

Hominy Swamp Stream Restoration

EEP Project No: 180

2007 Draft Annual Monitoring Report

6th Year of Monitoring



Submitted to: NCDENR/Ecosystem Enhancement Program
1619 Mail Service Center
Raleigh, NC 27699-1619

February 2008



TABLE OF CONTENTS



Prepared by: Rummel, Klepper and Kahl, LLP
 Consulting Engineers
 900 Ridgefield Dr., Suite 350
 Raleigh, NC 27609

Design Firm: KCI Associates of North Carolina, P.A.

1.0	Executive Summary/Project Abstract	1
2.0	Project Background	1
2.1	Location and Setting	1
2.2	Mitigation Structure and Objectives	1
2.3	Project History and Background	2
2.4	Monitoring Plan View	3
3.0	Project Condition and Monitoring Results	7
3.1	Vegetation Assessment	7
3.1.1	Soil Data	7
3.1.2	Vegetative Problem Areas	7
3.1.3	Vegetative Problem Area Plan View	7
3.1.4	Stem Counts	8
3.1.5	Vegetation Plot Photos	8
3.2	Stream Assessment.	8
3.2.1	Procedural Items	8
3.2.1.a	Morphometric Criteria	8
3.2.1.b	Hydrologic Criteria	9
3.2.1.c	Bank Stability Assessment	9
3.2.2	Problem Areas Plan View (Stream)	9
3.2.3	Problem Areas Table	9
3.2.4	Numbered Issue Photos Section	10
3.2.5	Fixed Station Photos	10
3.2.6	Stability Assessment Table	10
3.2.7	Quantitative Measures Tables	10

TABLES

Table I.	Project Structure and Objectives Table	1
Table II.	Project Activity and Reporting History	2
Table III.	Project Contact Table	2
Table IV.	Project Background Table	3
Table V.	Preliminary Soil Data	7
Table VI.	Vegetative Problem Areas	7
Table VII.	Stem counts for each species arranged by plot	8
Table VIII.	Verification of Bankfull Events	9
Table IX.	BEHI and Sediment Export Estimates	9
Table X.	Stream Problem Areas	10
Table XI.	Categorical Stream Feature Visual Stability Assessment	10
Table XII.	Baseline Morphology and Hydraulic Summary	11
Table XIII.	Morphology and Hydraulic Monitoring Summary	12

FIGURES

Figure 1	Project Site Map.	4
Figure 2	Aerial Watershed Photo.	5
Figure 3	Monitoring Plan View	6

APPENDIX A – VEGETATION RAW DATA

- A.1 Vegetative Problem Area Plan View
- A.2 Vegetation Problem Areas Photos
- A.3 Vegetation Monitoring Plot Photos

APPENDIX B – GEOMORPHOLOGIC RAW DATA

- B.1 Problem Areas Plan View (Stream)
- B.2 Stream Problem Area Photos
- B.3 Stream Cross Section Photos
- B.4 Cross section Plots and Raw Data Tables
 - Exhibit cross section
- B.5 Longitudinal Plots and Raw Data Tables
 - Exhibit Longitudinal Profile
 - Exhibit Raw Data Tables for Slope
- B.6 Pebble Count Plots and Raw Data Tables
- B.7 Table B.1. Categorical Stream Feature Visual Stability Assessment

1.0 Executive Summary/Project Abstract

Hominy Swamp Creek was restored through the North Carolina Wetlands Restoration Program (NCWRP). The objectives of the project are to:

- 1.) Establish a stable dimension, pattern and profile on 2,232 feet of Hominy Swamp Creek
- 2.) Improve habitat within Hominy Swamp Creek
- 3.) Establish a riparian buffer along Hominy Swamp Creek
- 4.) Incorporate this project into a watershed wide management plan

The year 2007 is Monitoring Year 6 (MY6); an extension of the 5-year monitoring plan for Hominy Swamp Creek.

Overall, while the majority of the stream is functioning well and holding grade, the stream has areas of concern and areas of immediate need. Table X shows a summary of identified problem areas within the project reach. Channel dimension and pattern are similar to as-built conditions with the exceptions of the noted areas of bank slumping. Placed structures are holding grade and functioning well.

2.0 Project Background

2.1 Location and Setting

The project is located within the city limits of Wilson, North Carolina. From Raleigh, take US 64 BYP East to US 64 then US 264 (Wilson exit). Proceed east on US 264 to Exit 36B, US 264 ALT East (Raleigh Road). Continue into Wilson on Raleigh Road until you reach Ripley Road. Turn left (north) on Ripley Road and the site is immediately on the east/right side of the road. Refer to Figure 1 for project location.

2.2 Mitigation Structure and Objectives

The restoration of Hominy Swamp Creek, located within the Wilson City Recreational Park, was conducted to correct identified system deficiencies. These deficiencies include: severe bank erosion, channel widening, the loss of aquatic habitat resulting from stream channelization, loss of riparian vegetation, and watershed development. The goal of the project is to develop a stable stream channel with reduced bank erosion, efficient sediment transport, enhanced warm water fisheries, and improved overall stream habitat and site aesthetics. Construction of the project was completed in September 2001.

Segment Reach ID	Mitigation Type	Approach	Linear Feet/Acreage
Hominy Swamp Creek	Restoration	Priority 1	2,232 feet

2.3 Project History and Background

Tables II, III, and IV provide the project history, contact information and background data.

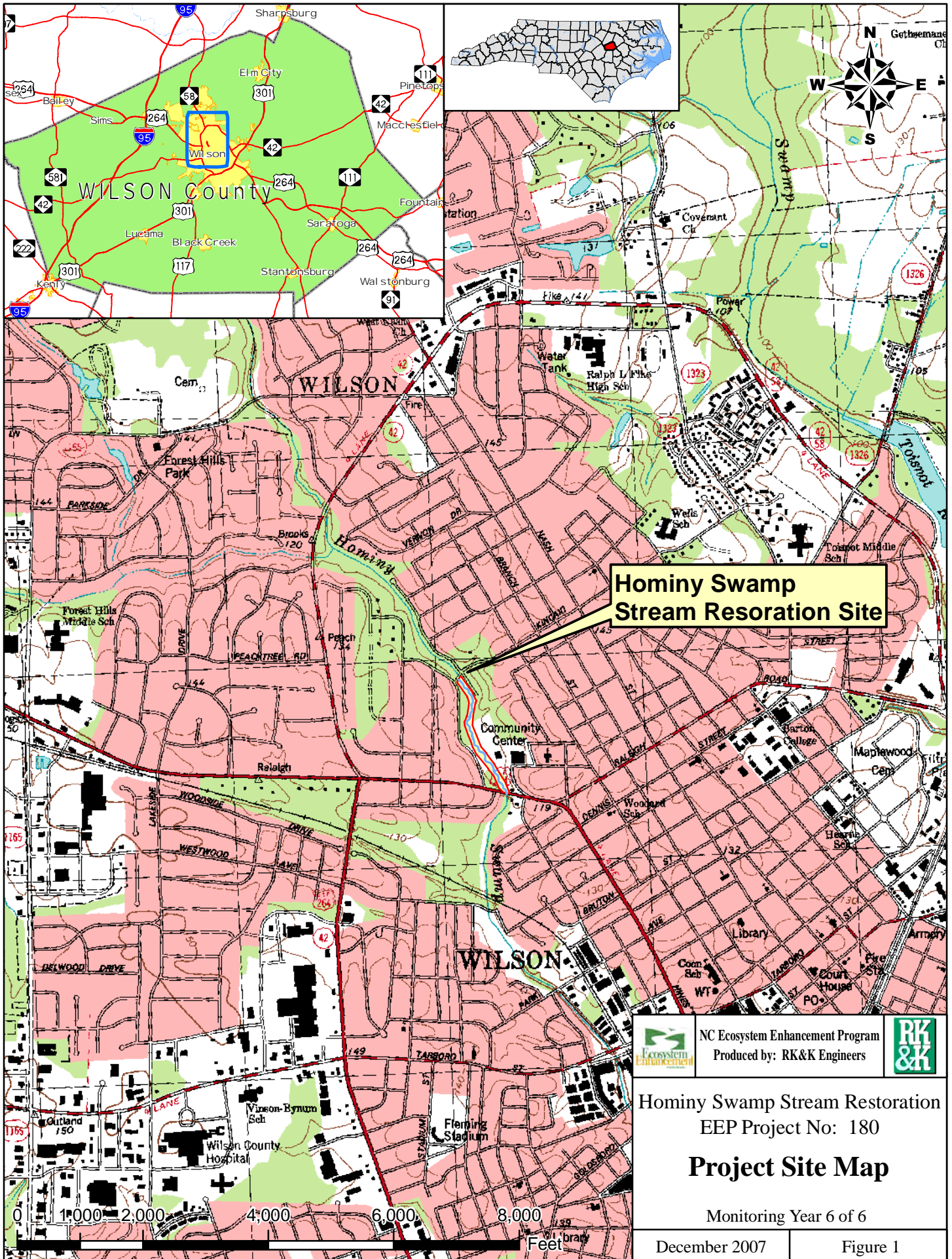
Table II. Project Activity and Reporting History Project No. 180 (Hominy Swamp Creek)		
Activity or Report	Calendar Year of Completion or Planned Completion	Actual Completion Date
Restoration Plan		2001
Mitigation Plan		January 2003
Construction		September 2001
As-Built Report		June 2002
Initial – Year 1 Monitoring		January 2003
Year 2 monitoring		December 2003
Year 3 Monitoring		December 2004
Year 4 Monitoring	December 2005 (draft)	March 2006 (final)
Year 5 Monitoring	December 2006 (draft)	January 2007 (final)
Year 6 Monitoring	December 2007 (draft)	

Table III. Project Contact Table Project No. 180 (Hominy Swamp Creek)	
Designer	KCI Associates of North Carolina, P.A. Landmark Center II, Suite 200 4601 Six Forks Road Raleigh, NC 27609
Construction Contractor	Not provided
Planting Contractor	Not provided
Seeding Contractor	Not provided
Seed Mix Sources	Not provided
Nursery Stock Suppliers	Not provided
Monitoring Performers (Years 4, 5 & 6)	Rummel, Klepper & Kahl, LLP 900 Ridgefield Drive, Suite 350 Raleigh, NC 27609
Stream Monitoring POC	Howard Woodall, P.E. 919-878-9560
Vegetation Monitoring POC	Howard Woodall, P.E. 919-878-9560


Table IV. Project Background Table Project No. 180 (Hominy Swamp Creek)	
Project County	Wilson County, North Carolina
Drainage Area	5.4 square miles
Drainage impervious cover estimate (%)	30%
Stream Order	3
Physiographic Region	Coastal Plain
Ecoregion	Rolling Coastal Plain
Rosgen Classification of As-Built	E5
Cowardin Classification	PSS1Ad
Dominant soil types	Bibb Loam (Bb)
Reference site ID	Hominy Swamp Creek
USGS HUC for Project and Reference	3020203020040
NCDWQ Sub-basin for Project and Reference	03-04-07 Neuse River Basin
NCDWQ Classification for Project and Reference	C; Sw, NSW
Any portion of any project segment 303d listed?	Yes – From its source to Conentnea Creek
Any portion of any project segment upstream of a 303d listed segment?	
Reasons for 303d listing or stressor	Impaired biological integrity; Stressors not identified (Potential sources: Urban Runoff/Storm Sewers)
% of project easement fenced	0

2.4 Monitoring Plan View

See Figure 3 for Monitoring Plan View.



**Hominy Swamp
Stream Restoration Site**


 NC Ecosystem Enhancement Program
 Produced by: RK&K Engineers



Hominy Swamp Stream Restoration
 EEP Project No: 180
Project Site Map

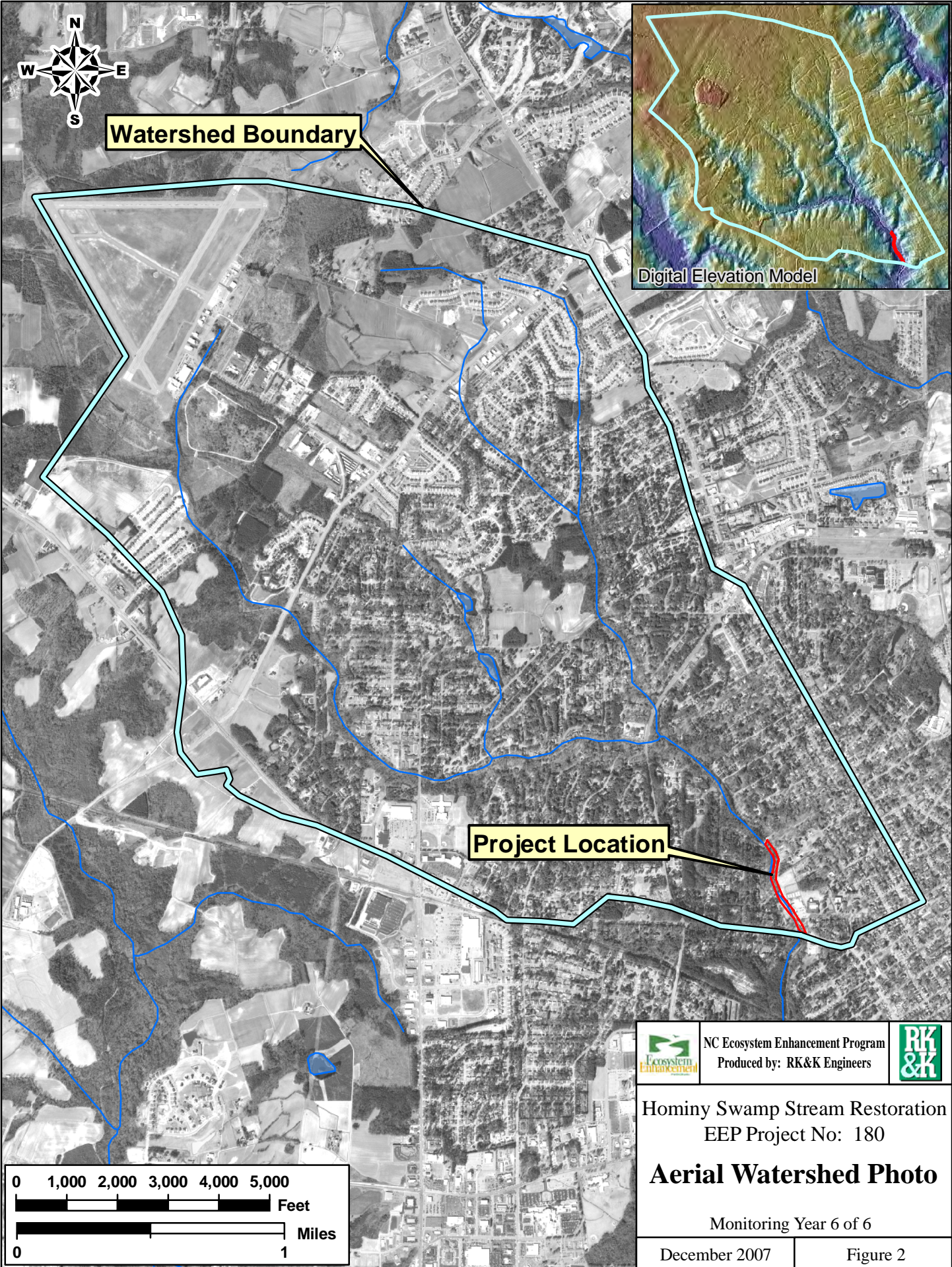
Monitoring Year 6 of 6

December 2007

Figure 1

1 inch equals 2,000 feet

Source: USGS 7.5 Minute Quadrangles, Wilson & Winstead Crossroads, NC



3.0 Project Condition and Monitoring Results

3.1 Vegetation Assessment

EEP replanted the Hominy Swamp Stream restoration site for 2006 (monitoring year 5). Based upon the CVS-EEP Protocol for Recording Vegetation 4.0 monitoring guidelines, six vegetation monitoring plots were monitored for vegetation success. The plots were installed as 10 meter X 10 meter plots on or near the previous vegetation monitoring plots. The results of the 2007 stem counts yielded a site average of 391 stems per acre which exceeds the minimum success requirement of 260 stems per acre after vegetation monitoring year 5. The taxonomic standard used was “Flora of the Carolinas, Virginia, Georgia, and surrounding areas” by: Alan S. Weakley.

3.1.1 Soil Data

The Bibb series consists of very deep, poorly drained, moderately permeable soils that formed in stratified loamy and sandy alluvium. These soils are on flood plains of streams in the Coastal Plain. They are commonly flooded and water runs off the surface very slowly. Slopes range from 0 to 2 percent. The vegetation found on Bibb series is usually dominated by native woodland species consisting of sweetgum, loblolly pine, red maple, water oak, willow oak, green ash, baldcypress, swamp tupelo, and black willow.

Table V. Preliminary Soil Data Project No. 180 (Hominy Swamp Creek)					
Series	Max Depth (in.)	% Clay on Surface	K	T	OM %
Bibb Loam (Bb)	80	2 – 18	.28 - .37	5	.5 - 2

3.1.2 Vegetative Problem Areas

Table VI. Vegetative Problem Areas Project No. 180 (Hominy Swamp Creek)			
Feature/Issue	Station #/Range	Probable Cause	Photo #
Plot 2	15+00L	Dead stems	Appendix A.2 P1
Plot 6	17+00L	Dead stems/beaver	Appendix A.2 P2

3.1.3 Vegetative Problem Area Plan View

Refer to Appendix A.1 for Vegetative Problem Area Plan View.

3.1.4 Stem Counts

The results of the stem counts yielded an average of 391 trees per acre which exceeds the minimum success criteria of 260 trees per acre after year 5 monitoring. Data for the number and type of species initially planted in each vegetation plot to acquire initial totals is not available for the new plots. To determine if the surviving stems met the minimum success criteria, the density of the surviving stem counts in the plots was converted to stems per acre.

Table VII. Stem counts for each species arranged by plot Project No. 180 (Hominy Swamp Creek)										
Species	Plots						Year 6 Totals	Initial Totals	Survival %	
	1	2	3	4	5	6				
Trees										
<i>Quercus nigra</i>							0	N/A	N/A	
<i>Quercus lyrata</i>					2		2	N/A	N/A	
<i>Quercus laurifolia</i>	2		5	2		2	11	N/A	N/A	
<i>Quercus phellos</i>	1	2			2	2	7	N/A	N/A	
<i>Quercus pagoda</i>	2	1	3	2	3		11	N/A	N/A	
<i>Quercus michauxii</i>							0	N/A	N/A	
<i>Quercus alba</i>							0	N/A	N/A	
<i>Taxodium distichum</i>							0	N/A	N/A	
<i>Carya ovata</i>							0	N/A	N/A	
<i>Ilex verticillata</i>							0	N/A	N/A	
<i>Nyssa sylvatica</i>			2	1	3		6	N/A	N/A	
<i>Fraxinus pennsylvanica</i>				1	1		2	N/A	N/A	
<i>Cornus florida</i>	2			1			3	N/A	N/A	
<i>Viburnum dentatum</i>							0	N/A	N/A	
<i>Amelanchier canadensis</i>							0	N/A	N/A	
<i>Cercis canadensis</i>			2	2			4	N/A	N/A	
<i>Clethra alnifolia</i>			2	2	1		5	N/A	N/A	
<i>Itea virginica</i>			2	1	2		5	N/A	N/A	
<i>Caphlanthus occidentalis</i>		1					1	N/A	N/A	
<i>Salix nigra</i>								N/A	N/A	

3.1.5 Vegetation Plot Photos

Photos are located in Appendix A.

3.2 Stream Assessment

3.2.1 Procedural Items

3.2.1.a Morphometric Criteria

Dimension – Previously established cross-sections were surveyed for comparison to past measurements.

Profile – The longitudinal profile of the restored stream was also surveyed for comparison to the previous monitoring survey. Since the total restored length is less than 3000 feet, the entire reach was surveyed.

3.2.1.b Hydrologic Criteria

Two bankfull events must be recorded during the 5 year monitoring period in order to meet hydrologic criteria.

Date of Data Collection	Date of Occurrence	Method	Photo #
1/5/2002, 1/22/2002, 1/3/2002	Unknown	Manual Crest Gauge	N/A
11/2004	Unknown	Visual and Manual Crest Gauge	N/A
4/2006 10/2006	4/2006 Unknown	Visual and Manual Crest Gauge	N/A
3/2007 10/2007	3/2007 Unknown	Visual and Manual Crest Gauge	N/A

3.2.1.c Bank Stability Assessment

Time Point	Segment/ Reach	Linear Footage or Acreage	Extreme		Very High		High		Moderate		Low		Very low		Sediment Export Ton /y
			ft	%	ft	%	ft	%	ft	%	ft	%	ft	%	
Post Con.	Reach I	2,232 lf	17	0.8	31	1.3	35	1.5	80	3.5	2069	92.8			57
	Project Total	2,232 lf	17	0.8	31	1.3	35	1.5	80	3.5	2069	92.8			57

3.2.2 Current Conditions Plan View (Stream) – Refer to B.1 for Current Conditions Plan View.

3.2.3 Problem Areas Table – Table X below provides categorical feature issues by station, the suspected cause, and denotes the number of a representative photo of the condition (Appendix B).

Table X. Stream Problem Areas Project No. 180 (Hominy Swamp Creek)			
Feature/Issue	Station Numbers	Suspected Cause	Photo number
Aggradation/ Bar Formation Bank Scour	04+90 - 05+50	Upstream bank scour and watershed disturbance	P33, P34
	06+60 - 06+90	Upstream bank scour and watershed disturbance	P30, P31
	14+80 - 15+20	Upstream bank scour and watershed disturbance	P14
	02+70 – 02+80	Lack of Riparian Buffer, overland flow, lack bank vegetation root mass	P42
	02+75 – 02+85	Lack of Riparian Buffer, overland flow, lack bank vegetation root mass	P41
Harvested Trees	07+90 – 08+05	Lack of Riparian Buffer, overland flow, lack bank vegetation root mass	P27, P28
	08+85 – 09+15	Lack of Riparian Buffer, overland flow, lack bank vegetation root mass	P24
	13+50 – 13+70	Lack of Riparian Buffer, overland flow, lack bank vegetation root mass	P17
	16+45 – 16+55	Lack of Riparian Buffer, overland flow, lack bank vegetation root mass	P11
	03+30 – 03+40	Trees removed from stream bank via human intervention	P38
	03+70 – 03+80	Trees removed from stream bank via human intervention	P37
	08+80 – 08+90	Trees removed from stream bank via human intervention	P25

3.2.4 Numbered issue photos section – Refer to B.2 for photos.

3.2.5 Fixed station photos – Refer to B.3 for photos.

3.2.6 Stability Assessment Table

Table XI. Categorical Stream Feature Visual Stability Assessment Project No. 180 (Hominy Swamp Creek)							
Feature	Initial	MY-01	MY-02	MY-03	MY-04	MY-05	MY-06
A. Riffles	100%	NA	NA	NA	33%	33%	33%
B. Pools	NA	NA	NA	NA	88%	88%	80%
C. Thalweg	100%	NA	NA	NA	60%	60%	60%
D. Meanders	100%	NA	NA	NA	67%	67%	67%
E. Bed General	100%	NA	NA	NA	96%	96%	96%
F. Vanes/J Hooks etc.	100%	NA	NA	NA	90%	90%	90%
G. Wads and Boulders	100%	NA	NA	NA	93%	93%	93%

3.2.7 Quantitative Measures Tables – Refer to the following pages for Table XII (Baseline Morphology and Hydraulic Summary) and Table XIII (Morphology and Hydraulic Monitoring Summary).

Table XII. Baseline Morphology and Hydraulic Summary
Project No. 180 (Hominy Swamp Creek)

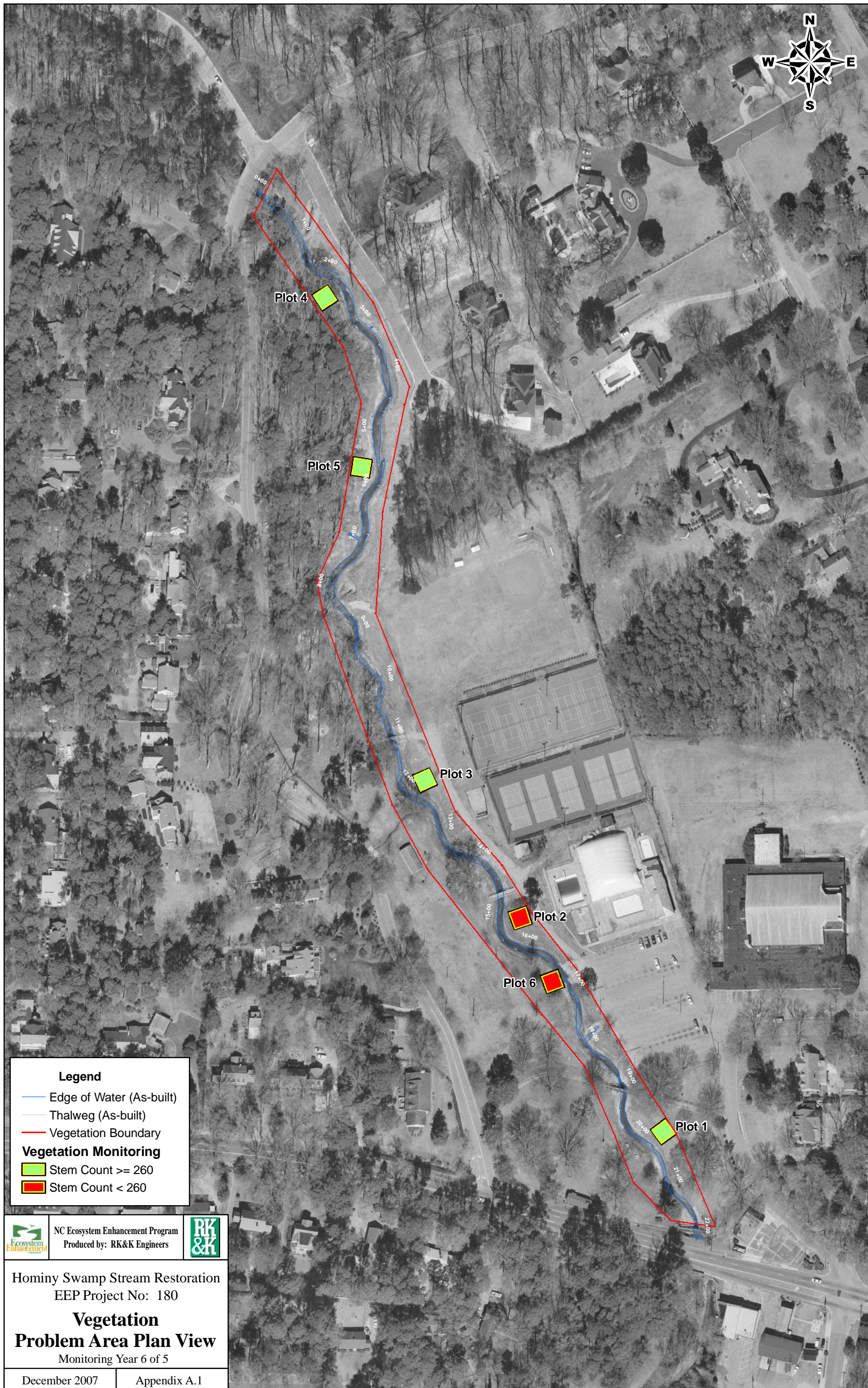
Parameter	USGS Gauge Data			Regional Curve Interval			Pre-Existing Condition			Project Reference Stream			Design			As-Built		
	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Dimension																		
BF Width (ft)							n/a	n/a	25.5	n/a	n/a	11.9	n/a	n/a	20.2	21.7	24.8	23.3
Floodprone Width (ft)							n/a	n/a	>100	n/a	n/a	45	n/a	n/a	>100	n/a	n/a	>300
BF Cross Sectional Area (ft ²)							n/a	n/a	70	n/a	n/a	19.2	n/a	n/a	55	53.4	62.3	57.9
BF Mean Depth (ft)							n/a	n/a	2.74	n/a	n/a	1.61	n/a	n/a	2.73	2.46	2.51	2.49
BF Max Depth (ft)							n/a	n/a	4.68	n/a	n/a	2.11	n/a	n/a	4.3	3.6	3.8	3.7
Width/Depth Ratio							n/a	n/a	9.3	n/a	n/a	7.4	n/a	n/a	7.4	8.8	9.9	9.4
Entrenchment Ratio							n/a	n/a	>4	n/a	n/a	>2.2	n/a	n/a	>5	12.1	13.9	13
Wetted Perimeter (ft)																		
Hydraulic radius (ft)																		
Pattern																		
Channel Beltwidth (ft)							n/a	n/a	92	n/a	n/a	92	n/a	n/a	85	n/a	n/a	85
Radius of Curvature (ft)							43	135	n/a	27.35	36.9	n/a	46.5	62.6	n/a	46.5	62.6	n/a
Meander Wavelength (ft)							114	170	n/a	107	150	n/a	182	255	n/a	182	255	n/a
Meander Width Ratio							n/a	n/a	3.6	n/a	n/a	7.7	n/a	n/a	4.2	n/a	n/a	4.2
Profile																		
Riffle length (ft)							n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Riffle slope (ft/ft)							n/a	n/a	0.00016	n/a	n/a	0.0018	n/a	n/a	0.0015	n/a	n/a	0.0015
Pool length (ft)							26	38	n/a	20	29	n/a	35	49	n/a	35	49	n/a
Pool spacing (ft)							n/a	n/a	167	n/a	n/a	69.56	91	127.5	n/a	91	127.5	n/a
Substrate																		
d50 (mm)							n/a	n/a	n/a	n/a	n/a	VFsand	n/a	n/a	0.25	n/a	n/a	0.26
d84 (mm)							n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Additional Reach Parameters																		
Valley Length (ft)									n/a			n/a			1,850			1,850
Channel Length (ft)									n/a			n/a			2,232			2,232
Sinuosity									1.1			1.41			1.2			n/a
Water Surface Slope (ft/ft)									0.0015			0.0015			0.0014			n/a
BF slope (ft/ft)									n/a			n/a			n/a			n/a
Rosgen Classification									E5 (Modified)			E5			E5			n/a
Number of Bankfull Events																		n/a
Extent of BF floodplain (acres)									n/a			n/a			n/a			n/a

**Table XIII. Morphology and Hydraulic Monitoring Summary
Project No. 180 (Hominy Swamp Creek)**

Parameter	Cross Section 1 Rifle						Cross Section 2 Rifle						Cross Section 3 Pool						Cross Section 4 Pool					
	MY1	MY2	MY3	MY4	MY5	MY6	MY1	MY2	MY3	MY4	MY5	MY6	MY1	MY2	MY3	MY4	MY5	MY6	MY1	MY2	MY3	MY4	MY5	MY6
BF Width (ft)	25	24.6	16.8	21.7	24.1	30.7	21.6	18.3	19	22.1	21.7	20.7	31.8	33.1	27.7	24	19.5	22	23.5	26.8	24.9	25.4	23.8	22.7
Floodprone Width (ft)	>300						>300						n/a						n/a					
BF Cross Sectional Area (sq.ft.)	62.3	87.2	52.7	73.9	73	86	53.1	53.9	59.8	60.7	58.8	54.8	76.3	64.9	54.3	61.8	55.5	55.8	88.3	107.5	113.8	119.5	109	95
BF Mean Depth (ft)	2.5	3.5	3.1	3.4	3	2.8	2.5	3	3.2	2.7	2.7	2.7	2.4	2	2	2.6	2.8	2.5	3.8	4	4.6	4.7	4.6	4.2
BF Max Depth (ft)	3.6	6.8	4.9	4.6	4.8	6.2	3.8	4.2	4.8	4.9	4.1	4	6	5.5	4.9	4.8	4.2	4.8	6	6.8	7.2	7.3	6.7	5.5
Width/Depth Ratio	9.9			6.4	8.0	11.0	8.79			8.2	8.0	7.7	n/a						n/a					
Entrenchment Ratio	12.08						13.85																	
Substrate																								
d50 (mm)	0.54	0.29	0.58	1.55	0.51	0.56	0.2	0.17	0.26	1.64	0.63	0.64	0.22	0.26	1.88	n/a		n/a	0.17	0.22	0.27	n/a		n/a
d84 (mm)	2	0.58	1.88	1.6	1.5	1.6	0.63	0.49	0.67	1.8	1.9	1.8	13.65	5.88	17.73	n/a		n/a	3.74	0.62	0.75	n/a		n/a
Parameter	MY-01 (2002)						MY-02 (2003)						MY-03 (2004)						MY-04 (2005)					
Pattern	Min	Max	Med				Min	Max	Med				Min	Max	Med				Min	Max	Med			
Channel Beltwidth (ft)							32	69	46				32	69	46				32	69	46			
Radius of Curvature (ft)							33	76	56				33	76	56				33	76	56			
Meander Wavelength (ft)							115	227	155				115	227	155				115	227	155			
Meander Width ratio							1.5	3.2	2.1				1.8	3.9	2.6				1.5	3.2	2.1			
Profile																								
Rifle length (ft)							15	53	23				16	41	28				15	50	25			
Rifle slope (ft/ft)																								
Pool length (ft)							30	73	52				32	115	53				27	100	55			
Pool spacing (ft)							64	178	107				45	165	108				50	200	115			
Parameter	MY-05 (2006)						MY-06 (2007)																	
Pattern	Min	Max	Med				Min	Max	Med				Min	Max	Med									
Channel Beltwidth (ft)	32	69	46				32	69	46															
Radius of Curvature (ft)	33	76	56				33	76	56															
Meander Wavelength (ft)	115	227	155				115	227	155															
Meander Width ratio	1.4	3	2				1.2	2.7	1.8															
Profile																								
Rifle length (ft)	20			25			10	100	37															
Rifle slope (ft/ft)																								
Pool length (ft)	30	125	61				34	75	48															
Pool spacing (ft)	69	135	88				47	152	90															

APPENDIX A – VEGETATION RAW DATA

A.1 VEGETATIVE PROBLEM AREA PLAN VIEW





Legend

- Edge of Water (As-built)
- Thalweg (As-built)
- Vegetation Boundary

Vegetation Monitoring

- Stem Count ≥ 260
- Stem Count < 260

 NC Ecosystem Enhancement Program
Produced by:  RK&K Engineers

Hominy Swamp Stream Restoration
EEP Project No: 180

**Vegetation
Problem Area Plan View**

Monitoring Year 6 of 5

A.2 VEGETATION PROBLEM AREAS PHOTOS

Vegetation Monitoring Plot 2



Vegetation Monitoring Plot 6



A.3 VEGETATION MONITORING PLOT PHOTOS

Vegetation Monitoring Plot 1



Vegetation Monitoring Plot 2



Vegetation Monitoring Plot 3



Vegetation Monitoring Plot 4



Vegetation Monitoring Plot 5



Vegetation Monitoring Plot 6



APPENDIX B – GEOMORPHOLOGIC RAW DATA

B.1 CURRENT CONDITIONS PLAN VIEW



P42 - Right Bank Erosion



P41 - Left Bank Erosion



P38 - Right Bank Harvested Trees



P34 - Aggradation



Plot 4

P37 - Right Bank Harvested Trees



P33 - Aggradation



P28 - Right Bank Erosion



P31 - Aggradation

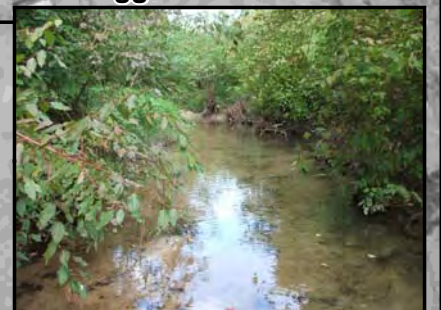


Plot 5

P27 - Right Bank Erosion



P30 - Aggradation



Legend

Feature Issues

- ||||| Aggradation - Concern
- ||||| Aggradation - High Concern
- ooooo Erosion - Concern
- ooooo Erosion - High Concern
- ▲▲▲ Harvested Trees - Concern
- Edge of Water (As-built)
- Thalweg (As-built)
- Easement Boundary

Vegetation Monitoring

- Stem Count >= 260
- Stem Count < 260

P25 - Right Bank Harvested Trees



P24 - Left Bank Erosion



Matchline
Sheet 1 - Sheet 2

Plot 3



Hominy Swamp Stream Restoration
EEP Project No: 180

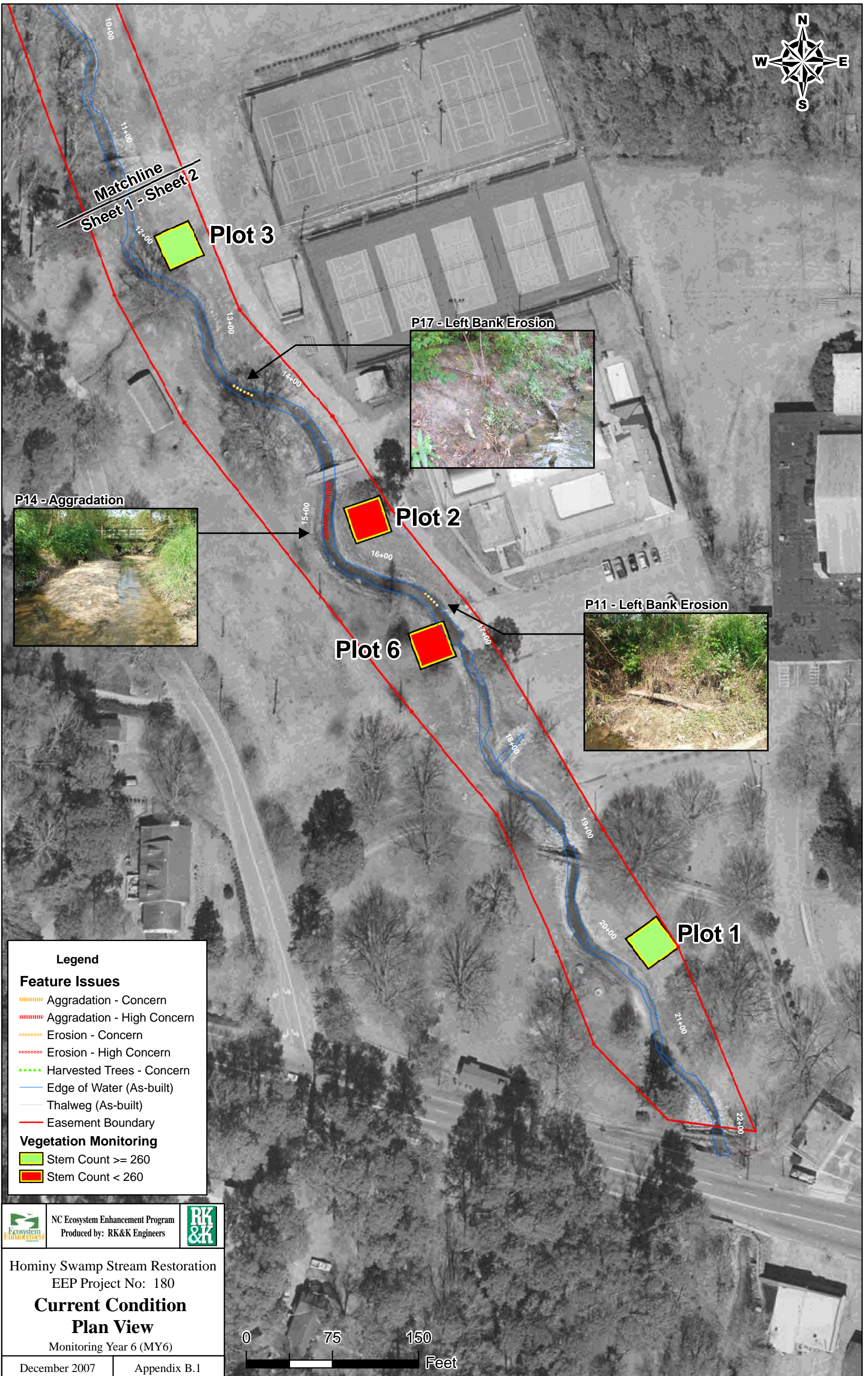
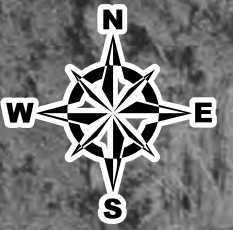
**Current Condition
Plan View**

Monitoring Year 6 (MY6)

December 2007

Appendix B.1

P17 - Le



Matchline
Sheet 1 - Sheet 2

Plot 3

P17 - Left Bank Erosion



P14 - Aggradation



Plot 2

P11 - Left Bank Erosion



Plot 6

Plot 1

Legend

Feature Issues

- Aggradation - Concern
- Aggradation - High Concern
- Erosion - Concern
- Erosion - High Concern
- Harvested Trees - Concern
- Edge of Water (As-built)
- Thalweg (As-built)
- Easement Boundary

Vegetation Monitoring

- Stem Count \geq 260
- Stem Count $<$ 260

NC Ecosystem Enhancement Program
Produced by: RK&K Engineers

Hominy Swamp Stream Restoration
EEP Project No: 180
Current Condition
Plan View
Monitoring Year 6 (MY6)



B.2 STREAM PROBLEM AREAS PHOTOS

P11 –Sta 16+75, right bank erosion, 10/22/07



P14 – Sta. 15+25, aggradation, 10/22/07



P17 – Sta. 13+75, bank erosion/tree harvest, 10/22/07



P24 – Sta. 9+10, right bank erosion, 10/22/07



P25 – Sta. 8+90, tree harvest, 10/22/07



P27 – Sta. 8+00, left bank erosion, 10/22/07



P28 – Sta. 7+90, left bank erosion, 10/22/07



P30 – Sta. 7+20, aggradation, 10/22/07



P31 – Sta. 5+95, aggradation, 10/22/07



P33 – Sta. 5+30, aggradation, 10/22/07



P34 – Sta. 5+00, aggradation, 10/22/07



P37 Sta. 3+75, tree harvest, 10/22/07



P38 – Sta. 3+40, tree harvest, 10/22/07



P41 – Sta. 2+75, tree harvest, 10/22/07



P42 – Sta. 2+65, left bank erosion, 10/22/07



B.3 STREAM CROSS SECTION PHOTOS

Hominy Swamp Cross-Section Photos

**Cross-Section 1 at Station 6+30
Upstream View, 11/28/2007**



**Cross-Section 2 at Station 13+40
Upstream View, 11/28/2007**



**Cross-Section 3 at Station 14+10
Upstream View, 11/28/2007**



**Cross-Section 4 at Station 19+90
Upstream View, 11/28/2007**



B.4 CROSS SECTION PLOTS AND RAW DATA TABLES

Project Name	Hominy Swamp Creek
Cross Section	#1
Feature	Riffle
Date	10/19/07
Crew	Ward, Stafford

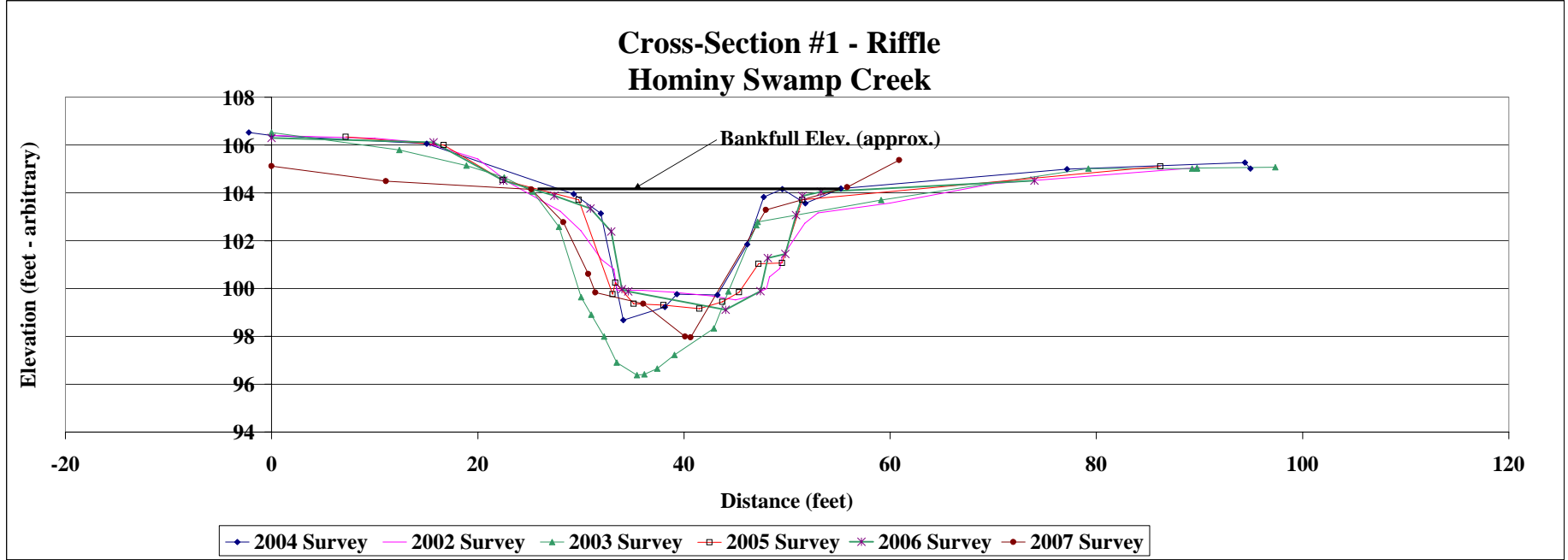
Cross-Section #1 location was moved in 2003

2002			2003			2004			2005			2006			2007		
Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes
0	106.4		0	106.52		-2.22	106.52		7.2	106.34		0.0	106.299		0	105.117	
10	106.29		12.4	105.79		0	106.4		16.68	106.00		15.7	106.117		11.08	104.494	
15	106.09		18.9	105.14		15.04	106.06		22.41	104.54		22.49	104.51		25.18	104.143	BKF
20	105.42		22.55	104.65		29.3	103.95		29.79	103.71	BKF	27.42	103.88	BKF	28.29	102.773	
23	104.43	BKF	25.31	104.05	BKF	31.92	103.14		33.07	99.77		30.93	103.34		30.7	100.612	
28	103.23		27.88	102.58		34.12	98.68		33.33	100.24		32.95	102.39		31.39	99.832	
30	102.42		30.03	99.64		38.15	99.23		38.15	99.36		33.97	99.97		36.06	99.37	
32	101.21		31	98.91		39.31	99.76		38.02	99.31		34.59	99.88		40.1	97.996	
33.2	100.8		32.24	97.99		43.25	99.73		41.5	99.16		44.03	99.11		40.64	97.954	
33.5	99.94		33.47	96.9		46.13	101.85		43.72	99.44		47.4	99.89		47.94	103.292	
36	99.93		35.45	96.38		47.72	103.82		45.33	99.84		48.12	101.28		55.83	104.234	BKF
39	99.85		36.15	96.41		49.53	104.16		47.22	101.04		49.83	101.44		60.88	105.375	
42.8	99.68		37.39	96.65		51.77	103.56		49.5	101.07		50.86	103.07				
45	99.52		39.08	97.23		55.23	104.18	BKF	51.47	103.71		51.47	103.87	BKF			
46.3	99.66		42.9	98.33		77.16	104.99		86.19	105.11		53.29	104.05				
48	99.99		44.3	99.88		94.4	105.27					73.98	104.51				
48.3	100.49		47.0	102.65		94.94	105.01										
49.3	100.84		47.1	102.78													
49.5	101.32		59.1	103.7													
51.7	102.73		79.2	105.02													
53	103.16		89.3	105.01													
60	103.57	BKF	89.7	105.01													
70	104.38		89.8	105.04	BKF												
90	105.06		97.4	105.07													



Photo of Cross-Section #1 - Looking Downstream

	2002	2003	2004	2005	2006	2007
Area	62.3	87.2	52.7	73.9	73.0	86.0
Width	25.0	24.6	16.8	21.7	24.1	30.7
Mean Depth	2.5	3.5	3.1	3.4	3.0	2.8
Max Depth	3.6	6.8	4.9	4.6	4.8	6.2



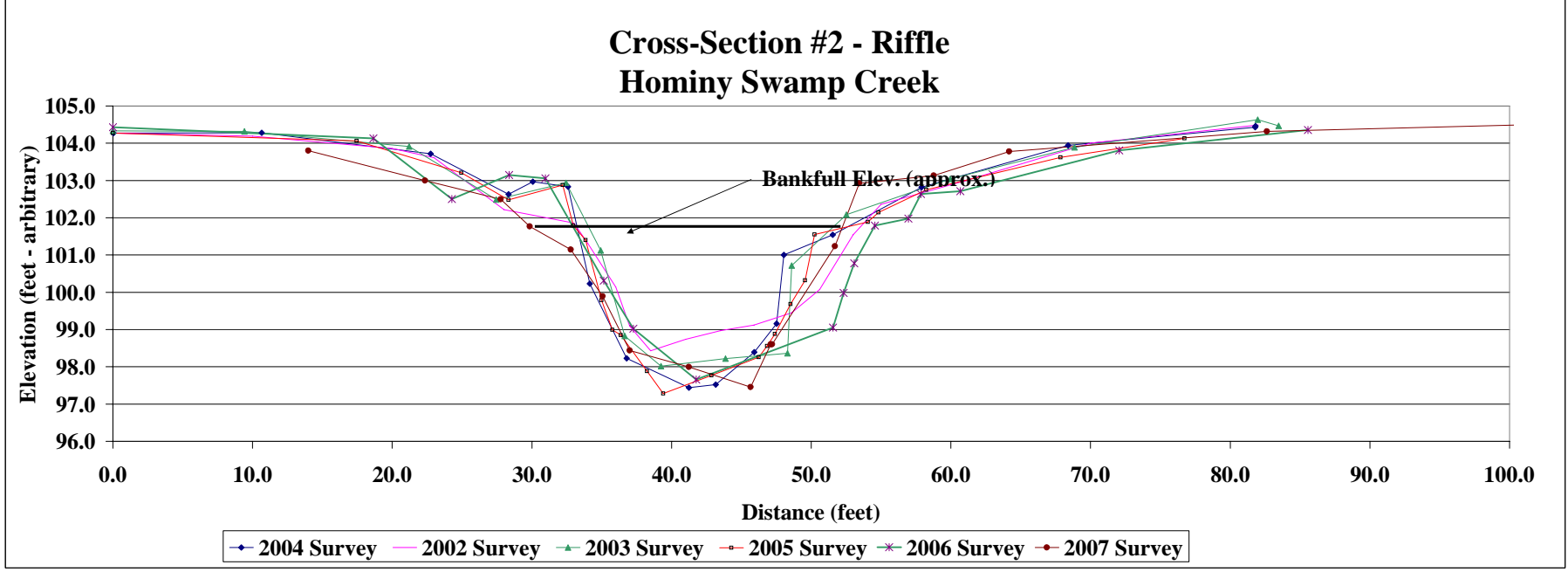
Project Name	Hominy Swamp Creek
Cross Section	#2
Feature	Riffle
Date	10/19/07
Crew	Ward, Stafford

2002 Survey			2003 Survey			2004 Survey			2005 Survey			2006 Survey			2007 Survey		
Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes
0.0	104.3		0.0	104.3		0.0	104.3		0.0	104.27		0.0	104.43		14	103.803	
10.0	104.2		9.4	104.3		10.7	104.3		17.5	104.06		18.6	104.13		22.36	102.996	
20.0	103.9		21.2	103.9		22.8	103.7		25.0	103.21		24.3	102.50		27.77	102.493	
23.0	103.6		27.5	102.5	BKF	28.3	102.6	BKF	28.3	102.48		28.4	103.15		29.84	101.769	BKF
28.0	102.2	BKF	32.5	102.9		30.1	103.0		32.2	102.88		31.0	103.06		32.78	101.142	
33.0	101.9		34.9	101.1		32.6	102.8		33.0	101.79		35.1	100.31		35.07	99.891	
34.0	101.3		36.7	98.8		34.2	100.2		33.8	101.40		37.3	99.02		37.01	98.441	
36.0	100.1		39.2	98.0		36.8	98.2		34.98	99.79		41.8	97.66		41.24	97.998	
37.0	99.1		43.9	98.2		41.2	97.4		35.8	98.99		51.6	99.05		45.67	97.458	
38.5	98.4		48.3	98.4		43.2	97.5		36.4	98.85		52.31	99.98		47.11	98.605	
41.0	98.7		48.6	100.7		45.9	98.4		38.3	97.88		53.1	100.78		47.21	98.605	
43.5	99.0		52.5	102.1		47.5	99.2		39.4	97.28		54.6	101.79	BKF	51.7	101.234	
45.9	99.1		60.0	103.0		48.1	101.0		42.9	97.77		57.0	101.98		53.43	102.925	
48.6	99.5		68.9	103.9		51.5	101.5		46.2	98.26		57.9	102.64		58.77	103.134	
50.6	100.1		82.0	104.6		57.9	102.8		46.8	98.56		60.7	102.71		64.18	103.776	
53.0	101.5		83.5	104.5		68.4	103.9		47.4	98.88		72.1	103.81		82.63	104.317	
55.0	102.4	BKF				81.8	104.4		48.5	99.68		85.6	104.35		101.41	104.494	
61.0	103.0					81.8	104.5		49.6	100.32							
70.0	104.0								50.2	101.55							
82.0	104.5								54.1	101.89							
									54.8	102.14	BKF						
									58.2	102.75							
									67.9	103.62							
									76.7	104.13							



Photo of Cross-Section #2 - Looking Upstream

	2002	2003	2004	2005	2006	2007
Area	53.1	53.9	59.8	60.7	58.8	54.8
Width	21.6	18.3	19.0	22.1	21.7	20.7
Mean Depth	2.5	3.0	3.2	2.7	2.7	2.7
Max Depth	3.8	4.2	4.8	4.9	4.1	4.0



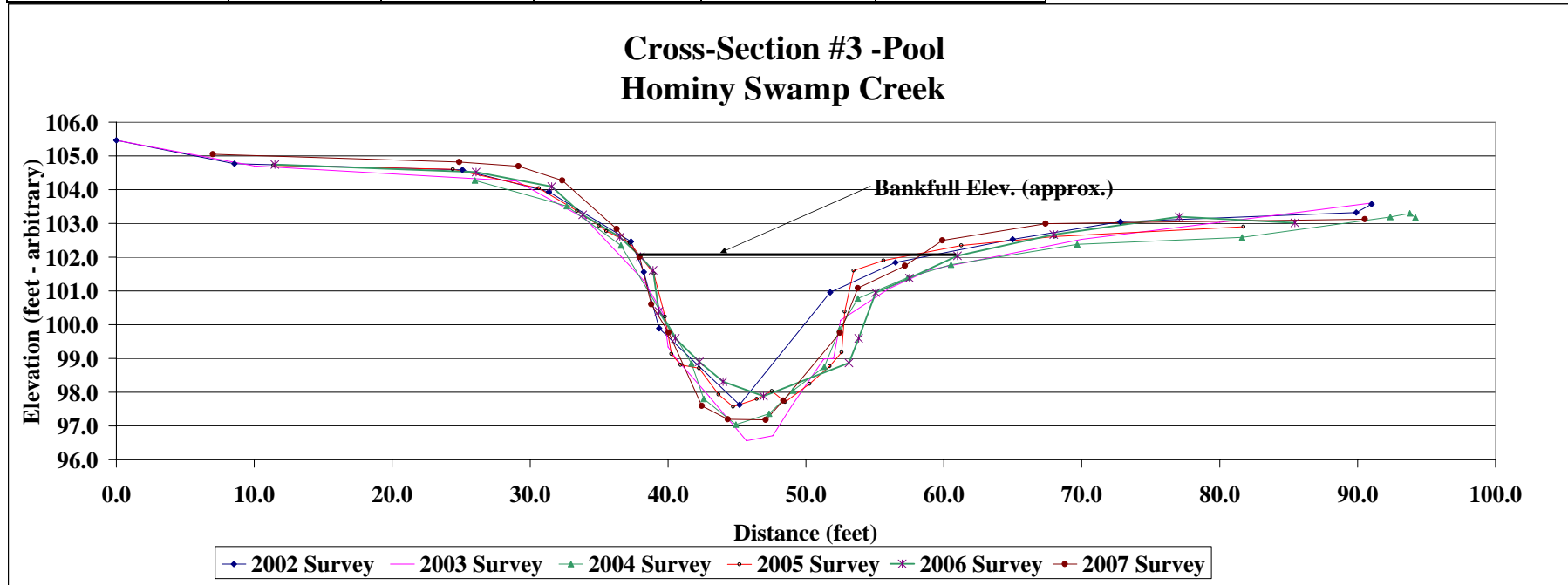
Project Name	Hominy Swamp Creek
Cross Section	#3
Feature	Pool
Date	10/19/07
Crew	Ward, Stafford

2002 Survey			2003 Survey			2004 Survey			2005 Survey			2006 Survey			2007 Survey		
Station	Elev.	Notes	Station	Elev.	Notes	Station	Elev.	Notes	Station	Elev.	Notes	Station	Elev.	Notes	Station	Elev.	Notes
0.0	105.5		0.0	105.5		26.0	104.3		11.4	104.72		11.5	104.7		7	105.051	
8.6	104.8		10.0	104.7		32.7	103.5		24.4	104.6		26.1	104.5		24.87	104.821	
25.1	104.6		29.0	104.3		36.6	102.4		30.6	104.04		31.6	104.1		29.15	104.698	
31.4	103.9		34.0	103.1		41.7	98.9		33.4	103.37		33.8	103.3		32.33	104.275	
37.3	102.5		38.2	101.3		42.6	97.8		35.0	102.93		36.5	102.6		36.29	102.835	
38.2	101.6		39.7	100.3		44.9	97.0		35.5	102.77		38.0	102.0	BKF	37.93	102.005	BKF
39.4	99.9		40.0	99.3		47.3	97.4		37.2	102.42		38.9	101.6		38.79	100.601	
45.2	97.6		40.6	99.0		49.1	98.1		38.97	101.51		39.3	100.4		40.04	99.772	
51.8	101.0		43.0	97.9		51.3	98.8		39.8	100.2		40.5	99.6		42.45	97.594	
56.5	101.8		45.7	96.6		52.4	99.9		40.3	99.1		42.3	98.9		44.33	97.196	
65.0	102.5	BKF	47.6	96.7		53.8	100.8		40.9	98.8		44.0	98.3		47.09	97.178	
72.8	103.1		49.0	97.6		57.4	101.4		42.3	98.7		46.9	97.9		48.37	97.752	
89.9	103.3		51.3	99.0		60.5	101.8		43.7	97.9		53.11	98.864		52.46	99.759	
91.0	103.6		52.0	99.0		69.7	102.4		44.7	97.6		53.8	99.594		53.77	101.08	
			52.5	100.1		81.6	102.6	BKF	46.4	97.8		55.1	100.952		57.19	101.741	
			56.0	101.1		92.4	103.2		47.5	98.0		57.5	101.383		59.89	102.496	
			59.0	101.6		93.8	103.3		48.5	97.7		61.0	102.039	BKF	67.39	102.989	
			70.0	102.5	BKF	94.2	103.2		50.3	98.3		68.0	102.668		90.53	103.121	
			80.0	103.0					51.7	98.8		77.08	103.198				
			91.0	103.6					52.6	99.2		85.45	103.015				
									52.8	100.4							
									53.5	101.6							
									55.6	101.9							
									61.3	102.4	BKF						
									68.1	102.6							
									81.7	102.9							



Photo of Cross-Section #3 - Looking Downstream

	2002	2003	2004	2005	2006	2007
Area	76.3	64.9	54.3	61.8	55.5	55.8
Width	31.8	33.1	27.7	24.0	19.5	22.0
Mean Depth	2.4	2.0	2.0	2.6	2.8	2.5
Max Depth	6.0	5.5	4.9	4.8	4.2	4.8



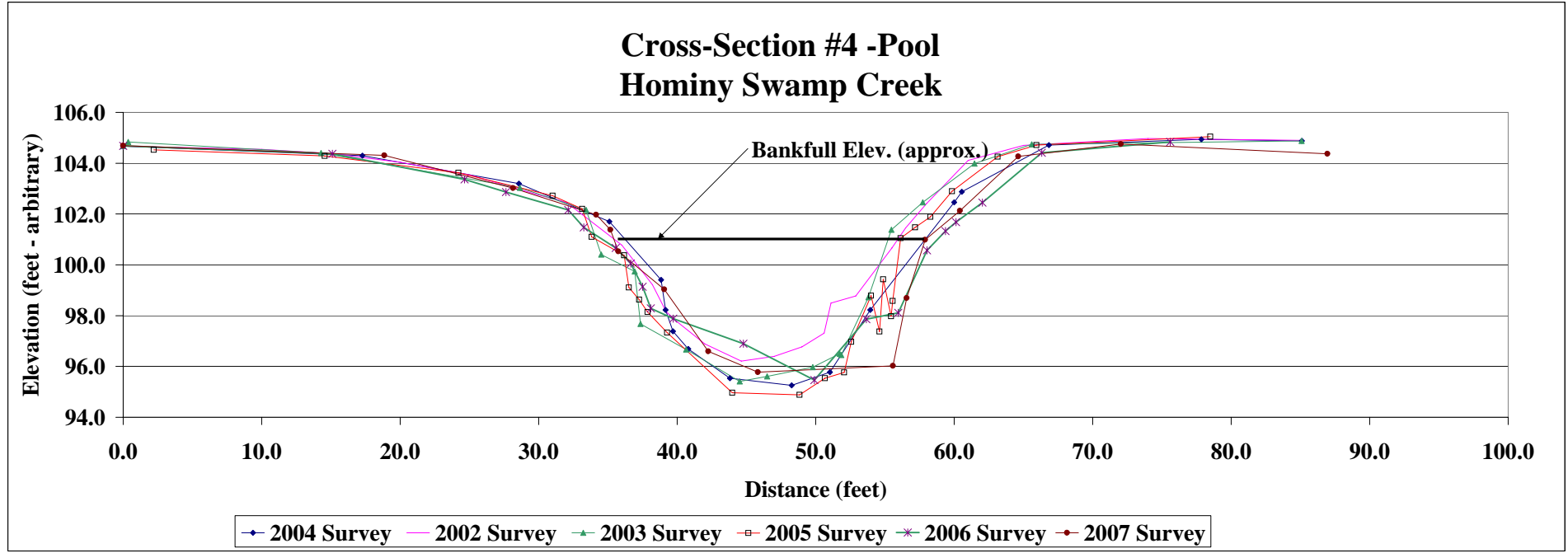
Project Name	Hominy Swamp Creek
Cross Section	#4
Feature	Pool
Date	10/19/07
Crew	Ward, Stafford

2002 Survey			2003 Survey			2004 Survey			2005 Survey			2006 Survey			2007 Survey		
Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes
0.0	104.7		0.0	104.7		0.0	104.7		2.2	104.53		0.0	104.7		0	104.693	
10.0	104.6		0.4	104.8		17.3	104.3		14.6	104.29		15.1	104.375		18.85	104.306	
15.0	104.4		14.3	104.4		28.6	103.2		24.2	103.62		24.6	103.364		28.16	103.02	
20.0	104.0		28.7	103.0		35.1	101.7		31.01	102.72		27.64	102.864		34.16	101.97	
25.0	103.5		33.4	102.2		38.8	99.4		33.1	102.2	BKF	32.14	102.163	BKF	35.18	101.38	BKF
30.0	102.8		34.5	100.4		39.2	98.2		33.82	101.1		33.3	101.472		35.75	100.531	
32.0	102.5	BKF	36.9	99.7		39.7	97.4		36.17	100.37		35.56	100.664		39.06	99.034	
36.0	100.8		37.4	97.7		40.8	96.7		36.5	99.11		36.65	100.052		42.24	96.591	
38.2	99.2		40.6	96.7		43.8	95.5		37.3	98.6		37.5	99.141		45.83	95.775	
39.2	98.2		44.5	95.4		48.3	95.3		37.9	98.1		38.1	98.3		55.59	96.026	
39.8	97.8		46.5	95.6		51.0	95.8		39.3	97.3		39.7	97.9		56.57	98.688	
42.0	96.9		49.8	96.0		54.0	98.2		44.0	95.0		44.8	96.9		57.91	100.986	BKF
44.6	96.2		51.7	96.5		60.0	102.5	BKF	48.8	94.9		49.9	95.5		60.41	102.123	
47.0	96.4		51.9	96.5		60.6	102.9		50.7	95.5		53.7	97.9		64.63	104.262	
49.0	96.8		53.8	98.7		66.8	104.7		52.1	95.8		56.0	98.1		72.04	104.758	
50.6	97.3		55.5	101.4		77.8	104.9		52.6	97.0		58.0	100.6		86.95	104.368	
51.1	98.5		57.7	102.5	BKF	85.1	104.9		54.0	98.8		59.4	101.3				
52.9	98.8		61.5	104.0					54.6	97.4		60.1	101.7				
55.5	100.7		65.6	104.7					54.9	99.4		62.0	102.5				
56.5	101.5		85.1	104.9					55.5	98.0		66.3	104.4				
58.0	102.4	BKF							55.6	98.6		75.6	104.8				
61.0	104.1								56.1	101.1		91.1	104.6				
65.0	104.7								57.2	101.5							
74.0	105.0								58.3	101.9							
85.0	104.9								59.8	102.9							
									63.1	104.3							
									65.9	104.7							
									78.5	105.0							



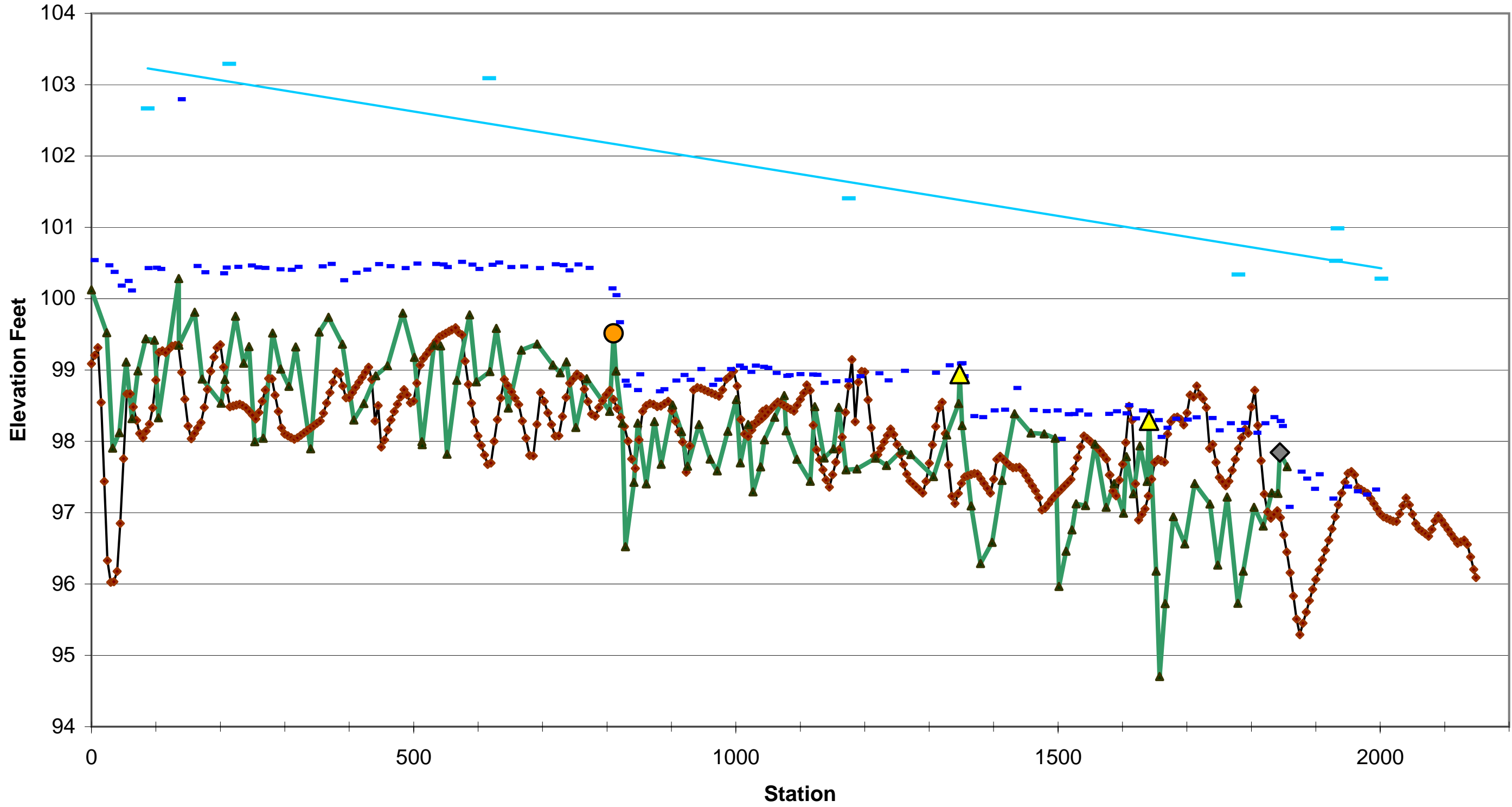
Photo of Cross-Section #4 - Looking Upstream

	2002	2003	2004	2005	2006	2007
Area	88.3	107.5	113.8	119.5	109.0	95.0
Width	23.5	26.8	24.9	25.4	23.8	22.7
Mean Depth	3.8	4.0	4.6	4.7	4.6	4.2
Max Depth	6.0	6.8	7.2	7.3	6.7	5.5



B.5 LONGITUDINAL PLOTS AND RAW DATA TABLES

Hominy Swamp 2007 Longitudinal Profile Surveyed 11/12/07



2007 Survey					
Hominy Swamp - EEP Project No. 180					
TWG		WS		BKF	
Station	Elevation	Station	Elevation	Station	Elevation
0	100.125	0.7	100.541	87.3	102.67
23.71	99.524	23.3	100.466	213.9	103.29
32.86	97.905	31.4	100.374	617.2	103.09
43.36	98.121	42.7	100.183	1175.4	101.41
53.87	99.111	53.2	100.247	1779.9	100.34
63.1	98.318	58.3	100.114	1931.3	100.53
72.23	98.989	84.4	100.429	1933.7	100.99
84.38	99.437	97.2	100.432	2001.8	100.28
97.73	99.418	103.9	100.415		
104.08	98.331	135.6	102.795		
135.34	100.283	160.1	100.458		
135.71	99.349	172.4	100.371		
160.23	99.81	201.4	100.355		
171.85	98.873	205.4	100.436		
201.07	98.535	223.4	100.446		
207.01	98.868	244.6	100.464		
223.55	99.754	254.6	100.437		
236.25	99.094	265.5	100.431		
244.6	99.329	289.0	100.411		
253.54	97.994	306.6	100.403		
266.49	98.044	317.0	100.445		
281.27	99.519	354.4	100.452		
293.43	99.014	368.5	100.487		
306.52	98.771	387.7	100.257		
317.06	99.324	407.0	100.363		
340.04	97.896	423.6	100.407		
353.31	99.533	442.1	100.484		
367.93	99.739	459.8	100.455		
389.33	99.363	483.1	100.428		
407.15	98.3	501.4	100.491		
422.95	98.531	530.4	100.486		
441.01	98.919	542.3	100.479		
459.36	99.058	548.5	100.442		
483.16	99.797	570.8	100.517		
501.28	99.178	586.7	100.477		
512.9	97.996	597.7	100.415		
513.44	97.954	618.2	100.474		
531.71	99.349	628.4	100.505		
541.82	99.337	647.0	100.444		
551.78	97.821	667.1	100.449		
566.82	98.856	691.5	100.429		
586.75	99.774	716.2	100.481		
597.4	98.835	728.2	100.469		
618.3	98.978	737.4	100.396		
628.36	99.585	751.5	100.479		
646.94	98.466	768.5	100.430		
667.07	99.279	804.1	100.143		
691.52	99.366	810.4	100.049		
716.15	99.07	815.7	99.668		
727.48	98.962	824.8	98.849		

2007 Survey					
Hominy Swamp - EEP Project No. 180					
TWG		WS		BKF	
Station	Elevation	Station	Elevation	Station	Elevation
737.07	99.115	827.4	98.782		
751.59	98.195	843.7	98.717		
768.62	98.878	847.4	98.940		
804.09	98.422	877.8	98.700		
810.4	99.513	884.6	98.730		
814	98.985	903.3	98.851		
823.87	98.256	915.9	98.930		
828.63	96.524	925.3	98.862		
841.93	97.427	942.1	99.011		
847.91	98.255	960.3	98.791		
860.88	97.404	968.4	98.864		
873.77	98.277	988.1	99.012		
884.04	97.68	1001.8	99.061		
902.05	98.508	1008.0	99.030		
915.66	98.137	1019.6	98.974		
925.2	97.651	1026.6	99.061		
942.9	98.237	1039.3	99.044		
960.21	97.751	1046.1	99.029		
971.22	97.586	1058.8	98.959		
987.56	98.141	1075.3	98.917		
1000.83	98.586	1079.1	98.928		
1007.02	97.698	1095.8	98.941		
1019.15	98.236	1115.6	98.937		
1026.73	97.291	1122.4	98.933		
1038.51	97.643	1133.2	98.821		
1044.47	98.022	1151.5	98.843		
1060.41	98.338	1170.6	98.854		
1075.21	98.642	1189.1	98.913		
1078.16	98.148	1218.5	98.954		
1094.76	97.75	1232.8	98.853		
1115.57	97.44	1258.0	98.987		
1122.53	98.487	1306.2	98.960		
1137.13	97.767	1327.4	99.066		
1151.45	97.895	1345.0	99.091		
1159.57	98.476	1347.4	99.094		
1170.98	97.601	1350.6	98.913		
1187.84	97.614	1365.8	98.352		
1216.79	97.763	1379.4	98.338		
1233.76	97.661	1397.3	98.432		
1257.63	97.875	1413.3	98.444		
1271.41	97.816	1432.3	98.747		
1306.6	97.506	1457.7	98.437		
1327.08	98.091	1478.0	98.423		
1345.7	98.53	1494.9	98.433		
1347.36	98.945	1501.3	98.034		
1351.08	98.222	1512.3	98.379		
1365.18	97.094	1521.1	98.383		
1379.6	96.287	1528.7	98.434		
1397.67	96.583	1542.3	98.375		
1413.08	97.452	1575.0	98.385		
1432.38	98.386	1587.1	98.421		
1458.05	98.117	1602.0	98.392		
1478.61	98.104	1606.2	98.507		
1495.52	98.043	1616.7	98.320		

2007 Survey					
Hominy Swamp - EEP Project No. 180					
TWG		WS		BKF	
Station	Elevation	Station	Elevation	Station	Elevation
1501.3	95.965	1627.4	98.433		
1512.37	96.459	1638.7	98.420		
1521.54	96.76	1651.8	98.298		
1528.14	97.125	1656.3	98.061		
1542.59	97.099	1665.4	98.189		
1557.42	97.961	1678.8	98.317		
1574.73	97.076	1697.0	98.305		
1587.11	97.407	1710.8	98.335		
1601.66	96.993	1735.5	98.327		
1606.24	97.785	1746.4	98.154		
1616.92	97.264	1763.8	98.253		
1627.1	97.936	1779.1	98.159		
1638.15	97.439	1785.7	98.257		
1641.08	98.29	1804.9	98.119		
1652.26	96.18	1817.4	98.254		
1657.57	94.702	1831.4	98.338		
1666.25	95.724	1841.1	98.284		
1678.86	96.943	1844.5	98.213		
1696.63	96.562	1854.9	97.081		
1712.05	97.409	1873.7	97.575		
1735.83	97.122	1882.3	97.478		
1747.89	96.265	1894.3	97.333		
1762.49	97.22	1901.5	97.538		
1779.18	95.729	1922.8	97.197		
1787.39	96.179	1945.7	97.366		
1804.12	97.076	1960.7	97.299		
1818.39	96.812	1975.0	97.253		
1831.68	97.277	1989.2	97.323		
1841.38	97.27	2008.4	97.547		
1844.25	97.844	2032.9	97.498		
1855.66	97.645	2062.4	97.348		
1874.19	97.077	2078.7	97.536		
1881.26	95.961	2081.5	97.509		
1894.73	95.497	2098.3	97.367		
1902.28	96.022	2130.5	97.422		
1918.43	94.202				
1921.89	94.243				
1944.89	95.067				
1960.54	95.068				
1975.49	95.602				
1989.8	96.436				
2007.96	96.107				
2033.38	96.778				
2057.88	96.713				
2071.26	96.663				
2080.26	96.517				
2086.43	95.443				
2090.95	95.51				
2101.95	96.33				
2117.55	95.677				
2124.43	95.653				
2133.44	96.408				

B.6 PEBBLE COUNT PLOTS AND RAW DATA TABLES

Year 6 Monitoring, Pebble Count Cross Section 1 Riffle

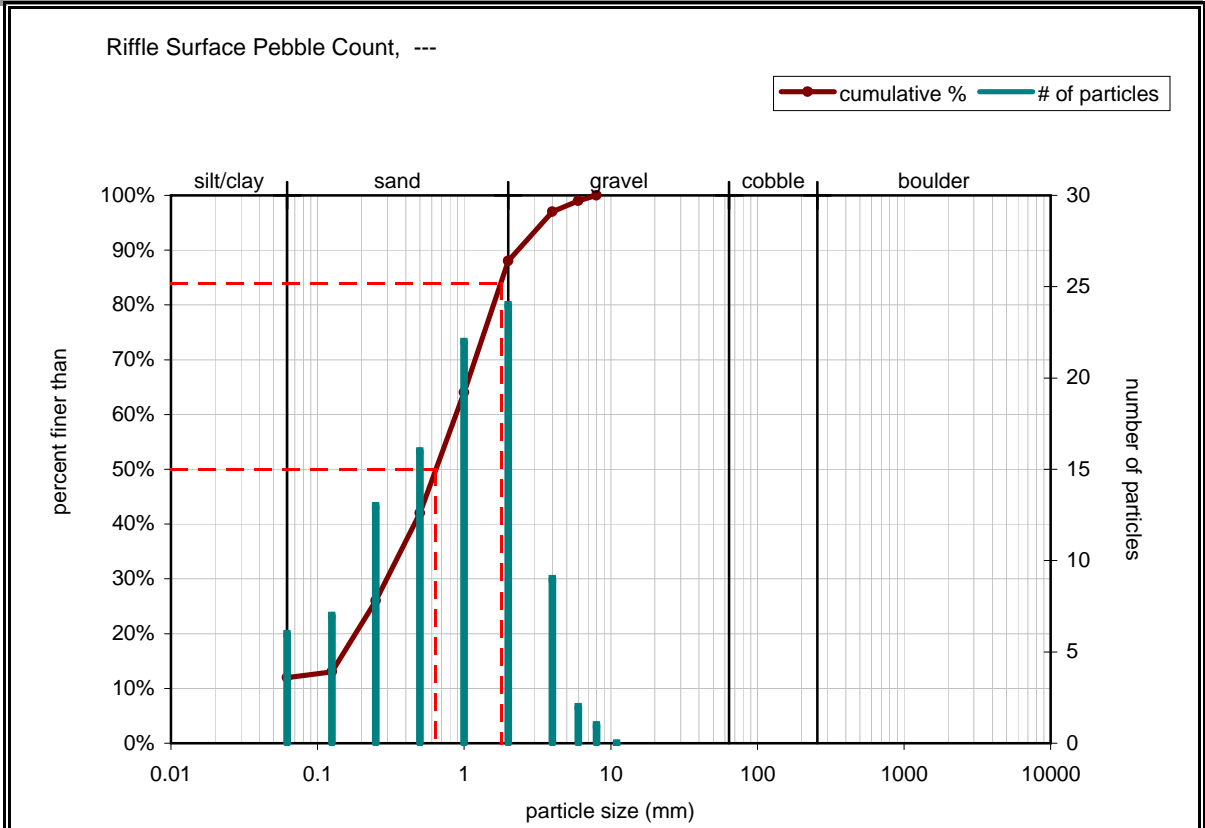
Hominy Swamp Creek Stream Restoration Project
 Project No: D050515
 11/30/2007

Pebble Count Data Sheet
 Cross Section 1
 Station 15+60

Materia	Size Range (mm)	Count	% Range	%Cum.
silt/clay	0 - 0.062	10	0%	100%
very fine sand	0.062 - 0.125	9	0%	100%
fine sand	0.125 - 0.25	10	0%	100%
medium sand	0.25 - 0.5	17	0%	100%
coarse sand	0.5 - 1	26	0%	100%
very coarse sand	1 - 2	17	0%	100%
very fine gravel	2 - 4	9	0%	100%
fine gravel	4 - 6	1	0%	100%
fine gravel	6 - 8	1	0%	100%
medium gravel	8 - 11		0%	100%
medium gravel	11 - 16		0%	100%
coarse gravel	16 - 22		0%	100%
coarse gravel	22 - 32		0%	100%
very coarse gravel	32 - 45		0%	100%
very coarse gravel	45 - 64		0%	100%
small cobble	64 - 90		0%	100%
medium cobble	90 - 128		0%	100%
large cobble	128 - 180		0%	100%
very large cobble	180 - 256		0%	100%
small boulder	256 - 362		0%	100%
small boulder	362 - 512		0%	100%
medium boulder	512 - 1024		0%	100%
large boulder	1024 - 2048		0%	100%
very large boulder	2048 - 4096		0%	100%

total particle count:	100	100%
bedrock -----		
clay hardpan -----		
detritus/wood -----		
artificial -----		

total count: 100
 Note: Cross-X1



Size (mm)	Size Distribution	Type
D16 0.062	mean 0.3	silt/clay 10%
D35 0.32	dispersion 5.9	sand 79%
D50 0.56	skewness -0.21	gravel 11%
D65 0.83		cobble 0%
D84 1.6		boulder 0%
D95 3.2		

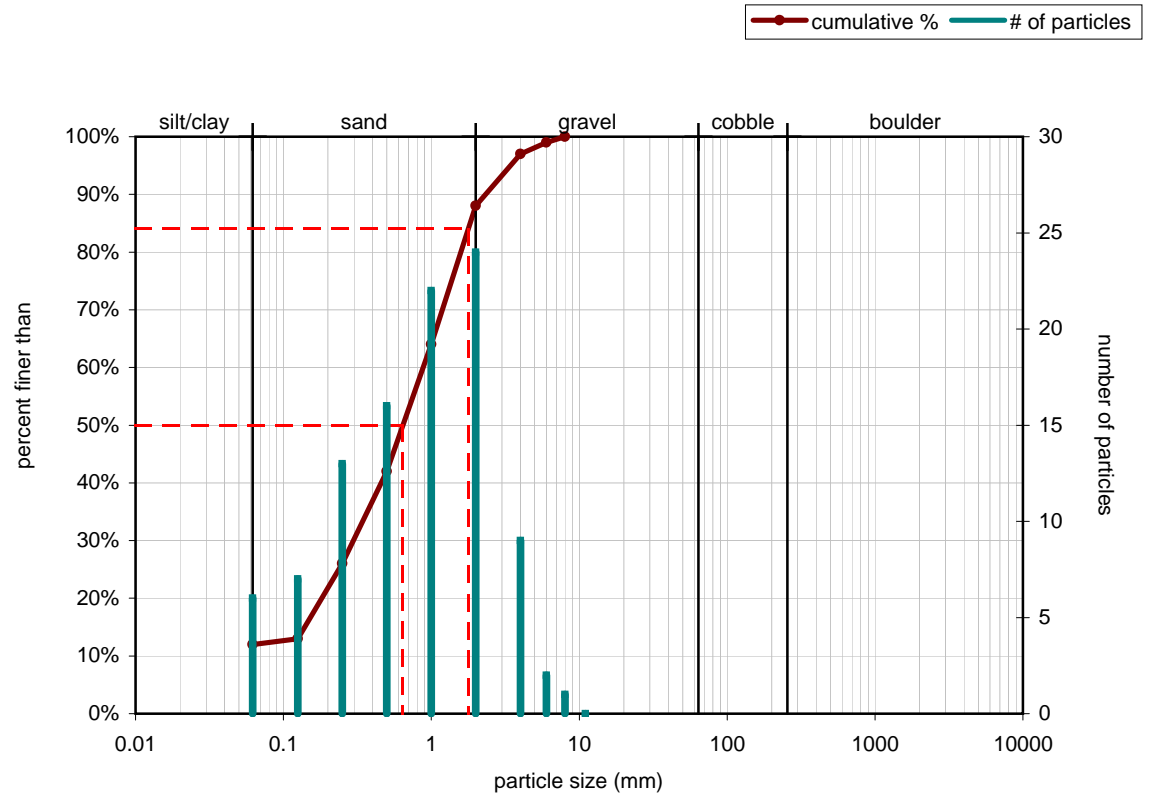
Year 6 Monitoring, Pebble Count Cross Section 2 Riffle

Hominy Swamp Creek Stream Restoration Project
 Project No: D050515
 11/30/2007

Pebble Count Data Sheet
 Cross Section 3
 Station 14+41

Materia	Size Range (mm)	Count	% Range	%Cum.
silt/clay	0 - 0.062	6	0%	100%
very fine sand	0.062 - 0.125	7	0%	100%
fine sand	0.125 - 0.25	13	0%	100%
medium sand	0.25 - 0.5	16	0%	100%
coarse sand	0.5 - 1	22	0%	100%
very coarse sand	1 - 2	24	0%	100%
very fine gravel	2 - 4	9	0%	100%
fine gravel	4 - 6	2	0%	100%
fine gravel	6 - 8	1	0%	100%
medium gravel	8 - 11		0%	100%
medium gravel	11 - 16		0%	100%
coarse gravel	16 - 22		0%	100%
coarse gravel	22 - 32		0%	100%
very coarse gravel	32 - 45		0%	100%
very coarse gravel	45 - 64		0%	100%
small cobble	64 - 90		0%	100%
medium cobble	90 - 128		0%	100%
large cobble	128 - 180		0%	100%
very large cobble	180 - 256		0%	100%
small boulder	256 - 362		0%	100%
small boulder	362 - 512		0%	100%
medium boulder	512 - 1024		0%	100%
large boulder	1024 - 2048		0%	100%
very large boulder	2048 - 4096		0%	100%

total particle count: 100		100%
bedrock -----		
clay hardpan -----		
detritus/wood -----		
artificial -----		
total count: 100		
Note: Cross-X2		



Size (mm)	Size Distribution	Type
D16 0.15	mean 0.5	silt/clay 6%
D35 0.37	dispersion 3.5	sand 82%
D50 0.64	skewness -0.09	gravel 12%
D65 1		cobble 0%
D84 1.8		boulder 0%
D95 3.4		

B.7 Table B.1 Categorical Stream Feature Visual Stability Assessment

Table B1. Visual Morphological Stability Assessment Project No. 180 (Hominy Swamp Creek)						
Feature Category	Metric (per As-built and reference baselines)	(# Stable) Number Performing as Intended	Total number per As-built	Total Number /feet in unstable state	% Perform in Stable Condition	Feature Perform. Mean or Total
A. Riffles	1. Present?	2	6	NA	33	
	2. Armor stable(e.g. no displacement)?	2	6	NA	33	
	3. Facet grade appears stable?	2	6	NA	33	
	4. Minimal evidence of embedding/fining?	2	6	NA	33	
	5. Length appropriate?	2	6	NA	33	33%
B. Pools	1. Present? (e.g. not subject to severe aggradation or migration?)	16*	20*	NA*	16*	
	2. Sufficiently deep (Max Pool D:Mean Bkf>1.6)	3*	20*	NA*	NA*	
	3. Length Appropriate?	16*	20*	NA*	80*	80%
C. Thalweg	1. Upstream of meander bend (run/inflection) centering?	12	20	NA	60	
	2. Downstream of meander (glide/inflection) centering?	12	20	NA	60	60%
D. Meanders	1. Outer bend in state of limited/controlled erosion?	11	20	NA	55	
	2. Of those eroding, # w/concomitant point bar formation?	2	9	NA	22	
	3. Apparent Rc within spec?	20	20	NA	100	
	4. Sufficient floodplain access and relief?	18	20	NA	90	67%
E. Bed General	1. General channel bed aggradation areas (bar formation)	NA	NA	5/85	NA	96%
	2. Channel bed degradation-areas of increasing downcutting or head cutting?	NA	NA	0	NA	NA
F. Vanes	1. Free of back or arm scour?	25	31	NA	81	
	2. Height appropriate?	28	31	NA	90	
	3. Angle and geometry appear appropriate?	28	31	NA	90	
	4. Free of piping or other structural failures?	31	31	NA	100	90%
G. Wads/Boulders	1. Free of scour?	11	13	NA	85	
	2. Footing stable?	13	13	NA	100	93%

**It is not clear in the as-built plans the total number of constructed pools. The channel is comprised mostly of pool sections, holding grade, and performing adequately.*