10.42	-11.83	-25.88	-5.24	-16.2	-0.64	0.94	-2.1
11-Sep-2009	08:00:00	-10.07	-12.23	-26.51	-5.49	-16.89	-0.1	0.9	-2.08
11-Sep-2009	20:00:00	-11.47	-9.48	-25.02	-4.74	-15.94	-0.18	1.22	-1.09
12-Sep-2009	08:00:00	-10.89	-12.68	-27.04	-6.16	-17.45	-1.16	0.85	-2.23
12-Sep-2009	20:00:00	-12.93	-13.31	-28.06	-9.58	-21.41	-3.04	-0.84	-5.32
13-Sep-2009	08:00:00	-12.37	-12.64	-28.16	-9.38	-21.62	-3.1	-1.02	-4.96
13-Sep-2009	20:00:00	-13.97	-14.83	-29.37	-10.65	-22.44	-4.29	-1.68	-6.75
14-Sep-2009	08:00:00	-13.38	-13.68	-29.48	-10.4	-22.97	-4.23	-1.9	-6.04
14-Sep-2009	20:00:00	-15.16	-15.42	-30.44	-11.8	-23.13	-5.74	-2.63	-7.99
15-Sep-2009	08:00:00	-14.47	-14.62	-30.84	-11.39	-23.1	-5.4	-2.77	-7.1
15-Sep-2009	20:00:00	-15.28	-15.46	-31.22	-12.11	-23.09	-6.18	-3.28	-7.98
16-Sep-2009	08:00:00	-14.55	-14.96	-31.4	-11.73	-23.09	-5.57	-3.25	-7.09
16-Sep-2009	20:00:00	-13.06	-12.65	-31.61	-10.7	-23.1	-3.69	-2.56	-4.64
17-Sep-2009	08:00:00	-8.76	-3.87	-29.48	-6.61	-22.55	0.59	-0.7	-1.46
17-Sep-2009	20:00:00	-6.14	-3.59	-22.43	-6.08	-19.14	-1.02	-0.16	-1.11
18-Sep-2009	08:00:00	1.1	1.55	-8.14	-0.83	-0.19	2.34	1.83	1.28
18-Sep-2009	20:00:00	-1.51	0.44	-14.99	-1.16	1.38	2.47	1.77	0.83

Date	Time	Water Level (inches)							
		UT1 - 01	UT1 - 02	UT1 - 03	UT5 - 01	UT5 - 02	UT6 - 01	UT6 - 02	UT6 - 03
19-Sep-2009	08:00:00	-2.8	-0.64	-15.73	-1.59	1.61	2.35	2.04	0.64
19-Sep-2009	20:00:00	-0.98	0.58	-13.82	-0.63	4.44	3.03	3.36	1.35
20-Sep-2009	08:00:00	1.05	1.63	-1.27	0.25	5.34	3.87	5.04	2.16
20-Sep-2009	20:00:00	0.86	1.27	-0.83	-0.1	5.27	3.82	5.88	2.71
21-Sep-2009	08:00:00	0.38	0.98	-1.15	-0.16	5.22	3.82	6.29	3.09
21-Sep-2009	20:00:00	-0.04	0.71	-1.9	-0.3	5.1	3.77	6.39	3.21
22-Sep-2009	08:00:00	-0.79	0.08	-2.83	-0.54	4.95	3.68	6.34	3.15
22-Sep-2009	20:00:00	-1.9	-1.19	-3.37	-0.94	4.65	3.57	6.21	3.02
23-Sep-2009	08:00:00	-2.27	-2.25	-4.61	-1.17	4.37	3.53	6.12	2.93
23-Sep-2009	20:00:00	-3.67	-4.5	-5.63	-1.57	3.92	3.52	5.98	2.8
24-Sep-2009	08:00:00	-4.22	-5.42	-9.4	-1.75	3.32	3.53	5.95	2.77
24-Sep-2009	20:00:00	-6.18	-7.53	-11.6	-2.25	2.75	3.36	5.78	2.62
25-Sep-2009	08:00:00	-6.29	-7.69	-12.51	-2.35	2.09	3.3	5.78	2.59
25-Sep-2009	20:00:00	-1.38	0.41	-6.56	-0.88	4.44	3.74	6.34	3.15
26-Sep-2009	08:00:00	-1.58	0.14	-5.15	-0.63	4.96	3.95	6.63	3.43
26-Sep-2009	20:00:00	1.81	2.15	3.44	1.23	6.06	4.91	7.97	4.66
27-Sep-2009	08:00:00	0.53	1.03	2.2	0.43	5.66	4.47	7.41	4.2
27-Sep-2009	20:00:00	-1.13	-0.16	-0.14	-0.03	5.44	4.24	7.04	3.86
28-Sep-2009	08:00:00	-1.55	-1.19	-2.28	-0.18	5.36	4.24	6.99	3.78
28-Sep-2009	20:00:00	-3.43	-4.06	-3.25	-0.74	5.09	3.98	6.66	3.46
29-Sep-2009	08:00:00	-4.08	-5.31	-3.69	-1.08	4.75	4.06	6.55	3.36
29-Sep-2009	20:00:00	-6.35	-8.25	-4.63	-1.73	3.97	3.87	6.31	3.12
30-Sep-2009	08:00:00	-6.62	-8.41	-5.55	-2.02	3.27	3.99	6.26	3.06
30-Sep-2009	20:00:00	-8.34	-10.2	-5.94	-2.59	2.38	3.75	6.08	2.86
01-Oct-2009	08:00:00	-8.13	-9.74	-6.13	-2.71	1.18	3.69	6.03	2.82
01-Oct-2009	20:00:00	-9.23	-10.84	-7.66	-3.02	-0.02	3.51	5.87	2.68
02-Oct-2009	08:00:00	-8.79	-9.99	-9.22	-3.02	-1.29	3.42	5.83	2.62
02-Oct-2009	20:00:00	-9.65	-10.85	-10.93	-3.29	-4.1	3.29	5.73	2.51
03-Oct-2009	08:00:00	-9.37	-10.29	-11.52	-3.3	-8.23	3.26	5.69	2.53
03-Oct-2009	20:00:00	-11.01	-11.88	-12.67	-3.82	-10.7	2.96	5.5	2.32
04-Oct-2009	08:00:00	-10.67	-11.24	-13.86	-3.86	-11.75	2.99	5.44	2.24
04-Oct-2009	20:00:00	-11.42	-11.88	-14.83	-4.15	-12.5	2.73	5.35	2.13
05-Oct-2009	08:00:00	-6.94	-4.42	-11.7	-2.48	-3.33	3.4	5.78	2.59
05-Oct-2009	20:00:00	-6.75	-6.18	-12.74	-2.39	-10.01	3.4	5.83	2.64
06-Oct-2009	08:00:00	-6.84	-7.23	-13.1	-2.35	-10.79	3.35	5.76	2.61
06-Oct-2009	20:00:00	-7.71	-8.4	-13.67	-2.5	-11.02	3.27	5.7	2.53
07-Oct-2009	08:00:00	-7.5	-8.57	-13.85	-2.48	-11.31	3.33	5.61	2.46
07-Oct-2009	20:00:00	-9.87	-10.86	-18.58	-3.14	-12.05	2.99	5.48	2.28
08-Oct-2009	08:00:00	-9.52	-10.7	-20.58	-3.34	-12.56	2.96	5.41	2.26
08-Oct-2009	20:00:00	-10.75	-11.69	-21.04	-3.76	-13.03	2.74	5.25	2.07
09-Oct-2009	08:00:00	-10.05	-10.65	-20.93	-3.68	-13.12	2.7	5.28	2.11
09-Oct-2009	20:00:00	-11.25	-11.88	-21.63	-4.08	-13.63	2.54	5.15	1.94
10-Oct-2009	08:00:00	-10.68	-10.87	-21.09	-4	-13.92	2.53	5.05	1.9
10-Oct-2009	20:00:00	-11.3	-11.07	-22.17	-4.23	-14.16	2.38	4.99	1.84
11-Oct-2009	08:00:00	-10.93	-10.62	-22.86	-4.24	-14.48	2.37	4.92	1.79
11-Oct-2009	20:00:00	-11.77	-11.66	-22.05	-4.58	-14.9	2.29	4.81	1.67
12-Oct-2009	08:00:00	-11.28	-11.03	-22.14	-4.54	-15.04	2.17	4.75	1.59
12-Oct-2009	20:00:00	-9.4	-8.16	-20.79	-3.71	-14.01	2.47	4.93	1.83
13-Oct-2009	08:00:00	-8.97	-8.66	-20.42	-3.64	-14.39	2.51	4.92	1.82
13-Oct-2009	20:00:00	-10.31	-10.25	-20.73	-4.08	-14.82	2.41	4.84	1.69
14-Oct-2009	08:00:00	-6.99	-4.21	-19.86	-2.8	-12.45	2.81	5.06	2.01
14-Oct-2009	20:00:00	-1.93	0.33	-13.93	-0.91	0.43	3.61	5.95	2.77
15-Oct-2009	08:00:00	-3.49	-1.21	-14.45	-1.25	1.66	3.35	6.04	2.75
15-Oct-2009	20:00:00	-3.64	-1.94	-13.23	-1.24	1.9	3.41	6.06	2.86
16-Oct-2009	08:00:00	-4.39	-3.8	-12.68	-1.39	1.78	3.3	5.98	2.79
16-Oct-2009	20:00:00	-1.05	0.42	-6.72	-0.49	2.29	3.7	6.26	3.11
17-Oct-2009	08:00:00	-0.76	0.59	-11.49	-0.19	4.33	3.75	6.53	3.35
17-Oct-2009	20:00:00	-2.49	-0.95	-8.61	-0.53	3.89	3.6	6.42	3.23
18-Oct-2009	08:00:00	-3.44	-3.05	-6.76	-0.76	3.56	3.48	6.29	3.09

Date	Time	Water Level (inches)							
		UT1 - 01	UT1 - 02	UT1 - 03	UT5 - 01	UT5 - 02	UT6 - 01	UT6 - 02	UT6 - 03
18-Oct-2009	20:00:00	-4.94	-5.6	-10.07	-1.08	2.98	3.32	6.16	2.93
19-Oct-2009	08:00:00	-5.22	-6.45	-7.67	-1.34	2.19	3.26	6.05	2.83
19-Oct-2009	20:00:00	-5.92	-7.36	-4.61	-1.45	1.72	3.16	5.92	2.72
20-Oct-2009	08:00:00	-6.01	-7.65	-6.96	-1.61	1.04	3.14	5.86	2.66
20-Oct-2009	20:00:00	-6.67	-8.35	-9.22	-1.72	0.51	3	5.74	2.53
21-Oct-2009	08:00:00	-6.67	-8.6	-10.06	-1.85	-0.27	3.01	5.7	2.48
21-Oct-2009	20:00:00	-7.29	-8.89	-10.6	-1.93	-0.61	2.94	5.61	2.38
22-Oct-2009	08:00:00	-7.16	-8.48	-14.48	-2.02	-0.82	2.87	5.54	2.33
22-Oct-2009	20:00:00	-7.69	-9.07	-14.99	-2.08	-0.72	2.78	5.46	2.21
23-Oct-2009	08:00:00	-7.4	-8.25	-15.89	-2.1	-0.86	2.83	5.45	2.06
23-Oct-2009	20:00:00	-5.37	-5.19	-14.98	-1.47	0.19	3.12	5.66	2.38
24-Oct-2009	08:00:00	-1.92	-0.17	-15.24	-0.54	4.23	3.54	6.14	2.85
24-Oct-2009	20:00:00	-3.76	-2.99	-14.85	-0.89	3.97	3.31	5.99	2.75
25-Oct-2009	08:00:00	-4.69	-4.93	-11.1	-1.15	3.54	3.32	5.88	2.65
25-Oct-2009	20:00:00	-5.49	-6.48	-13.52	-1.28	2.97	3.19	5.8	2.56
26-Oct-2009	08:00:00	-5.95	-6.96	-12.34	-1.41	2.46	3.17	5.76	2.51
26-Oct-2009	20:00:00	-6.42	-7.53	-11.53	-1.49	1.92	3.22	5.7	2.47
27-Oct-2009	08:00:00	-6.66	-7.47	-11.66	-1.59	1.35	3.31	5.68	2.5
27-Oct-2009	20:00:00	1.64	1.85	-6.36	0.9	5.42	4.43	7.27	4.02
28-Oct-2009	08:00:00	0.57	1.07	-9.03	0.2	5.44	4.13	7.17	3.93
28-Oct-2009	20:00:00	-0.86	0.19	-7.23	-0.08	5.43	3.85	6.78	3.58
29-Oct-2009	08:00:00	-1.68	-1.03	-7.34	-0.22	5.4	3.72	6.65	3.43
29-Oct-2009	20:00:00	-2.34	-2.54	-8.07	-0.26	5.48	3.67	6.49	3.26
30-Oct-2009	08:00:00	-3.13	-3.48	-8.22	-0.35	5.47	3.65	6.45	3.18
30-Oct-2009	20:00:00	-3.81	-4.47	-6.69	-0.47	5.32	3.61	6.39	3.12
18-Oct-2009	20:00:00	-4.94	-1.47	-7.41	-0.1	5.52	3.8	6.57	3.28
19-Oct-2009	08:00:00	-5.22	0.46	-5.37	0.25	5.84	3.99	6.86	3.57
19-Oct-2009	20:00:00	-5.92	0.93	-4.69	0.36	6.01	4.14	7.11	3.83
20-Oct-2009	08:00:00	-6.01	0.02	-4.19	0.13	5.91	4	6.88	3.59
20-Oct-2009	20:00:00	-6.67	-1.26	-6.99	0	5.68	3.98	6.72	3.42
21-Oct-2009	08:00:00	-6.67	-2.82	-7.25	-0.17	5.5	3.87	6.56	3.27
21-Oct-2009	20:00:00	-7.29	-4.02	-12.38	-0.42	5.3	3.86	6.5	3.21
22-Oct-2009	08:00:00	-7.16	-5.49	-6.92	-0.6	5.22	3.68	6.35	3.06
22-Oct-2009	20:00:00	-7.69	-6.29	-7.85	-0.82	5.09	3.68	6.31	3.01
23-Oct-2009	08:00:00	-7.4	-5.6	-10.07	-1.08	2.98	3.32	6.16	2.93
23-Oct-2009	20:00:00	-5.37	-6.45	-7.67	-1.34	2.19	3.26	6.05	2.83
24-Oct-2009	08:00:00	-1.92	-7.36	-4.61	-1.45	1.72	3.16	5.92	2.72
24-Oct-2009	20:00:00	-3.76	-7.65	-6.96	-1.61	1.04	3.14	5.86	2.66
25-Oct-2009	08:00:00	-4.69	-8.35	-9.22	-1.72	0.51	3	5.74	2.53
25-Oct-2009	20:00:00	-5.49	-8.6	-10.06	-1.85	-0.27	3.01	5.7	2.48
26-Oct-2009	08:00:00	-5.95	-8.89	-10.6	-1.93	-0.61	2.94	5.61	2.38
26-Oct-2009	20:00:00	-6.42	-8.48	-14.48	-2.02	-0.82	2.87	5.54	2.33
27-Oct-2009	08:00:00	-6.66	-9.07	-14.99	-2.08	-0.72	2.78	5.46	2.21
27-Oct-2009	20:00:00	1.64	-8.25	-15.89	-2.1	-0.86	2.83	5.45	2.06
28-Oct-2009	08:00:00	0.57	-5.19	-14.98	-1.47	0.19	3.12	5.66	2.38
28-Oct-2009	20:00:00	-0.86	-0.17	-15.24	-0.54	4.23	3.54	6.14	2.85
29-Oct-2009	08:00:00	-1.68	-2.99	-14.85	-0.89	3.97	3.31	5.99	2.75
29-Oct-2009	20:00:00	-2.34	-4.93	-11.1	-1.15	3.54	3.32	5.88	2.65
30-Oct-2009	08:00:00	-3.13	-6.48	-13.52	-1.28	2.97	3.19	5.8	2.56
30-Oct-2009	20:00:00	-3.81	-6.96	-12.34	-1.41	2.46	3.17	5.76	2.51
31-Oct-2009	08:00:00	-2.09	-7.53	-11.53	-1.49	1.92	3.22	5.7	2.47
31-Oct-2009	20:00:00	-0.37	-7.47	-11.66	-1.59	1.35	3.31	5.68	2.5
01-Nov-2009	08:00:00	0.07	1.85	-6.36	0.9	5.42	4.43	7.27	4.02
01-Nov-2009	20:00:00	-1.09	1.07	-9.03	0.2	5.44	4.13	7.17	3.93
02-Nov-2009	08:00:00	-1.82	0.19	-7.23	-0.08	5.43	3.85	6.78	3.58
02-Nov-2009	20:00:00	-2.47	-1.03	-7.34	-0.22	5.4	3.72	6.65	3.43
03-Nov-2009	08:00:00	-3.36	-2.54	-8.07	-0.26	5.48	3.67	6.49	3.26
03-Nov-2009	20:00:00	-4.23	-3.48	-8.22	-0.35	5.47	3.65	6.45	3.18
04-Nov-2009	08:00:00	-5.07	-4.47	-6.69	-0.47	5.32	3.61	6.39	3.12

Date	Time	Water Level (inches)							
		UT1 - 01	UT1 - 02	UT1 - 03	UT5 - 01	UT5 - 02	UT6 - 01	UT6 - 02	UT6 - 03
04-Nov-2009	20:00:00	-5.53	-7.02	-8.27	-0.88	5.04	3.61	6.21	2.89
05-Nov-2009	08:00:00	-6.05	-7.41	-9.46	-1.03	4.9	3.54	6.14	2.85
05-Nov-2009	20:00:00	-6.49	-8.18	-9.44	-1.09	4.76	3.43	6.04	2.72
06-Nov-2009	08:00:00	-6.87	-8.31	-10.73	-1.25	4.55	3.41	5.99	2.69
06-Nov-2009	20:00:00	-7.08	-8.71	-10.56	-1.27	4.37	3.32	5.95	2.6
07-Nov-2009	08:00:00	-7.36	-8.71	-16.76	-1.37	4.02	3.44	---	2.57
07-Nov-2009	20:00:00	-7.44	-8.9	-11.57	-1.38	3.78	3.26	---	2.5
08-Nov-2009	08:00:00	-7.64	-8.95	-17.1	-1.51	3.36	3.2	---	2.5
08-Nov-2009	20:00:00	-7.71	-9.21	-13.27	-1.53	3.06	3.11	---	2.4
09-Nov-2009	08:00:00	-7.87	-9.04	-12.66	-1.62	2.63	3.09	---	2.38
09-Nov-2009	20:00:00	-7.84	-8.97	-14.85	-1.61	2.35	3.07	---	2.31
10-Nov-2009	08:00:00	-5.57	-5.31	-15.68	-0.86	2.64	3.36	---	2.54
10-Nov-2009	20:00:00	1.68	1.74	-0.74	1.05	5.92	4.4	---	4.08
11-Nov-2009	08:00:00	2.69	2.05	2.24	1.84	8.28	5.7	---	5.45
11-Nov-2009	20:00:00	1.23	1.73	1.36	1.32	8.41	4.84	---	4.71
12-Nov-2009	08:00:00	0.1	0.9	0	0.82	7.72	4.5	---	4.31
12-Nov-2009	20:00:00	-0.67	0.32	0.92	0.51	7.04	4.29	---	4.06
13-Nov-2009	08:00:00	-1.22	-0.3	-1.17	0.28	6.33	4.13	---	3.91
13-Nov-2009	20:00:00	-1.6	-1.2	-2.35	0.11	5.96	3.95	---	3.7
14-Nov-2009	08:00:00	-2.09	-1.82	-4.75	0	5.93	3.92	---	3.63
14-Nov-2009	20:00:00	-2.47	-2.44	-5.37	-0.08	5.92	3.86	---	3.52
15-Nov-2009	08:00:00	-3.03	-2.85	-8.08	-0.16	5.88	3.81	---	3.43
15-Nov-2009	20:00:00	-3.38	-3.39	-6.83	-0.19	5.84	3.72	---	3.33
16-Nov-2009	08:00:00	-3.84	-3.76	-9.04	-0.29	5.79	3.69	---	3.31
16-Nov-2009	20:00:00	-4.12	-4.31	-7.86	-0.32	5.68	3.63	---	3.21
17-Nov-2009	08:00:00	-4.52	-4.72	-10.61	-0.45	5.58	3.64	---	3.18
04-Nov-2009	20:00:00	-5.53	-7.02	-8.27	-0.88	5.04	3.61	---	2.89
05-Nov-2009	08:00:00	-6.05	-7.41	-9.46	-1.03	4.9	3.54	---	2.85
05-Nov-2009	20:00:00	-6.49	-8.18	-9.44	-1.09	4.76	3.43	---	2.72
06-Nov-2009	08:00:00	-6.87	-8.31	-10.73	-1.25	4.55	3.41	---	2.69
06-Nov-2009	20:00:00	-7.08	-8.71	-10.56	-1.27	4.37	3.32	---	2.6
07-Nov-2009	08:00:00	-7.36	-8.71	-16.76	-1.37	4.02	3.44	---	2.57
07-Nov-2009	20:00:00	-7.44	-8.9	-11.57	-1.38	3.78	3.26	---	2.5
08-Nov-2009	08:00:00	-7.64	-8.95	-17.1	-1.51	3.36	3.2	---	2.5
08-Nov-2009	20:00:00	-7.71	-9.21	-13.27	-1.53	3.06	3.11	---	2.4
09-Nov-2009	08:00:00	-7.87	-9.04	-12.66	-1.62	2.63	3.09	---	2.38
09-Nov-2009	20:00:00	-7.84	-8.97	-14.85	-1.61	2.35	3.07	---	2.31
10-Nov-2009	08:00:00	-5.57	-5.31	-15.68	-0.86	2.64	3.36	---	2.54
10-Nov-2009	20:00:00	1.68	1.74	-0.74	1.05	5.92	4.4	---	4.08
11-Nov-2009	08:00:00	2.69	2.05	2.24	1.84	8.28	5.7	---	5.45
11-Nov-2009	20:00:00	1.23	1.73	1.36	1.32	8.41	4.84	---	4.71
12-Nov-2009	08:00:00	0.1	0.9	0	0.82	7.72	4.5	---	4.31
12-Nov-2009	20:00:00	-0.67	0.32	0.92	0.51	7.04	4.29	---	4.06
13-Nov-2009	08:00:00	-1.22	-0.3	-1.17	0.28	6.33	4.13	---	3.91
13-Nov-2009	20:00:00	-1.6	-1.2	-2.35	0.11	5.96	3.95	---	3.7
14-Nov-2009	08:00:00	-2.09	-1.82	-4.75	0	5.93	3.92	---	3.63
14-Nov-2009	20:00:00	-2.47	-2.44	-5.37	-0.08	5.92	3.86	---	3.52
15-Nov-2009	08:00:00	-3.03	-2.85	-8.08	-0.16	5.88	3.81	---	3.43
15-Nov-2009	20:00:00	-3.38	-3.39	-6.83	-0.19	5.84	3.72	---	3.33
16-Nov-2009	08:00:00	-3.84	-3.76	-9.04	-0.29	5.79	3.69	---	3.31
16-Nov-2009	20:00:00	-4.12	-4.31	-7.86	-0.32	5.68	3.63	---	3.21
17-Nov-2009	08:00:00	-4.52	-4.72	-10.61	-0.45	5.58	3.64	---	3.18

Date (dd-mmm-yyyy)	Crest Gauges			On-Site Auto Rain Gauges			Bridgewater Weather Station
	UT1 (ft above bkf)	UT5 (ft above bkf)	UT6 (ft above bkf)	UT1 (in)	UT5 (in)	UT6 (in)	Rainfall (in)
3-Jan-2009				*	*	1.18	
4-Jan-2009				*	*	0.01	
5-Jan-2009				*	*	0.02	0.03
6-Jan-2009				*	*	1.36	1.31
7-Jan-2009				*	*	1.46	1.48
8-Jan-2009							
9-Jan-2009							
10-Jan-2009							
11-Jan-2009							
12-Jan-2009							
13-Jan-2009							
14-Jan-2009							
15-Jan-2009							
16-Jan-2009							
17-Jan-2009							
18-Jan-2009							
19-Jan-2009							
20-Jan-2009							
21-Jan-2009							
22-Jan-2009							
23-Jan-2009							
24-Jan-2009							
25-Jan-2009							
26-Jan-2009							
27-Jan-2009				*	*	0.04	0.01
28-Jan-2009				*	*	0.22	0.25
29-Jan-2009							
30-Jan-2009							
31-Jan-2009							

*Rain gauges malfunctioned and no data was recorded during these rain events documented for UT6.

Date (dd-mmm-yyyy)	Crest Gauges			On-Site Auto Rain Gauges			Bridgewater Weather Station
	UT1 (ft above bkf)	UT5 (ft above bkf)	UT6 (ft above bkf)	UT1 (in)	UT5 (in)	UT6 (in)	Rainfall (in)
1-Feb-2009							0.02
2-Feb-2009				*	*	0.05	
3-Feb-2009							
4-Feb-2009							
5-Feb-2009							
6-Feb-2009							
7-Feb-2009							
8-Feb-2009							
9-Feb-2009							
10-Feb-2009							
11-Feb-2009				*	*	0.29	0.26
12-Feb-2009							
13-Feb-2009				0.01			
14-Feb-2009				0.08	0.07	0.08	0.05
15-Feb-2009				0.03	0.03	0.04	0.02
16-Feb-2009							
17-Feb-2009							
18-Feb-2009				0.63	0.57	0.60	0.36
19-Feb-2009				0.01	0.01	0.01	
20-Feb-2009							
21-Feb-2009							0.25
22-Feb-2009							
23-Feb-2009							
24-Feb-2009							
25-Feb-2009							
26-Feb-2009							
27-Feb-2009				0.36	0.35	0.38	0.31
28-Feb-2009				0.91	0.81	0.86	0.79

*Rain gauges malfunctioned and no data was recorded during these rain events documented for UT6.

Date (dd-mmm-yyyy)	Crest Gauges			On-Site Auto Rain Gauges			Bridgewater Weather Station
	UT1 (ft above bkf)	UT5 (ft above bkf)	UT6 (ft above bkf)	UT1 (in)	UT5 (in)	UT6 (in)	Rainfall (in)
1-Mar-2009				0.34	1.32	1.47	1.18
2-Mar-2009				0.36	0.10	0.14	
3-Mar-2009				0.01			
4-Mar-2009							
5-Mar-2009							
6-Mar-2009							
7-Mar-2009							
8-Mar-2009							
9-Mar-2009							
10-Mar-2009							
11-Mar-2009							
12-Mar-2009							
13-Mar-2009				0.04	0.03	0.03	
14-Mar-2009				0.59	0.58	0.60	0.51
15-Mar-2009				1.07	1.02	1.13	0.98
16-Mar-2009				0.04	0.04	0.05	0.05
17-Mar-2009							
18-Mar-2009							
19-Mar-2009						0.01	
20-Mar-2009							
21-Mar-2009							
22-Mar-2009							
23-Mar-2009							
24-Mar-2009							
25-Mar-2009				0.42	0.44	0.47	0.36
26-Mar-2009				0.34	0.27	0.32	
27-Mar-2009				0.88	1.05	0.83	1.4
28-Mar-2009				0.47	0.43	0.66	
29-Mar-2009				0.09	0.09	0.15	0.1
30-Mar-2009				0.02			
31-Mar-2009							

Date (dd-mmm-yyyy)	Crest Gauges			On-Site Auto Rain Gauges			Bridgewater Weather Station
	UT1 (ft above bkf)	UT5 (ft above bkf)	UT6 (ft above bkf)	UT1 (in)	UT5 (in)	UT6 (in)	Rainfall (in)
1-Apr-2009				0.19	0.21	0.25	0.02
2-Apr-2009				0.44	0.39	0.44	0.33
3-Apr-2009				0.18	0.20	0.22	0.23
4-Apr-2009							
5-Apr-2009							
6-Apr-2009				0.06	0.03	0.03	0.01
7-Apr-2009							
8-Apr-2009				0.02	0.01		
9-Apr-2009						0.01	
10-Apr-2009				0.99	1.10	1.17	
11-Apr-2009						0.01	1.06
12-Apr-2009							
13-Apr-2009				0.29	0.28	0.27	0.05
14-Apr-2009				0.12	0.12	0.16	0.18
15-Apr-2009							0.05
16-Apr-2009							
17-Apr-2009							
18-Apr-2009							
19-Apr-2009				0.24	0.27	0.15	
20-Apr-2009				0.93	1.01	1.07	1.13
21-Apr-2009							0.01
22-Apr-2009						0.01	
23-Apr-2009							
24-Apr-2009					0.01	0.01	
25-Apr-2009						0.01	0.01
26-Apr-2009							
27-Apr-2009							
28-Apr-2009							
29-Apr-2009							
30-Apr-2009							

Date (dd-mmm-yyyy)	Crest Gauges			On-Site Auto Rain Gauges			Bridgewater Weather Station
	UT1 (ft above bkf)	UT5 (ft above bkf)	UT6 (ft above bkf)	UT1 (in)	UT5 (in)	UT6 (in)	Rainfall (in)
1-May-2009				0.03	0.03	0.03	
2-May-2009						0.01	0.03
3-May-2009				0.35	0.36	0.15	0.30
4-May-2009					0.01		0.10
5-May-2009				0.73	0.76	0.01**	
6-May-2009				0.76	0.75	0.01**	0.55
7-May-2009				0.49	0.08	0.03**	0.07
8-May-2009				0.32	0.31	0.01**	0.07
9-May-2009				0.07	0.08	0.03**	
10-May-2009							0.45
11-May-2009				0.14	0.18	0.01**	0.05
12-May-2009				0.01			0.04
13-May-2009							
14-May-2009				0.01	0.01	0.01	
15-May-2009				2.01	2.61	**	0.02
16-May-2009				0.21	0.19	0.01**	0.29
17-May-2009				0.14	0.15	**	0.23
18-May-2009				0.02			0.17
19-May-2009						0.01**	
20-May-2009							
21-May-2009							
22-May-2009					0.02		
23-May-2009				0.05	0.07	**	
24-May-2009				0.25	0.28	**	
25-May-2009				0.62	1.18	0.01**	0.16
26-May-2009				1.31	0.84	**	0.77
27-May-2009				0.50	0.78	0.01**	0.32
28-May-2009				0.20	0.12	**	
29-May-2009			0.05	0.06	0.01	0.02	0.25
30-May-2009						0.01	
31-May-2009							

**Rain bucket was clogged and full to top. Bucket was not unclogged and water not allowed to flow into tipping bucket. Data readings are likely inaccurate between 5/5 and 5/28.

Date (dd-mmm-yyyy)	Crest Gauges			On-Site Auto Rain Gauges			Bridgewater Weather Station
	UT1 (ft above bkf)	UT5 (ft above bkf)	UT6 (ft above bkf)	UT1 (in)	UT5 (in)	UT6 (in)	Rainfall (in)
1-Jun-2009							
2-Jun-2009							
3-Jun-2009				0.12	0.19	0.17	
4-Jun-2009				1.16	0.69	0.69	1.49
5-Jun-2009				0.40	0.42	0.45	0.40
6-Jun-2009							0.07
7-Jun-2009							
8-Jun-2009							
9-Jun-2009				0.37	0.29	0.25	0.42
10-Jun-2009				0.55	0.57	0.52	0.55
11-Jun-2009				0.40	0.38	0.51	0.26
12-Jun-2009				0.01			0.54
13-Jun-2009							
14-Jun-2009				0.02			0.08
15-Jun-2009				0.09	0.09	0.10	
16-Jun-2009				1.15	0.97	0.97	0.05
17-Jun-2009				0.39	0.37	0.35	0.81
18-Jun-2009						0.01	0.14
19-Jun-2009				0.01			
20-Jun-2009				0.01		0.01	
21-Jun-2009							0.02
22-Jun-2009							
23-Jun-2009						0.02	
24-Jun-2009							
25-Jun-2009							
26-Jun-2009							
27-Jun-2009							
28-Jun-2009							
29-Jun-2009							
30-Jun-2009							

Date (dd-mmm-yyyy)	Crest Gauges			On-Site Auto Rain Gauges			Bridgewater Weather Station
	UT1 (ft above bkf)	UT5 (ft above bkf)	UT6 (ft above bkf)	UT1 (in)	UT5 (in)	UT6 (in)	Rainfall (in)
1-Jul-2009				0.13	0.15	0.15	0.08
2-Jul-2009							
3-Jul-2009							
4-Jul-2009							
5-Jul-2009				0.13	0.08	0.08	0.09
6-Jul-2009				0.18	0.19	0.31	0.03
7-Jul-2009							0.06
8-Jul-2009				0.01	0.02	0.01	
9-Jul-2009				0.22	0.27	0.28	0.01
10-Jul-2009							0.29
11-Jul-2009				0.01			
12-Jul-2009							
13-Jul-2009				0.09	0.08	0.10	0.08
14-Jul-2009							
15-Jul-2009							
16-Jul-2009							
17-Jul-2009							
18-Jul-2009							
19-Jul-2009							
20-Jul-2009				0.40	0.22	0.07	0.02
21-Jul-2009							0.07
22-Jul-2009					0.03	0.04	0.01
23-Jul-2009				0.12	0.10	0.09	
24-Jul-2009							0.01
25-Jul-2009							
26-Jul-2009					0.01	0.01	
27-Jul-2009							0.01
28-Jul-2009				0.07	0.05	0.05	
29-Jul-2009				0.03	0.03	0.03	0.14
30-Jul-2009				0.64	0.55	0.55	0.39
31-Jul-2009				0.01	0.05	0.06	0.14

Date (dd-mmm-yyyy)	Crest Gauges			On-Site Auto Rain Gauges			Bridgewater Weather Station
	UT1 (ft above bkf)	UT5 (ft above bkf)	UT6 (ft above bkf)	UT1 (in)	UT5 (in)	UT6 (in)	Rainfall (in)
1-Aug-2009				0.01			0.02
2-Aug-2009				0.06	0.06	0.08	0.02
3-Aug-2009				0.01			0.22
4-Aug-2009				0.01	0.01	0.01	
5-Aug-2009				0.52	0.59	0.45	
6-Aug-2009				0.01	0.01		0.40
7-Aug-2009							
8-Aug-2009							
9-Aug-2009							
10-Aug-2009							
11-Aug-2009				0.14	0.10	0.14	
12-Aug-2009				0.27	0.25	0.27	0.55
13-Aug-2009							0.33
14-Aug-2009				0.01			
15-Aug-2009							
16-Aug-2009				0.88	0.92	1.19	
17-Aug-2009				0.40	0.43	0.44	1.92
18-Aug-2009							
19-Aug-2009				0.70	1.12	1.46	
20-Aug-2009				0.03	0.04	0.02	0.19
21-Aug-2009				0.50	0.66	0.94	0.09
22-Aug-2009				0.99	0.89	0.68	0.16
23-Aug-2009						0.17	1.49
24-Aug-2009				0.20	0.19	0.07	0.31
25-Aug-2009							0.01
26-Aug-2009							
27-Aug-2009				0.03	0.01	0.01	
28-Aug-2009				0.16	0.12	0.12	0.01
29-Aug-2009				0.05	0.08	0.12	0.38
30-Aug-2009				0.18	0.16	0.01	
31-Aug-2009				0.55	0.56	0.78	0.74

Date (dd-mmm-yyyy)	Crest Gauges			On-Site Auto Rain Gauges			Bridgewater Weather Station
	UT1 (ft above bkf)	UT5 (ft above bkf)	UT6 (ft above bkf)	UT1 (in)	UT5 (in)	UT6 (in)	Rainfall (in)
1-Sep-2009							0.01
2-Sep-2009							
3-Sep-2009				0.01			
4-Sep-2009							
5-Sep-2009							
6-Sep-2009							
7-Sep-2009							
8-Sep-2009				0.25	0.28	0.23	
9-Sep-2009				0.34	0.24	0.30	
10-Sep-2009							0.10
11-Sep-2009				0.01	0.01	0.01	
12-Sep-2009				0.01		0.01	
13-Sep-2009							
14-Sep-2009							
15-Sep-2009						0.01	
16-Sep-2009				0.14	0.14	0.14	
17-Sep-2009				0.55	0.46	0.35	0.26
18-Sep-2009				0.96	1.01	0.40***	0.85
19-Sep-2009				0.46	0.55	0.23***	0.05
20-Sep-2009				1.04	0.93	0.20***	0.75
21-Sep-2009				0.28	0.21	0.17***	0.44
22-Sep-2009				0.01		0.14***	0.11
23-Sep-2009						1.35***	
24-Sep-2009					0.01		
25-Sep-2009				0.68	*	0.72	
26-Sep-2009				1.38	*	1.20	0.40
27-Sep-2009				0.01	*	0.02	1.21
28-Sep-2009				0.01	*		
29-Sep-2009							
30-Sep-2009							

*Rain gauge malfunctioned and no data was recorded during these rain events documented for UT1 and UT6.

***Rain bucket was clogged. Bucket unclogged and water allowed to flow into tipping bucket. Data readings are likely inaccurate between 9/18 and 9/23.

Date (dd-mmm-yyyy)	Crest Gauges			On-Site Auto Rain Gauges			Bridgewater Weather Station
	UT1 (ft above bkf)	UT5 (ft above bkf)	UT6 (ft above bkf)	UT1 (in)	UT5 (in)	UT6 (in)	Rainfall (in)
1-Oct-2009							
2-Oct-2009				0.01	*	0.01	
3-Oct-2009							
4-Oct-2009				0.08	*	0.06	
5-Oct-2009				0.25	*	0.32	0.25
6-Oct-2009							
7-Oct-2009							
8-Oct-2009							
9-Oct-2009				0.01	*	0.03	
10-Oct-2009				0.02	*	0.01	
11-Oct-2009							
12-Oct-2009				0.14	*	0.15	
13-Oct-2009				0.01	*	0.01	0.13
14-Oct-2009				0.76	*	0.75	0.24
15-Oct-2009				0.09	*	0.07	0.53
16-Oct-2009				0.44	*	0.40	0.07
17-Oct-2009				0.14	*	0.15	0.59
18-Oct-2009							
19-Oct-2009							
20-Oct-2009				0.01	*	0.01	
21-Oct-2009							
22-Oct-2009							
23-Oct-2009				0.45	*	0.23	0.01
24-Oct-2009				0.10	*	0.08	0.42
25-Oct-2009							
26-Oct-2009							
27-Oct-2009				1.28	*		
28-Oct-2009				0.07	*	0.01	1.26
29-Oct-2009				0.01	*		
30-Oct-2009				0.04	*		
31-Oct-2009				0.59	*		0.15

*Rain gauge malfunctioned and no data was recorded during these rain events documented for UT1 and UT6.

***Rain bucket was clogged. Bucket unclogged and water allowed to flow into tipping bucket. Data readings are likely inaccurate between 10/27 and 11/15.

Date (dd-mmm-yyyy)	Crest Gauges			On-Site Auto Rain Gauges			Burke County Weather Station
	UT1 (ft above bkf)	UT5 (ft above bkf)	UT6 (ft above bkf)	UT1 (in)	UT5 (in)	UT6 (in)	Rainfall (in)
1-Nov-2009				0.17	*		0.69
2-Nov-2009				0.01	*	0.01	0.01
3-Nov-2009							
4-Nov-2009				0.01	*		
5-Nov-2009							
6-Nov-2009						0.95	
7-Nov-2009						0.39	
8-Nov-2009				0.01	*	0.18	
9-Nov-2009							
10-Nov-2009				1.71	*	0.72	0.01
11-Nov-2009				1.75	*	1.24	2.52
12-Nov-2009							0.49
13-Nov-2009							0.01
14-Nov-2009							
15-Nov-2009				0.01	*		

*Rain gauge malfunctioned and no data was recorded during these rain events documented for UT1 and UT6.

***Rain bucket was clogged. Bucket unclogged and water allowed to flow into tipping bucket. Data readings are likely inaccurate between 10/27 and 11/15