Jumping Run Creek at Payne Dairy
Stream Restoration
Annual Monitoring Report

Monitoring Year: 2005
Measurement Year: 5
As-built Date: 2000
NCEEP Project Number: 279

Delivered to: NCDENR-Ecosystem Enhancement Program
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Raleigh, NC 27699-1619

Prepared by: Biological & Agricultural Engineering, North Carolina State University
Campus Box 7625
Raleigh, NC 27695

Project Designed By: Kimley-Horn and Associated

Submitted: February, 2006

Ecosystem Enhancement PROGRAM

NCDENR

JUMPING RUN CREEK at PAYNE DAIRY FARMS STREAM RESTORATION
2005 MONITORING REPORT

CONDUCTED FOR THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

Table of Contents

TABLES

I. Executive Summary/Project Abstract

The channel has remained stable since construction. Previous areas of concern noted during the monitoring have stabilized or appear to be of no significant long term risk to the stability of the project. Vegetation has become well established throughout the project with the only concern being related to the establishment of multiflora rose (*Rosa multiflora*). Channel cross sections are consistent with previous measurements and appear stable. The channel bed in each of the monitoring reaches appears to have stabilized and is maintaining elevation and bedform throughout. Planform remains consistent with design conditions.

The banks were well-covered with vegetation. Planted trees and shrubs are doing well throughout the buffer. Extrapolation from the eight plots resulted in an overall average of 981 planted woody stems per acre for this restoration site.

II. Project Background

Project background information can be obtained from the as-built monitoring report prepared by Kimley-Horn and Associates dated 2000.

Table I and II list project structure and objectives. Figure 1 shows a map with detailed directions to the project site. Activities and reporting history for the project are listed in Table III. Table IV lists project contacts and Table V list background information for the project.

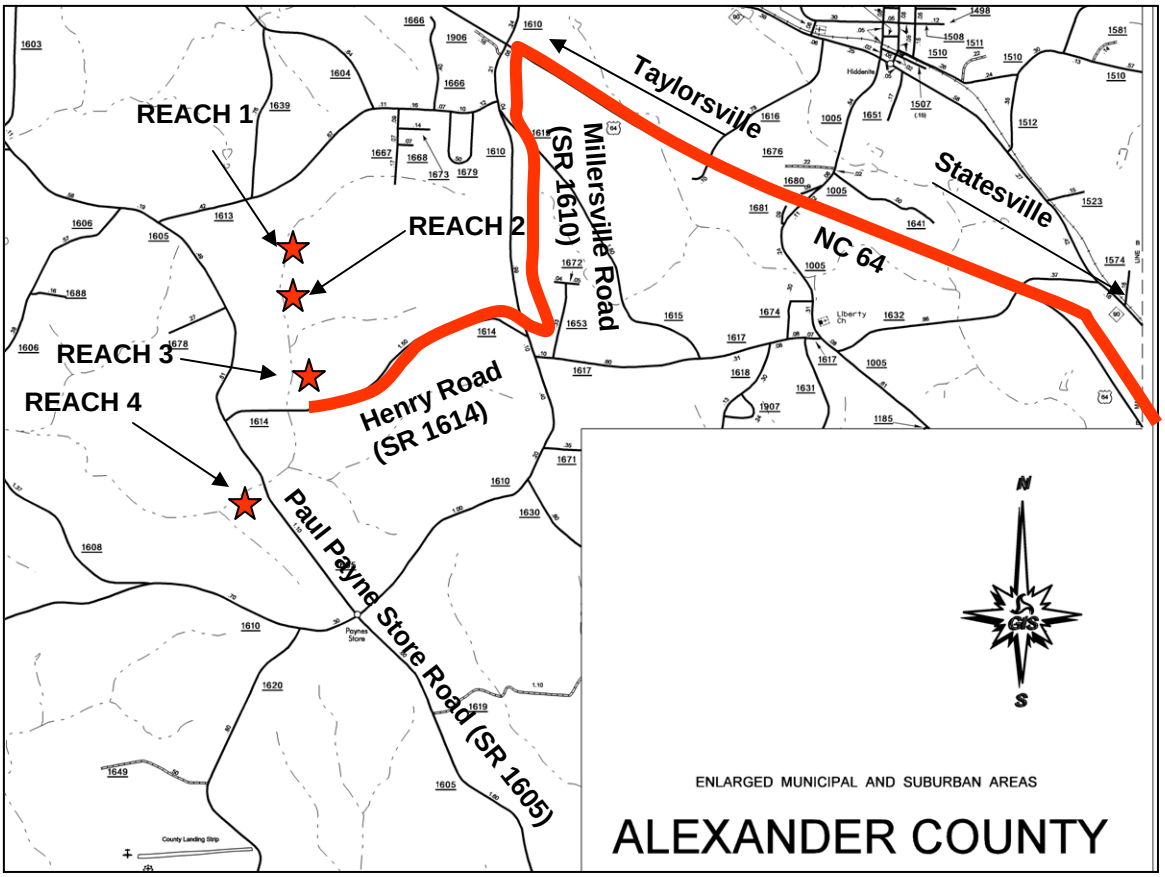
Table I. Project Structure
Project Number and Name: 279 (Jumping Run Creek at Payne Dairy)

Segment/Reach ID	Linear Feet or Acreage
Jumping Run Creek at Payne Dairy	8,397 linear feet

Table II. Project Objectives Table
Project Number and Name: 279 (Jumping Run Creek at Payne Dairy)

Segment/Reach ID	Objectives	Linear Feet or Acreage	Comment
Jumping Run Creek	Full Restoration	5,177 linear feet	Priority 1 Approach
Jumping Run Creek	Enhancement	470 linear feet	Dimension & Profile
Jumping Run Creek	Full Restoration	1,350 linear feet	Cattle exclusion and riparian enhancement
Jumping Run Creek	Enhancement	1,400 linear feet	Cattle exclusion and riparian enhancement (one side of channel)

Figure 1. Project Location



Directions from I-85 and I-77 intersection:

From Statesville, continue on I-40 to Exit 150 (64/90). Take NC 64 north west toward Taylorsville. Follow NC 64 for approximately 5 miles to the Millersville Road intersection. Turn Left on Millersville Road (SR 1610). Follow Millersville Road for 1.1 miles. Turn Right onto Henry Road (SR1614). The project crosses Henry Road in 1.4 miles.

Reach 3 is directly upstream of the Henry road culvert and reach 4 is Downstream below Paul Payne Store Road (SR 1605). Site access for reaches 1 and 2 is located on dirt path 0.5 miles up Paul Payne Store Road (turning right on Paul Payne Store Road)

Contact EEP project manager for access and landowner notification instructions.

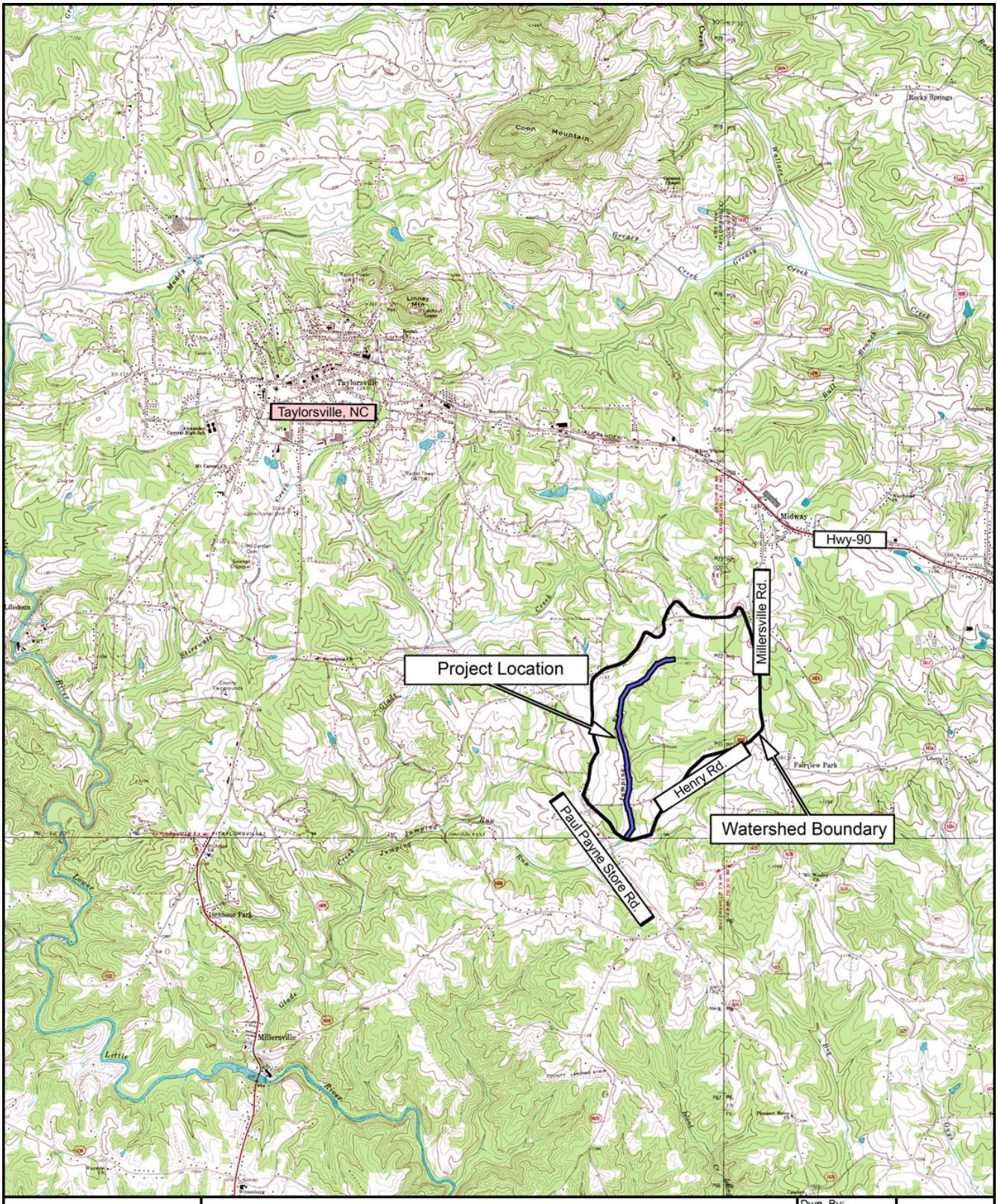
Table III. Project Activity and Reporting History		
Project Number and Name: 279 (Jumping Run Creek at Payne Dairy)		
Activity or Report	**Calendar Year of Completion or Planned Completion**	**Actual Completion Date**
Restoration Plan	N/A*	N/A*
Mitigation Plan	N/A*	N/A*
Construction	N/A*	N/A*
Temporary S&E mix applied to entire project area	N/A*	N/A*
As-Built report	June-00	June-00
Permanent seed mix applied to reach	N/A*	N/A*
Structural maintenance (Bank repair and revegetation)	N/A*	N/A*
Initial – Year 1 monitoring	June-01	June-01
Year 2 Monitoring	June-02	June-02
Year 3 Monitoring	June-03	June-03
Year 4 Monitoring	June-04	June-04
Year 5 Monitoring	June-05	June-05

Table IV. Project Contact Table Project Number and Name: 279 (Jumping Run Creek at Payne Dairy)	
Designer Primary project design POC	Kimley-Horn and Associates 3001 Weston Parkway Cary, NC 27513 (919)-677-2000 Will Wilhelm, PE
Construction Contractor Construction contractor POC	Shamrock Environmental Corporation 503 Patton Avenue Greensboro, NC 27406 Bill Wright
Planting Contractor Planting contractor POC	N/A*
Seeding Contractor Planting contractor point of contact	N/A*
Seed Mix Sources	N/A*
Nursery Stock Suppliers	N/A*
Monitoring Performers	Biological & Agricultural Engineering North Carolina State University Campus Box 7625 Raleigh, NC 27695
Stream Monitoring POC	Dan Clinton (919) 515-6771
Vegetation Monitoring POC	Dan Clinton (919) 515-6771

* Historical project documents necessary to provide these data were unavailable at the time of report submission

Table V. Project Background Table Project Number and Name: 279 (Jumping Run Creek at Payne Dairy)	
Project County	Alexander
Drainage Area	1.2 sq. mi. (End of Are 3 - Upstream of SR-1614) 2.2 sq. mi. (End of Area 4 at the end of the project)
Drainage impervious cover estimate (%)	Estimated at <5%
Stream Order	1st order
Physiographic Region	Piedmont
Ecoregion	Southern Outer Piedmont (45b)
Rosgen Classification of As-built	E-Stream Type
Cowardin Classification	N/A*
Dominant soil types	N/A*
Reference site ID	N/A*
USGS HUC for Project and Reference	3050101
NCDWQ Sub-basin for Project and Reference	11-62-3-1
NCDWQ classification for Project and Reference	C
Any portion of any project segment 303d listed?	No
Any portion of any project segment upstream of a 303d listed segment?	No
Reasons for 303d listing or stressor	N/A
% of project easement fenced	100%

* Historical project documents necessary to provide these data were unavailable at the time of report submission



NC STATE UNIVERSITY

Department of Biological & Agricultural Engineering

Campus Box 7625
Raleigh, NC 27606

Project Location: Jumping Run

Axelander County, North Carolina

EEP Monitoring Report

SCALE 1:60,000

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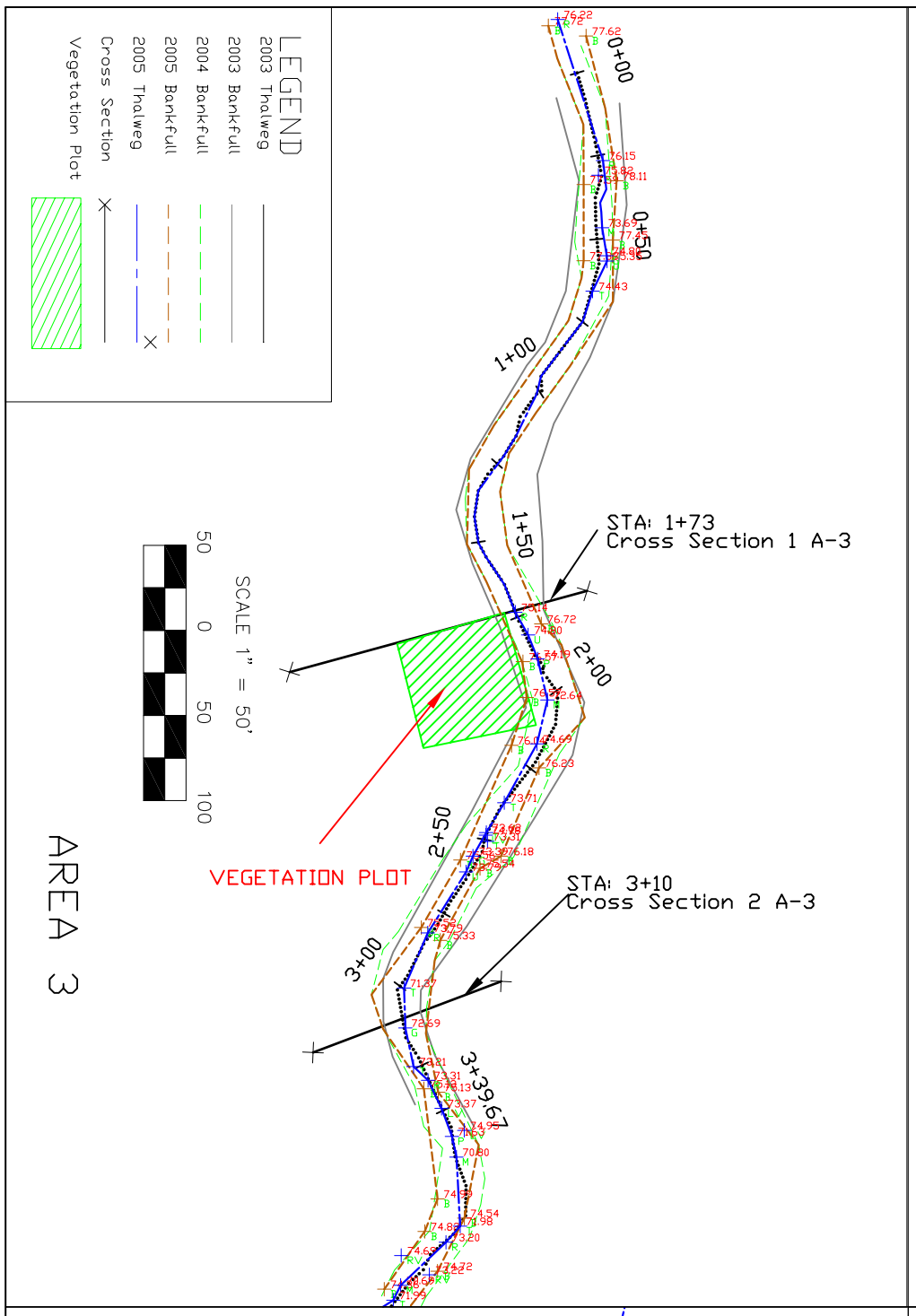
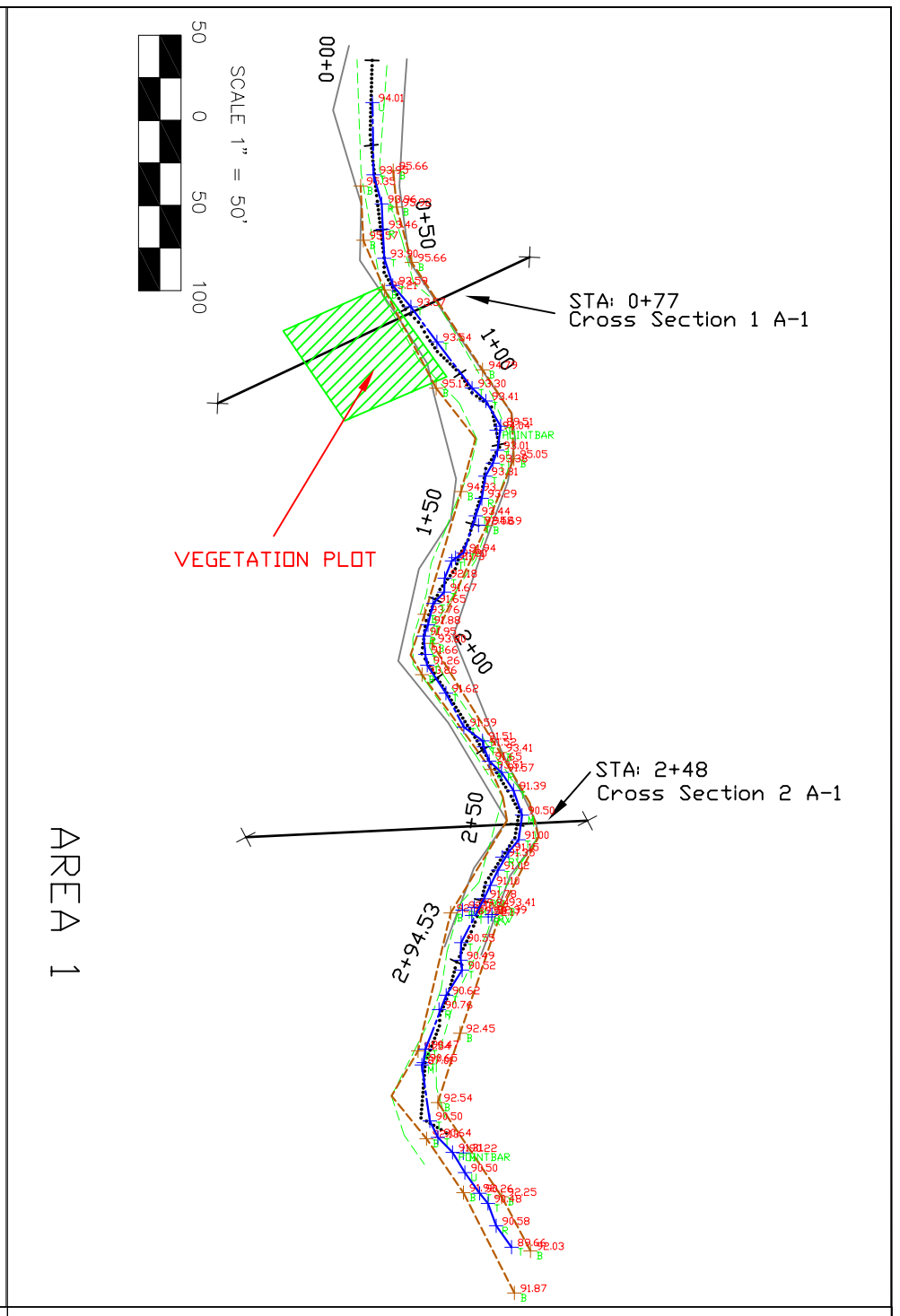
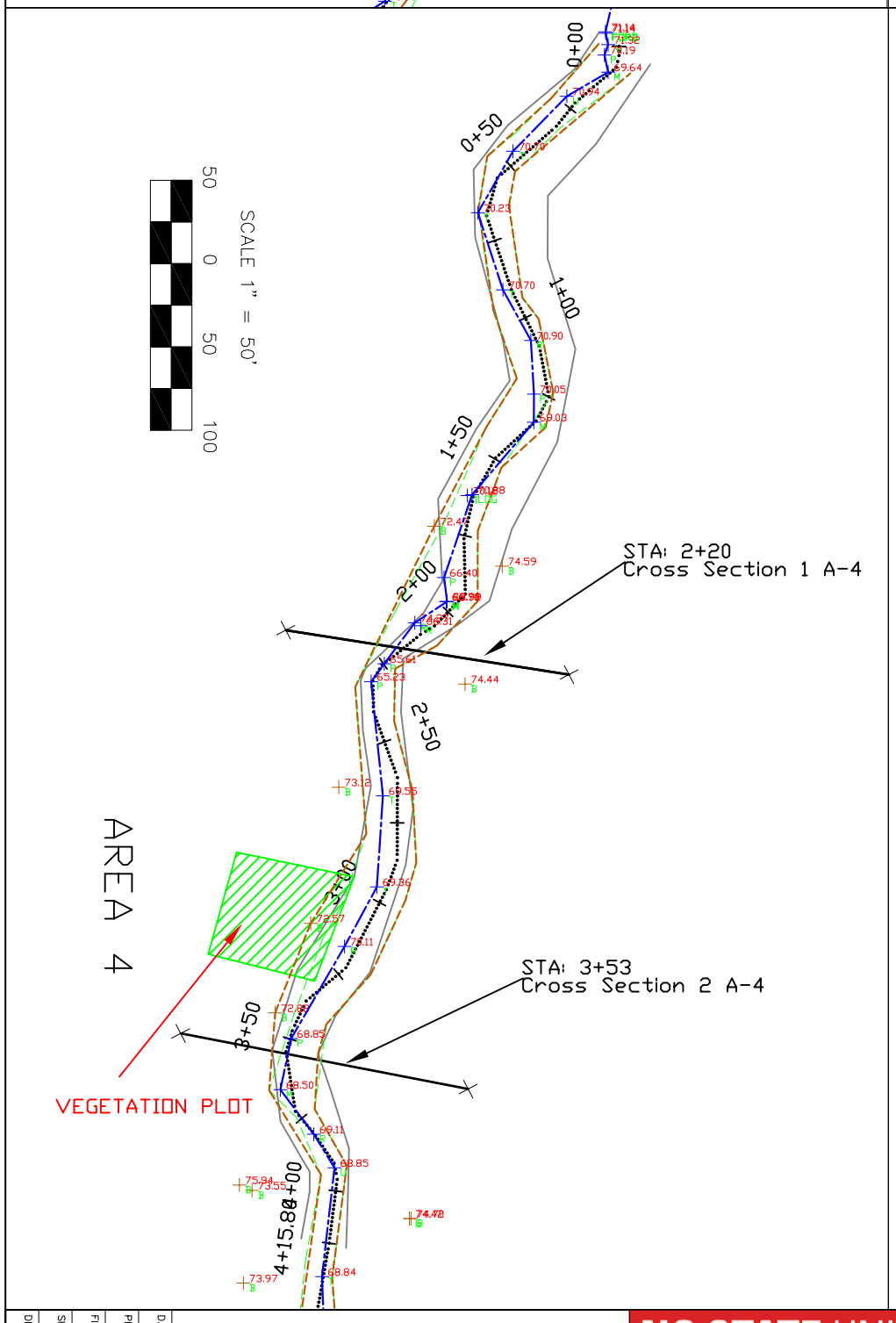
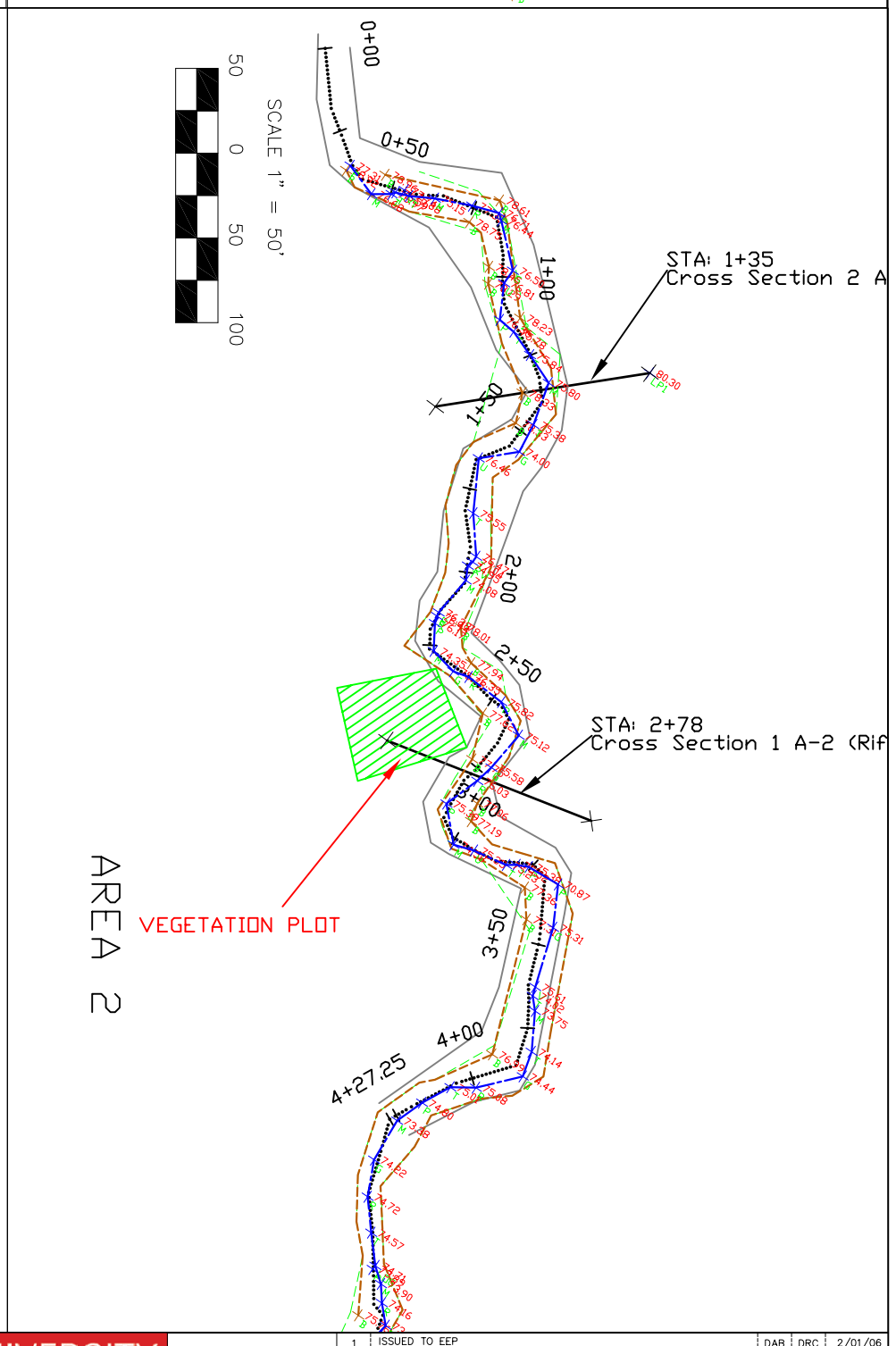
Dwn. By:	FIGURE
MVH	1
Ckd By: DAB	
Date: March 2004	









DRAWING NO.

SHEET NO. C - 1

FILENAME PAYNE DAIRY.DWG

PROJECT NO.

DATE 2/01/2006

JUMPING RUN STREAM RESTORATION
ALEXANDER, N.C.
ECOSYSTEM ENHANCEMENT PROGRAM

FIGURE
2005 MONITORING PLAN VEIW

NC STATE UNIVERSITY

BIOLOGICAL & AGRICULTURAL ENGINEERING
Weaver Labs Campus Box 7625
North Carolina State University
Raleigh, NC 27695

NO	REVISIONS	DRN	CHK	DATE
1	ISSUED TO EEP	DAB	DRC	2/01/06

III. Project Condition and Monitoring Results

Results of the 2005 monitoring are shown below. 2005 Monitoring was conducted in June, 2005.

A. Vegetation Assessment

Using the protocols specified in the Content, Format and Data Requirements for EEP Monitoring Reports, four vegetation monitoring plots were established and surveyed on July 11th, 2005, within the riparian buffer of the Payne Dairy project.

Vegetation within the riparian buffer of this stream is dense, growing, and mostly successful, with a few problematic patches of invasive species. The banks are mostly well-covered with vegetation. Portions of the stream have a closed canopy providing deep shade.

Planted trees and shrubs are doing well throughout the buffer. Extrapolation from the four plots resulted in an overall average of 981 planted woody stems per acre for this restoration site. Black willow and dogwood dominate the woody stem count with shrub extrapolated density at 516 stems/acre and tree extrapolated density at 465 stems per acre. There were nine planted species per plot on average, and a total of 13 planted species were observed across all plots.

The primary vegetative problem at Payne Dairy is multiflora rose (*Rosa multiflora*). It is common throughout the site, and increasing rapidly in abundance. In several locations, it forms dense patches overtopping and damaging other vegetation. To prevent further plant mortality and loss of diversity at the site, multiflora rose should be removed. Japanese honeysuckle (*Lonicera japonica)* is also present at lower density, and could be removed at the same time to prevent future problems.

The following table summarizes vegetation and soils results for 2005 monitoring. Soil samples were collected and analyzed during the 2005 monitoring period. Vegetation problem areas are summarized below in table VII. Raw vegetation data can be found in Appendix A. Data is summarized in Table VIII below. Photos of each vegetation plot can be found in the photo log.

Table VI. Preliminary Soil Data

Project Number and Name: 279 (Jumping Run Creek at Payne Dairy)

Series	Max Depth (in.)	% Clay on Surface	K	T	OM %
Chewacla (ChA)	60	10-27	0.28	5	1-4
Pacolet (PaD)	60	5-20	0.2	0	
Pacolet (PcC2)	60	20-35	0.24	2	0.5-1

Table VII. Vegetative Problem Areas

Project Number and Name: 279 (Jumping Run Creek at Payne Dairy)

Feature/Issue	Station # / Range	Probable Cause	Photo #
Invasive/Exotic Populations	Throughout the project	Existing or upland seed source	PA1-4

Table VIII: Stem counts for each species arranged by plot.
Jumping Run Creek at Payne Dairy

	Plots				
Species	1	2	3	4	**Totals**
Shrubs					
Cornus amomum	7	3	3	3	16
Salix nigra	2	15	0	14	31
Sambucus nigra ssp. *canadensis*	1	1	1	1	4
Trees					
Acer rubrum	0	2	0	0	2
Alnus serrulata	1	1	0	1	3
Betula nigra	2	4	2	2	10
Celtis occidentalis	0	0	1	0	1
Fraxinus pennsylvanica	2	0	2	0	4
Liquidambar styraciflua	2	2	5	1	10
Platanus occidentalis	0	1	1	2	4
Quercus alba	0	0	2	2	4
Quercus pagoda	0	1	0	0	1
Quercus phellos	3	1	2	1	7
					Average
Woody stem plot totals	20	31	19	27	24
Extrapolated woody stems/acre	809	1255	769	1093	981

B. Stream Assessment

The stream channel is in a stable condition, with no local problem areas identified in this survey.

Area 1

The channel profile in Area 1 of Jumping Run remained similar to previous surveys. The headcut described in prior reports has stabilized. The channel bed has maintained elevation over the past three monitoring periods. Bedform has appeared to stabilize with a consistent pool to pool spacing ranging from 36 to 49 feet whereas in past years the spacing has ranged from 32 to 95 feet due to fluctuations in bedform. Some aggrading is evident in the upper 150 feet of cannel but bedform appears to be stable. Vegetation dominating the channel banks is maintaining bank stability through the reach.

Channel cross sections remain very stable. Both riffle and pool sections show some lateral migration over the past year but dense vegetation along the channel bank is maintaining channel bank stability. Cross sectional area has been maintained over the past year to within 0.01 feet. Maximum depth is consistent to as-built conditions and the entire reach appears to be functioning properly.

Riffle channel materials have coarsened over the past year. Gravel is dominant throughout the reach. Pool channel materials are similar to the past two year's surveys and appear to have stabilized. The channel appears to be transporting the sediment load delivered to it by its watershed.

Channel pattern appears to have been maintained since construction. Dense vegetation has established along the channel banks. This vegetation is providing an excellent root mass to stabilize the banks. There are no areas of visible meander migrations throughout this reach.

Area 2

The channel profile along Area 2 of Jumping Run has remained similar to as-built conditions. Both riffles and pool are well defined and appear stable with very little movement down or upstream over the monitoring period. Channel grade has been consistent since construction with no significant aggrading or degrading. Pools and riffles are in the appropriate locations in the plan form.

Channel cross sections remain very stable. Both sections had a slight increase in cross sectional area but still under the as-built cross sectional area. The riffle banks are almost identical to previous surveys showing very little change over the monitoring period. The outside bank of the pool continues to migrate slightly but dense well established vegetation along the outside bank is maintaining bank stability. The entire reach appears to be functioning properly.

Riffle channel materials are coarser than the previous two surveys and finer than as-built conditions. No significant aggradation is evident in the riffle sections and the channel appears to be transporting the sediment load it receives from up stream. The pool section has had significant coarsening over the past year. Pool depth is being maintained as evident from cross section data. It is likely that a recent storm event flushed the fines out of the pool resulting in the coarser pebble count. Regardless, the pool appears stable with no significant aggrading or degrading evident and no indication for concern.

Channel pattern has been maintained since construction. Dense vegetation has established along the channel banks. This vegetation is providing an excellent root mass to stabilize the banks. There are no areas of visible meander migrations throughout this reach.

Area 3

Channel profile along area 3 of Jumping Run has remained similar to as-built conditions. Riffles appear to be maintaining grade and pools are maintaining there max depth and location. No down-cutting or head cuts are evident in this section.

Channel cross sections remain very stable. This reach has remained consistent with as-built conditions. Cross sectional area is consistent with 2004 survey indicating the sections have reached equilibrium. Ample floodplain provides room for the increased flow events reaching the floodplain. Maximum depth is consistent to as-built conditions and the entire reach appears to be functioning properly. Vegetation is stabilizing the banks in both sections.

Riffle channel materials are similar to as-built conditions and are coarser then 2004 measurements. Gravel is dominant in the channel bed. Pool cross section substrate was coarser then previous surveys indicating the sediment is being transported through the pool but the pool bed elevation has not changed since construction indicating excessive scour is not present.

Channel pattern has been maintained since construction. Plan form measurements are very similar to previous measurements. Dense vegetation has established along the channel banks. This vegetation is providing an excellent root mass to stabilize the banks. There are no areas of visible meander migrations throughout this reach.

Below area 3, a cross vane had previously been cut through and the left arm had slumped. Although water was still cutting around the structure to the left, vegetation has established and the near bank area is aggrading slightly. A structure 20 feet downstream is doing an excellent job of holding grade so there is little risk of head cutting. No degradation has occurred in this area over the past three years.

Area 4

Channel profile along area 4 of Jumping Run remained similar to as-built conditions. The channel bed is very similar to 2004 measurements. The majority of the reach is a run bedform with only three significant riffles and four pools. The channel bed has not aggraded or degraded since construction. Pool to pool spacing is maintaining 125 to 170 foot spacing, typical of a channel this size. Pools are maintaining depth and location. Downcutting mentioned in previous reports near stations 3+50 to 4+00 appears to have stabilized and the riffle directly upstream is functioning very well. Vegetation dominating the channel banks is maintaining stability.

Riffle cross sectional area has remained similar previous measurements. The right bank is continuing to build a low bench and narrow. Channel area is consistent with the previous three years of measurements. Dense vegetation along the right bank has appeared to stabilize toe scour noted in 2004 monitoring report. The pool cross section increased in area over the past year as a result of right bank migration. This migration is likely going to stop due to several large willows along the top of the bank and multiple hardwood trees behind them on the floodplain. The point bar on the inside meander at this section continues to aggrade as the outside bank migrates. This appears to be relatively localized due to the dense vegetation lining the channel bank upstream and downstream of this scour area. No repair or stabilization is recommended in this location. Overall, this reach remains very stable. Maximum depth is consistent to as-built conditions and the entire reach appears to be functioning properly.

Channel substrate for both sections is coarser then previous surveys. No significant fining is evident throughout the reach. Course gravel dominates the riffle bed and pools remain sandy. The channel appears to be transporting the sediment load delivered to it by its watershed.

Channel pattern has been maintained since construction. Plan form measurements are very similar to previous measurements. Dense vegetation has established along the channel banks. This vegetation is providing an excellent root mass to stabilize the banks. There are no areas of visible meander migrations throughout this reach.

Baseline morphology and Summary morphology data are located in tables X and XI, respectively. There are no stream problems for this project; therefore the stream problem table (Table IX) has been omitted.

Table X. Baseline Morphology and Hydraulic Summary
Project Number and Name: 279 (Jumping Run Creek at Payne Dairy)

Parameter	USGS Gage Data			Regional Curve			Pre-Existing			Project Reference			Design			As-built		
Dimension	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
BF Width (ft)	USGS gage data is unavailable for this project						N/A*			N/A*			N/A*					
Floodprone Width (ft)																		
BF Cross Sectional Area (ft2)																		
BF Mean Depth (ft)																		
BF Max Depth (ft)																		
Width/Depth Ratio																		
Entrenchment Ratio																		
Wetted Perimeter(ft)																		
Hydraulic radius (ft)																		
Pattern																		
Channel Beltwidth (ft)																		
Radius of Curvature (ft)																		
Meander Wavelength (ft)																		
Meander Width ratio																		
Profile																		
Riffle length (ft)																		
Riffle slope (ft/ft)																		
Pool length (ft)																		
Pool spacing (ft)																		
Substrate																		
d50 (mm)																		
d84 (mm)																		
Additional Reach Parameters																		
Valley Length (ft)																		
Channel Length (ft)																		
Sinuosity																		
Water Surface Slope (ft/ft)																		
BF slope (ft/ft)																		
Rosgen Classification																		
Number of Bankfull Events																		
Extent of BF floodplain (acres)																		
*BEHI																		

Table XId. Morphology and Hydraulic Monitoring Summary for Area 4
Project Number and Name:
Segment/Reach: Project Number and Name:279 (Jumping Run Creek at Payne Dairy)

Parameter	Cross Section 1 Area 4 Riffle						Cross Section 2 Area 4 Pool					
Dimension	MY0	MY1	MY2	MY3	MY4	MY5	MY0	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	17	17	18	8.6	13.5	10.4	14	14	15.8	11.7	12.9	12.4
Floodprone Width (ft) (approx)	>100											
BF Cross Sectional Area (ft^2)	13.5	11.14	11.91	8.58	8.33	8.32	15.9	15.98	17.57	13.11	14.94	17.68
BF Mean Depth (ft)	0.8	0.7	0.7	1	0.6	0.8	1.1	1.1	1.1	1.1	1.2	1.4
BF Max Depth (ft)	1.2	1.2	1.3	1.4	1.1	1.4	2	2	2.2	1.8	2.1	2
Width/Depth Ratio	21.4	25.9	27.1	8.6	21.8	13						
Entrenchment Ratio (greater	5.9	5.9	5.6	11.7	7.4	9.6						
Wetted Perimeter(ft)												
Hydraulic radius (ft)												
Substrate												
d50 (mm)	9.65	10.45	16.48	3.37	0	21.3	0.14	0.27	2.25	0.16	0	2.7
d84 (mm)	27.3	32.9	43.83	15.43	0	35.6	0.56	17.49	18.17	1.29	0	25.3

Parameter	MY-00 (2000)			MY-01 (2001)			MY-02 (2002)			MY-03 (2003)			MY-04 (2004)			MY-05 (2005)		
Pattern	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Channel Beltwidth (ft)										25	49	31	20	35	29	17	49	28
Radius of Curvature (ft)			60							30	52	39	26	69	34	30	51	39
Meander Wavelength (ft)			140							69	120	86	66	148	87	65	11	90
Meander Width ratio																		
Profile																		
Riffle length (ft)										14	25	17.9	15	52	34	14	49	20
Riffle slope (ft/ft)										0.62%	3.21%	1.52%	0.23%	1.62%	1.00%	0.24%	3%	0.60%
Pool length (ft)										12.7	54	35	34	92	53	34	92	39
Pool spacing (ft)										55	112	90	122	172	127	122	172	127

Additional Reach Parameters	MY-00 (2000)	MY-01 (2001)	MY-02 (2002)	MY-03 (2003)	MY-04 (2004)	MY-05 (2005)
Valley Length (ft)	364					
Channel Length (ft)	415					
Sinuosity	1.14					
Water Surface Slope (ft/ft)				0.004	0.003	0.004
BF slope (ft/ft)						
Rosgen Classification						
Number of Bankfull Events						
Extent of BF floodplain (area)						
BEHI*						

Table XIc. Morphology and Hydraulic Monitoring Summary for Area 3
Project Number and Name:
Segment/Reach: Project Number and Name: 279 (Jumping Run Creek at Payne Dairy)

Parameter	Cross Section 1 Area 3 Riffle						Cross Section 2 Area 3 Pool					
Dimension	MY0	MY1	MY2	MY3	MY4	MY5	MY0	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	9	9	10.6	9.7	8.7	8	15	15	20.3	28.8	12.9	16.6
Floodprone Width (ft) (approx)	>100											
BF Cross Sectional Area (ft^2)	8.3	7.95	9.35	8.99	6.83	6.79	27.1	25.97	29.27	28.98	25.32	27.44
BF Mean Depth (ft)	0.9	0.9	0.9	0.9	0.8	0.9	1.8	1.7	1.4	1	2	1.7
BF Max Depth (ft)	1.3	1.5	1.5	1.3	1.3	1.3	3.6	2.9	3.1	3.1	3	3.2
Width/Depth Ratio	9.8	10.2	12	10.4	11.2	9.4						
Entrenchment Ratio (greater	11.1	11.1	9.4	10.3	11.5	12.5						
Wetted Perimeter(ft)												
Hydraulic radius (ft)												
Substrate												
d50 (mm)	12.65	30.5	30.5	0.38	0.09	9.27	0	0.38	1.5	0.14	0.16	2.93
d84 (mm)	44.9	0	65.75	34.77	15.91	21.22	0	8.87	8.95	0.75	1.95	38.09

Parameter	MY-00 (2000)			MY-01 (2001)			MY-02 (2002)			MY-03 (2003)			MY-04 (2004)			MY-05 (2005)		
Pattern	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Channel Beltwidth (ft)										43	51	47	38	46	44	43	54	49
Radius of Curvature (ft)	35	84								34	58	43	30	42	38	30	63	38
Meander Wavelength (ft)	120	165								146	149	147	124	148	146	129	152	143
Meander Width ratio																		
Profile																		
Riffle length (ft)										9.5	35.1	23.6	17	38	27.5	15	40	21
Riffle slope (ft/ft)										1.62%	3.90%	1.86%	1.40%	3.29%	2.05%	1.33%	3.48%	2.27%
Pool length (ft)										19.5	39.1	29.5	24	59	38	16	64	27
Pool spacing (ft)										67	105	89	43	87	59	43	86	57

Additional Reach Parameters	MY-00 (2000)	MY-01 (2001)	MY-02 (2002)	MY-03 (2003)	MY-04 (2004)	MY-05 (2005)
Valley Length (ft)	305					
Channel Length (ft)	339					
Sinuosity	1.11					
Water Surface Slope (ft/ft)				0.009	0.008	0.008
BF slope (ft/ft)						
Rosgen Classification						
Number of Bankfull Events						
Extent of BF floodplain (area)						
BEHI*						

Table XIb. Morphology and Hydraulic Monitoring Summary for Area 2
Project Number and Name:
Segment/Reach: Project Number and Name: 279 (Jumping Run Creek at Payne Dairy)

Parameter	Cross Section 1 Area 2 Pool						Cross Section 2 Area 2 Riffle					
Dimension	MY0	MY1	MY2	MY3	MY4	MY5	MY0	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	11.5	9.5	11.9	12.8	7.8	8.7	13.7	14	13.6	12.3	8.7	9.4
Floodprone Width (ft) (approx)	>100											
BF Cross Sectional Area (ft^2)	9	8.3	10.17	10.76	7.76	8.51	12.8	12.22	15.53	10.85	7.2	10.2
BF Mean Depth (ft)	0.8	0.9	0.9	0.8	1	0.98	0.9	0.9	1.1	0.9	0.8	1.1
BF Max Depth (ft)	1.4	1.4	1.6	1.6	2	1.8	1.5	1.5	1.8	1.7	1.6	1.7
Width/Depth Ratio	14.7	10.9	13.9	15.2	7.8	8.9						
Entrenchment Ratio (greater	8.7	10.5	8.4	7.8	12.8	11.5						
Wetted Perimeter(ft)												
Hydraulic radius (ft)												
Substrate												
d50 (mm)	7.41	0.69	1.41	0.17	0.11	0.41	0.09	0.18	0.19	0.26	0.26	12.74
d84 (mm)	14.03	23.3	15.53	2.63	0.54	11.93	0.23	0.31	7.85	1.5	13.6	35.48

Parameter	MY-00 (2000)			MY-01 (2001)			MY-02 (2002)			MY-03 (2003)			MY-04 (2004)			MY-05 (2005)		
Pattern	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Channel Beltwidth (ft)										36	47	39	29	45	36	29	42	39
Radius of Curvature (ft)			33							22	30	27	14	43	20	18	39	25
Meander Wavelength (ft)			100							50	95	68	49	108	45	58	97	72
Meander Width ratio																		
Profile																		
Riffle length (ft)										6.1	19.3	11.8	N/A	N/A	N/A	10	28	14
Riffle slope (ft/ft)										0.23%	7.30%	1.39%	N/A	N/A	N/A	1.57%	4.80%	2.71%
Pool length (ft)										14.5	37.8	30	N/A	N/A	N/A	24	97	37
Pool spacing (ft)										36	80	43	N/A	N/A	N/A	54	85	79

Additional Reach Parameters	MY-00 (2000)	MY-01 (2001)	MY-02 (2002)	MY-03 (2003)	MY-04 (2004)	MY-05 (2005)
Valley Length (ft)	312					
Channel Length (ft)	427					
Sinuosity	1.4					
Water Surface Slope (ft/ft)				0.005	N/A	0.006
BF slope (ft/ft)						
Rosgen Classification						
Number of Bankfull Events						
Extent of BF floodplain (area)						
BEHI*						

Table XIa. Morphology and Hydraulic Monitoring Summary for Area 1
Project Number and Name:
Segment/Reach: Project Number and Name: 279 (Jumping Run Creek at Payne Dairy)

Parameter	Cross Section 1 Area 1 Riffle						Cross Section 2 Area 1 Pool					
Dimension	MY0	MY1	MY2	MY3	MY4	MY5	MY0	MY1	MY2	MY3	MY4	MY5
BF Width (ft)	14	12	13.3	11.8	9.8	11.9	16	16	19.3	8.8	9.7	5.6
Floodprone Width (ft) (approx)			>100									
BF Cross Sectional Area (ft^2)	9.4	9.6	11.52	7.06	6.57	6.6	19.2	17.88	17.25	11.72	11.17	11.14
BF Mean Depth (ft)	0.7	0.8	0.9	0.6	0.7	0.6	1.2	1.1	0.9	1.3	1.2	2
BF Max Depth (ft)	1.6	2	1.5	1.6	1.5	1.5	2.3	2.1	1.9	2.3	2	2.6
Width/Depth Ratio	20.8	15	15.4	19.9	14.5	21.4						
Entrenchment Ratio (greater	7.1	8.3	7.5	8.4	10.2	8.4						
Wetted Perimeter(ft)												
Hydraulic radius (ft)												
Substrate												
d50 (mm)	0.27	2.1	0.12	0.12	0.16	0.83	0.8	0.13	1.5	0.28	0.23	0.26
d84 (mm)	8.09	10.32	1.5	0.73	1.07	2.02	0.14	0.24	9.65	0.85	0.44	0.64

Parameter	MY-00 (2000)			MY-01 (2001)			MY-02 (2002)			MY-03 (2003)			MY-04 (2004)			MY-05 (2005)		
Pattern	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med	Min	Max	Med
Channel Beltwidth (ft)										36	40	38	32	39	33	31	40	36
Radius of Curvature (ft)			60							27	39	36	30	44	34	26	39	30
Meander Wavelength (ft)			130							115	123	119	108	126	119	122	131	125
Meander Width ratio																		
Profile																		
Riffle length (ft)										19.8	21.9	20.9	31.4	68.9	49.7	17	34	24
Riffle slope (ft/ft)										1.34%	5.52%	1.66%	0.47%	1.05%	0.60%	0.65%	2.26%	1.29%
Pool length (ft)										8.6	24.1	16.9	25	36	30.5	10	44	18
Pool spacing (ft)										33	55	44	40	95	88	36	49	40

Additional Reach Parameters	MY-00 (2000)	MY-01 (2001)	MY-02 (2002)	MY-03 (2003)	MY-04 (2004)	MY-05 (2005)
Valley Length (ft)	263					
Channel Length (ft)	294					
Sinuosity	1.1					
Water Surface Slope (ft/ft)				0.013	0.01	0.011
BF slope (ft/ft)						
Rosgen Classification						
Number of Bankfull Events						
Extent of BF floodplain (area)						
BEHI*						

IV. Methodology Section

Monitoring methods used are based on US Army Corps of Engineering and NC Division of Water Quality Guides as referenced below.

References:

USACOE (2003) *Stream Mitigation Guidelines*. USACOE, USEPA, NCWRC, NCDENR-DWQ

Rosgen, D L. (1996) *Applied River Morphology*. Wildland Hydrology Books, Pagosa Springs, CO.

APPENDIX A

Vegetation Raw Data

1. Vegetation Photo Log
2. Vegetation Problem Photos
3. Vegetation Survey Data Tables

Jumping Run Creek at Payne Dairy

Vegetation Plot Photos

Plot 1

Plot 2

Plot 3

Plot 4

Jumping Run Creek at Payne Dairy

Vegetation Problem Photos

PA1 – *Rosa multiflora in Area 1*

PA2 – *Rosa multiflora in Area 2*

PA3 - Rosa multiflora in Area 3

PA4 - Rosa multiflora in Area 4

6989310

Location Coords: UTM ~~Purlear Phase I~~ PAYNE DAIRY WETLAND REACH 17S 0487569/3971595	~~Monitoring:~~ REACH 1
Date 5.19.2005 PHOTO 92	Plot #

Species	Count
Qu ph	III
Li st	II
Co am	IIII II
Be ni	II
Sa ca	I
Sa ni	II
Fr pe	II
Al se	I

ROSE PROBLEM AREAS:

PHOTO 93 → UTM 17S 0487609 BEGIN (BOTH BANKS)
3971530

17S 0487586 END
3971464

PHOTO 94 → UTM 17S 0487579 BEGIN
3971427

17S 0487570 END
3971379

Location Coords: UTM ~~Smith-Austin~~ PAYNE DAIRY 17S 0487551/3971345	~~Monitoring:~~ REACH 2
Date 5.19.2005 PHOTOS 95-97	Plot #

Species	Count
Sa ni	IIII IIII IIII
Sa ca	I
Al se	I
Qu pa	I
Co am	III
Be ni	IIII
Pl oc	I
Li st	II
Qu ph	I
Ac ru	II

NOTE: INVASIVE HONEYSUCKLE POPULATION

ROSE PROBLEM AREAS:

PHOTO 98 → UTM 17S 0487535 BEGIN
3971336

17S 048757 END
3971156

Location UTM Coords: 17S 0487661 / 3970616 ~~Purdear Phase I~~ Payne Dairy	Monitoring:
Date 5.19.2005	Plot # Reach 3

Species	Count
Ce occ	I
Co am	III
Qu ph	II
Be ni	II
Qu al	II
Li st	IIII
Sa ca	I
Pl oc	I
Fr pe	II

Location UTM Coords: ~~Purdear Phase I~~ PAYNE DAIRY 17S 0487382/3969989	Monitoring:
Date 5.19.2005 PHOTO #99	~~Plot #~~ REACH 4

Species	Count
Qu al	II
Qu ph	I
Be ni	II
Pl occ.	II
Sa ni	IIII IIII IIII
Co am	III
Al se	I
Li st	I
Sa ca	I

PLOT LOC.: 17S 0487382
3969989

APPENDIX B

Morphology Raw Data

1. Monitoring Area Plan View

Note: There were not stream problems at this site

2. Project Photo Log
3. Cross section and Pebble Count Plots and Raw Data Tables
4. Longitudinal Plots and Raw Data Tables
5. Slope Measurement Tables
6. Pattern Measurement Tables
7. GPS Point Table

2.5 Jumping Run Photo Document

2000 – As built – Year 0

2005 – Year 5

Photo Point 1: Standing at riffle cross-section looking downstream (begin project)

Photo Point 2: Standing at riffle cross-section looking upstream (begin project)

Photo Point 3: Standing at pool cross-section looking upstream

2000 – As built – Year 0 **2005 – Year 5**

Photo Point 4: Standing at pool cross-section looking downstream

Photo Point 15: Standing at riffle cross-section looking downstream

Photo Point 16: Standing at riffle cross-section looking upstream

2000 – As built – Year 0 **2005 – Year 5**

Photo Point 19: Standing at pool cross-section looking upstream

Photo Point 20: Standing at pool cross-section looking downstream

Photo Point 39: Standing at riffle cross-section looking upstream

2000 – As built – Year 0

2005 – Year 5

Photo Point 40: Standing at riffle cross-section looking downstream near Henry Road

2002 – Year 2

Photo Point 41: Standing at pool cross-section looking upstream

2002 – Year 2

Photo Point 42: Standing at pool cross-section looking downstream

2000 – As built – Year 0 **2005 – Year 5**

Photo Point 46: Standing at pool cross-section looking upstream

Photo Point 47: Standing at pool cross-section looking downstream

Photo Point 48: Standing at riffle cross-section looking upstream

2000 – As built – Year 0 **2005 – Year 5**

Photo Point 49: Standing at riffle cross-section looking downstream

Photo Point 50: Looking upstream towards Paul Payne Store Road

Project Name	Jumping Run Area 1
Cross Section	#1 (pins A-B)
Feature	Riffle
Date	6/10/2005
Crew	Shaffer, Bidelspach, Clinton

*2003 Elevation Adjusted +3.01

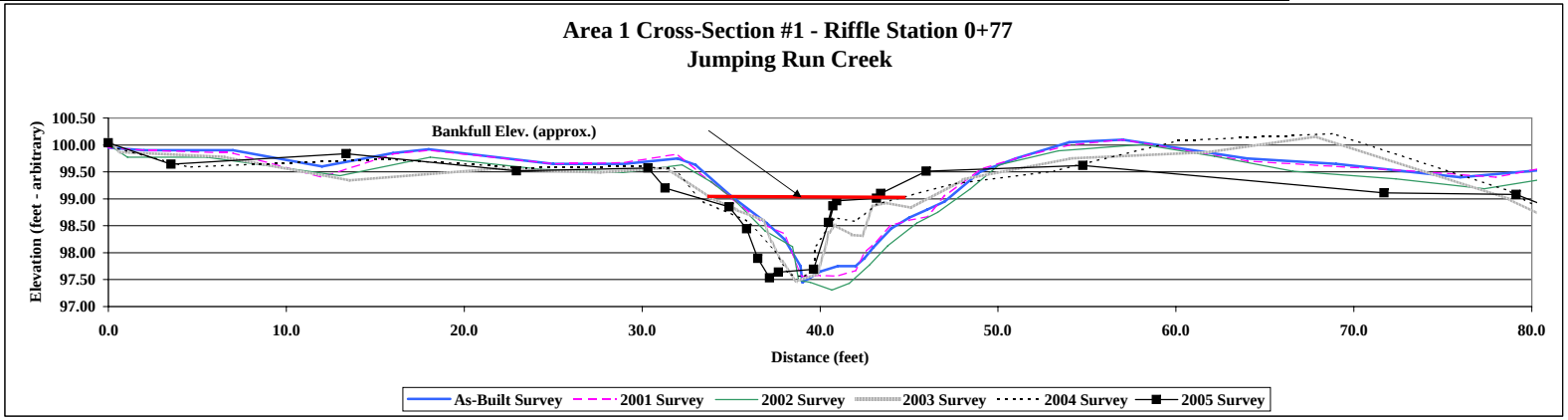
**2004 Elev. Adjusted up by 4.0 ft

***2005 Elev. Adjusted up by 4.0 ft

2000 As-Built Survey			2001 2001 Survey			2002 2002 Survey			2003 2003 Survey			2004 2004 Survey			2005 2005 Survey		
Station	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elevation ***	**Notes**	**Station**	**Elev****	**Notes**	**Station**	**Elev*****	**Notes**
0.0	99.95	Grnd	0	99.95	Grnd	0.0	100.01	PIN-A	0.0	100.1	PIN-A	0.2	99.97	X1LP	0	100.04	X1LP
2.0	99.90		2	99.9		1.1	99.77	G	0.6	99.87		4.5	99.59	X1	3.52	99.64	X1
7.0	99.90		7	99.85		5.5	99.77	G	6.5	99.78		15.5	99.74	X1	13.36	99.84	X1
12.0	99.60		12	99.4		13.0	99.43	G	13.5	99.34		23.5	99.58	X1	22.93	99.52	X1
16.0	99.85		16	99.83		18.1	99.77	G	21.8	99.56		30.0	99.61	X1	30.32	99.57	X1
18.0	99.92		18	99.9		24.3	99.55	G	27.7	99.49		30.8	99.57	X1B	31.3	99.2	BKF
25.0	99.65		25	99.65		28.9	99.49	G	31.4	99.58		31.7	99.57	X1	34.9	98.85	X1
29.0	99.65		29	99.67		32.2	99.63	G	33.7	99.05	LBF (est)	33.3	98.96	X1	35.88	98.44	X1
32.0	99.75		32	99.83		33.9	99.31	G	35.3	98.8		35.9	98.59	X1	36.5	97.89	X1
33.0	99.63		33	99.55		35.1	98.99	LBF	36.8	98.6		37.3	98.09	X1	37.17	97.53	X1
35.0	99.05	LBF (est)	35	99.03	LBF (est)	36.9	98.41	G	37.3	98.2		38.3	97.6	X1	37.67	97.64	X1
37.0	98.55		37	98.5		38.5	98.11	LEOW	37.9	97.84		39.1	97.55	X1	39.64	97.69	X1
38.0	98.25		38	98.35		38.8	97.49	CHN	38.7	97.47		39.7	97.69	X1	40.48	98.56	X1
38.9	97.75		38.9	97.6		39.4	97.45	CHN	39.9	97.61		39.7	98.12	X1W	40.72	98.87	X1
39.0	97.45		39	97.56		40.7	97.31	TW	40.2	98.03		40.9	98.65	X1	40.94	98.96	X1
40.0	97.65		40	97.58		41.6	97.43	CHN	40.5	98.38		42.0	98.58	X1	43.18	99.01	BKF
41.0	97.75		41	97.57		42.8	97.77	CHN	40.9	98.51		43.2	98.9	X1	43.41	99.1	X1
42.0	97.75		42	97.67		43.8	98.13	REOW	41.8	98.33		47.4	99.27	X1	45.96	99.51	X1
42.5	97.90		42.5	98		45.4	98.55	G	42.4	98.31		53.2	99.52	X1	54.77	99.62	X1
43.0	98.10		43	98.16		46.6	98.75	RBF	43.0	98.86		60.1	100.08	X1	71.69	99.11	X1
44.0	98.45		44	98.51		48.5	99.19	G	43.7	98.93		68.9	100.21	X1	79.12	99.08	X1
45.0	98.65		45	98.6	Est.	50.1	99.63	G	45.1	98.83		78.8	99.14	X1	86.74	98.1	X1
46.0	98.80		46	98.67		53.4	99.89	G	48.0	99.36	RBF (est)	81.2	98.69	X1	89.42	97.76	X1
47.0	98.95	RBF (est)	47	99.05	RBF (est)	58.1	100.01	G	54.1	99.75		86.1	98.3	X1	93.55	97.69	X1
49.0	99.50		49	99.55		62.2	99.79	G	61.9	99.87		90.9	98.01	X1	96.23	97.95	X1
51.0	99.75		51	99.75		66.6	99.51	G	67.9	100.16		96.2	98.25	X1	100.16	100.12	X1
54.0	100.05		54	100		72.4	99.37	G	78.7	98.99		98.9	99.63	X1	100.36	100.27	X1RP
57.0	100.10		57	100.1		77.3	99.19	G	82.1	98.45							
64.0	99.75		64	99.7		81.5	99.41	G	100.4	99.08	PIN-B1						
69.0	99.65		69	99.6		82.7	99.91	PIN-B									
76.0	99.40		74	99.5													
81.0	99.55		78	99.4													
82.3	99.85	Grnd	81	99.6													
82.3	99.93	Pin B?	82.3	99.85	Grnd												
	100.00		82.3	99.91	Pin B?												

Photo of Area 1 Cross-Section #1 - Looking Downstream

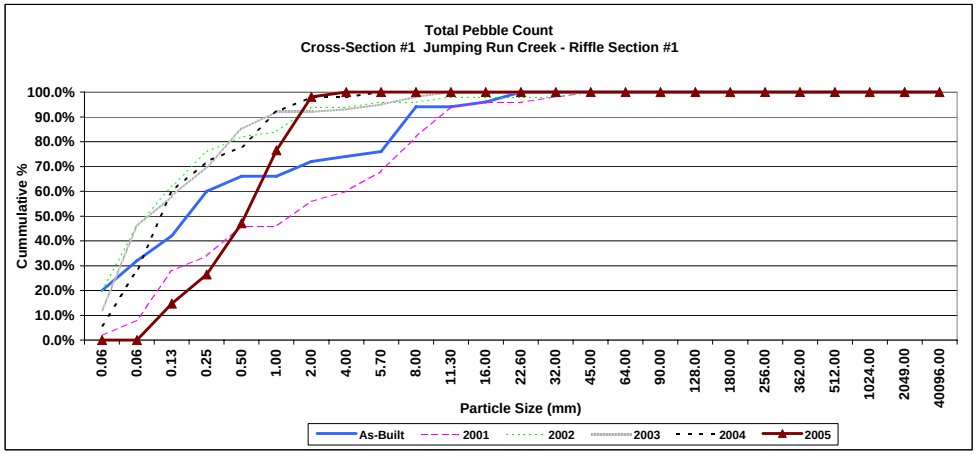
	Bankfull Area					
	As-Built	**2001**	**2002**	**2003**	**2004**	**2005**
Area	9.4	9.60	11.52	7.06	6.57	6.60
Width	14.0	12.0	13.3	11.8	9.8	11.9
Mean Depth	0.7	0.8	0.9	0.6	0.7	0.6
Max Depth	1.6	2.0	1.5	1.6	1.5	1.5
w/d ratio	20.8	15.0	15.4	19.9	14.5	21.4
FPW			>100			
ER (greater than)	7.1	8.3	7.5	8.4	10.2	8.4
Stream Type	C	C	C	C	C	C



Project Name	Payne Dairy - Jumping Run Creek
Cross Section	#1 Section 1
Feature	Riffle
Date	6/6/05
Crew	Shaffer, Bidelspach, Clinton

		2000	As-Built			2001			2002			2003				2004				2005		
Description	**Material**	**Size (mm)**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**iffle - Ban**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	10	20.0%	20.0%	1	2.0%	2.0%	10	20.0%	20.0%	0	12	12.0%	12.0%	1	2	6.0%	6.0%	0	0.0%	0.0%
	very fine sand	0.062	6	12.0%	32.0%	3	6.0%	8.0%	13	26.0%	46.0%	0	34	34.0%	46.0%	3	8	22.0%	28.0%	0	0.0%	0.0%
	fine sand	0.125	5	10.0%	42.0%	10	20.0%	28.0%	8	16.0%	62.0%	8	4	12.0%	58.0%	16		32.0%	60.0%	15	14.7%	14.7%
Sand	medium sand	0.25	9	18.0%	60.0%	3	6.0%	34.0%	7	14.0%	76.0%	12		12.0%	70.0%	6		12.0%	72.0%	12	11.8%	26.5%
	course sand	0.50	3	6.0%	66.0%	6	12.0%	46.0%	3	6.0%	82.0%	15		15.0%	85.0%	3		6.0%	78.0%	21	20.6%	47.1%
	very course sand	1.0		0.0%	66.0%		0.0%	46.0%	1	2.0%	84.0%	7		7.0%	92.0%	7		14.0%	92.0%	30	29.4%	76.5%
	very fine gravel	2.0	3	6.0%	72.0%	5	10.0%	56.0%	5	10.0%	94.0%	0		0.0%	92.0%	3		6.0%	98.0%	22	21.6%	98.0%
	fine gravel	4.0	1	2.0%	74.0%	2	4.0%	60.0%		0.0%	94.0%	1		1.0%	93.0%	0		0.0%	98.0%	2	2.0%	100.0%
G	fine gravel	5.7	1	2.0%	76.0%	4	8.0%	68.0%	1	2.0%	96.0%	2		2.0%	95.0%	1		2.0%	100.0%		0.0%	100.0%
r	medium gravel	8.0	9	18.0%	94.0%	7	14.0%	82.0%		0.0%	96.0%	3		3.0%	98.0%			0.0%	100.0%		0.0%	100.0%
a	medium gravel	11.3		0.0%	94.0%	6	12.0%	94.0%	1	2.0%	98.0%	2		2.0%	100.0%			0.0%	100.0%		0.0%	100.0%
v	course gravel	16.0	1	2.0%	96.0%	1	2.0%	96.0%		0.0%	98.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
e	course gravel	22.6	2	4.0%	100.0%		0.0%	96.0%		0.0%	98.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
l	very course gravel	32		0.0%	100.0%	1	2.0%	98.0%		0.0%	98.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very course gravel	45		0.0%	100.0%	1	2.0%	100.0%	1	2.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Cobble	small cobble	64		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	medium cobble	90		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large cobble	128		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large cobble	180		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Boulder	small boulder	256		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	small boulder	362		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	medium boulder	512		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large boulder	1024		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large boulder	2049		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
TOTAL / %of whole count			50	100.0%		50	100.0%		50	100.0%		50	50	100.0%		40	10	100.0%		102	100.0%	

	d16	d35	d50	d84	d95
As-Built	0.00	0.12	0.27	8.09	16.48
2001	0.13	0.41	2.10	10.32	10.32
2002	0.00	0.08	0.12	1.50	1.50
2003	0.07	0.08	0.12	0.73	6.85
2004	0.08	0.11	0.16	1.07	2.25
2005	0.21	0.53	0.83	2.02	2.79



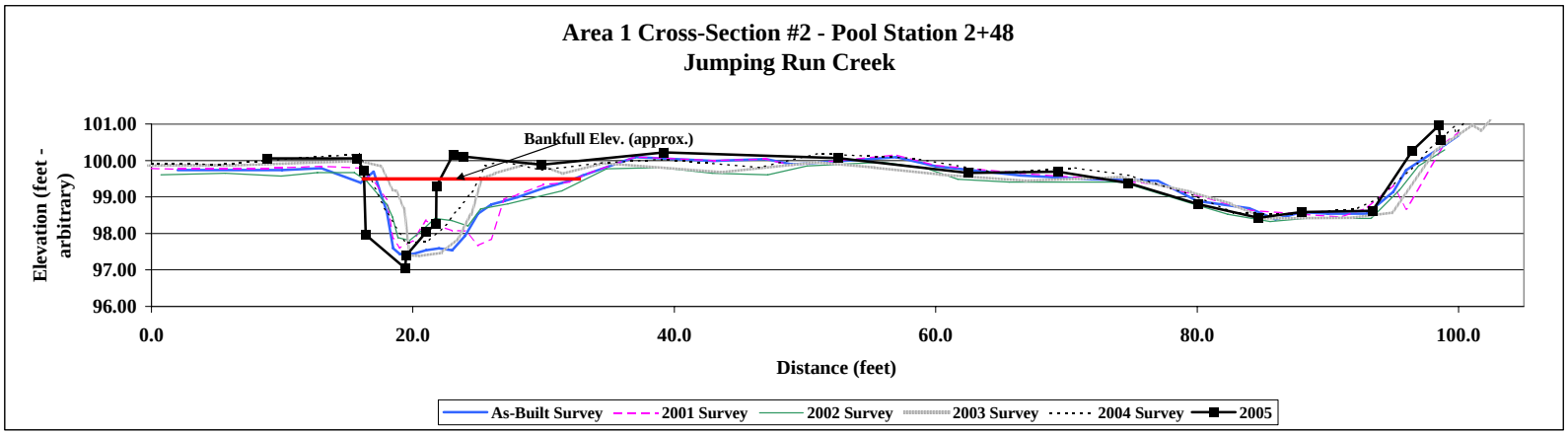
Project Name	Jumping Run Area 1
Cross Section	#2 (pins C-D)
Feature	Pool
Date	6/10/2005
Crew	Shaffer, Bidelspach, Clinton

*2003 Stationing adjusted -28 ft
**2003 Elevations adjusted +5.73 ft ***2004 Elev adjusted +6.78 ft ***2004 Elev adjusted +6.7 ft

2000 As-Built Survey			2001 2001 Survey			2002 2002 Survey			2003 2003 Survey			2004 2004 Survey			2005 2005 Survey		
Station	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station***	**Elevation****	**Notes**	**Station**	**Elev*****	**Notes**	**Station**	**Elev*****	**Notes**
0.0	100.00	PIN-C	0	99.78		0.0	99.87	PIN-C	-25.18	100.4		0	99.91	X2LP	0	99.94	X2LP
2.0	99.74		2	99.76		0.7	99.61	G	-7.58	99.82		0.14	99.91	XSRP2	8.83	100.06	X2
10.0	99.74		10	99.8		5.7	99.65	G	0.92	99.87		5.38	99.89	X2	15.75	100.06	X2
13.0	99.79		13	99.84		9.9	99.57	G	6.38	99.87	Pin-C	10.61	100.05	X2	16.26	99.72	B
16.0	99.39		16	99.79		12.7	99.67	G	16	99.99		15.92	100.17	X2	16.4	97.96	X2
17.0	99.69	LBF (est)	17	99.41	LBF (est)	15.5	99.67	G	17.52	99.84		17.89	98.64	X2W	19.4	97.05	X2
18.0	98.59		18	98.94		16.5	99.43	LBF	18.5	99.19		19.46	97.74	X2W	19.49	97.39	X2
18.5	97.59		18.5	97.85		17.5	99.01	G	18.72	99.17		21.14	97.78	X2	21.03	98.04	X2
19.0	97.44		19	97.6		18.0	98.79	LEOW	19.33	98.68		22.38	98.18	X2	21.77	98.27	X2
20.0	97.44		20	97.8		18.5	98.45	CHN	19.76	97.4		23.51	98.69	X2W	21.8	99.3	X2
21.0	97.54		21	98.35		18.9	97.89	CHN	20.55	97.38		24.51	99.13	X2	23.07	100.16	B
22.0	97.59		22	98.2		19.8	97.81	CHN	22.22	97.47		25.58	99.84	X2	23.85	100.11	X2
23.0	97.54		23	98.08		20.6	98.07	CHN	23.39	97.85		26.66	99.99	X2	29.84	99.88	X2
24.0	97.94		24	98.07		21.7	98.41	CHN	24.45	98.52		29.83	99.74	X2	39.22	100.22	X2
25.0	98.54		25	97.67		23.0	98.35	CHN	25.3	99.51		34.32	99.93	X2	52.51	100.07	X2
26.0	98.79		26	97.84		24.2	98.21	CHN	26.27	99.64		39.02	100.03	X2	62.49	99.66	X2
27.0	98.89		27	98.94		25.2	98.67	REOW	29.16	99.95		46.53	99.81	X2	69.35	99.69	X2
28.0	98.99		28	99.06		27.3	98.81	G	31.47	99.63		50.97	100.19	X2	74.76	99.38	X2
30.0	99.24		30	99.34		31.4	99.17	G	34.56	99.93		58.41	100.06	X2	80.09	98.8	X2
32.0	99.44		32	99.41		34.8	99.77	RBF	43.65	99.68		64.78	99.66	X2	84.66	98.43	X2
33.0	99.59	RBF (est)	33	99.59	RBF (est)	38.9	99.81	G	50.86	99.95		70.6	99.8	X2	87.98	98.59	X2
37.0	100.09		37	100.1		42.9	99.65	G	55.29	99.81		74.82	99.59	X2	93.41	98.62	X2
43.0	99.99		43	100		47.2	99.61	G	60.32	99.62		79.86	99.03	X2	96.48	100.27	X2
47.0	100.04		47	100.04		50.2	99.85	G	66.91	99.44		82.81	98.57	X2	98.48	100.96	X2RP
49.0	99.89		49	99.87		55.9	99.95	G	74.24	99.55		86.99	98.53	X2	98.6	100.58	X2
57.0	100.09		57	100.15		59.3	99.79	G+VP	79.5	99.14		92.15	98.67	X2			
60.0	99.84		60	99.87		61.7	99.49	G	82.59	98.81		93.81	98.95	X2			
66.5	99.59		66.5	99.65		65.6	99.41	G	85.21	98.41		96.81	99.92	X2			
72.0	99.49		72	99.5		74.2	99.41	G	91.91	98.43		97.62	100.25	X2			
77.0	99.44		77	99.35		79.8	98.79	G	94.87	98.57		99.66	100.95	X2RP			
80.0	98.89		84	98.64		82.3	98.53	G	98.32	100.27		99.79	100.74	X2			
84.0	98.69		91	98.45		85.6	98.33	G	101.07	100.99	Pin-D	100.42	101.01	XSLP2			
86.0	98.39		93	98.7		88.3	98.41	G	101.66	100.83							
88	98.59		95	99.31		93.3	98.41	G	104.6	102							
90	98.54		96	98.67		95.5	99.19	G	108.24	102.84							
93	98.54		99	100.48		96.9	99.85	G+VP	120.38	104.8							
95	99.14		100	100.78		98.9	100.29	G									
96	99.74		100	100.99	PIN-D?	100.1	100.99	PIN-D									
99	100.44																
100	100.69																
100	100.94	PIN-D															

Photo of Area 1 Cross-Section #2 - Looking Upstream

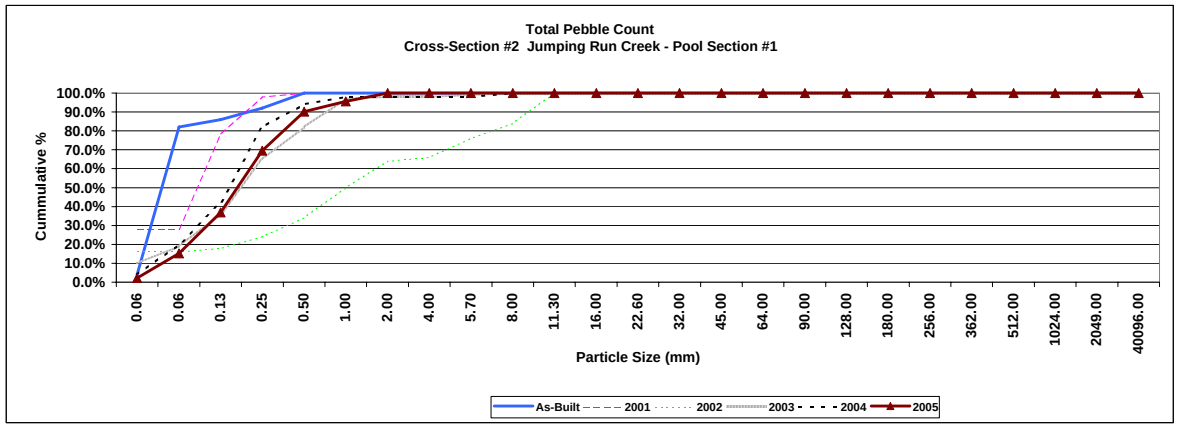
Bankfull Area						
	As-Built	**2001**	**2002**	**2003**	**2004**	**2005**
Area	19.2	17.88	17.25	11.72	11.17	11.14
Width	16.0	16.0	19.3	8.8	9.7	5.6
Mean Depth	1.2	1.1	0.9	1.3	1.2	2.0
Max Depth	2.3	2.1	1.9	2.3	2.0	2.6



Project Name	Payne Dairy - Jumping Run Creek
Cross Section	#2 Section 1
Feature	Pool
Date	6/6/05
Crew	Shaffer, Bidelspach, Clinton

		2000	As-Built			2001			2002			2003				2004				2005		
Description	**Material**	**Size (mm)**	**Pool**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**iffle - Ban**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	2	4.0%	4.0%	14	28.0%	28.0%	8	16.0%	16.0%	4	6	10.0%	10.0%	2	0	4.0%	4.0%	2	2.2%	2.2%
Sand	very fine sand	0.062	39	78.0%	82.0%	0	0.0%	28.0%	0	0.0%	16.0%	6	3	9.0%	19.0%	8	0	16.0%	20.0%	12	13.0%	15.2%
	fine sand	0.125	2	4.0%	86.0%	25	50.0%	78.0%	1	2.0%	18.0%	8	9	17.0%	36.0%	10	1	22.0%	42.0%	20	21.7%	37.0%
	medium sand	0.25	3	6.0%	92.0%	10	20.0%	98.0%	3	6.0%	24.0%	15	14	29.0%	65.0%	12	8	40.0%	82.0%	30	32.6%	69.6%
	course sand	0.50	4	8.0%	100.0%	1	2.0%	100.0%	5	10.0%	34.0%	9	8	17.0%	82.0%	5	1	12.0%	94.0%	19	20.7%	90.2%
	very course sand	1.0	0	0.0%	100.0%	0	0.0%	100.0%	8	16.0%	50.0%	15		15.0%	97.0%	2		4.0%	98.0%	5	5.4%	95.7%
G r a v e l	very fine gravel	2.0	0	0.0%	100.0%	0	0.0%	100.0%	7	14.0%	64.0%	1		1.0%	98.0%	0		0.0%	98.0%	4	4.3%	100.0%
	fine gravel	4.0	0	0.0%	100.0%	0	0.0%	100.0%	1	2.0%	66.0%	0		0.0%	98.0%	0		0.0%	98.0%		0.0%	100.0%
	fine gravel	5.7	0	0.0%	100.0%	0	0.0%	100.0%	5	10.0%	76.0%	1		1.0%	99.0%	0		0.0%	98.0%		0.0%	100.0%
	medium gravel	8.0	0	0.0%	100.0%	0	0.0%	100.0%	4	8.0%	84.0%	1		1.0%	100.0%	1		2.0%	100.0%		0.0%	100.0%
	medium gravel	11.3	0	0.0%	100.0%	0	0.0%	100.0%	8	16.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	course gravel	16.0	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	course gravel	22.6	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very course gravel	32	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very course gravel	45	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Cobble	small cobble	64	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	medium cobble	90	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large cobble	128	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
TOTAL / %of whole count			50	100.0%		50	100.0%		50	100.0%		60	40	100.0%		40	10	100.0%		92	100.0%	

	d16	d35	d50	d84	d95
As-Built	0.07	0.07	0.08	0.14	0.52
2001	0.00	0.11	0.13	0.24	0.24
2002	0.16	0.80	1.50	9.65	9.65
2003	0.08	0.18	0.28	0.85	1.40
2004	0.09	0.16	0.23	0.44	0.94
2005	0.10	0.18	0.26	0.64	1.41



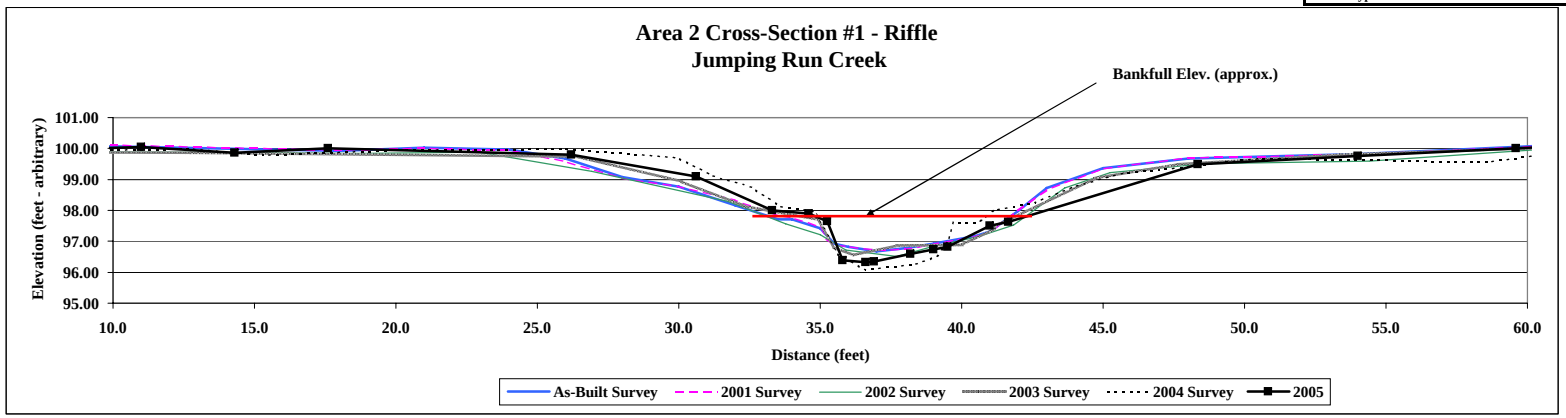
Project Name	Jumping Run Area 2
Cross Section	#1 (pins E-F)
Feature	Riffle
Date	6/10/2005
Crew	Shaffer, Bidelspach, Clinton

*2003 Elev adjusted +30.25 ft

2000 As-Built Survey			2001 2001 Survey			2002 2002 Survey			2003 2003 Survey			2004 2004 Survey			2005 2005 Survey		
Station	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elev***	**Notes**	**Station**	**Elev**	**Notes**	**Station**	**Elev**	**Notes**
0.0	100.32	PIN-E?	0	99.8		0.0	99.96	PIN-E	0	99.84	Pin-E	1	99.84	XSLP	0	99.84	LP1
0.0	99.77		5	100.03		1.4	99.78	G	2.08	99.79		1	99.64	XS	1	99.76	XS1
5.0	99.97		10	100.12		9.2	99.9	G	6.12	99.88		5	99.89	XS	3.5	99.95	XS1
10.0	100.07		18	99.94		18.7	99.84	G	12.75	99.87		12.8	99.99	XS1	8	99.96	XS1
18.0	99.92		21	100.01		22.9	99.88	G	26.43	99.73		15.3	99.77	XS	11	100.05	XS1
21.0	100.02		24	99.95		26.9	99.26	G	30.11	98.94		20	99.94	XS1	14.3	99.86	XS1
24.0	99.97		26	99.58		31.7	98.28	LBF	32.3	98.15	LBF (est)	26	99.99	XS1W	17.6	100.01	XS1
26.0	99.67		28	99.03		33.8	97.56	G	34.87	97.7		30	99.69	XS1	26.2	99.8	XS1
28.0	99.07		30	98.77		35.0	97.22	LEOW	35.5	96.79		31.2	99.11	XS1	30.6	99.1	XS1
30.0	98.77		32	98.33		35.9	96.72	CHN	36.17	96.55		32.6	98.74	XS1	33.3	97.99	XS1
32.0	98.17	LBF (est)	33.5	97.84	LBF (est)	37.7	96.52	TW	37.72	96.86		33.6	98.12	BKF	34.6	97.89	XS1
33.5	97.72		34	97.78		38.8	96.8	CHN	40.03	96.88		34.8	97.95	XS1	35.25	97.64	XS1
34.0	97.72		35	97.46		40.6	97.16	REOW	41.16	97.39		35.6	96.62	XS1	35.8	96.39	XS1
35.0	97.42		35.2	97.11		41.8	97.52	RBF	41.2	97.49	RBF (est)	36.6	96.07	XS1W	36.6	96.32	XS1
35.5	96.92		35.5	96.88		43.6	98.72	G	44.7	99.04		38.4	96.27	XS1	36.9	96.34	XS1
36.0	96.82		36	96.82		45.2	99.22	G	47.64	99.48		39.1	96.52	XS1	38.2	96.59	XS1
37.0	96.67		37	96.71		48.6	99.52	G	53.39	99.79		39.5	96.94	XS1	39	96.74	XS1
38.0	96.77		38	96.73		54.4	99.6	G	60.2	100		39.7	97.61	XS1	39.5	96.82	XS1
39.0	96.92		39	96.9		61.1	100	G	65.16	100.17	Pin-F	40.6	97.61	XS1	41	97.51	XS1
40.5	97.17		40.5	97.16		64.4	100.06	G				41.1	98	BKF	41.65	97.63	XS1
41.0	97.32	RBF (est)	41	97.29		65.3	100.32	PIN-F				42.6	98.25	XS1	48.35	99.5	XS1
42.0	97.97		42	97.99	RBF (est)							43.9	98.74	XS1	54	99.75	XS1
43.0	98.72		43	98.66								45.7	99.2	XS1	59.6	100.01	XS1
45.0	99.37		45	99.35								47.0	99.3	XS1	64	100.2	XS1
48.0	99.67		48	99.69								50.5	99.68	XS1	65.5	100.14	
54.0	99.82		54	99.8								58.6	99.55	XS			
61.0	100.12		61	100.12								61.0	99.87	XS1			
63.0	100.12		63	100.15								66.6	100.04	XS1			
63.0	100.32	Pin--F?	63	100.32								66.7	100.14	XS1RP			

Photo of Area 2 Cross-Section #1 - Looking Downstream

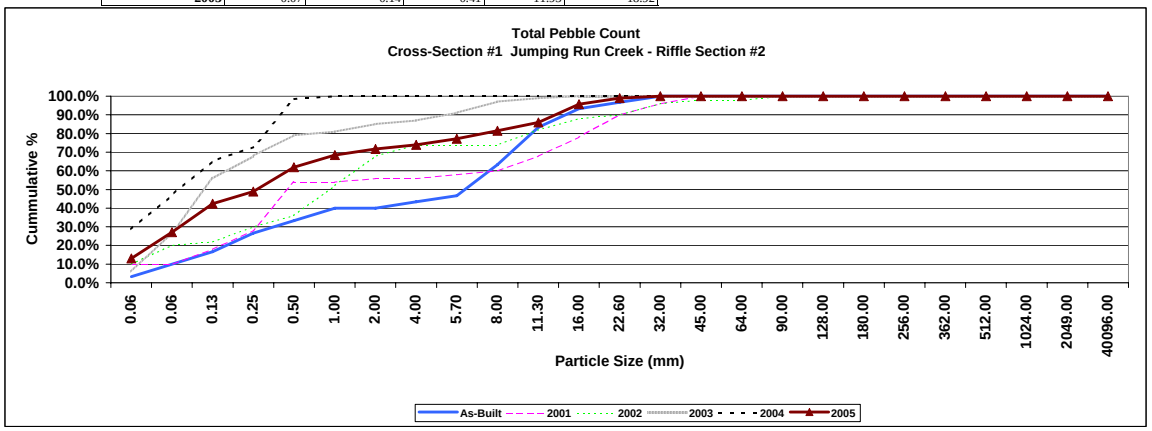
	Bankfull Area					
	As-Built	**2001**	**2002**	**2003**	**2004**	**2005**
Area	9.0	8.30	10.17	10.76	7.76	8.51
Width	11.5	9.5	11.9	12.8	7.8	8.7
Mean Depth	0.8	0.9	0.9	0.8	1.00	0.98
Max Depth	1.4	1.4	1.6	1.6	2.0	1.8
w/d ratio	14.7	10.9	13.9	15.2	7.8	8.9
FPW			>100			
ER (greater than)	8.7	10.5	8.4	7.8	12.8	11.5
Stream Type	C	C	C	C	E	E



Project Name	Payne Dairy - Jumping Run Creek
Cross Section	#1 Section 2
Feature	Riffle
Date	6/6/05
Crew	Shaffer, Bidelspach, Clinton

		2000	As-Built			2001			2002			2003				2004				2005		
Description	**Material**	**Size (mm)**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Ban**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	1	3.3%	3.3%	5	10.0%	10.0%	5	10.0%	10.0%	0	6	6.0%	6.0%	8	11	28.8%	28.8%	12	13.0%	13.0%
Sand	very fine sand	0.062	2	6.7%	10.0%		0.0%	10.0%	5	10.0%	20.0%	0	21	21.0%	27.0%	3	9	18.2%	47.0%	13	14.1%	27.2%
	fine sand	0.125	2	6.7%	16.7%	4	8.0%	18.0%	1	2.0%	22.0%	16	13	29.0%	56.0%	3	9	18.2%	65.2%	14	15.2%	42.4%
	medium sand	0.25	3	10.0%	26.7%	5	10.0%	28.0%	4	8.0%	30.0%	12		12.0%	68.0%	1	4	7.6%	72.7%	6	6.5%	48.9%
	course sand	0.50	2	6.7%	33.3%	13	26.0%	54.0%	3	6.0%	36.0%	11		11.0%	79.0%	8	9	25.8%	98.5%	12	13.0%	62.0%
	very course sand	1.0	2	6.7%	40.0%		0.0%	54.0%	8	16.0%	52.0%	2		2.0%	81.0%	1		1.5%	100.0%	6	6.5%	68.5%
G r a v e l	very fine gravel	2.0		0.0%	40.0%	1	2.0%	56.0%	8	16.0%	68.0%	4		4.0%	85.0%	0		0.0%	100.0%	3	3.3%	71.7%
	fine gravel	4.0	1	3.3%	43.3%		0.0%	56.0%	3	6.0%	74.0%	2		2.0%	87.0%	0		0.0%	100.0%	2	2.2%	73.9%
	fine gravel	5.7	1	3.3%	46.7%	1	2.0%	58.0%		0.0%	74.0%	4		4.0%	91.0%	0		0.0%	100.0%	3	3.3%	77.2%
	medium gravel	8.0	5	16.7%	63.3%	1	2.0%	60.0%		0.0%	74.0%	6		6.0%	97.0%	0		0.0%	100.0%	4	4.3%	81.5%
	medium gravel	11.3	6	20.0%	83.3%	4	8.0%	68.0%	4	8.0%	82.0%	2		2.0%	99.0%	0		0.0%	100.0%	4	4.3%	85.9%
	course gravel	16.0	3	10.0%	93.3%	5	10.0%	78.0%	3	6.0%	88.0%	1		1.0%	100.0%	0		0.0%	100.0%	9	9.8%	95.7%
	course gravel	22.6	1	3.3%	96.7%	6	12.0%	90.0%	1	2.0%	90.0%			0.0%	100.0%			0.0%	100.0%	3	3.3%	98.9%
	very course gravel	32	1	3.3%	100.0%	3	6.0%	96.0%	3	6.0%	96.0%			0.0%	100.0%			0.0%	100.0%	1	1.1%	100.0%
	very course gravel	45		0.0%	100.0%	2	4.0%	100.0%	1	2.0%	98.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Cobble	small cobble	64		0.0%	100.0%		0.0%	100.0%		0.0%	98.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	medium cobble	90		0.0%	100.0%		0.0%	100.0%	1	2.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large cobble	128		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large cobble	180		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Boulder	small boulder	256		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	small boulder	362		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	medium boulder	512		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large boulder	1024		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large boulder	2049		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
TOTAL / %of whole count			30	100.0%		50	100.0%		50	100.0%		60	40	100.0%		24	42	100.0%		92	100.0%	

	d16	d35	d50	d84	d95
As-Built	0.18	0.94	7.41	14.03	23.30
2001	0.16	0.48	0.69	23.30	23.30
2002	0.08	0.69	1.41	15.53	15.53
2003	0.08	0.12	0.17	2.63	8.72
2004	0.00	0.07	0.11	0.54	0.70
2005	0.07	0.14	0.41	11.93	18.92



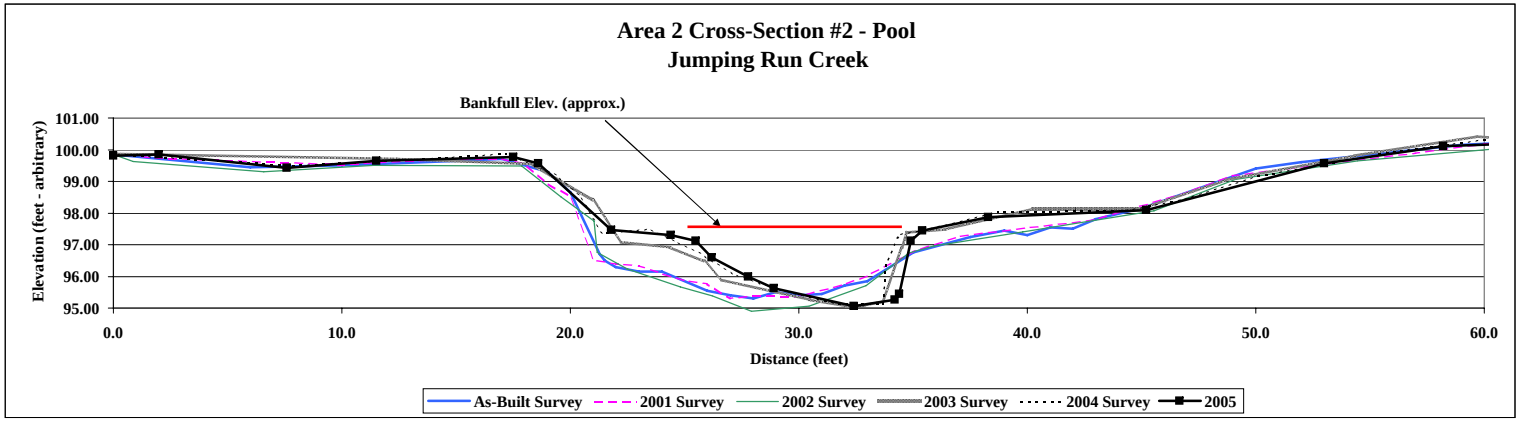
Project Name	Jumping Run Area 2
Cross Section	#2 (pins G-H)
Feature	Pool
Date	6/10/2005
Crew	Shaffer, Bidelspach, Clinton

*2003 Elevations adjusted +9.85 ft

2000 As-Built Survey			2001 2001 Survey			2002 2002 Survey			2003 2003 Survey			2004 2004 Survey			2005 2005 Survey		
Station	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elev***	**Notes**	**Station**	**Elev**	**Notes**	**Station**	**Elev**	**Notes**
0.0	99.85		0	99.87		0.0	99.85	PIN-G	0	99.86	Pin G	64.7	100.2		0	99.8	X2LP
6.0	99.45		2	99.73		0.9	99.62	G	12.4	99.71		60.7	100.38		2	99.85	X2
10.0	99.50		10	99.53		6.6	99.3	G	18.4	99.55		56.2	99.94		7.6	99.43	X2
15.0	99.65		13	99.64		11.4	99.5	G	21.0	98.41		50.0	99.14		11.5	99.65	X2
17.0	99.70		16	99.7		17.9	99.48	G	22.2	97.08		46.9	98.44		17.5	99.77	X2
19.0	99.30		17	99.71		19.6	98.52	G	24.4	96.92	LBF (est)	44.2	98.05		18.6	99.57	X2
20.0	98.65		18	99.55		21.0	97.74	G	25.8	96.48		38.7	98.03		21.8	97.47	X2
21.3	96.70	LBF (est)	19	98.94		21.2	96.76	LBF	26.6	95.89		35.7	97.49		24.4	97.31	X2
21.5	96.50		20	98.53		22.5	96.24	CHN	30.5	95.27		34.4	97.32	BKF	25.5	97.12	X2
22.0	96.30		21	96.51	LBF (est)	24.8	95.66	CHN	32.1	95.07		33.8	96.37		26.2	96.6	X2
23.0	96.15		22	96.4		26.2	95.38	CHN	32.9	95.08		33.7	95.13		27.8	95.99	X2
24.0	96.15		23	96.34		27.9	94.9	TW	33.7	95.21		31.7	95.12		28.9	95.63	X2
26.0	95.55		24	96.1		30.4	95.06	TW	34.5	96.9	RBF (est)	29.0	95.61		32.4	95.06	X2
27.0	95.40		25	95.87		32.9	95.7	CHN	34.7	97.38		27.1	96.09		34.2	95.26	X2
28.0	95.30		26	95.77		34.8	96.74	RBF	36.4	97.48		25.7	96.74	BKF	34.4	95.45	X2
29.0	95.50		27	95.3		35.9	96.96	G	40.3	98.14		24.7	97.06		34.9	97.12	B
30.0	95.40		28	95.39		39.8	97.4	G	45.0	98.13		23.5	97.48		35.4	97.45	X2
31.0	95.45		30	95.37		45.6	98.08	G	48.7	99.05		21.4	97.37		38.3	97.86	X2
32.0	95.70		32	95.75		49.1	99.06	G	54.3	99.81		20.4	98.52		45.2	98.09	X2
33.0	95.85		33	96.01		54.5	99.64	G	59.7	100.41	Pin H	19.4	99.2		53	99.57	X2
35.0	96.75	RBF (est)	35	96.78	RBF (est)	60.9	100.06	G	64.4	100.2		17.2	99.86		58.2	100.12	X2
37.5	97.25		37	97.27		69.3	99.92	G				14.7	99.74		62.9	100.23	X2
39.0	97.45		43	97.78		70.4	100.54	PIN-H				7.7	99.48		65.3	100.16	X2
40.0	97.30		47	98.65								4.7	99.64		70	100.5	X2
41.0	97.55		49	99.18								0	99.85		65.5	5.3	X2RP
42.0	97.50		57	99.88								0	99.84				
43.0	97.80		60	100.18													
45.0	98.15		66	100.17													
50.0	99.40		70	100.27													
52.0	99.60		70	100.5	Pin H?												
59.0	100.15																
62.0	100.25																
67.0	100.15																
70.5	100.25																
70.5	100.51	Pin H?															

Photo of Area 2 Cross-Section #2 - Looking Upstream

Bankfull Area						
	As-Built	**2001**	**2002**	**2003**	**2004**	**2005**
Area	12.8	12.22	15.53	10.85	7.20	10.20
Width	13.7	14.0	13.6	12.3	8.7	9.4
Mean Depth	0.9	0.9	1.1	0.9	0.8	1.1
Max Depth	1.5	1.5	1.8	1.7	1.6	1.7

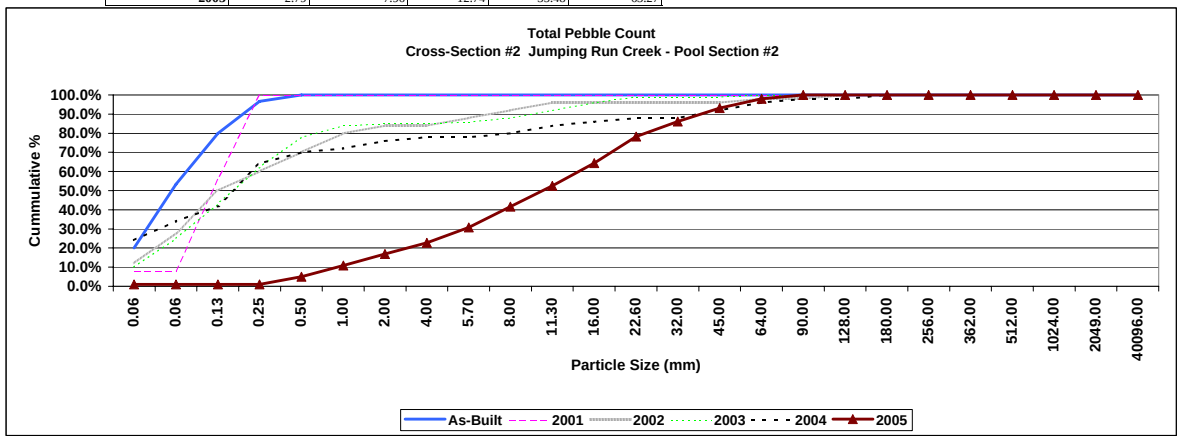


Project Name	Payne Dairy - Jumping Run Creek
Cross Section	#2 Section 2
Feature	Pool
Date	6/6/05
Crew	Shaffer, Bidelspach, Clinton

Cross Section #1

		2000	As-Built			2001			2002			2003				2004				2005		
Description	**Material**	**Size (mm)**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**iffle - Ban**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	6	20.0%	20.0%	4	8.0%	8.0%	6	12.0%	12.0%	0	10	10.0%	10.0%	0	12	24.0%	24.0%	1	1.0%	1.0%
Sand	very fine sand	0.062	10	33.3%	53.3%	0	0.0%	8.0%	8	16.0%	28.0%	3	12	15.0%	25.0%	0	5	10.0%	34.0%	0	0.0%	1.0%
	fine sand	0.125	8	26.7%	80.0%	24	48.0%	56.0%	11	22.0%	50.0%	10	8	18.0%	43.0%	0	4	8.0%	42.0%	0	0.0%	1.0%
	medium sand	0.25	5	16.7%	96.7%	22	44.0%	100.0%	5	10.0%	60.0%	19	0	19.0%	62.0%	1	10	22.0%	64.0%	0	0.0%	1.0%
	course sand	0.50	1	3.3%	100.0%	0	0.0%	100.0%	5	10.0%	70.0%	16	0	16.0%	78.0%	1	2	6.0%	70.0%	4	4.0%	5.0%
	very course sand	1.0	0	0.0%	100.0%	0	0.0%	100.0%	5	10.0%	80.0%	6	0	6.0%	84.0%	1	0	2.0%	72.0%	6	5.9%	10.9%
G r a v e l	very fine gravel	2.0	0	0.0%	100.0%	0	0.0%	100.0%	2	4.0%	84.0%	1	0	1.0%	85.0%	2	0	4.0%	76.0%	6	5.9%	16.8%
	fine gravel	4.0	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	84.0%	0	0	0.0%	85.0%	1	0	2.0%	78.0%	6	5.9%	22.8%
	fine gravel	5.7	0	0.0%	100.0%	0	0.0%	100.0%	2	4.0%	88.0%	1	0	1.0%	86.0%	0	0	0.0%	78.0%	8	7.9%	30.7%
	medium gravel	8.0	0	0.0%	100.0%	0	0.0%	100.0%	2	4.0%	92.0%	2		2.0%	88.0%	1		2.0%	80.0%	11	10.9%	41.6%
	medium gravel	11.3	0	0.0%	100.0%	0	0.0%	100.0%	2	4.0%	96.0%	4		4.0%	92.0%	2		4.0%	84.0%	11	10.9%	52.5%
	course gravel	16.0	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	96.0%	4		4.0%	96.0%	1		2.0%	86.0%	12	11.9%	64.4%
	course gravel	22.6	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	96.0%	3		3.0%	99.0%	1		2.0%	88.0%	14	13.9%	78.2%
	very course gravel	32	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	96.0%			0.0%	99.0%	0		0.0%	88.0%	8	7.9%	86.1%
	very course gravel	45	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	96.0%			0.0%	99.0%	2		4.0%	92.0%	7	6.9%	93.1%
Cobble	small cobble	64	0	0.0%	100.0%	0	0.0%	100.0%	1	2.0%	98.0%	1		1.0%	100.0%	2		4.0%	96.0%	5	5.0%	98.0%
	medium cobble	90	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	98.0%			0.0%	100.0%	1		2.0%	98.0%	2	2.0%	100.0%
	large cobble	128	0	0.0%	100.0%	0	0.0%	100.0%	1	2.0%	100.0%			0.0%	100.0%	0		0.0%	98.0%		0.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%	1		2.0%	100.0%		0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
TOTAL / %of whole count			30	100.0%		50	100.0%		50	100.0%		70	30	100.0%		17	33	100.0%		101	100.0%	

	d16	d35	d50	d84	d95
As-Built	0.00	0.08	0.09	0.23	0.36
2001	0.11	0.15	0.18	0.31	0.31
2002	0.07	0.12	0.19	7.85	7.85
2003	0.07	0.15	0.26	1.50	17.89
2004	0.00	0.11	0.26	13.65	71.37
2005	2.79	7.96	12.74	35.48	63.27



Project Name	Jumping Run Area 3
Cross Section	#1 (pins I-J)
Feature	Riffle
Date	6/10/2005
Crew	Shaffer, Bidelspach, Clinton

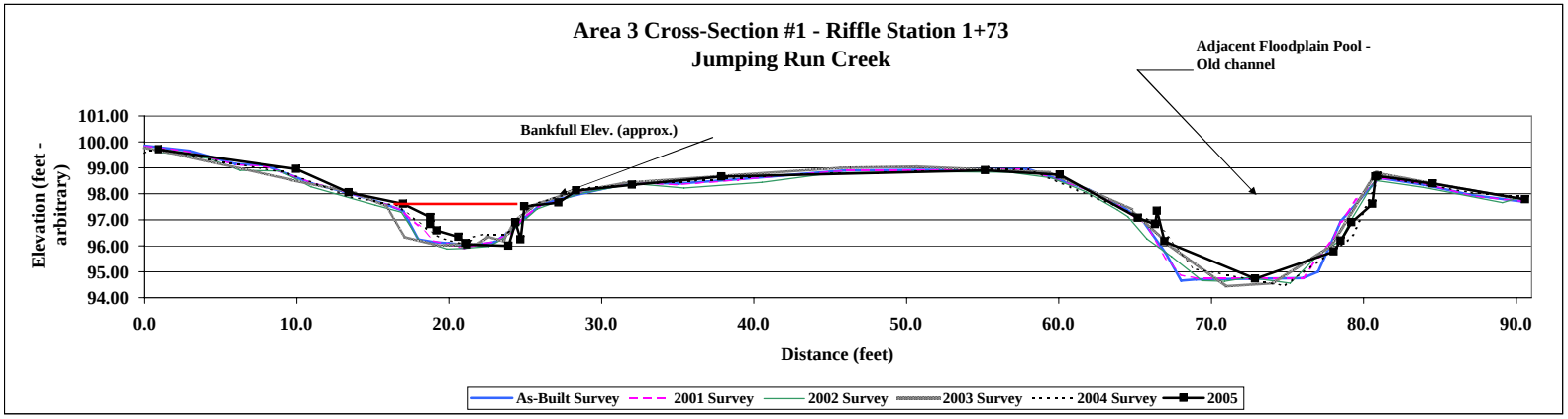
*2003 Survey Elev Adjusted +21.09 ft

**2004 Survey Elev Adjusted +23.7 ft

2000 As-Built Survey			2001 2001 Survey			2002 2002 Survey			2003 2003 Survey			2004 2004 Survey			2005 2005 Survey		
Station	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elev***	**Notes**	**Station**	**Elev****	**Notes**	**Station**	**Elev****	**Notes**
0.0	99.85		0.0	99.82		0.0	99.79	PIN-I	0.0	99.79	Pin - I	0.0	99.57	(X1)	0.97	99.71	X1LP
3.0	99.65		2.0	99.7		1.3	99.59	G	2.7	99.46		0.3	99.69	(X1LP)	9.98	98.96	X1
6.0	99.15		3.0	99.61		4.2	99.37	G	9.6	98.53		1.3	99.7	(X1LP)	13.41	98.04	X1
8.0	99.10		6.0	99.11		6.3	98.91	G	13.9	98.03		5.4	99.2	(X1)	16.99	97.62	X1
11.0	98.40		8.0	99.07		8.9	98.89	G	15.8	97.54	LBF (est)	9.3	98.82	(X1)	18.79	97.1	X1
13.0	98.10		11.0	98.41		10.9	98.27	G	17.1	96.34		13.6	97.89	(X1)	18.81	96.83	X1
15.0	97.75		13.0	98.11		15.2	97.57	G	19.4	96		16.7	97.53	BKF	19.22	96.59	X1
16.0	97.55		15.0	97.72		16.9	97.29	LBF	20.9	96.09		19.0	96.43	(X1)	20.62	96.35	X1
17.0	97.35	LBF (est)	16.0	97.59		17.4	96.81	G	21.9	96.05		19.9	96.21	(X1W)	21.06	96.1	X1
18.0	96.25		17.0	97.35	LBF (est)	18.0	96.21	LEOW	22.6	96.36		21.2	96.02	(X1T)	21.22	96.05	X1
19.0	96.15		18.0	96.78		19.9	95.87	CHN	23.6	96.18		21.7	96.35	(X1W)	23.9	96	X1
20.0	96.10		19.0	96.2		21.0	95.91	TW	23.8	96.49		22.3	96.43	(X1W)	24.36	96.91	X1
21.0	96.05		20.0	96.08		22.6	95.97	CHN	24.4	96.96		22.5	96.43	(X1)	24.68	96.25	X1
22.0	96.05		21.0	95.88		23.5	96.27	REOW	25.5	97.54	RBF (est)	23.7	96.44	(X1)	24.96	97.52	X1
23.0	96.15		22.0	96.04		24.5	96.75	G	27.7	98.01		25.5	97.57	BKF	27.17	97.66	X1
24.0	96.55		23.0	96.16		25.8	97.41	RBF	31.5	98.42		29.0	98.23	(X1)	28.37	98.11	X1
25.0	97.10		24.0	96.49		28.5	98.01	G	37.3	98.65		42.1	98.74	(X1)	32.02	98.34	X1
26.0	97.55	RBF (est)	25.0	97.12		32.1	98.39	G	45.7	99.01		58.0	98.95	(X1)	37.88	98.65	X1
27.0	97.75		26.0	97.55	RBF (est)	35.4	98.21	G	50.7	99.05		65.8	97.01	(X1)	55.18	98.91	X1
29.0	98.05		27.0	97.68		40.5	98.45	G	59.4	98.82		66.3	96.9	(X1)	60.08	98.72	X1
32.0	98.45		29.0	98.12		45.2	98.81	G	64.8	97.4		68.9	95.11	(X1)	65.18	97.08	X1
35.0	98.40		32.0	98.43		51.8	98.85	G	66.9	96.19		74.8	94.46	(X1)	66.32	96.82	X1
39.0	98.55		35.0	98.34		56.8	98.83	G	71.0	94.45		79.2	96.35	(X1)	66.45	97.35	X1
46.0	98.90		39.0	98.53		59.5	98.61	G	74.1	94.57		81.1	98.65	(X1)	66.92	96.18	X1
58.0	98.95		46.0	98.91		61.8	98.07	G	77.8	96		86.9	98.05	(X1)	72.89	94.73	X1
62.0	98.15		58.0	98.93		63.8	97.39	G	80.9	98.8		90.6	97.87	(X1RP)	78.02	95.77	X1
64.0	97.55		62.0	98.13		64.5	97.13	G+VP	89.8	97.84	Pin - J				78.47	96.2	X1
65.5	96.95		64.0	97.51		65.8	96.27	G							79.18	96.9	X1
67.0	95.70		65.5	96.92		67.4	95.59	G							80.56	97.61	X1
68.0	94.65		67.0	95.48		69.4	94.67	G							80.76	98.65	X1
69.0	94.70		68.0	94.88		70.9	94.63	G							80.89	98.69	X1
76.0	94.75		69.0	94.76		72.5	94.77	G							84.51	98.4	X1
77.0	95.00		76.0	94.76		75.2	94.55	G							90.57	97.77	X1RP
78	96.30		77.0	95.55		77.0	95.63	G									
78.5	96.95		78.0	96.27		78.5	96.21	G									
79.5	97.6		78.5	96.92		79.2	97.03	G+VP									
81	98.6		79.5	97.75		80.7	98.51	G									
84	98.35		81.0	98.62		83.9	98.25	G									
87	97.95		84.0	98.38		89.1	97.67	G									
90.3	97.7		87.0	97.93		90.2	97.85	PIN-J									
90.3	97.85	Pin J?	90.3	97.71													
			90.3	97.83	Pin J?												

Photo of Area 3 Cross-Section #1 - Looking Upstream

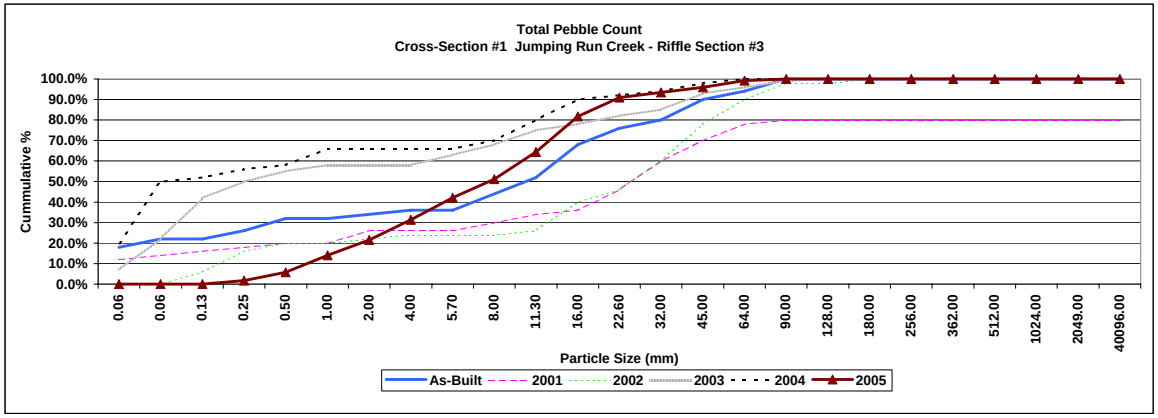
	Bankfull Area					
	As-Built	**2002**	**2003**	**2003**	**2004**	**2005**
Area	8.3	7.95	9.35	8.99	6.83	6.79
Width	9.0	9.0	10.6	9.7	8.7	8.0
Mean Depth	0.9	0.9	0.9	0.9	0.8	0.9
Max Depth	1.3	1.5	1.5	1.3	1.3	1.3
w/d ratio	9.8	10.2	12.0	10.4	11.2	9.4
FPW				>100		
ER (greater than)	11.1	11.1	9.4	10.3	11.5	12.5
Stream Type	E	E	E	E	E	E



Project Name	Payne Dairy - Jumping Run Creek
Cross Section	#1 Section 3
Feature	Riffle
Date	6/6/05
Crew	Shaffer, Bidelspach, Clinton

		2000	As-Built			2001			2002			2003				2004				2005		
Description	**Material**	**Size (mm)**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**iffle - Ban**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	9	18.0%	18.0%	6	12.0%	12.0%		0.0%	0.0%	2	5	7.0%	7.0%	1	9	20.0%	20.0%	0	0.0%	0.0%
Sand	very fine sand	0.062	2	4.0%	22.0%	1	2.0%	14.0%		0.0%	0.0%	1	14	15.0%	22.0%	5	10	30.0%	50.0%	0	0.0%	0.0%
	fine sand	0.125		0.0%	22.0%	1	2.0%	16.0%	3	6.0%	6.0%	10	10	20.0%	42.0%	1	0	2.0%	52.0%	0	0.0%	0.0%
	medium sand	0.25	2	4.0%	26.0%	1	2.0%	18.0%	5	10.0%	16.0%	8		8.0%	50.0%	2	0	4.0%	56.0%	2	1.7%	1.7%
	course sand	0.50	3	6.0%	32.0%	1	2.0%	20.0%	2	4.0%	20.0%	5		5.0%	55.0%	1	0	2.0%	58.0%	5	4.1%	5.8%
	very course sand	1.0		0.0%	32.0%		0.0%	20.0%		0.0%	20.0%	3		3.0%	58.0%	4	0	8.0%	66.0%	10	8.3%	14.0%
Gravel	very fine gravel	2.0	1	2.0%	34.0%	3	6.0%	26.0%	1	2.0%	22.0%	0		0.0%	58.0%	0	0	0.0%	66.0%	9	7.4%	21.5%
	fine gravel	4.0	1	2.0%	36.0%		0.0%	26.0%	1	2.0%	24.0%	0		0.0%	58.0%	0	0	0.0%	66.0%	12	9.9%	31.4%
	fine gravel	5.7		0.0%	36.0%		0.0%	26.0%		0.0%	24.0%	5		5.0%	63.0%	0	0	0.0%	66.0%	13	10.7%	42.1%
	medium gravel	8.0	4	8.0%	44.0%	2	4.0%	30.0%		0.0%	24.0%	5		5.0%	68.0%	2	0	4.0%	70.0%	11	9.1%	51.2%
	medium gravel	11.3	4	8.0%	52.0%	2	4.0%	34.0%	1	2.0%	26.0%	7		7.0%	75.0%	4	1	10.0%	80.0%	16	13.2%	64.5%
	course gravel	16.0	8	16.0%	68.0%	1	2.0%	36.0%	7	14.0%	40.0%	3		3.0%	78.0%	5		10.0%	90.0%	21	17.4%	81.8%
	course gravel	22.6	4	8.0%	76.0%	5	10.0%	46.0%	3	6.0%	46.0%	4		4.0%	82.0%	1		2.0%	92.0%	11	9.1%	90.9%
	very course gravel	32	2	4.0%	80.0%	7	14.0%	60.0%	7	14.0%	60.0%	3		3.0%	85.0%	1		2.0%	94.0%	3	2.5%	93.4%
	very course gravel	45	5	10.0%	90.0%	5	10.0%	70.0%	9	18.0%	78.0%	8		8.0%	93.0%	2		4.0%	98.0%	3	2.5%	95.9%
Cobble	small cobble	64	2	4.0%	94.0%	4	8.0%	78.0%	6	12.0%	90.0%	3		3.0%	96.0%	1		2.0%	100.0%	4	3.3%	99.2%
	medium cobble	90	3	6.0%	100.0%	1	2.0%	80.0%	4	8.0%	98.0%	2	1	3.0%	99.0%			0.0%	100.0%	1	0.8%	100.0%
	large cobble	128		0.0%	100.0%		0.0%	80.0%		0.0%	98.0%	1		1.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large cobble	180		0.0%	100.0%		0.0%	80.0%	1	2.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Boulder	small boulder	256		0.0%	100.0%		0.0%	80.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	small boulder	362		0.0%	100.0%		0.0%	80.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	medium boulder	512		0.0%	100.0%		0.0%	80.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large boulder	1024		0.0%	100.0%		0.0%	80.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large boulder	2049		0.0%	100.0%		0.0%	80.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0.0%	80.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
TOTAL / %of whole count			50	100.0%		40	80.0%		50	100.0%		70	30	100.0%		30	20	100.0%		121	100.0%	

	d16	d35	d50	d84	d95
As-Built	0.00	3.93	12.65	44.90	82.33
2001	0.19	16.48	30.50	0.00	0.00
2002	0.38	17.28	30.50	65.75	65.75
2003	0.08	0.15	0.38	34.77	69.50
2004	0.00	0.08	0.09	15.91	42.50
2005	1.89	5.52	9.27	21.22	48.90



Project Name	Jumping Run Area 3
Cross Section	#2 (pins K-L)
Feature	Pool
Date	6/10/2005
Crew	Shaffer, Bidelspach, Clinton

*2003 Survey Elev Adjusted +21.88 ft

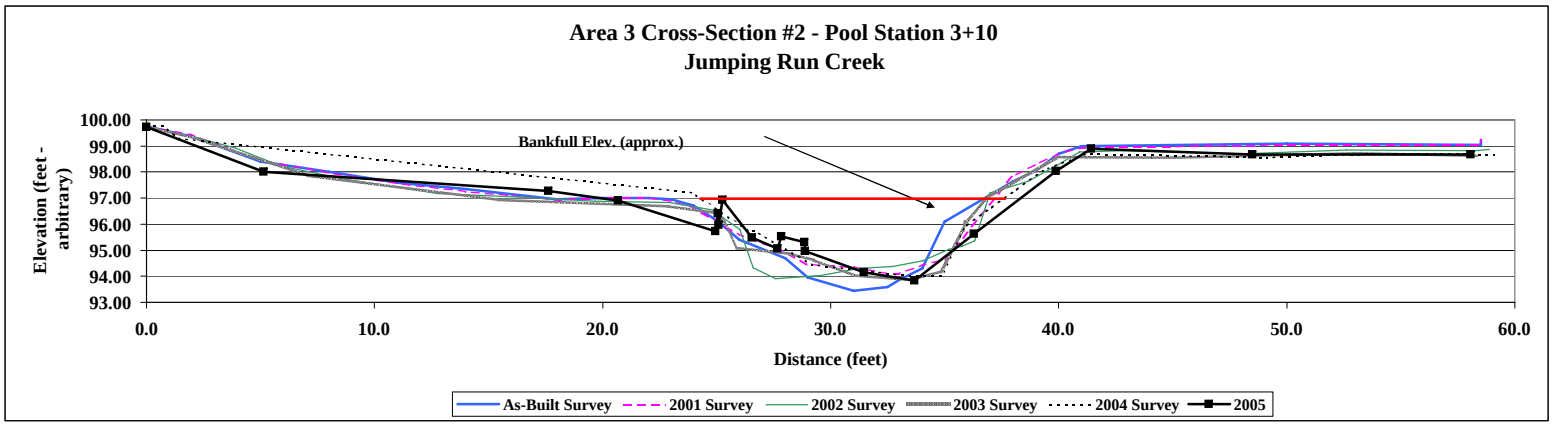
**2004 Survey Elev Adjusted +24.6 ft

**2005 Survey Elev Adjusted +1.73 ft

2000 As-Built Survey			2001 2001 Survey			2002 2002 Survey			2003 2003 Survey			2004 2004 Survey			2005 2005 Survey		
Station	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elev***	**Notes**	**Station**	**Elev****	**Notes**	**Station**	**Elev****	**Notes**
0.0	99.75		0.0	99.75		0	Bad shot	Pin-K	0	99.75	Pin - K	0	99.73	(X2LP)	0	99.73	x2lp
2.0	99.35		2.0	99.44		0.77	99.55	G	2.29	99.26		0.73	99.77	(X2LP)	5.14	98	x2
5.0	98.40		5.0	98.46		2.03	99.35	G	7.06	97.87		1.42	99.29	(X2)	17.62	97.27	x2
8.0	98.00		8.0	97.97		3.90	98.91	G	15.45	96.94	LBF(est)	24.00	97.21	(X2)	20.69	96.9	x2
11.0	97.60		11.0	97.56		5.89	98.23	G	22.90	96.68		26.37	95.75	(X2W)	24.95	95.73	x2
14.0	97.35		14.0	97.25		8.61	97.73	G	25.11	96.41		26.70	95.76	(X2)	25.06	96.41	x2
16.0	97.15		16.0	97.09		12.78	97.17	G	25.31	96.10		29.17	94.46	(X2)	25.09	95.97	x2
18.0	96.95		18.0	96.92		16.65	97.03	LBKF	25.91	95.08		33.44	94.01	(X2T)	25.27	96.92	x2
20.0	97.00		20.0	97.01		19.66	96.87	G	28.19	94.87		34.89	94.01	(X2)	26.54	95.48	x2
22.0	97.00	LBF (est)	22.0	97.01	LBF (est)	22.94	96.83	G	29.27	94.61		35.90	95.90	(X2W)	27.67	95.06	x2
23.0	96.95		23.0	96.87		24.86	96.53	G	31.05	94.03		39.29	98.07	(X2)	27.84	95.53	x2
24.0	96.70		24.0	96.63		25.27	96.25	LEOW	33.54	93.87		41.25	98.70	(X2)	28.85	95.31	x2
25.0	96.15		25.0	96.11		26.03	95.79	CHN	34.79	94.17		49.10	98.54	(X2)	28.88	94.96	x2
26.0	95.40		26.0	95.61		26.61	94.33	CHN	35.80	95.76		53.58	98.70	(X2)	31.47	94.15	x2
28.0	94.70		28.0	94.94		27.59	93.91	CHN	35.90	96.10		58.03	98.70	(X2RP)	33.68	93.83	x2
29.0	93.95		29.0	94.45		29.58	94.03	CHN	36.97	97.06	RBF(est)	59.06	98.64	(X2RP)	36.29	95.63	X2
31.0	93.45		31.0	94.35		31.23	94.29	CHN	39.90	98.58					39.88	98.04	X2
32.5	93.60		32.5	94.1		32.73	94.37	CHN	45.10	98.54					41.43	98.89	X2
33.0	93.85		33.0	94.1		34.05	94.59	CHN	53.11	98.72					48.5	98.67	X2
34.0	94.30		34.0	94.43		35.20	95.03	CHN	58.34	98.62	Pin - L				58.07	98.67	X2RP
35.0	96.10		35.0	94.65		35.77	95.17	CHN									
38.0	97.65	RBF (est)	38.0	97.85	RBF (est)	36.31	95.35	CHN									
39.0	98.05		39.0	98.29		36.98	97.21	RBF									
40.0	98.70		40.0	98.71		38.65	97.63	G									
41.0	99.00		41.0	98.91		39.81	98.21	G									
50.0	99.10		50.0	99.03		40.91	98.77	G									
58.5	99.05		58.5	99.04		42.81	98.83	G									
58.5	99.25	Pin L?	58.5	99.21	Pin L?	47.99	98.69	G									
						52.62	98.85	G									
						58.27	98.81	G									
						58.87	98.87	Pin L									

Photo of Area 3 Cross-Section #2 - Looking Downstream

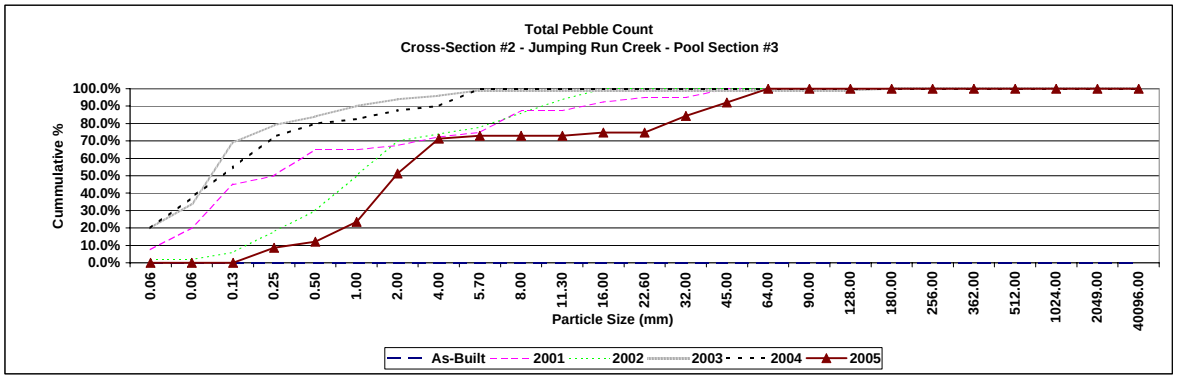
Bankfull Area						
	As-Built	**2001**	**2002**	**2003**	**2004**	**2005**
Area	27.1	25.97	29.27	28.98	25.32	27.44
Width	15.0	15.0	20.3	28.8	12.9	16.6
Mean Depth	1.8	1.7	1.4	1.0	2.0	1.7
Max Depth	3.6	2.9	3.1	3.1	3.0	3.2



Project Name	Payne Dairy - Jumping Run Creek
Cross Section	#2 Section 3
Feature	Pool
Date	6/6/05
Crew	Shaffer, Bidelspach, Clinton

		2000	As-Built			2001			2002			2003				2004				2005		
Description	**Material**	**Size (mm)**	**Pool**	**%**	**Cum %**	**Pool**	**%**	**Cum %**	**Pool**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**	**Pool - Bed**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	0	0.0%	0.0%	3	7.5%	7.5%	1	2.0%	2.0%	6	14	20.0%	20.0%	8		20.0%	20.0%	0	0.0%	0.0%
	very fine sand	0.062	no data	0.0%	0.0%	5	12.5%	20.0%	0	0.0%	2.0%	2	12	14.0%	34.0%	7		17.5%	37.5%	0	0.0%	0.0%
	fine sand	0.125		0.0%	0.0%	10	25.0%	45.0%	2	4.0%	6.0%	22	13	35.0%	69.0%	7		17.5%	55.0%	0	0.0%	0.0%
Sand	medium sand	0.25		0.0%	0.0%	2	5.0%	50.0%	6	12.0%	18.0%	9	1	10.0%	79.0%	7		17.5%	72.5%	10	8.7%	8.7%
	course sand	0.50		0.0%	0.0%	6	15.0%	65.0%	6	12.0%	30.0%	5		5.0%	84.0%	3		7.5%	80.0%	4	3.5%	12.2%
	very course sand	1.0		0.0%	0.0%	0	0.0%	65.0%	10	20.0%	50.0%	6		6.0%	90.0%	1		2.5%	82.5%	13	11.3%	23.5%
	very fine gravel	2.0		0.0%	0.0%	1	2.5%	67.5%	10	20.0%	70.0%	4		4.0%	94.0%	2		5.0%	87.5%	32	27.8%	51.3%
	fine gravel	4.0		0.0%	0.0%	2	5.0%	72.5%	2	4.0%	74.0%	2		2.0%	96.0%	1		2.5%	90.0%	23	20.0%	71.3%
G	fine gravel	5.7		0.0%	0.0%	1	2.5%	75.0%	2	4.0%	78.0%	3		3.0%	99.0%	4		10.0%	100.0%	2	1.7%	73.0%
r	medium gravel	8.0		0.0%	0.0%	5	12.5%	87.5%	4	8.0%	86.0%	0		0.0%	99.0%			0.0%	100.0%	0	0.0%	73.0%
a	medium gravel	11.3		0.0%	0.0%	0	0.0%	87.5%	4	8.0%	94.0%	0		0.0%	99.0%			0.0%	100.0%	0	0.0%	73.0%
v	course gravel	16.0		0.0%	0.0%	2	5.0%	92.5%	3	6.0%	100.0%			0.0%	99.0%			0.0%	100.0%	2	1.7%	74.8%
e	course gravel	22.6		0.0%	0.0%	1	2.5%	95.0%	0	0.0%	100.0%			0.0%	99.0%			0.0%	100.0%	0	0.0%	74.8%
l	very course gravel	32		0.0%	0.0%	0	0.0%	95.0%	0	0.0%	100.0%			0.0%	99.0%			0.0%	100.0%	11	9.6%	84.3%
	very course gravel	45		0.0%	0.0%	2	5.0%	100.0%	0	0.0%	100.0%			0.0%	99.0%			0.0%	100.0%	9	7.8%	92.2%
	small cobble	64		0.0%	0.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	99.0%			0.0%	100.0%	9	7.8%	100.0%
Cobble	medium cobble	90		0.0%	0.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	99.0%			0.0%	100.0%		0.0%	100.0%
	large cobble	128		0.0%	0.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	99.0%			0.0%	100.0%		0.0%	100.0%
	very large cobble	180		0.0%	0.0%	0	0.0%	100.0%	0	0.0%	100.0%	1		1.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	small boulder	256		0.0%	0.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	small boulder	362		0.0%	0.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Boulder	medium boulder	512		0.0%	0.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large boulder	1024		0.0%	0.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large boulder	2049		0.0%	0.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Bedrock	bedrock	40096	0.01	0.0%	0.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
TOTAL / %of whole count			no data	0.0%		40	100.0%		50	100.0%		60	40	100.0%		40	0	100.0%		115	100.0%	

	d16	d35	d50	d84	d95
As-Built	0.00	0.00	0.00	0.00	0.00
2001	0.08	0.15	0.38	8.87	8.87
2002	0.34	0.94	1.50	8.95	8.95
2003	0.00	0.10	0.14	0.75	3.93
2004	0.00	0.09	0.16	1.95	5.85
2005	1.00	2.12	2.93	38.09	62.63



Project Name	Jumping Run Area 4
Cross Section	#1 (pins M-N)
Feature	Riffle
Date	6/10/2005
Crew	Shaffer, Bidelspach, Clinton

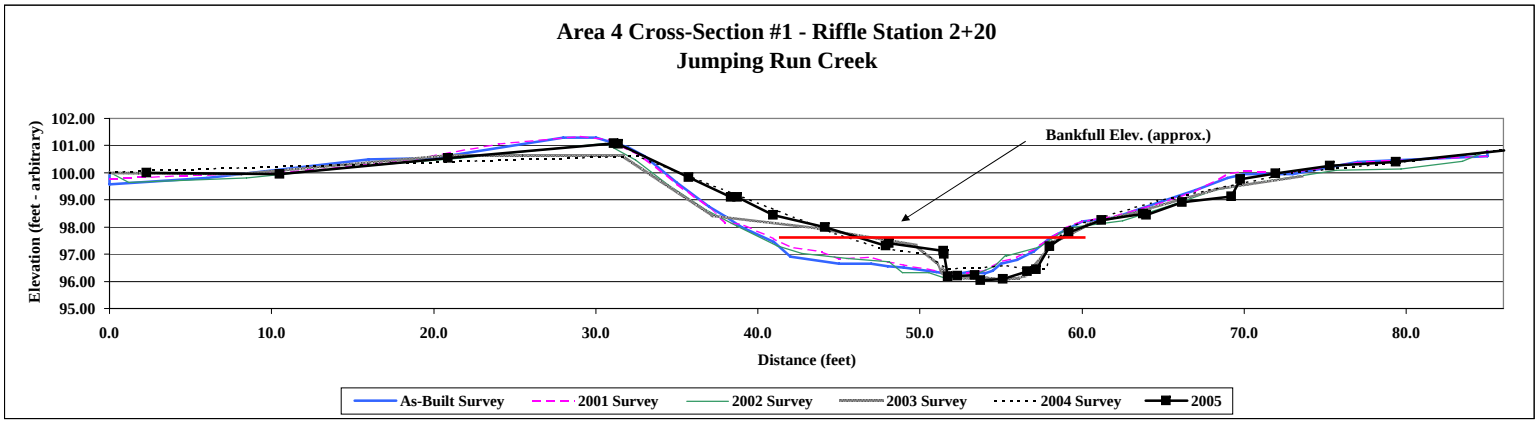
*2003 Survey Elevations Adjusted +26.28 ft
*2003 Survey Stations Adjusted -3.94 ft

***2005 elev adjusted up by +26.3ft
***2004 elev adjusted up by +28.98ft

2000 As-Built Survey			2001 2001 Survey			2002 2002 Survey			2003 2003 Survey			2004 2004 Survey			2005 2005 Survey		
Station	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station****	**Elev***	**Notes**	**Station**	**Elev*****	**Notes**	**Station**	**Elev*****	**Notes**
0.0	100.00	Pin-M	0.0	99.79		0.0	100.01	PIN-M	0	100	PIN-M	0	100	(XSLP1)	2.29	99.99	X2LP
0.0	99.58		9.0	99.98		1.2	99.65	G	8.13	99.94		0	100	(XSLP1)	10.5	99.94	X2LP
6.0	99.80		13.0	100.11		8.4	99.81	G	20.74	100.63		1.95	100.06	(XSLP)	20.88	100.55	X2LP
16.0	100.50		19.0	100.51		15.8	100.25	G	31.69	100.64		32.62	100.61	(XS)	31.1	101.08	X2
20.0	100.55		24.0	101.05		21.6	100.55	G	37.2	98.41		44.71	97.79	BKF	31.41	101.06	X2
28.0	101.30		29.0	101.35		30.6	101.09	TOB	43.75	97.94		47.47	97.25	(XS)	35.73	99.83	X2
30.0	101.30		31.0	101.21		32.5	100.47	G	49.8	97.33	LBF (est)	50.35	97	(XS)	38.36	99.09	X2
32.0	100.95		33.0	100.53		34.5	99.55	G	51.06	96.66		51.67	96.45	(XS)	38.72	99.11	X2
33.0	100.60		35.0	99.61		36.8	98.63	G	51.39	96.3		53.97	96.5	(XS)	40.96	98.45	X2
35.0	99.65		37.0	98.73		38.7	98.05	G	51.41	96.46		55.28	96.57	(XS)	44.15	98	X2
37.0	98.75		38.0	98.17		41.2	97.31	LBF	52.7	96.1		57.29	96.4	(XS)	47.9	97.32	X2
38.0	98.40		39.0	98.11		42.7	97.03	G	54.12	96.14		57.34	96.4	(XS)	48.1	97.41	X2
39.0	98.00		41.0	97.56	LBF (est)	45.6	96.83	G	55.37	96.05		57.79	96.45	(XS)	51.44	97.11	X2
41.0	97.45	LBF (est)	42.0	97.27		48.1	96.71	LEOW	55.62	96.1		58.2	97.62	BKF	51.5	97	X2
42.0	96.90		44.0	97.07		48.9	96.33	CHN	56.06	96.1		58.53	97.59	(XS)	51.73	96.19	X2
45.0	96.65		45.0	96.81		50.5	96.31	CHN	56.43	96.2		59.02	97.97	(XS)	52.32	96.2	X2
47.0	96.65		47.0	96.89		51.6	96.11	TW	58.37	97.44	RBF (est)	64.64	98.95	(XS)	53.38	96.22	X2
48.0	96.55		48.0	96.73		53.3	96.23	CHN	60.31	98.09		72.98	100	(XS)	53.75	96.04	X2
49.0	96.50		49.0	96.6		54.6	96.55	REOW	64.2	98.67		79.85	100.4	(XS)	55.12	96.09	X2
51.0	96.35		51.0	96.39		55.3	96.97	G	68.23	99.38		85.46	100.79	(XSRP1)	56.63	96.36	X2
52.0	96.25		52.0	96.25		55.3	96.93	G	73.62	99.88	PIN N	85.46	100.79	(XSRP1)	57.18	96.43	X2
53.0	96.35		53.0	96.32		57.4	97.27	RBF	85.19	100.79		85.47	100.79	(X1RP)	58.01	97.29	X2
54.0	96.30		54.0	96.4		59.1	97.97	G				86.1	100.86	(XSRP)	59.18	97.81	X2
54.5	96.40		54.5	96.55		62.5	98.23	G							61.2	98.26	X2
55.0	96.65		55.0	96.71		65.6	98.81	G							63.76	98.49	X2
56.0	96.80		56.0	96.88		68.2	99.37	G							63.95	98.44	X2
57.0	97.10		57.0	97.16		71.1	99.67	G							66.16	98.91	X2
58.0	97.60	RBF (est)	58.0	97.58	RBF (est)	75.7	100.09	G							69.21	99.12	X2
60.0	98.20		59.0	97.96		79.7	100.13	G							69.79	99.76	X2
62.0	98.35		60.0	98.21		83.5	100.41	G							71.94	99.98	X2
65.0	98.95		62.0	98.39		85.0	100.79	PIN N							75.31	100.26	X2
67.0	99.35		65.0	98.91											79.38	100.4	X2
69.0	99.81		67.0	99.32											86.05	100.82	X2RP
70	99.95		69.0	99.96													
73	99.95		70.0	100.06													
77	100.4		73.0	100.01													
85	100.6		77.0	100.37													
85	100.79	Pin-N	85.0	100.61													
			85.0	100.8	Pin-N												

Photo of Area 4 Cross-Section #1 - Looking Downstream

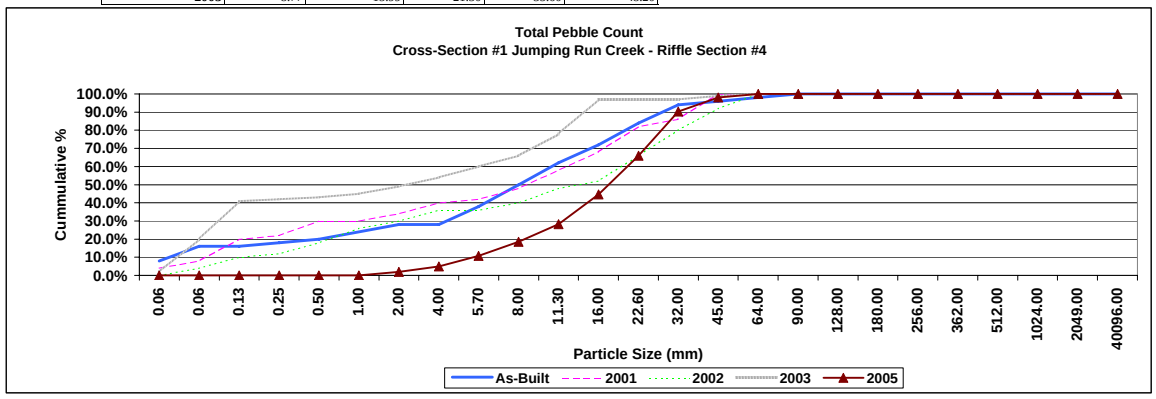
Bankfull Area	2000	2001	2002	2003	2004	2005
Area	13.5	11.14	11.91	8.58	8.33	8.32
Width	17.0	17.0	18.0	8.6	13.5	10.4
Mean Depth	0.8	0.7	0.7	1.0	0.6	0.8
Max Depth	1.2	1.2	1.3	1.4	1.1	1.4
w/d ratio	21.4	25.9	27.1	8.6	21.8	13.0
FPW				>100		
ER (greater than)	5.9	5.9	5.6	11.7	7.4	9.6
Stream Type	C	C	C	E	C	C



Project Name	Payne Dairy - Jumping Run Creek
Cross Section	#1 Section 4
Feature	Riffle
Date	6/6/05
Crew	Shaffer, Bidelspach, Clinton

		2000	As-Built			2001			2002			2003				2004				2005		
Description	**Material**	**Size (mm)**	**Riffle**	**%**	**Cum %**	**Riffle**	**%**	**Cum %**	**Riffle**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Bank**	**%**	**Cum %**	**Riffle - Bed**	**Riffle - Ban**	**%**	**Cum %**	**Riffle - Bed**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	4	8.0%	8.0%	2	4.0%	4.0%		0.0%	0.0%	0	2	2.0%	2.0%	1		100.0%	100.0%	0	0.0%	0.0%
Sand	very fine sand	0.062	4	8.0%	16.0%	2	4.0%	8.0%	2	4.0%	4.0%	0	18	18.0%	20.0%	no data		0.0%	100.0%	0	0.0%	0.0%
	fine sand	0.125		0.0%	16.0%	6	12.0%	20.0%	3	6.0%	10.0%	1	20	21.0%	41.0%			0.0%	100.0%	0	0.0%	0.0%
	medium sand	0.25	1	2.0%	18.0%	1	2.0%	22.0%	1	2.0%	12.0%	1		1.0%	42.0%			0.0%	100.0%	0	0.0%	0.0%
	course sand	0.50	1	2.0%	20.0%	4	8.0%	30.0%	3	6.0%	18.0%	1		1.0%	43.0%			0.0%	100.0%	0	0.0%	0.0%
	very course sand	1.0	2	4.0%	24.0%		0.0%	30.0%	4	8.0%	26.0%	2		2.0%	45.0%			0.0%	100.0%	0	0.0%	0.0%
Gravel	very fine gravel	2.0	2	4.0%	28.0%	2	4.0%	34.0%	2	4.0%	30.0%	4		4.0%	49.0%			0.0%	100.0%	2	1.9%	1.9%
	fine gravel	4.0		0.0%	28.0%	3	6.0%	40.0%	3	6.0%	36.0%	5		5.0%	54.0%			0.0%	100.0%	3	2.9%	4.9%
	fine gravel	5.7	5	10.0%	38.0%	1	2.0%	42.0%		0.0%	36.0%	6		6.0%	60.0%			0.0%	100.0%	6	5.8%	10.7%
	medium gravel	8.0	6	12.0%	50.0%	3	6.0%	48.0%	2	4.0%	40.0%	6		6.0%	66.0%			0.0%	100.0%	8	7.8%	18.4%
	medium gravel	11.3	6	12.0%	62.0%	5	10.0%	58.0%	4	8.0%	48.0%	12		12.0%	78.0%			0.0%	100.0%	10	9.7%	28.2%
	course gravel	16.0	5	10.0%	72.0%	5	10.0%	68.0%	2	4.0%	52.0%	19		19.0%	97.0%			0.0%	100.0%	17	16.5%	44.7%
	course gravel	22.6	6	12.0%	84.0%	7	14.0%	82.0%	7	14.0%	66.0%			0.0%	97.0%			0.0%	100.0%	22	21.4%	66.0%
	very course gravel	32	5	10.0%	94.0%	2	4.0%	86.0%	7	14.0%	80.0%			0.0%	97.0%			0.0%	100.0%	25	24.3%	90.3%
	very course gravel	45	1	2.0%	96.0%	7	14.0%	100.0%	6	12.0%	92.0%	2		2.0%	99.0%			0.0%	100.0%	8	7.8%	98.1%
Cobble	small cobble	64	1	2.0%	98.0%		0.0%	100.0%	4	8.0%	100.0%	1		1.0%	100.0%			0.0%	100.0%	2	1.9%	100.0%
	medium cobble	90	1	2.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large cobble	128		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large cobble	180		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Boulder	small boulder	256		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	small boulder	362		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	medium boulder	512		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large boulder	1024		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large boulder	2049		0.0%	100.0%		0.0%	100.0%		0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
TOTAL / %of whole count			50	100.0%		50	100.0%		50	100.0%		60	40	100.0%		1	0	100.0%		103	100.0%	

	d16	d35	d50	d84	d95
As-Built	0.28	6.25	9.65	27.30	46.50
2001	0.16	3.31	10.45	32.90	32.90
2002	0.63	4.54	16.48	43.83	43.83
2003	0.09	0.16	3.37	15.43	18.71
2004	0.00	0.00	0.00	0.00	0.00
2005	8.77	15.99	21.30	35.60	48.20



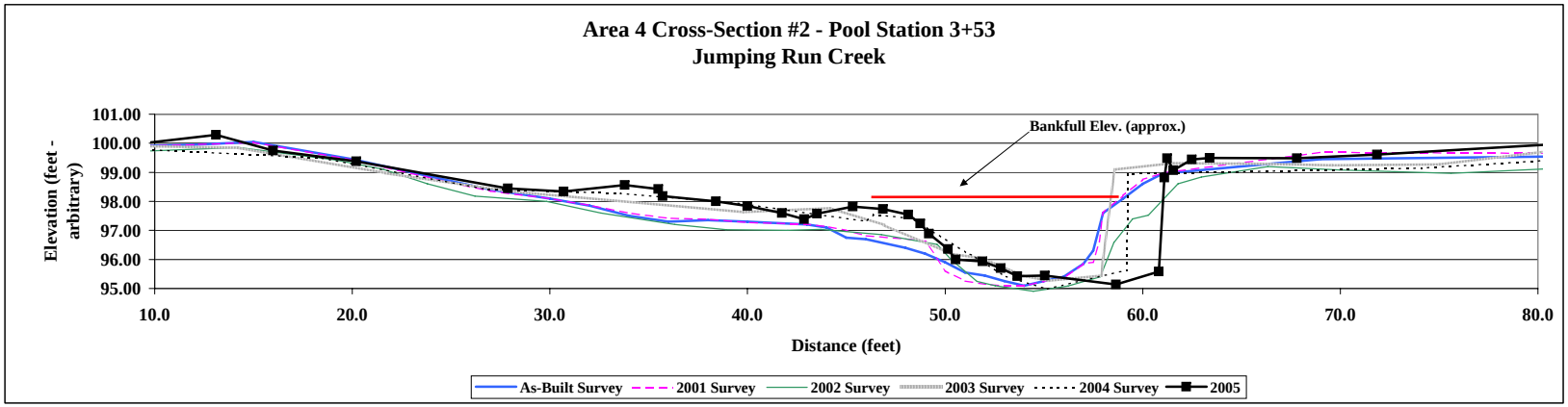
Project Name	Jumping Run Area 4
Cross Section	#2 (pins O-P)
Feature	Pool
Date	6/10/2005
Crew	Shaffer, Bidelspach, Clinton

*2003 Survey Elevations Adjusted +26.46 ft
**2003 Survey Stations Adjusted -3.94 ft
***2004 elev adjusted up by +28.98ft
***2005 elev adjusted up by +26.6ft

2000 As-Built Survey			2001 2001 Survey			2002 2002 Survey			2003 2003 Survey			2004 2004 Survey			2005 2005 Survey		
Station	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station**	**Elevation**	**Notes**	**Station****	**Elev***	**Notes**	**Station**	**Elev*****	**Notes**	**Station**	**Elev*****	**Notes**
0.0	100.00	Pin-O	2.0	99.79		0	100	PIN-O	-2	100	LP2	0	99.83	(X2LP)	0	99.84	X2LP
0.0	99.70		12.0	99.95		1.07	99.50	G	1.74	99.99		0.2	99.82	(XSLP2)	5.84	99.72	X2
2.0	99.80		15.0	100.03		8.24	99.70	G	14.23	99.84		0.72	99.84	(X2LP)	13.11	100.29	X2
12.0	99.95		20.0	99.43		14.24	99.86	G	21.66	98.97		8.9	99.8	(X2)	15.99	99.75	X2
15.0	100.05		24.0	98.79		19.19	99.42	G	27.77	98.36		18.41	99.49	(X2)	20.2	99.38	X2
20.0	99.45		27.0	98.35		21.57	99.10	G	39.79	97.63		26.78	98.41	(X2)	27.87	98.45	X2
24.0	98.85		30.0	98.1		23.81	98.60	G	44.21	97.77		33.57	98.28	(X2)	30.7	98.34	X2
27.0	98.40		32.0	97.86		26.21	98.18	G	46.92	97.18	LBF (est)	39.64	97.93	(X2)	33.78	98.56	X2
30.0	98.10		34.0	97.6		29.83	98.00	G	50.27	96.2		46.02	97.31	(X2)	35.48	98.42	X2
32.0	97.85		36.0	97.42		32.58	97.60	G	51.99	96.03		46.39	97.54	(X2)	35.71	98.18	X2
34.0	97.50		38.0	97.38		36.32	97.20	G	53.85	95.46		48.37	97.41	BKF	38.41	98	X2
36.0	97.30		40.0	97.27		38.91	97.02	G	55.23	95.26		51.17	96.19	(X2)	40	97.84	X2
38.0	97.35		43.0	97.22		42.03	97.00	G	57.91	95.44		51.41	96.15	(X2W)	41.74	97.6	X2
40.0	97.30		44.0	97.13	LBF (est)	43.71	97.04	LBF	58	96.03		52.99	95.43	(X2)	42.86	97.38	X2
43.0	97.20		45.0	97		46.78	96.86	G	58.58	99.09	RBF (est)	55.16	94.98	(X2T)	43.52	97.58	X2
44.0	97.10	LBF (est)	46.0	96.81		49.61	96.52	LEOW	61.48	99.31		59.19	95.64	(X2W)	45.33	97.82	X2
45.0	96.75		48.0	96.71		50.31	96.00	CHN	66.05	99.29		59.25	98.94	BKF	46.85	97.73	X2
46.0	96.70		49.0	96.62		51.61	95.24	CHN	69.58	99.24		74.11	99.15	(X2)	48.13	97.54	X2
48.0	96.40		50.0	95.62		52.54	95.10	CHN	75.04	99.27		87.15	99.69	(X2RP)	48.74	97.24	X2
49.0	96.20		51.0	95.25		54.46	94.90	TW	80.66	99.74					49.18	96.89	X2
50.0	95.90		52.0	95.15		56.22	95.08	CHN	85.58	99.94	RP2				50.14	96.36	X2
51.0	95.55		53.0	95.1		57.85	95.40	CHN							50.53	96	X2
52.0	95.45		54.0	95.09		58.54	96.58	REOW							51.9	95.93	X2
53.0	95.25		55.0	95.24		59.49	97.40	G							52.82	95.7	X2
54.0	95.10		56.0	95.35		60.28	97.52	RBF							53.65	95.42	X2
55.0	95.25		57.0	95.85		61.78	98.60	G							55.05	95.45	P
56.0	95.40		57.5	95.9		62.96	98.84	G							58.64	95.14	X2
57.0	95.85		57.8	96.6		66.34	99.20	G							60.81	95.58	X2
57.5	96.30		58.0	97.61	RBF (est)	69.96	99.08	G							61.1	98.82	X2
58.0	97.60	RBF (est)	59.0	98.2		75.60	98.96	G							61.24	99.48	B
59.0	98.10		60.0	98.75		81.24	99.14	G							61.55	99.07	X2
60.0	98.60		61.0	98.97		85.3	99.30	G							62.48	99.44	X2
61.0	98.95		69.0	99.69		87.9	99.52	G							63.39	99.5	X2
69	99.45		88.0	99.63		88.7	99.92	PIN-P							67.81	99.48	X2
88	99.60		88.0	99.94	Pin-P										71.86	99.61	X2
88	99.93	Pin-P													86.53	100.19	X2

Photo of Area 4 Cross-Section #2 - Looking Downstream

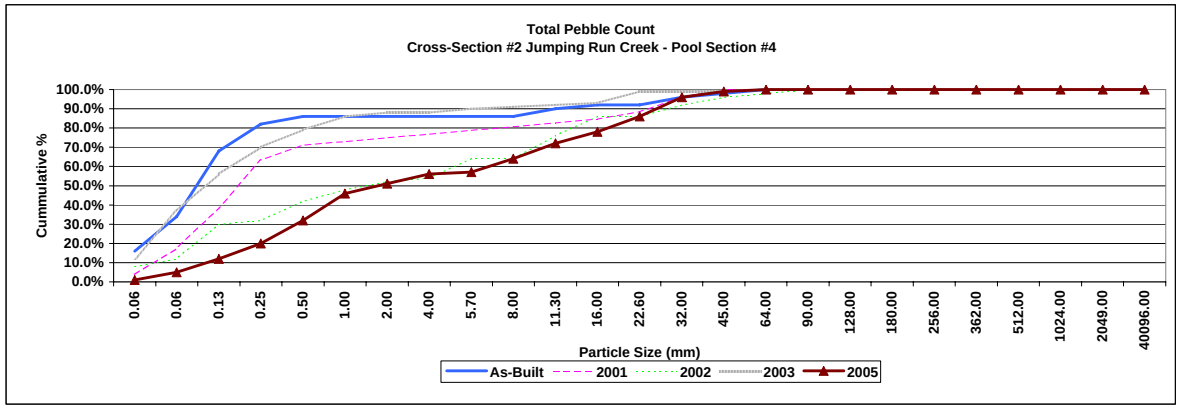
Bankfull Area						
	As-Built	**2001**	**2002**	**2003**	**2004**	**2005**
Area	15.9	15.98	17.57	13.11	14.94	17.68
Width	14.0	14.0	15.8	11.7	12.9	12.4
Mean Depth	1.1	1.1	1.1	1.1	1.2	1.4
Max Depth	2.0	2.0	2.2	1.8	2.1	2.0

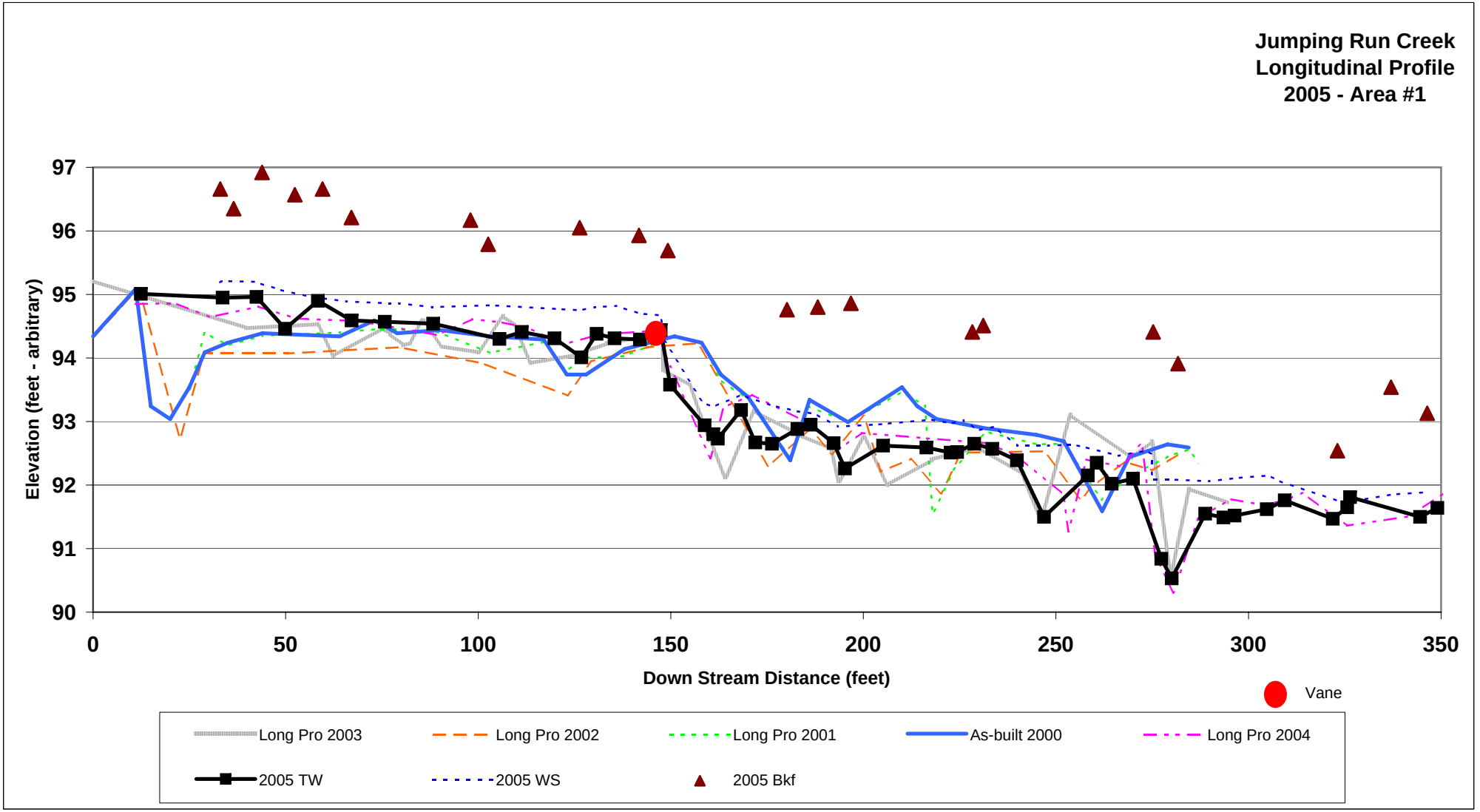


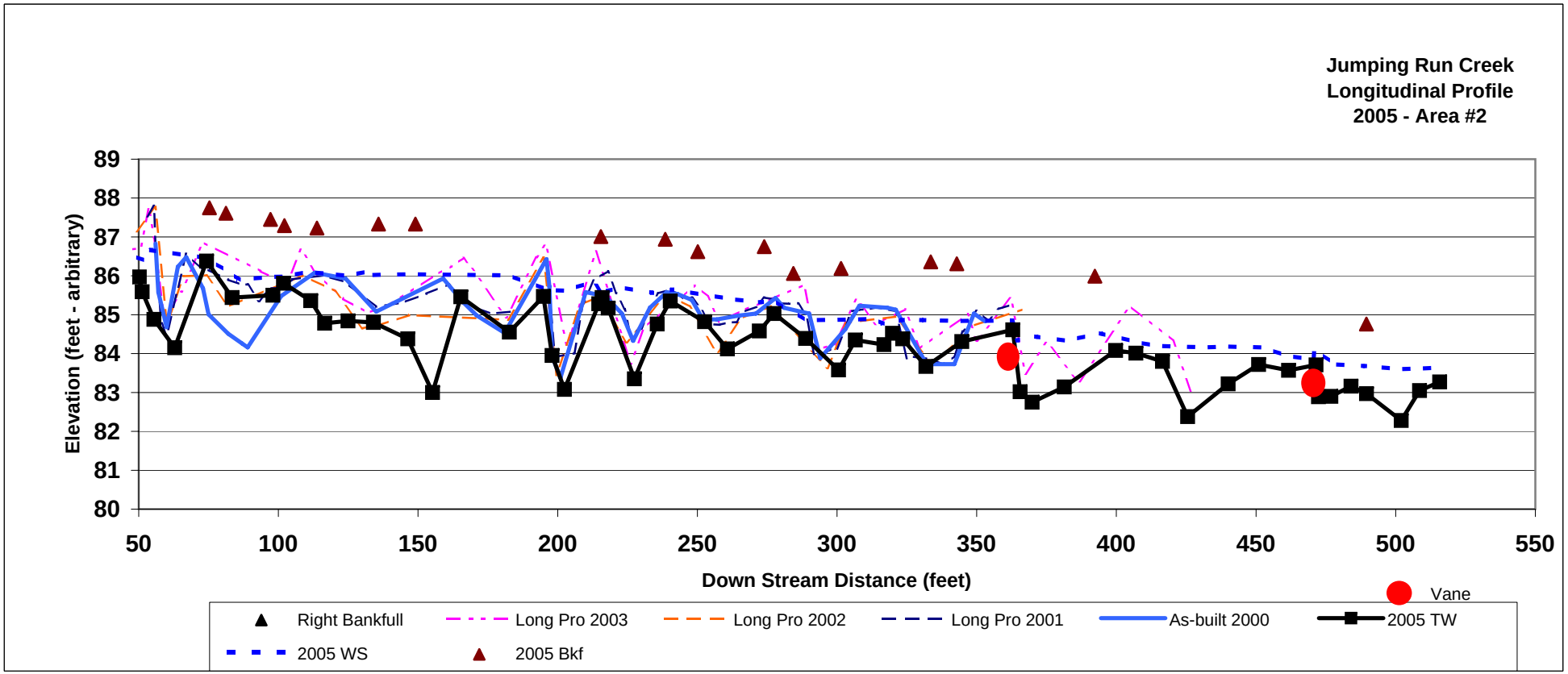
Project Name	Payne Dairy - Jumping Run Creek
Cross Section	#2 Section 4
Feature	Pool
Date	6/6/05
Crew	Shaffer, Bidelspach, Clinton

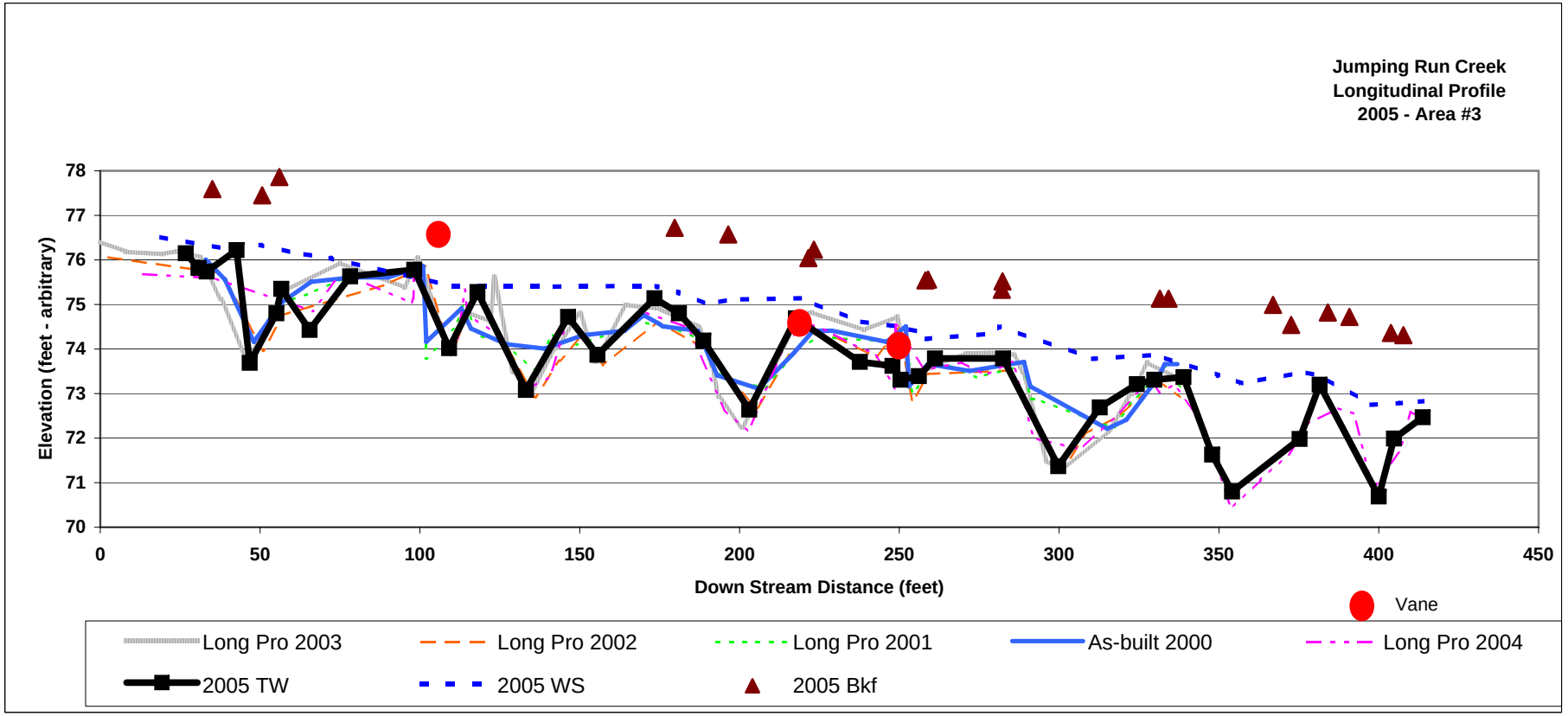
		2000	As-Built			2001			2002			2003				2004				2005		
Description	**Material**	**Size (mm)**	**Pool**	**%**	**Cum %**	**Pool**	**%**	**Cum %**	**Pool**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**	**Pool - Bed**	**Pool - Bank**	**%**	**Cum %**	**Pool - Bed**	**%**	**Cum %**
Silt/Clay	silt/clay	0.061	8	16.0%	16.0%	2	3.8%	3.8%	4	8.0%	8.0%	3	9	12.0%	12.0%	1		100.0%	100.0%	1	1.0%	1.0%
Sand	very fine sand	0.062	9	18.0%	34.0%	7	13.5%	17.3%	2	4.0%	12.0%	3	22	25.0%	37.0%	no data		0.0%	100.0%	4	4.0%	5.0%
	fine sand	0.125	17	34.0%	68.0%	11	21.2%	38.5%	9	18.0%	30.0%	17	2	19.0%	56.0%			0.0%	100.0%	7	7.0%	12.0%
	medium sand	0.25	7	14.0%	82.0%	13	25.0%	63.5%	1	2.0%	32.0%	14		14.0%	70.0%			0.0%	100.0%	8	8.0%	20.0%
	course sand	0.50	2	4.0%	86.0%	4	7.7%	71.2%	5	10.0%	42.0%	9		9.0%	79.0%			0.0%	100.0%	12	12.0%	32.0%
	very course sand	1.0	0	0.0%	86.0%	1	1.9%	73.1%	3	6.0%	48.0%	7		7.0%	86.0%			0.0%	100.0%	14	14.0%	46.0%
Gravel	very fine gravel	2.0	0	0.0%	86.0%	1	1.9%	75.0%	2	4.0%	52.0%	2		2.0%	88.0%			0.0%	100.0%	5	5.0%	51.0%
	fine gravel	4.0	0	0.0%	86.0%	1	1.9%	76.9%	1	2.0%	54.0%	0		0.0%	88.0%			0.0%	100.0%	5	5.0%	56.0%
	fine gravel	5.7	0	0.0%	86.0%	1	1.9%	78.8%	5	10.0%	64.0%	2		2.0%	90.0%			0.0%	100.0%	1	1.0%	57.0%
	medium gravel	8.0	0	0.0%	86.0%	1	1.9%	80.8%	0	0.0%	64.0%	1		1.0%	91.0%			0.0%	100.0%	7	7.0%	64.0%
	medium gravel	11.3	2	4.0%	90.0%	1	1.9%	82.7%	6	12.0%	76.0%	1		1.0%	92.0%			0.0%	100.0%	8	8.0%	72.0%
	course gravel	16.0	1	2.0%	92.0%	1	1.9%	84.6%	5	10.0%	86.0%	1		1.0%	93.0%			0.0%	100.0%	6	6.0%	78.0%
	course gravel	22.6	0	0.0%	92.0%	2	3.8%	88.5%	0	0.0%	86.0%	6		6.0%	99.0%			0.0%	100.0%	8	8.0%	86.0%
	very course gravel	32	2	4.0%	96.0%	4	7.7%	96.2%	3	6.0%	92.0%			0.0%	99.0%			0.0%	100.0%	10	10.0%	96.0%
	very course gravel	45	1	2.0%	98.0%	2	3.8%	100.0%	2	4.0%	96.0%			0.0%	99.0%			0.0%	100.0%	3	3.0%	99.0%
Cobble	small cobble	64	1	2.0%	100.0%	0	0.0%	100.0%	1	2.0%	98.0%	1		1.0%	100.0%			0.0%	100.0%	1	1.0%	100.0%
	medium cobble	90	0	0.0%	100.0%	0	0.0%	100.0%	1	2.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large cobble	128	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large cobble	180	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Boulder	small boulder	256	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	small boulder	362	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	medium boulder	512	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	large boulder	1024	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
	very large boulder	2049	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
Bedrock	bedrock	40096	0	0.0%	100.0%	0	0.0%	100.0%	0	0.0%	100.0%			0.0%	100.0%			0.0%	100.0%		0.0%	100.0%
TOTAL / %of whole count			50	100.0%		52	100.0%		50	100.0%		67	33	100.0%		1	0	100.0%		100	100.0%	

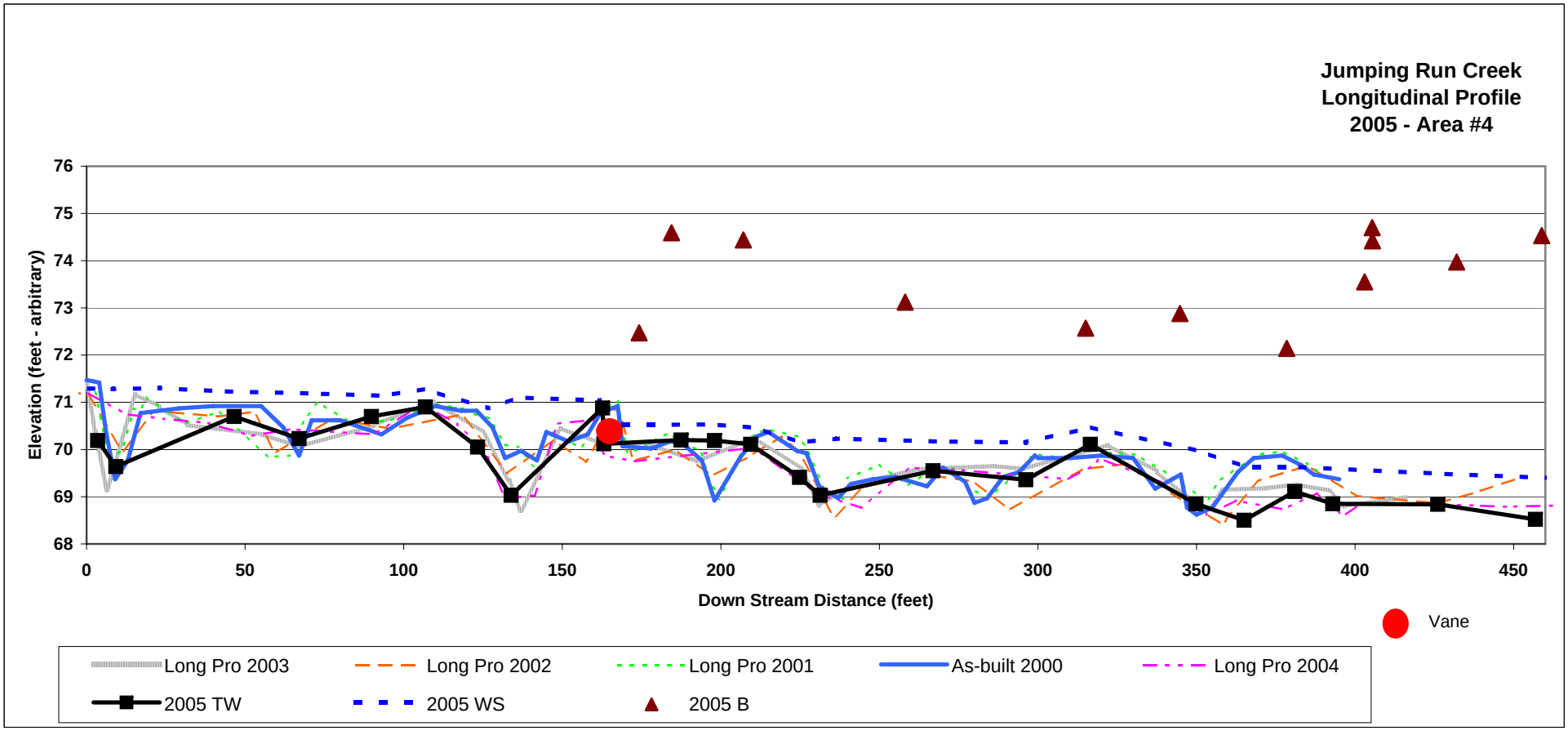
	d16	d35	d50	d84	d95
As-Built	0.06	0.10	0.14	0.56	35.70
2001	0.09	0.17	0.27	17.49	17.49
2002	0.11	0.49	2.25	18.17	18.17
2003	0.07	0.09	0.16	1.29	21.97
2004	0.00	0.00	0.00	0.00	0.00
2005	0.28	0.91	2.70	25.30	37.38




Jumping Run Creek
Longitudinal Profile
2005 - Area #1
Elevation (feet - arbitrary)
97
96
95
94
93
92
91
90
0
50
100
150
200
250
300
350
Down Stream Distance (feet)
Vane
Long Pro 2003
Long Pro 2002
Long Pro 2001
As-built 2000
Long Pro 2004
2005 TW
2005 WS
2005 Bkf


Jumping Run Creek
Longitudinal Profile
2005 - Area #2
Elevation (feet - arbitrary)
89
88
87
86
85
84
83
82
81
80
50
100
150
200
250
300
350
400
450
500
550
Down Stream Distance (feet)
Vane
Right Bankfull
Long Pro 2003
Long Pro 2002
Long Pro 2001
As-built 2000
2005 TW
2005 WS
2005 Bkf


Jumping Run Creek
Longitudinal Profile
2005 - Area #3
Elevation (feet - arbitrary)
78
77
76
75
74
73
72
71
70
0
50
100
150
200
250
300
350
400
450
Down Stream Distance (feet)
Vane
Long Pro 2003
Long Pro 2002
Long Pro 2001
As-built 2000
Long Pro 2004
2005 TW
2005 WS
2005 Bkf


Jumping Run Creek
Longitudinal Profile
2005 - Area #4
Elevation (feet - arbitrary)
76
75
74
73
72
71
70
69
68
0
50
100
150
200
250
300
350
400
450
Down Stream Distance (feet)
Vane
Long Pro 2003
Long Pro 2002
Long Pro 2001
As-built 2000
Long Pro 2004
2005 TW
2005 WS
2005 B

Project Name Jumping Run Area 1
Task Longitudinal Profile
Section Area #1
Date 6/10/05
Crew Shaffer, Bidelspach, Clinton

Symbol Key

T	Thalweg
R	Head of Riffle
P	Head of Pool
U	Head of Run
M	Max Pool

2005 Survey* * 2005 elev adjusted up by 1.0 ft

TW Station	TW Elevation	WS Station	WS Elevation	BKF Station	BKF Elevation	Feature
12.41	95.01	33	95.19	33.04	96.66	U
33.65	94.95	33.39	95.21	36.51	96.35	T
42.43	94.96	41.89	95.2	43.89	96.92	R
49.87	94.46	48.78	95.07	52.39	96.57	R
58.39	94.9	55.76	94.97	59.59	96.66	T
67.14	94.59	65.71	94.89	67.06	96.21	T
75.74	94.57	77.03	94.86	97.98	96.17	T
88.3	94.54	79.44	94.86	102.59	95.79	T
105.5	94.3	88.07	94.8	126.35	96.05	T
111.33	94.41	103.2	94.83	141.75	95.93	T
119.79	94.31	121.06	94.77	149.23	95.69	T
126.8	94.01	126.48	94.75	180.17	94.76	T
130.73	94.38	130.41	94.8	188.16	94.8	T
135.42	94.31	135.87	94.82	196.78	94.86	T
141.98	94.29	141.81	94.7	228.3	94.41	R
147.4	94.44	147.37	94.67	231.12	94.51	T
149.82	93.58	148.38	94.26	275.23	94.41	T
158.78	92.94	158.47	93.29	281.69	93.91	T
161.02	92.8	161.13	93.23	323.09	92.54	T
162.24	92.73	168.24	93.42	336.99	93.54	T
168.25	93.18	175.67	93.26	346.4	93.13	T
171.93	92.67	182.94	93.16			T
176.29	92.65	187.61	93.12			T
182.88	92.88	193.38	92.92			T
186.33	92.95	202.34	92.95			R
192.27	92.66	205.15	92.96			T
195.22	92.26	217.68	93.03			T
205.13	92.62	222.8	92.97			T
216.36	92.59	226.06	93.02			T
222.68	92.51	229.82	92.86			T
224.37	92.52	233.94	92.92			T
228.79	92.65	239.95	92.62			T
233.5	92.57	247.92	92.62			R
239.87	92.39	251.22	92.63			T
246.91	91.5	254.82	92.63			M
258.28	92.15	257.38	92.6			T
260.59	92.35	266.28	92.46			RV
264.49	92.02	273.2	92.54			T
270.02	92.1	274.77	92.49			T
277.35	90.84	274.97	92.09			M
280.06	90.53	279.09	92.09			T
288.77	91.55	289.72	92.06			T
293.49	91.49	296.71	92.11			T
296.37	91.52	305.17	92.15			T
304.73	91.62	308.22	92.06			T
309.42	91.76	324.64	91.72			R
321.88	91.47	336.87	91.85			T
325.62	91.65	346.71	91.89			T
326.36	91.81					M
344.55	91.5					T
349.06	91.64					T

2004 Survey* * 2004 elev adjusted up by 1.0 ft

TW Station	TW Elevation	WS Station	WS Elevation	BKF Station	BKF Elevation	Feature
11.05	94.85	10.72	95.35	1.36	96.38	TR
21.46	94.86	21.14	95.28	32.24	95.79	T
30.35	94.64	30.15	95.3	32.74	95.83	T
42.9	94.81	42.91	95.26	53.86	96.34	T
52.71	94.62	53.06	95.15	68.04	95.84	TP
69.12	94.58	68.92	95.11	69.51	96.4	T
89.43	94.36	89.24	95.1	89.92	95.81	TR
98.42	94.61	98.61	95	111.86	95.51	T
106.18	94.56	106.66	95.02	122.07	95.93	T
113.22	94.47	114.12	94.95	122.17	95.95	T
122.14	94.21	121.1	94.95	129.28	95.93	T
131.31	94.37	131.02	94.87	134.95	95.57	T
146.42	94.43	146.23	94.8	145.62	95.95	TP
149.83	93.87	149.46	94.2	155.8	95.66	T
160.3	92.42	164.97	93.53	158.76	95.48	T
163.72	93.22	171.18	93.46	167.07	95.18	T
171.17	93.42	186.34	93.34	174.56	94.66	TR
186.08	92.96	195.26	93.24	183.73	94.43	T
194.01	92.58	199.42	93.24	187.46	94.3	T
199.53	92.82	215.77	93.17	189.32	94.23	T
215.9	92.74	232.25	93.12	192.84	94.56	T
232.13	92.66	240.03	93	198.63	94.45	T
239.94	92.46	251.92	92.97	200.09	94.42	TP
251.96	91.85	253.08	93	217.23	94.48	T
253.24	91.27	258.21	92.94	224.1	93.85	T
257.91	92.4	266.96	92.93	225.44	93.96	T
267	92.29	275.59	92.18	225.6	94.02	T
272.31	92.66	280.63	92.22	239.95	93.87	T
275.84	90.87	286.75	92.21	245.11	94.32	TP
280.52	90.31	294.95	92.18	253.5	94.31	T
286.96	91.47	304.43	92.2	269.87	93.43	T
295.26	91.78	310.34	92.24	273.81	94.03	T
304.32	91.68	313.45	92.1	277.13	93.83	T
310.87	91.79	325.26	92.01	282.94	93.83	TR
314.01	91.88	341.74	91.91	292.83	93.45	T
325.58	91.36			303.34	92.57	T
341.86	91.51			311.74	92.55	T
350.56	91.87			322.36	92.44	
				324.16	92.49	
				332.57	93.21	
				336.09	94.66	
				347.93	92.73	
				349.71	93.46	

2003 Survey

TW Station	TW Elevation	WS Station	WS Elevation	LBKF Station	LBKF Elevation	RBKF Station	RBKF Elevation	Feature
0.16	95.21	0	95.46	9.89	97.25	14.94	97.6	T
39.84	94.47	21.67	95.45	37.83	96.74			TU
58.23	94.53	39.48	95.42	59.36	96.36	59	96.44	TP
62.53	94.03	58.18	95.35					TM
75.05	94.47	62.59	95.42					T
77.17	94.38	74.69	95.27					TU
80.43	94.2	76.17	95.37					T
82.06	94.23	76.77	95.34					T
85.53	94.59	80.48	95.35					T
90.72	94.18	81.26	95.36					T
99.89	94.09	85.62	95.28					T
106.61	94.66	90.01	95.28			101.11	95.94	T
109.26	94.52	99.69	95.26					TP
113.73	93.92	109.56	95.22	116.66	96.25			T
125.4	94.05	113.56	95.18					TM
133.38	94.23	125.74	95.09			137.63	95.97	TR
147.74	94.38	133.22	95.05					LV
148.08	93.82	140.21	94.89			150.52	95.7	T
154.87	93.57	147.71	94.4	154.74	95.42			TU
160.17	92.7	148.01	94.27					TP
164.16	92.12	155.12	93.84					TM
171.73	93.17	159.9	93.8			170.54	95.45	T
181.82	92.83	163.87	93.9	185.23	95.02			TR
191.54	92.57	171.95	93.9					TP
193.61	92.06	181.71	93.78					TM
200.17	92.75	191.78	93.57					TU
206.35	92	193.07	93.56					T
217.77	92.4	200.26	93.55	221.74	94.72	212.89	94.64	T
229.77	92.6	206.19	93.58					T
241.02	92.18	217.75	93.53					TP
246.1	91.46	229.93	93.55			249.4	94.09	TM
253.84	93.11	241.14	93.47	252.48	94.35			T
269.57	92.42	245.9	93.46	264	94.11			TR
274.94	92.69	253.65	93.46					V
279.78	90.57	269.22	93.26					TM
284.66	91.94	274.57	93.18	289.51	93.84			T
294.53	91.72	279.87	92.73			291.98	93.81	T
		284.38	92.78					

2002 Survey
Conducted by S&EC, PA, Inc
**** Previous surveys elevations adjusted d*** **5.8**

Original Station	Original TW Elevation		Adjusted Station	Adjusted TW Elevation
0	100.13	TW FNC	0	94.33
12	100.89	TOP Vane	12	95.09
23	98.53	TWP	23	92.73
29	99.87	TWG	29	94.07
51	99.87	TWR	51	94.07
80	99.97	Riffle X-se	80	94.17
101	99.71	TWR	101	93.91
123	99.21	TWP	123	93.41
129	99.75	TWG	129	93.95
144	99.97	TWRI	144	94.17
157	100.03	TOP Vane	157	94.23
175	98.09	TWR	175	92.29
186	98.69	TWRI	186	92.89
192	98.29	TWP	192	92.49
200	98.89	TWRI	200	93.09
205	98.01	TWS	205	92.21
212	98.21	TWHC	212	92.41
220	97.67	TWS	220	91.87
225	98.31	TWG	225	92.51
247	98.33	TWRI	247	92.53
257	97.57	TW Pool	257	91.77
259	97.75	Pool X-see	259	91.95
268	98.17	TWG	268	92.37
275	98.03	TWRI	275	92.23
284	98.35	TOP Vane	284	92.55

2001 Survey
Conducted by K-H & Assoc., Inc

Original Station	Original TW Elevation		Adjusted Station		Adjusted TW Elevation
0			0		
20			20		
25	99.3		25		93.5
29	100.2		29		94.4
35	100		35		94.2
44	100.15		44		94.35
64	100.2		64		94.4
73	100.25		73		94.45
79	100.25		79		94.45
90	100.2		90		94.4
103	99.88		103		94.08
117	100.05		117		94.25
123	99.6		123		93.8
128	99.8		128		94
138	99.83		138		94.03
151	100.15		151		94.35
158	100.05	check dam	158		94.25
163	99.45		163		93.65
170	99.15		170		93.35
181	98.25	s of log struc	181		92.45
186	99.03		186		93.23
196	98.79		196		92.99
210	99.27		210		93.47
216	99.05	ip of headco	216		93.25
218	97.35	tom of head	218		91.55
224	98.09		224		92.29
232	98.64		232		92.84
245	98.44		245		92.64
252	98.45		252		92.65
262	97.57		262		91.77
269	97.93		269		92.13
279	98.25		279		92.45
284.5	98.36		284.5		92.56
287	98.15	ock Structu	287		92.35
		Year 1 - Head cut observed at Station 218			

2000 As-built
Conducted by K-H & Assoc., Inc

Longitudinal Profile - Jumping Run Area 1 Alexander County, NC Station	TW	Notes	Adjusted Station	Adjusted Elevation
0	100.14		0	94.34
11.1	100.89	top of rock cross vane	11.1	95.09
15	99.04	pool	15	93.24
20	98.84		20	93.04
25	99.34		25	93.54
29	99.89	end pool/begin glide	29	94.09
35	100.04		35	94.24
44	100.19		44	94.39
64	100.14		64	94.34
73	100.39	top riffle/end glide	73	94.59
79	100.19	xsection riffle	79	94.39
90	100.24	end riffle	90	94.44
103	100.14		103	94.34
117	100.09	log vane	117	94.29
123	99.54	d/s log vane	123	93.74
128	99.54	center of pool	128	93.74
138	99.94	end pool	138	94.14
151	100.14	start riffle	151	94.34
158	100.04	center of notch in log	158	94.24
163	99.54		163	93.74
170	99.19		170	93.39
181	98.19		181	92.39
186	99.14		186	93.34
196	98.79	center of pool	196	92.99
210	99.34	end pool	210	93.54
214	99.04	begin riffle	214	93.24
219	98.84	center of riffle	219	93.04
232	98.69		232	92.89
245	98.59		245	92.79
252	98.49	end run/begin pool	252	92.69
262	97.39	center of pool	262	91.59
269	98.24		269	92.44
279	98.44		279	92.64
284.5	98.39	center of rock struc	284.5	92.59

Project Name	Jumping Run
Task	Feature Slope and Length Calculations
Date	6/1/04
Crew	Shaffer, Bidelspach, Clinton

Area 1 - 2005

Riffle Station	Change	Water Elev	change	slope
41		95.2		
65	24	94.89	0.31	1.29%
168		93.42		
193	25	92.92	0.5	2.00%
205		92.96		
239	34	92.62	0.34	1.00%
257		92.6		
274	17	92.49	0.11	0.65%
305		92.15		
324	19	91.72	0.43	2.26%

Pool Station	length	p-p spacing
103		
147	44	
158		
168	10	38
193		
205	12	36
239		
257	18	49
274		
305	31	41.5

	min	max	median
Length	17.0	34.0	24.0
Slope	0.65%	2.26%	1.29%
Length	10.0	44.0	18.0
Spacing	36	49	40

Area 1 - 2004

Riffle Station	Change	Water Elev	change	slope
10.72		95.35		
53.06	42.34	95.15	0.2	0.47%
89.24		95.1		
146.23	56.99	94.8	0.3	0.53%
171.18		93.46		
240.03	68.85	93	0.46	0.67%
310.34		92.24		
341.74	31.4	91.91	0.33	1.05%

Pool Station	length	p-p spacing
53		
89	36	
146		
171	25	87.5
240		
266	26	94.5
275		
310	35	39.5

	min	max	median
Length	31.4	68.9	49.7
Slope	0.47%	1.05%	0.60%
Length	25.0	36.0	30.5
Spacing	40	95	88

Area 1 - 2003

Riffle Station	Change	Water Elev	change	slope
133.22		95.05		
155.15	21.93	93.84	1.21	5.52%
171.95		93.9		
191.78	19.83	93.57	0.33	1.66%
253.65		93.46		
274.57	20.92	93.18	0.28	1.34%

Pool	length	p-p spacing
58.23		
75.05	16.82	
109.26		
133.38	24.12	54.68
154.87		
171.73	16.86	41.98
191.54		
200.17	8.63	32.555
229.77		
253.84	24.07	45.95

	min	max	median
Length	19.8	21.9	20.9
Slope	1.34%	5.52%	1.66%
Length	8.6	24.1	16.9
Spacing	33	55	44

Area 3 - 2005

Riffle Station	Change	Water Elev	change	slope
19		76.51		
40	21	76.23	0.28	1.33%
72		76.04		
110	38	75.4	0.64	1.68%
174		75.4		
189	15	75.01	0.39	2.60%
218		75.14		
258	40	74.23	0.91	2.27%
277		74.34		
310	33	73.78	0.56	1.70%
330		73.87		
349	19	73.41	0.46	2.42%
376		73.48		
397	21	72.75	0.73	3.48%

Pool	length	p-p spacing
40		
72	32	
110		
174	64	86
189		
218	29	61.5
258		
277	19	64
310		
330	20	52.5
349		
376	27	42.5
397		
413	16	42.5

	min	max	median
Length	15.0	40.0	21.0
Slope	1.33%	3.48%	2.27%
Length	16.0	64.0	27.0
Spacing	43	86	57

Area 3 - 2004

Riffle Station	Change	Water Elev	change	slope
13		76.28		
33	20	76	0.28	1.40%
72		76.04		
110	38	75.2	0.84	2.21%
169		75.24		
196	27	74.82	0.42	1.56%
220		74.91		
249	29	74.25	0.66	2.28%
328		73.78		
345	17	73.22	0.56	3.29%
388		73.18		
416	28	72.65	0.53	1.89%

Pool	length	p-p spacing
33		
72	39	
110		
169	59	87
196		
220	24	68.5
249		
285	36	59
291		
328	37	42.5
345		
388	43	57

	min	max	median
Length	17.0	38.0	27.5
Slope	1.40%	3.29%	2.05%
Length	24.0	59.0	38.0
Spacing	43	87	59

Area 3 - 2003

Riffle Station	Change	Water Elev	change	slope
0		77.15		
35.11	35.11	76.58	0.57	1.62%
74.47		76.58		
98.1	23.63	76.14	0.44	1.86%
164.66		75.91		
188.1	23.44	75.49	0.42	1.79%
219.35		75.46		
253.24	33.89	74.73	0.73	2.15%
279.07		74.6		
288.56	9.49	74.23	0.37	3.90%

Pool	length	p-p spacing
37.76		
57.3	19.54	
123.29		
150.2	26.91	89.215
187.32		
219.35	32.03	66.59
288.73		
327.78	39.05	104.92

	min	max	median
Length	9.5	35.1	23.6
Slope	1.62%	3.90%	1.86%
Length	19.5	39.1	29.5
Spacing	67	105	89

PROFILE*	Jumping Run 2003 - Area 1			Jumping Run 2004 - Area 1			Jumping Run 2005 - Area 1		
	Min	Max	Median	Min	Max	Median	Min	Max	Median
Riffle Length	19.8	21.9	20.9	31.4	68.9	49.7	17.0	34.0	24.0
Riffle Slope	1.34%	5.52%	1.66%	0.47%	1.05%	0.60%	0.65%	2.26%	1.29%
Pool Length	8.6	24.1	16.9	25.0	36.0	30.5	10.0	44.0	18.0
l to Pool Spacing	32.6	54.7	44.0	39.5	94.5	87.5	36.0	49.0	39.8

	Jumping Run 2003 - Area 3			Jumping Run 2004 - Area 3			Jumping Run 2005 - Area 3		
	Min	Max	Median	Min	Max	Median	Min	Max	Median
Riffle Length	9.5	35.1	23.6	17.0	38.0	27.5	15.0	40.0	21.0
Riffle Slope	1.62%	3.90%	1.86%	1.40%	3.29%	2.05%	1.33%	3.48%	2.27%
Pool Length	19.5	39.1	29.5	24.0	59.0	38.0	16.0	64.0	27.0
l to Pool Spacing	66.6	104.9	89.2	42.5	87.0	59.0	42.5	86.0	57.0

Area 2 - 2005

Riffle Station	Change	Water Elev	change	slope
73		86.46		
85	12	85.9	0.56	4.67%
182		86.01		
196	14	85.63	0.38	2.71%
278		85.34		
288	10	84.86	0.48	4.80%
394		84.52		
414	20	84.2	0.32	1.60%
451		84.16		
479	28	83.72	0.44	1.57%

Pool	length	p-p spacing				
85						
182	97			min	max	median
196			Length	10.0	28.0	14.0
240	44	84.5	Slope	1.57%	4.80%	2.71%
288			Length	24.0	97.0	37.0
312	24	82	Spacing	54	85	79
364						
394	30	79				
414						
451	37	53.5				
479						
516	37	65				

Area 2 - 2004

Riffle Station	Change	Water Elev	change	slope

No Data Reported - See Cross-section Information

Pool	length	p-p spacing				
				min	max	median
			Length			
			Slope			
			Length			
			Spacing			

Area 2 - 2003

Riffle Station	Change	Water Elev	change	slope
18.06		87.46		
35.45	17.39	87.42	0.04	0.23%
72.96		87.35		
92.26	19.3	87.13	0.22	1.14%
102.52		87.18		
112.58	10.06	87.04	0.14	1.39%
214.28		86.99		
220.34	6.06	86.89	0.1	1.65%
240.3		86.83		
253.91	13.61	86.64	0.19	1.40%
280.35		86.62		
288	7.65	86.16	0.46	6.01%
317.85		86.16		
324.97	7.12	85.64	0.52	7.30%
404.92		85.52		
419.87	14.95	85.37	0.15	1.00%

Pool	length	p-p spacing				
35.88						
73.02	37.14			min	max	median
93.63			Length	6.1	19.3	11.8
108.12	14.49	46.425	Slope	0.23%	7.30%	1.39%
166.2			Length	14.5	37.8	30.0
196.3	30.1	80.375	Spacing	36	80	43
220.23						
240.23	20	48.98				
253.33						
280.23	26.9	36.55				
288.24						
318.2	29.96	36.44				
324.39						
362.2	37.81	40.075				

Area 4 - 2005

Riffle Station	Change	Water Elev	change	slope
106		71.22		
126	20	71.1	0.12	0.60%
210		71.09		
224	14	70.67	0.42	3.00%
316		70.26		
365	49	70.14	0.12	0.24%

Pool	length	p-p spacing				
0						
43	43			min	max	median
126			Length	14.0	49.0	20.0
161	35	122	Slope	0.24%	3.00%	0.60%
224			Length	34.0	92.0	39.0
316	92	126.5	Spacing	122	172	127
425						
459	34	172				

Area 4 - 2004

Riffle Station	Change	Water Elev	change	slope
0		71.22		
52	52	71.1	0.12	0.23%
105		71.09		
131	26	70.67	0.42	1.62%
211		70.26		
226	15	70.14	0.12	0.80%
309		70.13		
351	42	69.63	0.5	1.19%

Pool	length	p-p spacing				
52						
105	53			min	max	median
131			Length	15.0	52.0	34.0
159	28	66.5	Slope	0.23%	1.62%	1.00%
175			Length	34.0	92.0	53.0
211	36	48	Spacing	122	172	127
226						
309	83	74.5				
351						
415	64	115.5				

Area 4 - 2003

Riffle Station	Change	Water Elev	change	slope
14.22		71.63		
32.1	17.88	71.52	0.11	0.62%
109		71.42		
132.17	23.17	71.19	0.23	0.99%
161.08		71.15		
175.39	14.31	70.69	0.46	3.21%
210.49		70.66		
224.5	14.01	70.35	0.31	2.21%
321.79		70.32		
346.79	25	69.94	0.38	1.52%

Pool	length	p-p spacing				
2.78						
15.44	12.66			min	max	median
55.4			Length	14.0	25.0	17.9
109.36	53.96	73.27	Slope	0.62%	3.21%	1.52%
124.92			Length	12.7	54.0	35.0
149.61	24.69	54.885	Spacing	55	112	90
225						
261	36	105.735				
337						
372	35	111.5				

PROFILE*	Jumping Run 2003 - Area 2			Jumping Run 2004 - Area 2			Jumping Run 2005 - Area 2		
	Min	Max	Median	Min	Max	Median	Min	Max	Median
Riffle Length	6.1	19.3	11.8				10.0	28.0	14.0
Riffle Slope	0.23%	7.30%	1.39%	No data reported (data			1.57%	4.80%	2.71%
Pool Length	14.5	37.8	30.0	collection error)			24.0	97.0	37.0
Pool to Pool Spacing	36.4	80.4	43.3				53.5	84.5	79.0

*Data for previous monitoring periods were not reported

	Jumping Run 2003 - Area 4			Jumping Run 2004 - Area 4			Jumping Run 2005 - Area 4		
	Min	Max	Median	Min	Max	Median	Min	Max	Median
Riffle Length	14.0	25.0	17.9	15.0	52.0	34.0	14.0	49.0	20.0
Riffle Slope	0.62%	3.21%	1.52%	0.23%	1.62%	1.00%	0.24%	3.00%	0.60%
Pool Length	12.7	54.0	35.0	28.0	83.0	53.0	34.0	92.0	39.0
Pool to Pool Spacing	54.9	111.5	89.5	48.0	115.5	70.5	122.0	172.0	126.5

Project Name	Jumping Run
Task	Channel Pattern Measurements
Date	6/1/04
Crew	Shaffer, Bidelspach, Clinton

Area 1
2005

Radius of Curvature	Meander Wavelength	Channel Beltwidth
39	125	36
26	122	31
30	131	40
29		
31		
26	122	31
39	131	40
30	125	36

Area 1
2004

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
44	108	32	
34	119	33	
30	126	39	
30			
34			
30	108	32	*min*
44	126	39	*max*
34	119	33	*median*

Area 2
2005

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
27	97	41	
39	66	29	
25	58	42	
23	87	36	
27	72		
21			
18			
18	58	29	*min*
39	97	42	*max*
25	72	39	*median*

Area 2
2004

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
25	108	36	
23	59	29	
14	49	45	
16	91	36	
16	80		
15			
43			
29			
14	49	29	*min*
43	108	45	*max*
20	80	36	*median*

Area 1
2003

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
27	115	36	
34	123	38	
36		40	
39			
27	115	36	*min*
39	123	40	*max*
35	119	38	*median*

Area 2
2003

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
22	50	36	
22	61	38	
24	75	38	
25	95	39	
26		40	
27		47	
28			
30			
30			
30			
22	50	36	*min*
30	95	47	*max*
27	68	39	*median*

Area 3
2005

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
63	129	43	
38	152	49	
38	143	54	
30			
34			
30	129	43	*min*
63	152	54	*max*
38	143	49	*median*

Area 3
2004

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
42	124	38	
38	148	46	
30	146	44	
38			
33			
30	124	38	*min*
42	148	46	*max*
38	146	44	*median*

Area 4
2005

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
36	105	34	
39	111	28	
44	86	27	
30	65	17	
35	69	27	
51	93	49	
47			
30	65	17	*min*
51	111	49	*max*
39	90	28	*median*

Area 4
2004

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
28	148	35	
36	123	29	
26	76	30	
60	93	29	
28	80	27	
69	66	20	
39			
31			
26	66	20	*min*
69	148	35	*max*
34	87	29	*median*

Area 3
2003

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
34	146	43	
41	149	43	
46		50	
58		51	
34	146	43	*min*
58	149	51	*max*
43	147	47	*median*

Area 4
2003

Radius of Curvature	Meander Wavelength	Channel Beltwidth	
30	69	25	
35	71	28	
36	80	31	
39	93	34	
45	106	49	
47	120		
52			
30	69	25	*min*
52	120	49	*max*
39	86	31	*median*

GPS Coordinates

Project Number and Name:????? (Jumping Run Creek at Payne Dairy)

Description	GPS Coordinate		NAD_1983_StatePlane_North_(		GCS_North_American_1983	
	Northering	Easting	EASTING	NORTHING	LONGITUDE	LATITUDE
Veg Plot Area 1	3971595	487569	416612.36	239311.49	-81.13773	35.88853
Veg Plot Area 2	3971345	487551	416589.32	239061.82	-81.13793	35.88628
Veg Plot Area 3	3970616	487661	416684.66	238330.51	-81.13670	35.87971
Veg Plot Area 4	3969989	487382	416393.00	237709.04	-81.13978	35.87405

Project Name Jumping Run
Task Longitudinal Profile
Section: Area #2
Date 6/10/05
Crew Shaffer, Bidelspach, Clinton

Symbol Key

T	Thalweg
R	Head of Riffle
P	Head of Pool
U	Head of Run
M	Max Pool

2005 Survey

2005 TW Station	TW Elev	WS Station	WS Elev	BKF Station	BKF Elev	Feature
35.65	86.31	33.81	86.64	46.92	87.96	P
44.54	85.68	44.58	86.59	75.34	87.75	M
50.24	85.97	51.68	86.4	81.25	87.61	T
51.25	85.59	54.46	86.66	97.17	87.45	T
55.44	84.88	73.98	86.46	102.15	87.29	T
62.87	84.15	80.72	86.15	113.82	87.23	M
74.29	86.38	85.82	85.9	135.85	87.33	R
83.43	85.44	96.68	85.97	149.04	87.33	M
98.05	85.5	101.99	85.98	215.43	87.01	G
101.82	85.81	110.06	86.1	238.52	86.94	U
111.59	85.36	118.14	86.05	250.13	86.62	P
116.56	84.78	124.63	86	273.93	86.75	T
124.92	84.84	130.84	86.1	284.4	86.06	T
134.05	84.8	133.53	86.02	301.42	86.19	M
146.33	84.38	147.21	86.04	333.55	86.36	T
155.21	83	182.87	86.01	342.89	86.31	G
165.31	85.46	196.53	85.63	392.3	85.99	U
182.7	84.55	202.45	85.62	489.54	84.76	T
194.91	85.47	212.73	85.85			T
197.99	83.95	215.42	85.62			T
202.4	83.08	215.8	85.59			M
214.73	85.28	217.96	85.61			R
215.93	85.44	222.89	85.7			R
218.08	85.17	233.79	85.56			P
227.47	83.35	240.99	85.65			M
235.64	84.76	260.98	85.41			G
240.32	85.35	272.46	85.32			R
252.58	84.82	278.13	85.34			P
260.77	84.12	288.45	84.86			M
272.19	84.58	299.41	84.87			G
277.47	85.03	307.61	84.88			R
288.79	84.39	312.7	84.89			P
300.55	83.58	316.31	84.77			M
306.56	84.35	323.52	84.87			U
316.82	84.23	331.21	84.86			T
319.88	84.52	343.78	84.84			T
323.54	84.38	362.65	84.85			P
331.83	83.67	364.67	84.34			P
344.68	84.31	371.35	84.44			G
362.92	84.61	381.87	84.33			V
365.56	83.02	394.49	84.52			T
369.88	82.75	406.16	84.31			M
381.34	83.14	414.33	84.2			T
399.74	84.08	431.39	84.16			R
406.99	84.01	439.77	84.18			T
416.52	83.8	451.98	84.16			P
425.53	82.38	460.75	83.95			M
440.02	83.22	470.6	83.84			G
450.96	83.72	470.92	84.11			R
461.66	83.57	478.84	83.69			T
471.49	83.71	479.15	83.72			LOG
472.39	82.89	489	83.68			P
476.83	82.9	501.62	83.6			M
484.02	83.16	509.95	83.62			R
489.58	82.97	516.48	83.64			P
501.98	82.28					M
508.54	83.05					G
515.75	83.27					R

2003 Survey

TW Station	TW Elev	WS Station	WS Elev	LBKF Station	LBKF Elev	RBKF Station	RBKF Elev	Feature
0	86.39	18.06	87.46	0.5	89.2			TM
17.8	87.15	26.25	87.4					TR
26.27	86.96	35.45	87.42	28.93	89.15			TU
35.88	86.79	40.23	87.42			33.37	89.25	TP
40.8	86.63	51.12	87.39					TM
50.74	86.71	55.31	87.41					T
53.63	87.77	64.52	87.4					CV
55.49	86.98	72.96	87.35	57.33	89.9			T
59.17	84.9	82.23	87.16			61.47	89.5	TM
65.32	85.59	92.26	87.13					T
73.02	86.86	102.52	87.18					TR
93.63	86.12	108.34	87.12	92.09	90.01			TP
103.06	85.79	112.58	87.04					TM
108.12	86.69	122.29	87.05					TR
113.19	86.09	131.13	87.02					TU
123.18	85.41	138.96	87	118.2	90.2	118.98	89.33	TP
132.03	85.05	155.6	87.05					T
139.33	85.23	161.29	87.06	136.2	89.86			T
155.6	86	165.93	87.05	155.16	89.96	147.16	89.32	T
162.04	86.25	167.7	87.05					T
166.2	86.46	181.52	87.03			167.31	90.36	TP
168.03	86.31	195.84	87.01					T
181.62	84.93	196.15	86.99	186.93	89.8			TM
192.39	86.48	203.88	87.01	188.78	89.63			T
195.78	86.82	214.28	86.99					CV
203.32	84.18	220.34	86.89					T
213.7	86.63	231.05	86.83			206.05	89.86	T
226.15	83.74	240.3	86.83			214.41	89.47	TR
230.93	84.66	253.91	86.64					T
249.09	85.76	257.61	86.65					TM
253.77	85.47	265.47	86.66			233.55	88.44	T
257.79	84.82	275.2	86.64					T
265.45	85.09	276.68	86.61					TU
275.86	85.38	280.35	86.62					T
288.24	85.77	288	86.16	251.1	89.31			TP
292.82	84.1	293.88	86.19	259.44	89.11			TM
299.19	84.24	298.29	86.11					T
307.01	85.41	306.83	86.24	272.42	89.05			T
313.81	84.76	314.03	86.17			278.99	88.44	
324.39	85.14	317.85	86.16					TP
329.62	84.13	324.97	85.64			291.49	88.56	T
346.8	85.02	346.43	85.69			300.85	88.51	TM
349.99	84.33	349.25	85.65					T
362.3	85.44	362.39	85.64					T
367.43	83.48	366.86	85.54					
375.09	84.3	374.69	85.52	320.11	88.51			TP
386.52	83.26	387.23	85.55					TM
404.96	85.22	404.92	85.52	340.17	88.27			T
420.34	84.33	419.87	85.37					T
427.25	82.91	426.41	85.35			362.74	88.54	CV
								TM
				375.05	88.17			T
				388.01	87.68			TM
				401.45	87.5			TR
						411.45	87.32	TP
								TM

Conducted by S&EC, PA, Inc
***** Previous stationng adjusted downstream by: 53***
**** Previous surveys Elevs adjusted down by: 11.39***

Original Station	Original TW Elev		Adjusted Station**	Adjusted TW Elev*
-53	97.84	TWP	0	86.45
-41	98.1	TWG	12	86.71
-24	98.46	TWR	29	87.07
-13	97.58	TWP	40	86.19
3	99.16	TOP Vane	56	87.77
7	96.14	TWP	60	84.75
13	97.38	TWG	66	85.99
21	97.4	TWRI	74	86.01
29	96.6	TWP	82	85.21
56	97.4	TWRI	109	86.01
67	97	TWR	120	85.61
77	96.04	TWP	130	84.65
84	96.14	Pool X-sec	137	84.75
94	96.38	TWP	147	84.99
129	96.26	TWP	182	84.87
142	97.86	TOP Vane	195	86.47
147	94.84	TWP	200	83.45
155	96.64	TWG	208	85.25
162	96.86	TWRI	215	85.47
172	95.68	TWP	225	84.29
186	96.92	TWRI	239	85.53
194	96.6	TWR	247	85.21
204	95.4	TWP	257	84.01
213	96.3	TWG	266	84.91
223	96.6	Riffle X-sec	276	85.21
244	95.02	TWP	297	83.63
250	96.18	TWG	303	84.79
268	96.34	TWRI	321	84.95
281	95.1	TWP	334	83.71
296	96.1	TWG	349	84.71
313	96.52	TOP Vane	366	85.13

2001 Survey
Conducted by K-H & Assoc., Inc

Original Station	Original TW Elev		Adjusted Station**	Adjusted TW Elev*
0	98.92	p of rock struct	53	87.53
2.5	99.19		55.5	87.8
3	98.21		56	86.82
5	96.23	Top of footer	58	84.84
7	95.84	Scour pool	60	84.45
11	97.06		64	85.67
14	97.96		67	86.57
20	97.53		73	86.14
22	97.54		75	86.15
29	97.29		82	85.9
34	97.16		87	85.77
36	97.17		89	85.78
40	96.74		93	85.35
44	97.07		97	85.68
48	97.08		101	85.69
52	97.3		105	85.91
63	97.4		116	86.01
71	97.23		124	85.84
82	96.59	Center of pool	135	85.2
92	96.71		145	85.32
100	96.93		153	85.54
108	97.17		161	85.78
113	96.69		166	85.3
123	96.42	Center of pool	176	85.03
132	96.48		185	85.09
143	97.85		196	86.46
146	95.3	Scour pool	199	83.91
153	95.4		206	84.01
156	96.65	end pool	209	85.26
160	97.29		213	85.9
165	97.51		218	86.12
168	96.94	top of pool	221	85.55
171	96.54		224	85.15
173	95.89	Center of pool	226	84.5
177	96.04		230	84.65
180	96.53		233	85.14
183	96.94		236	85.55
187	97.03		240	85.64
190	96.93		243	85.54
192	96.79		245	85.4
195	96.83		248	85.44
198	96.59		251	85.2
201	96.21		254	84.82
203	96.14		256	84.75
205	96.13		258	84.74
208	96.19		261	84.8
211	96.2		264	84.81
213	96.45		266	85.06
218	96.59		271	85.2
221	96.83		274	85.44
224	96.79		277	85.4
227	96.68		280	85.29
230	96.67		283	85.28
233	96.68		286	85.29
236	96.38		289	84.99
239	95.29		292	83.9
245	95.51		298	84.12
247	95.52		300	84.13
249	95.84		302	84.45
252	96.48		305	85.09
255	96.52		308	85.13
258	96.53		311	85.14
261	96.58		314	85.19
264	96.54		317	85.15
268	96.48	top of pool	321	85.09
272	95.27		325	83.88
274	95.31		327	83.92
281	95.24		334	83.85
285	95.11		338	83.72
289	95.32		342	83.93
292	95.96		345	84.57
297	96.49		350	85.1
301	96.24		354	84.85
305	96.54		358	85.15
309	96.64		362	85.25
310	96.66	p of rock struct	363	85.27

2000 As-built
Conducted by K-H & Assoc., Inc

Longitudinal Profile - Jumping Run				
Alexander County, NC			Adjusted	Adjusted
Station	TW	Notes	Station**	Elev*
0	99.02		53	87.63
3	98.22	top of rock/footer	56	86.83
4	96.97	d/s footer	57	85.58
7	96.07		60	84.68
11	97.62		64	86.23
14	97.87		67	86.48
20	97.07	center of pool	73	85.68
22	96.4	begin pool	75	85.01
29	95.9	center of pool	82	84.51
34	95.65		87	84.26
36	95.55		89	84.16
48	96.87		101	85.48
60	97.47		113	86.08
71	97.32		124	85.93
82	96.47	cross section	135	85.08
106	97.32		159	85.93
113	96.72		166	85.33
118	96.37	center of pool	171	84.98
128	95.92		181	84.53
143	97.82	top of rock structure	196	86.43
144	97.12	top of footer rock	197	85.73
145	95.32		198	83.93
148	94.77		201	83.38
154	96.22		207	84.83
157	96.97		210	85.58
164	96.87		217	85.48
170	96.42		223	85.03
174	95.72	center of pool	227	84.33
180	96.57	end pool	233	85.18
186	96.97	begin riffle	239	85.58
190	96.92	center of riffle	243	85.53
195	96.77	end riffle/begin run	248	85.38
199	96.27	end run/begin pool	252	84.88
204	96.27	center of pool	257	84.88
212	96.37	end pool	263	84.98
218	96.42		271	85.03
225	96.82	center of riffle	278	85.43
228	96.57	end riffle/begin run	281	85.18
237	96.42	end run/begin pool	290	85.03
241	95.27	center of pool	294	83.88
250	96.02		303	84.63
255	96.62	riffle	308	85.23
265	96.57		318	85.18
268	96.52	begin pool	321	85.13
279	95.12	center of pool	332	83.73
289	95.12	end pool	342	83.73
296	96.42		349	85.03
300	96.22		353	84.83
313		rock structure		

Project Name Jumping Run
Task Longitudinal Profile
Section: Area #3
Date 6/10/05
Crew Shaffer, Bidelspach, Clinton

Symbol Key

T	Thalweg
TR	Head of Riffle
TP	Head of Pool
TU	Head of Run
TM	Max Pool

2005 Survey*

TW Station	TW Elevation	WS Station	WS Elevation	BKF Station	BKF Elevation	Feature
26.77	76.15	19.2	76.51	31.24	78.11	R
30.75	75.82	40.67	76.23	35.07	77.59	P
33.29	75.74	50.18	76.34	50.66	77.45	T
42.63	76.22	59.59	76.17	56.02	77.86	T
46.77	73.69	72.08	76.04	179.73	76.72	M
55.1	74.8	110.47	75.4	196.49	76.57	G
56.62	75.35	140.77	75.4	221.53	76.04	U
65.49	74.43	173.07	75.42	223.28	76.23	T
78.2	75.63	174.3	75.4	258.16	75.54	R
98.23	75.78	180.9	75.27	258.98	75.56	U
109.15	74.02	189.61	75.01	282.06	75.33	P
118	75.28	197.15	75.11	282.26	75.52	M
133.17	73.08	218.86	75.14	331.49	75.13	R
146.38	74.72	237.53	74.62	334.21	75.13	T
155.54	73.87	247.81	74.52	366.94	74.99	T
173.4	75.14	256.81	74.38	372.58	74.54	T
181.07	74.8	258.62	74.23	384.05	74.82	G
188.67	74.19	277.58	74.34	390.82	74.72	U
203.07	72.64	281.37	74.51	403.79	74.36	R
217.63	74.69	310.66	73.78	407.69	74.31	T
237.63	73.71	330.17	73.87			G
247.88	73.62	349.73	73.41			T
250.37	73.31	356.94	73.23			R
256.11	73.39	376.55	73.48			LV
261.16	73.79	381.75	73.4			P
282.43	73.79	397.78	72.75			M
299.74	71.37	406.87	72.79			T
312.73	72.69	413.64	72.83			R
324.32	73.21					M
329.79	73.31					T
338.91	73.37					R
347.85	71.63					
354.1	70.8					
375.21	71.98					
381.49	73.2					
399.99	70.69					
404.74	71.99					
413.77	72.47					

2004 Survey* * 2004 elev adjusted up by 2.50 ft

TW Station	TW Elevation	WS Station	WS Elevation	LBKF Station	LBKF Elevation	RBKF Station	RBKF Elevation	Feature
13.42	75.68	13.52	76.28	11.94	77.22			TR
35.71	75.59	31.81	76.11	15.18	76.74			TP
66.33	74.85	33.1	76	27.73	79.42			T
73.41	75.51	50.05	75.8	38.9	76.47			TR
78.2	75.63	67.16	75.93	48.87	76.65			T
97.37	75.03	72.08	76.04	50.28	77.63			T
97.96	75.14	79.08	75.91	62.71	77.05			T
98.23	75.78	96.6	75.5	65.57	77.06	67.59	77.95	T
109.15	74.02	98.7	75.37	77.19	76.78	86.4	77.47	TP
111.76	74.24	110.47	75.2	87.69	76.99			T
114.11	75.33	112.9	75.37	113.45	76.75			T
114.83	74.78	117.47	75.08	120.55	76.04			T
123.73	74.35	122.86	75.2	130.62	75.74			T
133.17	73.08	132.83	75.09	137.56	76.61			T
140.7	73.38	140.77	75.14	150.1	76.67			T
146.38	74.72	145.93	75.08	155.57	76.15	129.02	76.91	T
155.54	73.87	155.92	75.18	161.06	76.12			T
168.99	74.86	169.01	75.24	182.37	76.23			TR
183.86	74.48	183.68	74.94	182.67	76.85			T
195.39	72.63	196.17	74.82	189.93	76.9	154.76	76.83	TP
202.67	72.15	199.8	75.01	203.52	76.02			T
214.54	74.14	214.67	74.92	207.37	76.97			T
221.09	74.59	220.61	74.91	217.02	76.19			TR
227.89	74.39	227.7	74.65	226.57	75.58			T
234.56	74.13	234.72	74.49	248.69	76			T
242.17	73.9	241.73	74.46	260.91	75.73	205.78	76.57	T
247.76	73.25	247.49	74.33	263.41	75.23			T
248.88	73.05	249.76	74.25	280.58	75.07			TP
248.94	74.54	257.94	74.27	285.85	76.72			T
258	73.53	270.02	74.13	288.65	74.71	244.73	76.38	T
269.56	73.7	277.33	74.23	292.65	76.62			T
277.1	73.41	285.63	74.15	301.42	76.14			T
285.5	73.73	291.3	73.71	307.63	75			T
292.06	72	306.54	73.79	311.92	75.42			TP
306.76	71.75	318.26	73.68	317.69	74.96			T
317.97	72.52	328.24	73.78	329.7	75.03			T
328.51	73.32	332.18	73.55	332.18	75.19			TR
331.5	73.03	336.3	73.53	341.39	74.76			T
335.91	73.2	345.84	73.22	350.88	74.2			T
345.06	72.32	354.79	73.21	351.36	75.14			TP
353.86	70.42	379.99	73.25	362.94	74.8	318.2	76	T
362.96	71.06	388.52	73.18	368.46	74.42			T
371.76	71.64	393.11	73.1	376.57	75.16			T
378.28	72.34	398.06	72.99	382.8	74.09	334.63	75.41	T
387.3	72.67	410.27	72.94	397.07	75.12			TR
392.22	72.55	416.5	72.65	406.85	74.53			T
398.11	70.87			407.33	73.64			T
406.44	71.67							T
409.98	72.59							T
416.78	72.36							T

2003 Survey

TW Shot number	TW Station	TW Elevation	WS Station	WS Elevation	LBKF Station	LBKF Elevation	RBKF Station	RBKF Elevation	Feature
3	0	76.41	0.04	77.15					T
5	8.03	76.18	7.75	77.06	11.56	78.77			T
7	19.48	76.13	19.37	76.85					T
9	24.01	76.2	23.83	76.75					T
11	31.21	76.06	31.39	76.67					T
13	37.76	75.12	35.11	76.58					TP
15	46.04	73.73	56.92	76.55					TM
17	57.3	75.28	74.47	76.58	66.85	77.64	67.59	77.95	T
19	74.88	75.94	98.1	76.14	81.94	78	86.4	77.47	TR
23	95.08	75.38	101.07	75.98					T
21	99.33	76.05	108.48	75.83					LV
26	109.32	73.94	116.34	75.89	105.09	78.02			TM
28	115.13	74.83	128.56	75.86					T
30	122.06	74.61	136.9	75.86	121.47	77.61			TU
31	123.29	75.62	143.49	75.86					T
32	129.1	73.48	150.82	75.9			129.02	76.91	TP
34	134.72	73.03	164.66	75.91					TM
36	142.44	74.02	175.27	75.73					T
38	150.2	74.8	188.1	75.49					T
40	154.88	73.72	192.23	75.46			154.76	76.83	T
41	164.65	74.99	193.24	75.46	160.31	77.2			TR
43	175.36	74.9	202.94	75.48					T
45	187.32	74.49	209.96	75.47					TU
48	191.48	73.61	219.35	75.46					TP
50	193.4	72.93	223.67	75.37					T
52	200.81	72.25	238.94	75.24	202.93	77.14	205.78	76.57	TM
54	210.03	73.54	249.76	74.85					T
56	219.35	74.78	253.24	74.73					T
58	222.58	74.83	262.96	74.7					TR
60	238.97	74.42	270.97	74.65	235.87	76.84	244.73	76.38	T
62	249.29	74.73	279.07	74.6					LV
65	249.55	74.64	286.74	74.36					T
66	253.61	73.39	288.56	74.23					TM
68	263.08	73.68	294.77	74.22					T
70	270.8	73.9	303.95	74.2	274.96	75.38			T
72	278.57	73.92	307.44	74.22					TR
74	285.78	73.87	314.69	74.23					TU
76	288.73	73.48	322.34	74.2	291.91	74.99			T
78	296.13	71.49	328.6	74.18					T
80	301.33	71.28	339.67	73.91					TM
82	315.59	72.18					318.2	76	T
84	322.58	72.99							T
86	327.78	73.7							TR
88	339.67	73.24			347.67	75.96	334.63	75.41	TU

2002 Survey
Conducted by S&EC, PA, Inc
***** Previous stationng adjusted downstream by:*** ***33***
**** Previous surveys elevations adjusted down by:*** ***20.39***

Original Station	Original TW Elevation	Notes	Adjusted Station**	Adjusted TW Elevation*
-30	96.45	TWRI	3	76.06
5	96.09	TWR	38	75.7
18	94.35	TWP	51	73.96
24	95.15	TWG	57	74.76
57	95.85	TWR	90	75.46
69	96.25	TOP Vane	102	75.86
77	94.25	TWP	110	73.86
85	95.67	TOP Vane	118	75.28
103	93.31	TWP	136	72.92
111	94.13	TWG	144	73.74
118	94.71	TWRI	151	74.32
124	94.03	TWP	157	73.64
141	95.01	Riffle X-Sec	174	74.62
157	94.35	TWR	190	73.96
172	93.05	TWP	205	72.66
183	94.27	TWG	216	73.88
192	94.83	TWR	225	74.44
210	94.21	TWR	243	73.82
217	94.85	TOP Vane	250	74.46
221	93.21	TWP	254	72.82
226	93.83	TWG	259	73.44
252	93.91	TOP Vane	285	73.52
268	91.63	TWP	301	71.24
275	92.5	Pool X-Sect	308	72.11
286	92.91	TWG	319	72.52
298	93.69	TWRI	331	73.3
305	93.31	TOP Vane	338	72.92

2001 Survey
Conducted by K-H & Assoc., Inc

Original Station	Original TW Elevation	Notes	Adjusted Station**	Adjusted TW Elevation*
0	96.41		33	76.02
6	95.97		39	75.58
15	94.58	nter of pool,	48	74.19
24	95.43		57	75.04
33	95.65		66	75.26
46	96.06		79	75.67
57	95.98		90	75.59
68	96.22	top of log	101	75.83
69	94.93	d/s log	102	74.54
69	94.18	scour pool	102	73.79
78	94.86		111	74.47
81	95.46	op of log va	114	75.07
85	94.68		118	74.29
92	94.62		125	74.23
104	93.83	pool	137	73.44
108	94.72	top of glide	141	74.33
116	94.48		149	74.09
129	94.79	top of riffle	162	74.4
135	95.02		168	74.63
140	94.93	enter of poo	173	74.54
141	95.01	riffle	174	74.62
156	94.57	riffle/begin	189	74.18
162	93.69	l run/begin	195	73.3
175	93.53	pool	208	73.14
186	94.42	pool/begin	219	74.03
192	94.67		225	74.28
198	94.63		231	74.24
215	94.55	u/s log	248	74.16
219	94.86		252	74.47
221	93.42	top of log	254	73.03
222	93.47	scour pool	255	73.08
228	94.17	riffle	261	73.78
241	93.75	run	274	73.36
256	94.02	op of log va	289	73.63
258	93.27	d/s log	291	72.88
260	93.27		293	72.88
284	92.61	pool	317	72.22
290	93.23	glide	323	72.84
300	93.98	riffle	333	73.59
302	93.77	riffle	335	73.38
306	93.46	top of log	339	73.07

2000 As-built
Conducted by K-H & Assoc., Inc

Longitudinal Profile - Jumping Run Area 1				
Alexander County, NC			Adjusted	Adjusted
Station	TW	Notes	Station**	levation*
0	96.4	riffle	33	76.01
6	95.95		39	75.56
15	94.55	r of pool (trib	48	74.16
24	95.45		57	75.06
33	95.9		66	75.51
46	96		79	75.61
57	96		90	75.61
68	96.25	p of notch in	101	75.86
69	94.55		102	74.16
80	95.3	logvane	113	74.91
83	94.85	below logvane	116	74.46
94	94.5	begin pool	127	74.11
106	94.4		139	74.01
118	94.7	of pool/begin	151	74.31
131	94.8		164	74.41
137	95.15	top of riffle	170	74.76
142	94.95	center of riffle	175	74.56
143	94.9	xsection riffle	176	74.51
154	94.8	d riffle/begin	187	74.41
160	93.8	d run/begin p	193	73.41
173	93.5	center of pool	206	73.11
184	94.3	end pool	217	73.91
190	94.8		223	74.41
196	94.8		229	74.41
213	94.55		246	74.16
219	94.9	p of notch in	252	74.51
220	93.55		253	73.16
226	94.05		259	73.66
239	93.9		272	73.51
256	94.1	top of log vane	289	73.71
258	93.55		291	73.16
282	92.6	er of pool/xsec	315	72.21
288	92.8		321	72.41
298	93.75		331	73.36
300	94.05	top of riffle	333	73.66
304	94.05	center of riffle	337	73.66

Project Name Jumping Run
Task Longitudinal Profile
Section: Area #4
Date 6/1/04
Crew Shaffer, Bidelspach, Clinton

Symbol Key

T	Thalweg
TR	Head of Riffle
TP	Head of Pool
TU	Head of Run
TM	Max Pool

2004 Survey*

TW Station	TW Elev	WS Station	WS Elev	BKF Station	BKF Elev	Feature	Adjusted elev. TW	WS	B
3.48	70.19	0.8	71.29	174.25	72.47	P	70.19	71.29	72.47
9.23	69.64	8.22	71.28	184.47	74.59	M	69.64	71.28	74.59
46.52	70.7	22.98	71.3	207.1	74.44	T	70.7	71.3	74.44
67	70.23	43.72	71.23	258.13	73.12	T	70.23	71.23	73.12
89.82	70.7	69.54	71.19	315.03	72.57	T	70.7	71.19	72.57
106.83	70.9	93.68	71.14	344.77	72.88	R	70.9	71.14	72.88
123.31	70.05	106.44	71.28	378.45	75.94	P	70.05	71.28	72.14
133.9	69.03	126.68	70.87	403	73.55	M	69.03	70.87	73.55
162.69	70.88	136.03	71.1	405.4	74.7	LOG	70.88	71.1	74.7
163.11	70.12	161.66	71.04	405.48	74.42	T	70.12	71.04	74.42
187.46	66.4	162.86	70.52	432.02	73.97	P	70.2	70.52	73.97
198.02	73.99	197.41	66.73	458.85	74.53	M	70.19	70.53	74.53
209.41	66.31	210.93	66.66			M	70.11	70.46	
224.8	65.61	224.93	66.35			M	69.41	70.15	
231.31	65.23	236.88	66.43			R	69.03	70.23	
266.89	69.55	267.92	70.17			R	69.55	70.17	
296.19	69.36	296.05	70.15			P	69.36	70.15	
316.52	70.11	316.8	70.47			P	70.11	70.47	
349.78	68.85	351.1	69.96			T	68.85	69.96	
365.01	68.5	365.52	69.63			T	68.5	69.63	
380.96	69.11	381.87	69.63			R	69.11	69.63	
392.94	68.85	425.84	69.49			P	68.85	69.49	
426.08	68.84	459.78	69.4			M	68.84	69.4	
456.86	68.52					R	68.52		
						U			
						T			
						T			

2004 Survey* * 2004 elev adjusted up by 2.50 ft

2003 TW Station	TW Station	TW Elev	WS Station	WS Elev	BKF Station	BKF Elev	Feature
0	0.5	71.2	0.39	71.22	26.3	71.89	Tr
2.78	12.35	70.75	6.72	71.22	31.8	72.36	T
6.4	24.29	70.65	12.31	71.16	42.3	71.82	T
15.44	38.39	70.56	24.76	71.26	50.1	71.71	T
22.85	51.88	70.29	38.76	71.15	53.3	72.94	T
31.78	64.39	70.43	52.07	71.1	62.4	72.17	T
55.4	76.47	70.38	63.95	71.14	65.7	73.08	TP
67.18	90.64	70.32	76.17	71.06	76.4	72.58	T
90.59	105.64	70.96	93.89	71.16	93.7	72.33	T
109.36	116.9	70.54	105.39	71.09	94.3	71.89	TR
124.92	125.54	69.99	116.24	70.83	102	71.71	T
133.19	131.99	68.96	122.44	70.87	118	71.73	TP
136.92	141.3	69.03	131.78	70.67	124	72.27	T
149.61	148.56	70.55	141.87	70.85	145	71.62	T
163.05	159.9	70.63	148.92	70.84	151	71.5	T
175.98	163.27	69.87	159.88	70.76	173	71.66	TP
192.57	172.82	69.75	162.61	70.36	208	71.47	T
205.89	210.38	70.04	172.08	70.17	213	70.91	T
210.84	226.2	69.25	210.65	70.26	223	70.77	TR
225.48	233.33	69.01	225.04	70.14	233	71.96	TP
231.14	244.36	68.76	233.13	70.13	245	71.46	T
240.41	259.16	69.61	244.16	70.15	265	71.03	T
261.35	276.17	69.56	259.34	70.1	278	70.56	T
286.24	309.54	69.37	275.74	70.12	306	71.26	T
295.62	318.17	69.69	309.73	70.13	318	71.15	T
322.04	319.27	69.82	319.24	69.98	341	70.48	TR
337.61	339.44	69.29	338.92	69.68	343	70.93	T
347.45	353.08	68.62	351.84	69.63	374	70.59	T
353.96	353.18	68.64	351.89	69.58	375	70.35	TP
358.45	355.53	68.68	355.26	69.66	393	71.35	T
372.09	362.44	68.92	363.98	69.64	394	70.31	T
381.61	377.4	68.73	378.28	69.6	422	70.52	T
391.62	388.07	69.08	387.81	69.68	426	70.94	T
396.52	396.26	68.58	395.5	69.58	446	70.61	T
415.8	401.11	68.83	401.81	69.63	446	70.88	T
	415.44	68.86	415.81	69.6			
	438.05	68.81	437.26	69.37			
	448.2	68.79	449.77	69.49			
	462.24	68.81					

2003 Survey

TW Shot number	TW Station	TW Elev	WS Station	WS Elev	LBKF Station	LBKF Elev	RBKF Station	RBKF Elev	Feature
164	0	71.42	0.61	71.65					T
166	2.78	70.37	1.31	71.64	3.46	73.65			TP
168	6.4	69.14	7.48	71.63					TM
170	15.44	71.17	14.22	71.63			16.64	73.16	T
172	22.85	70.91	23.8	71.55					TR
174	31.78	70.52	32.1	71.52	28.56	73.56			TU
176	55.4	70.32	54.89	71.51			42.59	73.29	T
178	67.18	70.06	66.87	71.47			72.22	73.31	TM
180	90.59	70.51	91.39	71.45	85.12	72.95			T
182	109.36	71.02	109	71.42			105.84	72.4	TR
184	124.92	70.37	125.01	71.23	124.62	72.97			TU
186	133.19	69.35	132.17	71.19					TP
188	136.92	68.7	136.81	71.19					TM
190	149.61	70.45	148.63	71.23			147.89	72.47	T
194	163.05	70.11	161.08	71.15			166.05	72.52	T
196	175.98	70.15	175.39	70.69	170.09	72.71			T
198	192.57	69.74	193.51	70.64					TM
200	205.89	70.13	204.66	70.65	200.85	73.38			T
202	210.84	70.25	210.49	70.66			215.04	72.24	TR
204	225.48	69.58	219.77	70.38					TP
206	231.14	68.81	224.16	70.35			228.86	71.96	TM
208	240.41	69.22	229.8	70.35	243.35	71.36	244.44	72.28	T
210	261.35	69.58	241.18	70.35	270.91	71.77			T
212	286.24	69.65	261.39	70.33	286.75	72.24	289.63	71.79	T
214	295.62	69.59	286.99	70.37					T
216	322.04	70.1	295.99	70.38	319.95	72.5			TR
218	337.61	69.53	321.79	70.32			333.6	71.83	TU
220	347.45	68.96	337.08	70.09					TP
222	353.96	68.74	346.93	69.94					TM
224	358.45	69.15	353.53	69.93	359.48	71.43			T
226	372.09	69.18	358.78	69.89					T
228	381.61	69.26	374.01	69.84					TR
230	391.62	69.13	383.1	69.82			387.77	71.36	T
232	396.52	68.8	391.75	69.8					T
234	415.8	68.99	396.74	69.82	402.03	71.6			T
			415.48	69.74					

2002 Survey
Conducted by S&EC, PA, Inc
** Previous stationng adjusted downstream 0
* Previous surveys Elevs adjusted down by:28.53

Original Station	Original TW Elev	Notes	Adjusted Station	Adjusted TW Elev
-20	99.9	TW	-20	71.34
0	99.7	TWR	0	71.16
11	98.5	TWP	11	69.96
21	99.4	TWG	21	70.82
42	99.2	TWR	42	70.7
53	99.3	TWR	53	70.8
59	98.5	TWP	59	69.92
78	99.2	TWG	78	70.66
96	99	TWR	96	70.44
118	99.3	TWR	118	70.74
133	98	TWP	133	69.5
147	98.7	TWG	147	70.2
157	98.3	TWS	157	69.74
167	99.5	p of Log V	167	70.92
172	98.3	TWS	172	69.76
186	98.5	TWRI	186	70
197	98	TWP	197	69.44
210	98.4	TWG	210	69.88
219	98.8	TW	219	70.28
224	98.5	Riffle X-sec	224	69.96
236	97.1	TWP	236	68.56
245	97.7	TWR	245	69.2
263	98	TWR	263	69.48
280	97.9	TWR	280	69.32
291	97.3	TWP	291	68.72
314	98.1	TWG	314	69.58
328	98.2	TWRI	328	69.7
342	97.6	TWR	342	69.08
358	96.9	TW	358	68.4
360	97.2	-Pool X-sec	360	68.64
370	97.9	TWG	370	69.34
385.10535	98.2	TWRI	385	69.66
400.25466	97.6	TWR	400	69.02
426.0925	97.4	TWP	426	68.86
439.55559	97.7	TWG	440	69.12
452.61154	98	TWRI	453	69.42

2001 Survey
Conducted by K-H & Assoc., Inc

Original Station	Original TW Elev	Notes	Adjusted Station	Adjusted TW Elev
2	100		2	71.47
6	98.7		6	70.14
8	98.4		8	69.89
11	98.5		11	69.96
15	99.4	pool	15	70.86
17	99.4		17	70.85
19	99.6		19	71.1
31	99.1	begin run	31	70.55
42	99.3		42	70.81
57	98.4	f pool, rooty	57	69.84
64	98.4	enter of poo	64	69.87
69	99.2	start glide	69	70.67
73	99.5		73	71
82	99.2		82	70.62
95	99.1	middle glide	95	70.6
110	99.5	end glide	110	70.96
119	99.4		119	70.86
114	99.4	riffle	114	70.9
127	99.2	de bend/end	127	70.66
132	98.6	begin pool	132	70.1
136	98.6	enter of poo	136	70.05
141	98.2	dge of pool	141	69.65
146	99		146	70.43
149	98.8	begin glide	149	70.25
156	98.6	enter of glid	156	70.04
162	99.3	riffle	162	70.79
167.5	99.6	p of log not	167.5	71.02
170.5	98.5		170.5	69.95
172.5	98.5		172.5	69.98
174.5	98.5		174.5	70
179.5	98.7		179.5	70.21
183.5	98.9		183.5	70.35
189.5	98.6		189.5	70.07
193.5	98.5	pool	193.5	69.99
196.5	97.9	center of po	196.5	69.35
199.5	97.5	rsimmon tr	199.5	68.95
208.5	98.7		208.5	70.21
211.5	98.9	begin glide	211.5	70.35
214.5	99	top of riffle	214.5	70.43
224.5	98.8	xsection rif	224.5	70.27
226.5	98.6	end riffle	226.5	70.1
233.5	97.6	end run/beg	233.5	69.04
238.5	97.5	center of po	238.5	68.97
240	97.9	end pool/be	240	69.39
250	98.2	glide	250	69.68
259	97.8	persimmon	259	69.24
266	98.1		266	69.55
273	98.1		273	69.6
278	97.7		278	69.17
285	97.5	center of po	285	69
293	98		293	69.49
298	98.4		298	69.84
300	98.4	holly tree	300	69.89
311	98.3		311	69.8
316	98.4		316	69.85
323	98.5	begin run	323	69.93
331	98.4	center run	331	69.89
341	98	end run/beg	341	69.48
350	97.6	erosion	350	69.05
353	97.4	xsection po	353	68.87
357	97.9	end pool/be	357	69.33
369	98.4	end glide/b	369	69.89
377	98.5	begin riffle	377	69.96
385	98.2	begin run	385	69.69
390	98	run	390	69.45
393	97.9	run	393	69.37

2000 As-built
Conducted by K-H & Assoc., Inc

Longitudinal Profile - Jumping Run Area 4 Alexander County, NC Station	TW	Notes	Station	Elev
Station	TW	Notes	Adjusted	Adjusted
0	100		0	71.47
4	99.95	p of rock va	4	71.42
6	98.95		6	70.42
9	97.9		9	69.37
13	98.3		13	69.77
15	98.8		15	70.27
17	99.3		17	70.77
29	99.4		29	70.87
40	99.45		40	70.92
55	99.45		55	70.92
62	99		62	70.47
67	98.4		67	69.87
71	99.15		71	70.62
80	99.15		80	70.62
93	98.85		93	70.32
101	99.2		101	70.67
110	99.45		110	70.92
118	99.35		118	70.82
123	99.35		123	70.82
128	99		128	70.47
132	98.35		132	69.82
137	98.5		137	69.97
142	98.3		142	69.77
145	98.9		145	70.37
152	98.7		152	70.17
158	98.85		158	70.32
162	99.3		162	70.77
167.5	99.45	r of notch i	167.5	70.92
169	98.6	d/s log	169	70.07
178	98.55		178	70.02
184	98.7		184	70.17
188	98.65		188	70.12
194	98.3		194	69.77
198	97.45		198	68.92
206	98.35		206	69.82
211	98.80		211	70.27
215	98.9		215	70.37
224	98.5	xsection at	224	69.97
227	98.45		227	69.92
231	97.75		231	69.22
237	97.5		237	68.97
241	97.8		241	69.27
248	97.9		248	69.37
255	97.95		255	69.42
265	97.75		265	69.22
270	98.15		270	69.62
277	97.85		277	69.32
280	97.4		280	68.87
284	97.5		284	68.97
289	97.95		289	69.42
294	98.05		294	69.52
299	98.4		299	69.87
300	98.35		300	69.82
310	98.35		310	69.82
320	98.4		320	69.87
330	98.35		330	69.82
337	97.7		337	69.17
345	98		345	69.47
347	97.3		347	68.77
350	97.15		350	68.62
355	97.3	pool xsectio	355	68.77
363	98.05		363	69.52
368	98.35		368	69.82
377	98.4		377	69.87
383	98.2		383	69.67
387	98		387	69.47
395	97.9		395	69.37