Valley Fields Farm Stream Restoration Project

Monitoring Report: Year 03

Davidson County, North Carolina
Upper Yadkin River Basin
Cataloging Unit 030401030
EEP Project ID #407

Prepared for:

North Carolina Department of Environment and Natural Resources
Ecosystem Enhancement Program
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Monitoring Firm:

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Project No: 16133830

January 2014

Design Firm:

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1.0 EXECUTIVE SUMMARY

1.1 INTRODUCTION

The Valley Fields Farm (VFF) stream and wetland restoration project comprises 10,071 linear feet of stream restoration and 8,730 linear feet of stream preservation with approximately 3.1 acres of wetland restoration and 7.2 acres of wetland enhancement/preservation. Site construction was completed in June 2008 and plantings were completed in December 2008. This report represents the 3rd year of monitoring data collection.

1.2 PROJECT LOCATION

The project is within USGS Hydrologic Cataloging Unit (HUC) 03040103030030 of the Yadkin River Basin. This 14-digit HUC has been identified as a Targeted Local Watershed (TLW) by EEP's *Upper Yadkin River Basin Restoration Priorities Plan 2009*. The project is in Davidson County approximately four miles northwest of High Point and located off of Shadow Valley Road.

1.3 PROJECT DESCRIPTION

The restoration of the Valley Fields Farm Site offers an opportunity to add functional stream and wetland uplift to the Yadkin River Basin. The project goals include the following:

- Preserve stable on-site streams, wetlands, and riparian buffers in catchments draining into the primary enhancement/restoration reaches
- Enhance and restore (pattern, dimension, and profile) unstable streams using natural channel design techniques
- Improve water quality of non-point source storm water through Best Management Practices

These goals will be accomplished through implementation of the following objectives:

- Installing in-stream structures such as rock vanes, log vanes, and constructed riffles
- Removing invasive vegetation
- Removing crowns from wetland areas and reconnecting the floodplain by raising the streambed and/or lowering the floodplain
- Re-establishing a riparian buffer

2.0 MONITORING RESULTS

The survey data were collected with a survey-grade GPS unit between December 4 and 6, 2013. The stationing for the longitudinal profile is based on the thalweg stationing and has been adjusted to match grade control structures from previous longitudinal profiles.

The CVS-EEP protocol, Level 2 (http://cvs.bio.unc.edu/methods.htm) was used to collect vegetation data from the site. The vegetation monitoring was completed on August 1, 2013.

2.1 HYDROLOGY

Four automatic recording groundwater gauges were installed to monitor soil saturation within the upper 12 inches and any surface ponding within the wetland area of the site. Daily data were collected from the automatic gauges over the growing season to ensure that the water table was within 12 inches of the surface for a minimum of 7.5% of the growing season (18 days). While there were four Infinity groundwater gauges installed on the site at the beginning of the growing season, the data on these gauges could not be collected due to gauge malfunctions. Four new Remote Data Systems gauges were installed in their place on September 23, 2013. Because of this switch, groundwater monitoring for the site only occurred for 45 days (21%) of the growing season and none of the wells showed hydrology meeting the success criteria within this limited monitoring time frame.

2.2 VEGETATION

The vegetation monitoring success criterion for the planted stream riparian zone is a density of 320 stems per acre after the third year of monitoring and an allowance for 10% mortality in the fourth and fifth years with a final density of 260 stems per acre. The third-year vegetation monitoring was based on the Level 2 CVS-EEP vegetation monitoring protocol. There are eighteen permanent vegetation monitoring plots within the site. The corner stakes of all but six (B2, B3, B6, B7, C1, D1) of the eighteen plots were unable to be located with a metal detector and Trimble GEO XT GPS unit and so their corner stakes were reinstalled using the Trimble and 250-foot measuring tapes to properly lay them out. Additionally, Plot A1 was under approximately 1.5 feet of water due to backwater created by a beaver dam on the main stem and the corners were unable to be located or securely reinstalled. Because the significant amount of backwater on the floodplain had killed all but a few of the woody stems in the area around Plot A1, monitoring of this plot did not occur for the current monitoring year. The beaver dam has since been removed, however, and although the original corner stakes could not be located during the end of year site walk in December 2013, new corners will be installed in the same manner as the other plots for Monitoring Year Four.

The site's average density for this monitoring period is 283 planted stems per acre. There are many volunteer woody stems throughout the site. Including volunteers, the monitoring plots averaged 1,242 total stems per acre. Eleven of the eighteen plots had a planted stem density of less than 320 stems per acre but of those eleven, only two had a total stem density (including volunteers) of less than 320 stems per acre. Invasives do not represent a problem within the site, although isolated patches of multiflora rose (*Rosa multiflora*), Callery pear (*Pyrus calleryana*), broadleaf cattail (*Typha latifolia*), sweet autumn clematis (*Clematis terniflora*), and Japanese stiltgrass (*Microstegium vimineum*) occur. On the CCPV in Appendix B, *P. calleryana* and *T. latifolia* are represented by two polygons within wetland A-5 (*T. latifolia* is the polygon further from the stream). On the left bank around Station 82+00, *C. terniflora* is represented by a polygon bordering the easement. All other polygons represent *R. multiflora*. Additionally, during the end of year site walk in December, it was noted that vegetation was being cut within the easement on both banks from the beginning of Reach B to approximately Station 1520+00. EEP was notified of this cutting.

2.3 STREAM

Third-year monitoring found Valley Fields Farm to be stable, with only minor changes from the previous monitoring conditions. Three beaver dams were noted within the site during an end of year site walk in December : one dam on Reach Upper A2 (STA ~67+60, no longer impounding water), another on Reach Lower A (STA ~95+40), and a final one just past the end of Reach Lower A (STA ~100+00). Additionally, several other beaver dams were removed from the site on September 3, 2013. Reaches A and B both show the effects of these beaver dams along their lengths and have significant amounts of sediment deposition within the stream channel, causing aggradation and a lack of bedform features within the stream. This aggradation has led to a number of structures being noted as missing along both of these reaches. Additionally, beaver dam impoundment has led to areas of bank scour and erosion along the entire stream and in several spots has led to a movement of the stream centerline away from the location documented in the as-built plans. Please see Appendix B Stream Problem Area Photos. These areas will continue to be watched closely in Monitoring Year Four. The longitudinal and cross-section data reflect the overall stability of the site despite the problems caused by the beaver. Four of the nine cross-sections along Reach A show stream bed aggradation ranging from 0.5 to 2.0 feet as compared to Monitoring Year Two data. The longitudinal profile shows similar levels of aggradation within Upper A and Lower A but as a whole the site has experienced little change compared to the Monitoring Year Two data. As a part of the stream success criteria, the stream must experience at least two bankfull events, each in separate monitoring years. The site has experienced multiple bankfull events since construction, but due to the extensive backwater created by the beaver dams on the site, none were recorded during Monitoring Year Three. Summary information/data related to the occurrence of items such as beaver or encroachment and statistics related to performance of various project and monitoring elements can be found in the tables and figures in the report appendices. Stream centerlines for tributaries D through N provided by EEP. Narrative background and supporting information formerly found in these reports can be found in the Baseline Monitoring Report and in the Mitigation Plan (formerly the Restoration Plan) documents available on the EEP's website. All raw data supporting the tables and figures in the appendices are available from EEP upon request.

3.0 REFERENCES

Lee, M.T., R.K. Peet, S.D. Roberts, and T.R. Wentworth. 2006. CVS-EEP Protocol for Recording Vegetation, Version 4.0 (http://cvs.bio.unc.edu/methods.htm)

NCEEP. 2009. Upper Yadkin River Basin Restoration Priorities. (http://portal.ncdenr.org/c/document_library/get_file?uuid=7f49dbf7-ac1f-4d56-83d6-8ab892d5c672&groupId=60329)

USACE. 2003. Stream Mitigation Guidelines. USACE, NCDENR-DWQ, USEPA, NCWRC.

APPENDIX A – PROJECT VICINITY MAP AND BACKGROUND TABLES

FIGURE 1. SITE VICINITY MAP

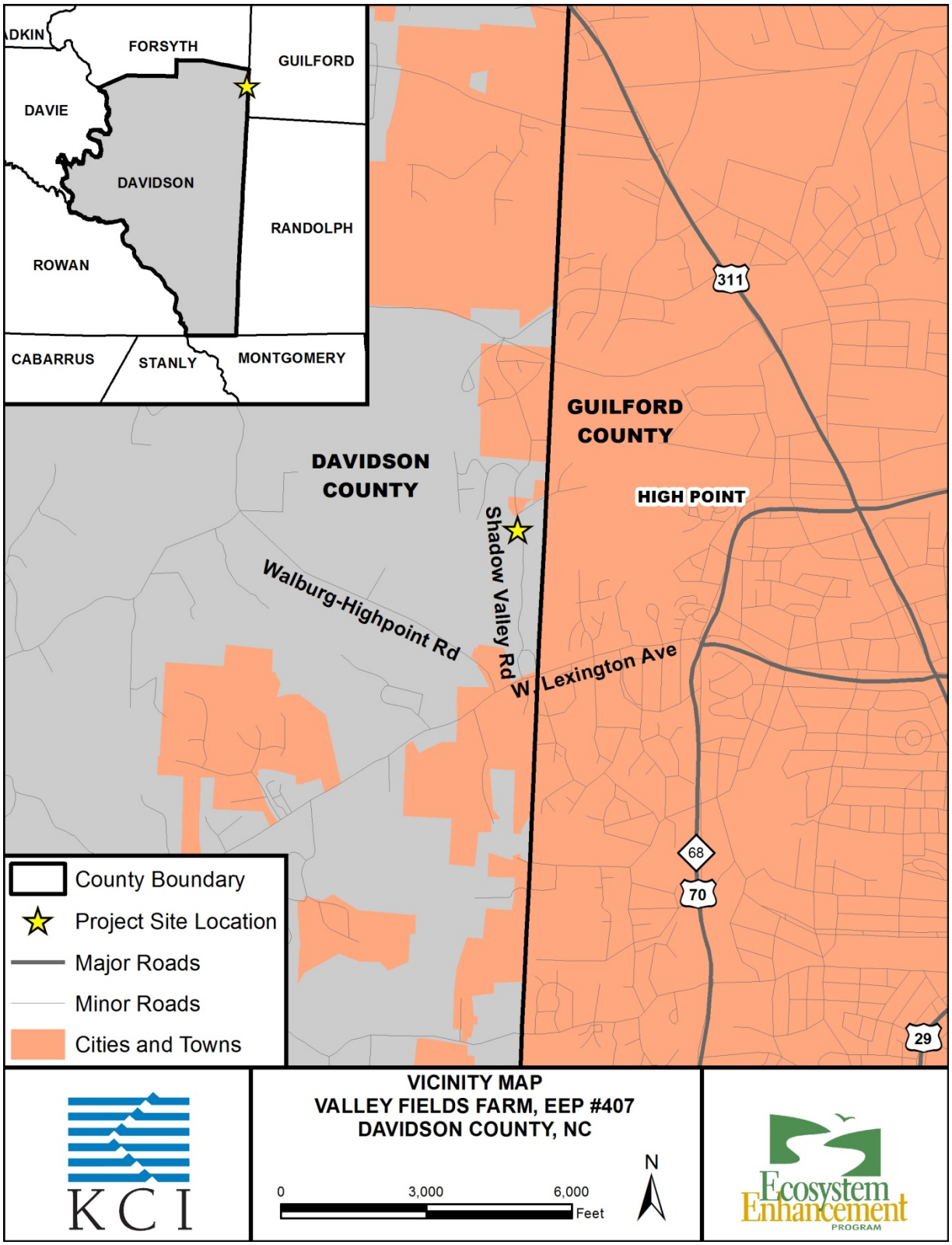


FIGURE 2. MITIGATION PLANVIEW

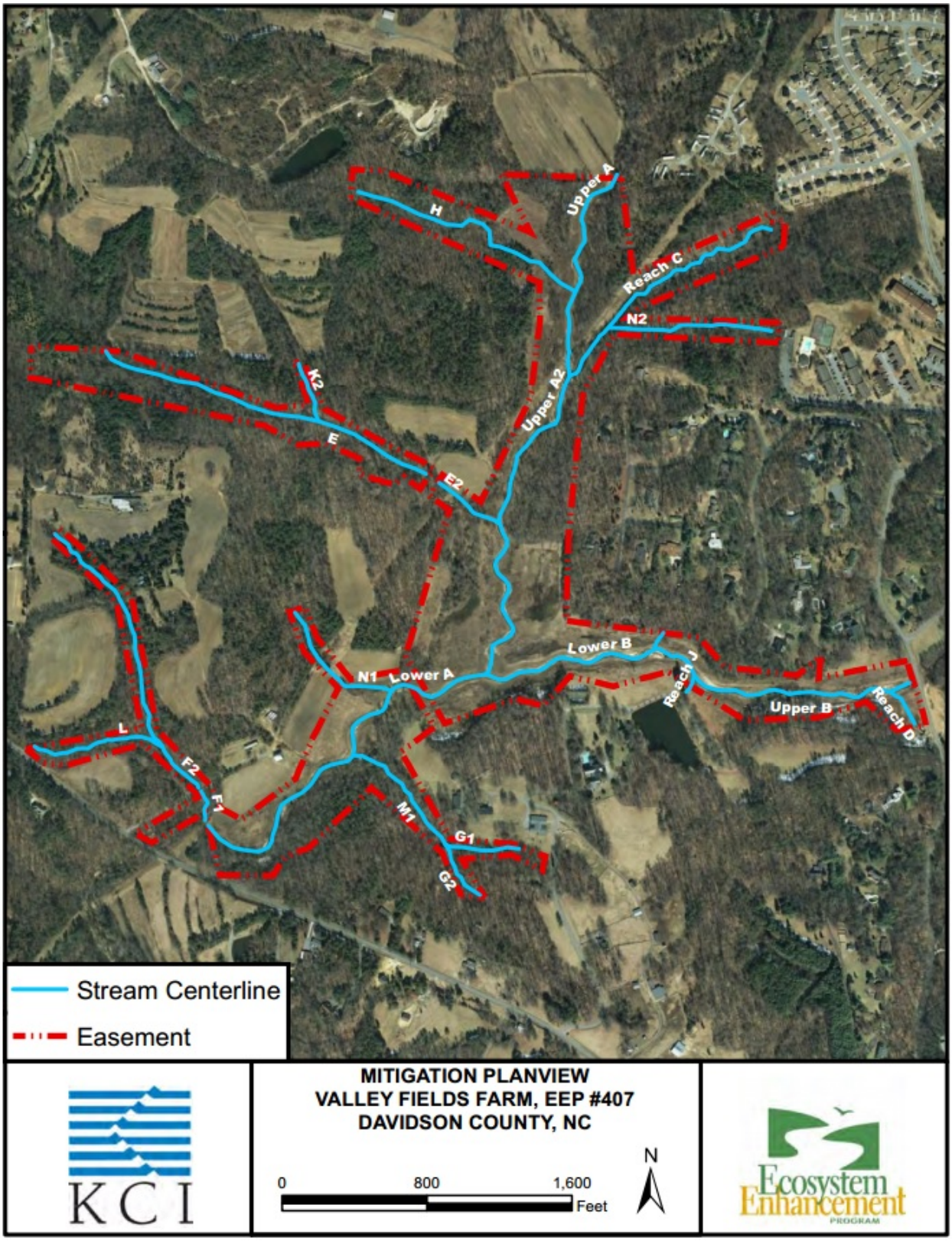


TABLE 1. PROJECT COMPONENTS

Mitigation Credits									
	Stream		Riparian Wetland		Non-riparian Wetland		Buffer	Nitrogen Nutrient Offset	Phosphorous Nutrient Offset
Type	R	RE	R	RE	R	RE			
LF/Acres	10,071	8,730	3.1	7.2	-	-	-	-	-
Credits	10,071	1,746	3.1	2.8	-	-	-	-	-
TOTAL CREDITS	11,817		5.9		-		-	-	-

Project Components						
Project Component - or - Reach ID	**Stationing/ Location**	**Existing Footage/ Acreage**	**Approach (PI, PII, etc.)**	**Restoration - or - Restoration Equivalent**	**Restoration Footage or Acreage**	**Mitigation Ratio**
Upper A	50+00 – 80+78	3,100	P2	Restoration	3,078	1:1
Lower A	80+78 – 100+13	2,284	P2	Restoration	1,935	1:1
Reach B	1500+00 – 1524+92	2,550	P2	Restoration	2,492	1:1
Reach C	1000+00 – 1014+89	1,560	P1	Restoration	1,489	1:1
Reach D	200+00 – 202+95	240	P1	Restoration	295	1:1
Reach J (Pond Tributary)	350+00 – 350+61	61	P2	Restoration	61	1:1
Reach A	100+13 – 102+89	276	-	Restoration	276	1:1
Reach E	-	2,930	-	Preservation	2,930	5:1
Reach F	-	1,840	-	Preservation	1,840	5:1
Reach G	-	1,200	-	Preservation	1,200	5:1
Reach H	-	1,400	-	Preservation	1,400	5:1
Reach K	-	240	-	Preservation	240	5:1
Reach L	-	700	-	Preservation	700	5:1
Reach M	-	420	-	Preservation	420	5:1
Wetland A-5	-	-	-	Restoration	3.00	1:1
Wetland A-4	-	-	-	Restoration	0.10	1:1
Wetland B-1	-	0.10	-	Enhancement	0.10	2:1
Wetland B-2	-	0.70	-	Enhancement	0.40	2:1
Wetland B-3	-	0.20	-	Enhancement	0.08	2:1
Wetland D-1	-	0.20	-	Enhancement	0.20	2:1
Wetland A-6	-	1.70	-	Enhancement	1.70	2:1
Wetland A-4	-	1.80	-	Enhancement	1.80	2:1
Wetland A-3	-	0.20	-	Enhancement	0.20	2:1
Wetland A-1	-	0.60	-	Preservation	0.60	5:1
Wetland A-2	-	0.50	-	Preservation	0.50	5:1
Wetland A-7	-	0.40	-	Preservation	0.40	5:1
Wetland A-8	-	1.20	-	Preservation	1.20	5:1

Component Summation						
Restoration Level	**Stream (linear feet)**	**Riparian Wetland (acres)**		**Non-riparian Wetland (acres)**	**Buffer (acres)**	**Upland (acres)**
		Riverine	Non-riverine			
Restoration	10,071	3.1	-	-	-	-
Enhancement		4.5	-	-	-	-
Enhancement I	-					
Enhancement II	-					
Creation		-	-	-	-	-
Preservation	8,730	2.7	-	-	-	-
High Quality Preservation	-	-	-	-	-	-
TOTAL	18,801	10.3	-	-	-	-

TABLE 2. PROJECT ACTIVITY AND REPORTING HISTORY

Elapsed Time Since Grading Complete: 5 yrs 7 months
Elapsed Time Since Planting Complete: 5 yrs 7 months
Number of Reporting Years: 1

Activity or Report	**Data Collection Complete**	**Actual Completion or Delivery**
Mitigation Plan	N/A	3/1/2006
Final Design – Construction Plans	N/A	1/31/2007
Construction	N/A	5/16/2008
Planting	N/A	5/16/2008
Repair	N/A	11/15/2008
Baseline Monitoring/Report	6/1/2009	8/17/2009
Year 1 Monitoring	10/15/2010	3/28/2011
Year 2 Monitoring	11/4/2010	12/15/2011
Year 3 Monitoring	12/6/2013	1/23/2014
Year 4 Monitoring		
Year 5 Monitoring		

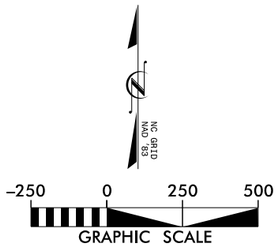
TABLE 3. PROJECT CONTACTS

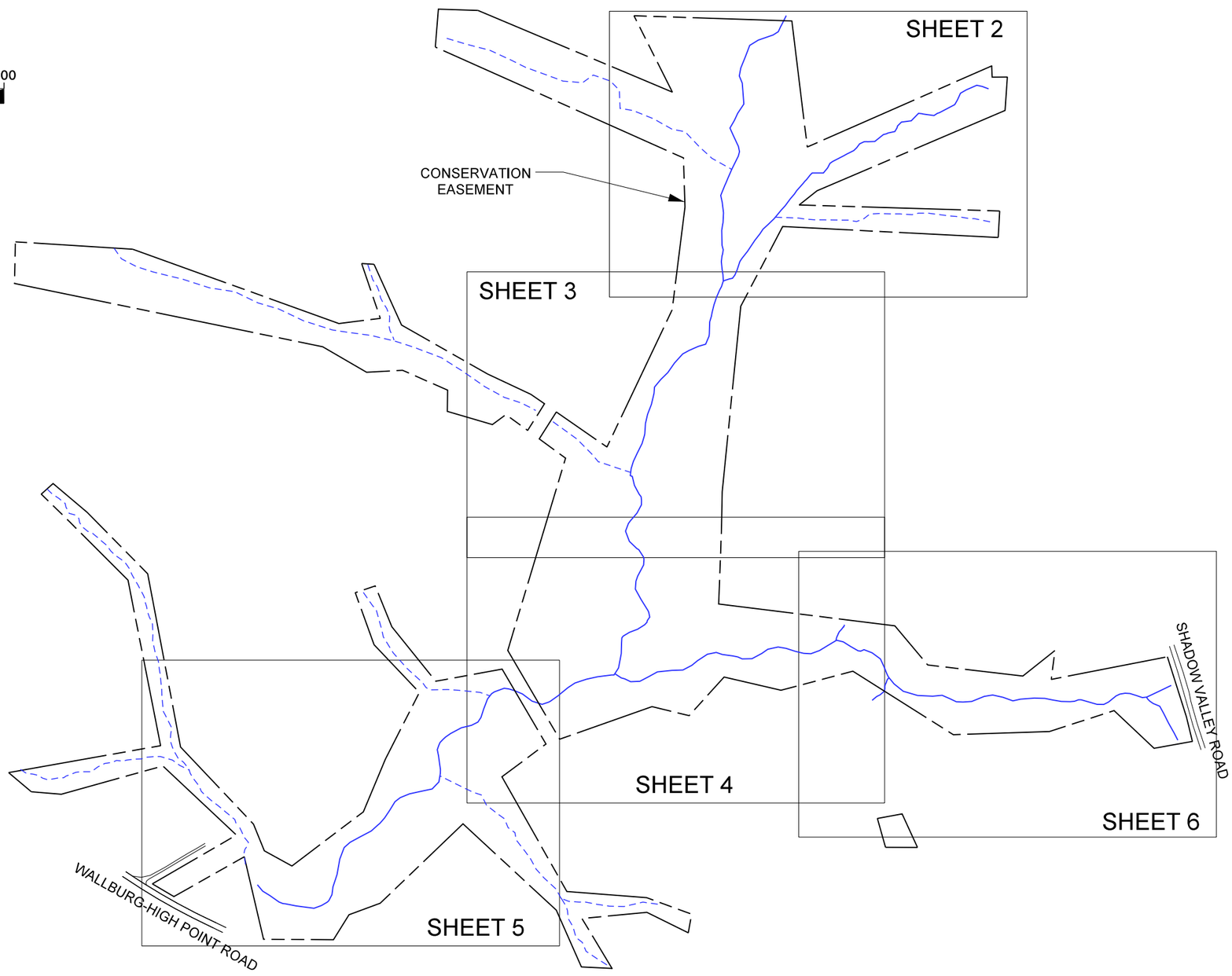
Design Firm	Kimley-Horn and Associates, Inc. P.O. Box 33068 Raleigh, North Carolina 27636 Phone: (704)333-5131
Construction Contractor	North State Environmental 2889 Lowery Street Winston-Salem, NC 27101 Phone: (336)725-2010
Planting Contractor	North State Environmental 2889 Lowery Street Winston-Salem, NC 27101 Phone: (336)725-2010
Monitoring Performers	
MY01-02	Kimley-Horn and Associates, Inc. P.O. Box 33068 Raleigh, North Carolina 27636 Phone: (704)333-5131
MY03	KCI Associates of North Carolina, PA Landmark Center II, Suite 220 4601 Six Forks Rd. Raleigh, NC 27609 Contact: Mr. Adam Spiller Phone: (919) 278-2514 Fax: (919) 783-9266

TABLE 4. PROJECT ATTRIBUTE TABLE

Project County	Davidson County					
Physiographic Region	Piedmont					
Ecoregion	Southern Outer Piedmont					
River Basin	Yadkin					
USGS HUC	3040103030030					
NCDWQ Sub-Basin	Yadkin Sub Basin					
Within Extent of EEP Watershed Plan	Upper Yadkin River Basin Restoration Priorities 2009					
WRC Class	Cool					
% of Project Easement Demarcated	0%					
Beaver Activity Observed During Design Phase	Yes					
Restoration Component Attributes						
	Reach A	Reach B	Reach C	Reach D	Reach J	Wetland A-5
Drainage Area (sq.mi.)	6.5	2.3	0.2	0.2	0.1	N/A
Stream Order	3	2	1	1	1	N/A
Restored Length (feet)	5660	2492	1489	295	61	N/A
Perennial or Intermittent	P	P	P	P	P	N/A
Watershed Type	Developing	Developing	Developing	Developing	Developing	N/A
Watershed LULC Distribution						
Forest/Wetland	43%					
Cultivated	22%					
Developed	35%					
Watershed Impervious Cover	47%	23.5	1.9	1	1	N/A
NCDWQ AU/Index Number	C/3	C/2	C/1	C/1	C/1	N/A
NCDWQ Classification	C	C	C	C	C	N/A
303d Listed	Yes	Yes	Yes	Yes	Yes	N/A
Upstream of 303d Listed Segment	Yes	Yes	Yes	Yes	Yes	N/A
Reasons for 303d Listing or Stressor	Degraded water quality due to sediment					
Total Acreage of Easement	31.0	8.5	2.3	0.5	0.1	N/A
Total Vegetated Acreage within Easement	22.4	6.9	1.7	0.4	0.1	N/A
Total Planted Acreage as Part of Restoration	22.4	6.9	1.7	0.4	0.08	N/A
Rosgen Classification of Pre-Existing	G5	G5	Incised B5	Incised B5	G	N/A
Rosgen Classification of As-Built	B5	B5c	C5	B5c	Ba	N/A
Valley Type	VIII	VIII	VIII	VIII	VIII	N/A
Valley Slope	0.003	0.005	0.011	0.011	0.15	N/A
Valley Side Slope Range	15-20%	12-20%	15-40%	25-30%	30-35%	N/A
Valley Toe Slope Range	2-3%	1-3%	3-5%	10-14%	1-2%	N/A
Cowardin Classification	N/A	N/A	N/A	N/A	N/A	NC
Trout Waters Designation	No	No	No	No	No	N/A
Species of Concern, Endangered, Etc.	Greensboro burrowing crayfish is of concern					
Dominant Soil Series and Characteristics	Chewacla loam and Wehadkee loam					
Series	N/A	N/A	N/A	N/A	N/A	ChA
Depth	N/A	N/A	N/A	N/A	N/A	80"
Clay%	N/A	N/A	N/A	N/A	N/A	5-40%
K	N/A	N/A	N/A	N/A	N/A	0.28
T	N/A	N/A	N/A	N/A	N/A	5

APPENDIX B – VISUAL ASSESMENT DATA





NO.	DESCRIPTION	DATE
	REVISIONS	

Ecosystem Enhancement Program

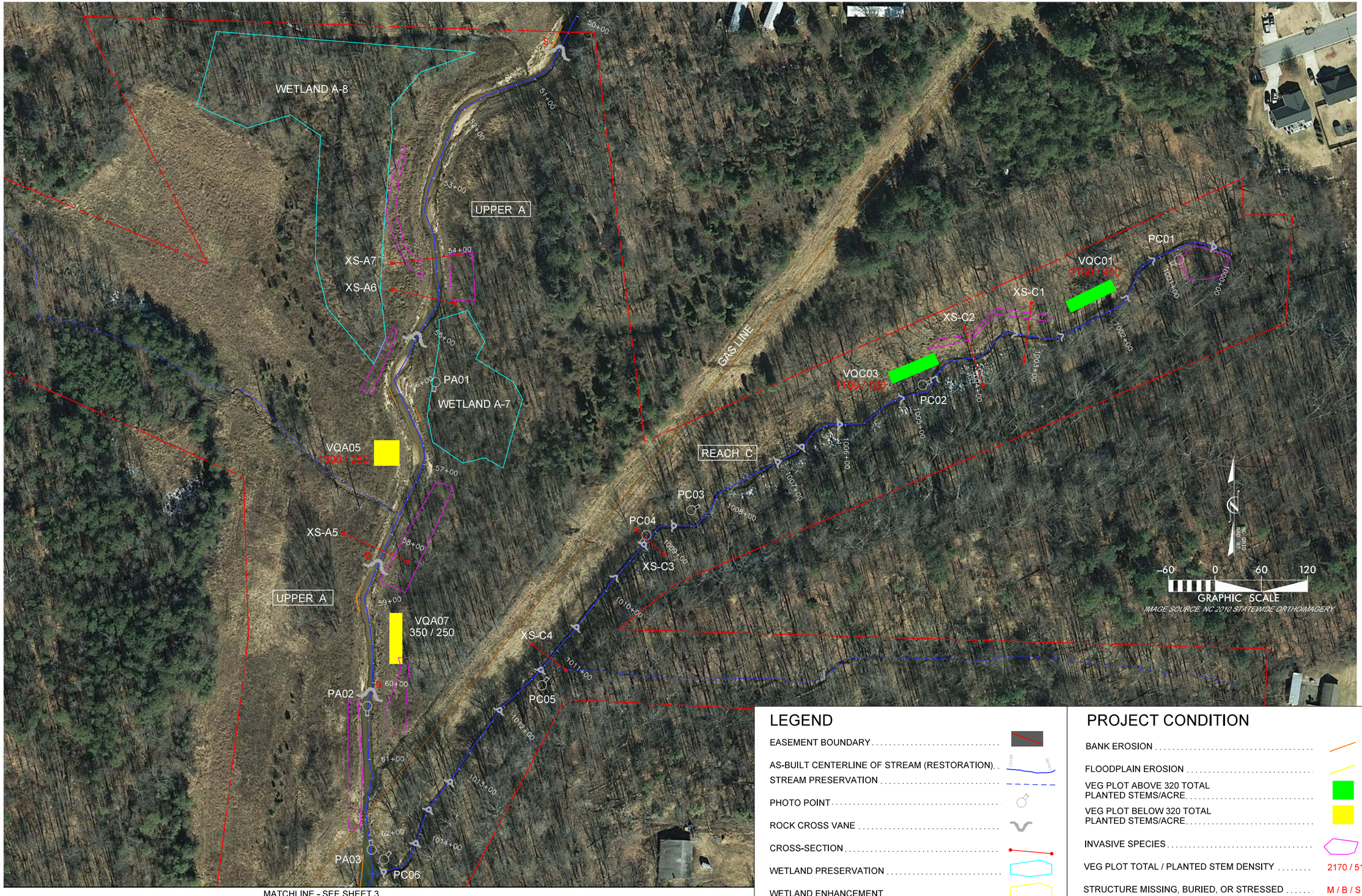
KCI TECHNOLOGIES
ENGINEERS • PLANNERS • SCIENTISTS
4601 SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609

VALLEY FIELDS FARM
STREAM & WETLAND RESTORATION PROJECT
(MONITORING YEAR 3)

DAVIDSON COUNTY, NORTH CAROLINA

DATE: JAN 2014
SCALE: GRAPHIC

CURRENT CONDITION PLAN VIEW



MATCHLINE - SEE SHEET 3

LEGEND

- EASEMENT BOUNDARY
- AS-BUILT CENTERLINE OF STREAM (RESTORATION)
- STREAM PRESERVATION
- PHOTO POINT
- ROCK CROSS VANE
- CROSS-SECTION
- WETLAND PRESERVATION
- WETLAND ENHANCEMENT
- WETLAND RESTORATION
- EASEMENT ENCROACHMENT

PROJECT CONDITION

- BANK EROSION
- FLOODPLAIN EROSION
- VEG PLOT ABOVE 320 TOTAL PLANTED STEMS/ACRE
- VEG PLOT BELOW 320 TOTAL PLANTED STEMS/ACRE
- INVASIVE SPECIES
- VEG PLOT TOTAL / PLANTED STEM DENSITY — 2170 / 516
- STRUCTURE MISSING, BURIED, OR STRESSED — M / B / S
- BEAVER DAM
- WETLAND GAUGE

SYM.	DESCRIPTION	DATE

REVISIONS

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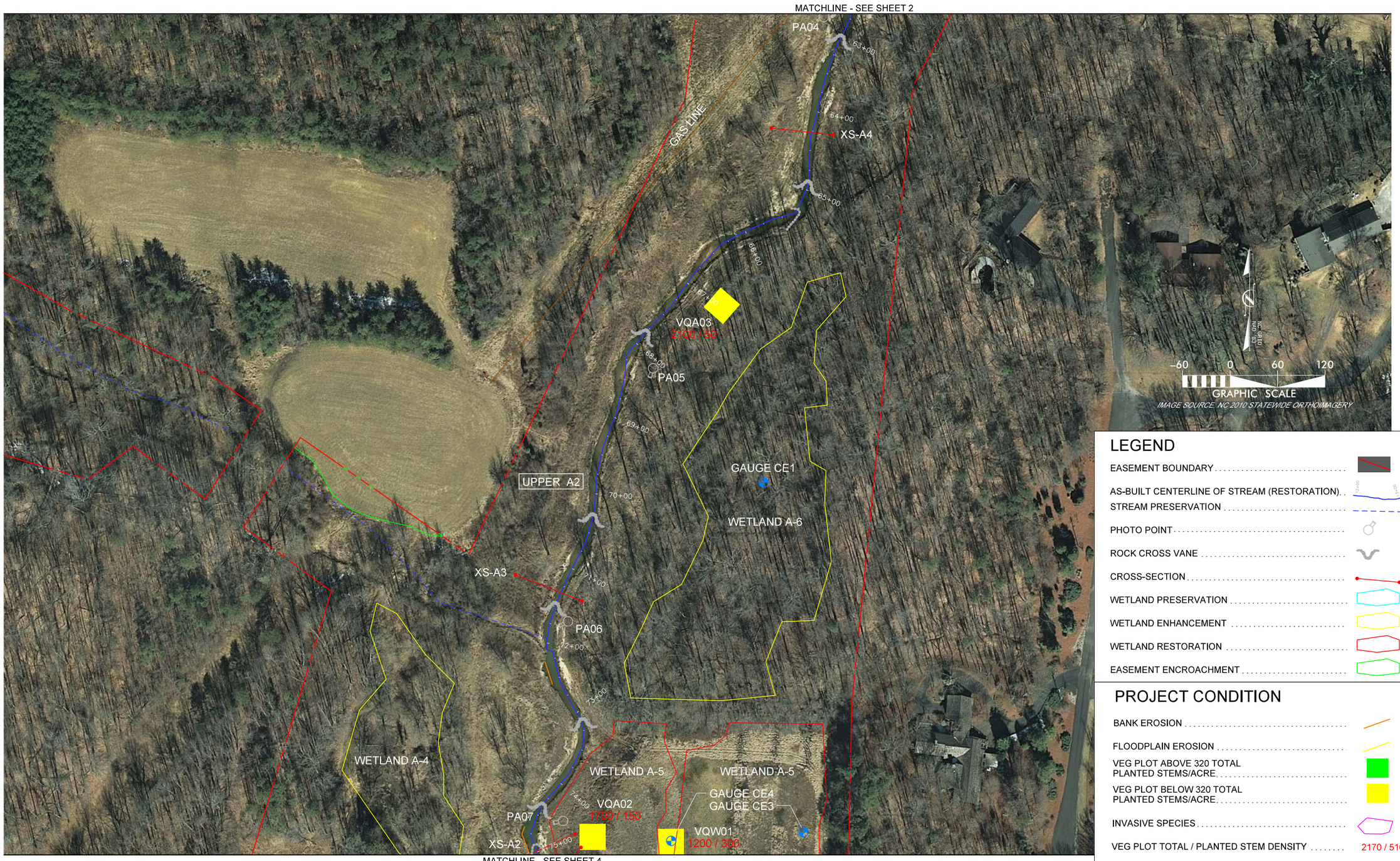

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VALLEY FIELDS FARM
STREAM & WETLAND RESTORATION PROJECT (MONITORING YEAR 3)

DAVIDSON COUNTY, NORTH CAROLINA

DATE: JAN 2014
SCALE: GRAPHIC

CURRENT CONDITION PLAN VIEW

MATCHLINE - SEE SHEET 3

XS-A2
XS-A1
PA08
VQA08
1100 / 400
VQW04
850 / 300
GAUGE CE6
UPPER A2
WETLAND A-4
WETLAND A-3
WETLAND A-2
PA09
PA10
VQA01
0 / 0
VQA11
500 / 300
PA11
PA13
PB11
PB10
VQB06
1200 / 300
BACKWATER STARTS
LOWER A
PA12
VQA12
2500 / 400
LOWER B
UTILITY LINE
VQB03
2200 / 450
WETLAND B-1
WETLAND B-2
PB07
PB08
PB09
XS-B4
XS-B3
76+00
77+00
78+00
79+00
80+00
81+00
82+00
83+00
84+00
85+00
86+00
87+00
88+00
89+00
1521+00
1519+00
1520+00
1522+00
1523+00
1524+00
1518+00
1517+00
1514+00
350+00
S
M
B

MATCHLINE - SEE SHEET 5

MATCHLINE - SEE SHEET 6

NC GRID NAD 83

–60 0 60 120
GRAPHIC SCALE

IMAGE SOURCE: NC 2010 STATEWIDE ORTHOIMAGERY

LEGEND

- EASEMENT BOUNDARY
- AS-BUILT CENTERLINE OF STREAM (RESTORATION)
- STREAM PRESERVATION
- PHOTO POINT
- ROCK CROSS VANE
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CURRENT CONDITION PLAN VIEW

SYM.	DESCRIPTION	DATE
	REVISIONS	

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STREAM & WETLAND RESTORATION PROJECT
(MONITORING YEAR 3)
DAVIDSON COUNTY, NORTH CAROLINA

DATE: JAN 2014
SCALE: GRAPHIC

CURRENT CONDITION PLAN VIEW

SHEET 4 OF 6

LEGEND

- EASEMENT BOUNDARY
- AS-BUILT CENTERLINE OF STREAM (RESTORATION)
- STREAM PRESERVATION
- PHOTO POINT
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- CROSS-SECTION
- WETLAND PRESERVATION
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- WETLAND GAUGE

NC GRID NAD 83 (FEET)

−60 0 60 120

GRAPHIC SCALE

IMAGE SOURCE: NC 2010 STATEWIDE ORTHOIMAGERY

VQA12
2500 / 400

VQA13
850 / 100

LOWER A

PA14
PA15
PA16
PA17

XS-A10
XS-A11

WETLAND A-1
WETLAND A-2

WALLBURG-HIGH POINT ROAD

MATCHLINE - SEE SHEET 4

REVISIONS

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RALEIGH, NORTH CAROLINA 27609

VALLEY FIELDS FARM
STREAM & WETLAND RESTORATION PROJECT (MONITORING YEAR 3)

DAVIDSON COUNTY, NORTH CAROLINA

DATE: JAN 2014
SCALE: GRAPHIC

CURRENT CONDITION PLAN VIEW

MATCHLINE - SEE SHEET 4

WETLAND B-2

PB07

LOWER B

PB06

PB05

REACH J

WATER PIPING UNDERGROUND

PB04

VQB02
200 / 320

WETLAND B-3

PB03

VQB07
1500 / 350

XS-B2

XS-B1

UPPER B

PB01

PD03

PB02

PD02

WETLAND D-1

VQD01
1050 / 150

PD01

SHADOW VALLEY ROAD

-60 0 60 120

GRAPHIC SCALE

IMAGE SOURCE: NC 2010 STATEWIDE ORTHOIMAGERY

LEGEND

- EASEMENT BOUNDARY
- AS-BUILT CENTERLINE OF STREAM (RESTORATION)
- STREAM PRESERVATION
- PHOTO POINT
- ROCK CROSS VANE
- CROSS-SECTION
- WETLAND PRESERVATION
- WETLAND ENHANCEMENT
- WETLAND RESTORATION
- EASEMENT ENCROACHMENT

PROJECT CONDITION

- BANK EROSION
- FLOODPLAIN EROSION
- VEG PLOT ABOVE 320 TOTAL PLANTED STEMS/ACRE
- VEG PLOT BELOW 320 TOTAL PLANTED STEMS/ACRE
- INVASIVE SPECIES
- VEG PLOT TOTAL / PLANTED STEM DENSITY — 2170 / 516
- STRUCTURE MISSING, BURIED, OR STRESSED — M / B / S
- BEAVER DAM
- WETLAND GAUGE

SYM.	DESCRIPTION	DATE
	REVISIONS	

Ecosystem Enhancement Program

KCI TECHNOLOGIES
ENGINEERS • PLANNERS • SCIENTISTS
460I SIX FORKS ROAD
RALEIGH, NORTH CAROLINA 27609

VALLEY FIELDS FARM
STREAM & WETLAND RESTORATION PROJECT (MONITORING YEAR 3)
DAVIDSON COUNTY, NORTH CAROLINA

DATE: JAN 2014
SCALE: GRAPHIC

CURRENT CONDITION PLAN VIEW

TABLE 5. VISUAL STREAM MORPHOLOGY STABILITY ASSESMENT

Project Number and Name: 407 - Valley Fields Farm							
Assessed Length 1,250			Reach - Upper A				
Major Channel Category	**Channel Sub-Category**	**Metric**	**Number Stable, Performing as Intended**	**Total Number in As-built**	**Number of Unstable Segments**	**Amount of Unstable Footage**	**% Stable, Performing as Intended**
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition*	1. Texture/Substrate - Riffle maintains coarser substrate	-	5			-
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	2	5			40%
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	2	5			40%
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	5	5			100%
		2. Thalweg centering at downstream of meander (Glide)	5	5			100%
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			4	65	97%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	4	65	97%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	2	4			50%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	2	4			50%
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	2	4			50%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in EEP monitoring guidance document)	2	4			50%
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	2	4			50%

*=sand based system lacking identifiable riffles

Project Number and Name: 407 - Valley Fields Farm							
Assessed Length	2,050		Reach - Upper A2				
Major Channel Category	**Channel Sub-Category**	**Metric**	**Number Stable, Performing as Intended**	**Total Number in As-built**	**Number of Unstable Segments**	**Amount of Unstable Footage**	**% Stable, Performing as Intended**
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition*	1. Texture/Substrate - Riffle maintains coarser substrate	-	20			-
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	11	20			55%
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	11	20			55%
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	20	20			100%
		2. Thalweg centering at downstream of meander (Glide)	20	20			100%
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			4	150	96%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	4	150	96%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	13	13			100%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	13	13			100%
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	13	13			100%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in EEP monitoring guidance document)	13	13			100%
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	13	13			100%

*=sand based system lacking identifiable riffles

Project Number and Name: 407 - Valley Fields Farm							
Assessed Length	2,000		Reach - Lower A				
Major Channel Category	**Channel Sub-Category**	**Metric**	**Number Stable, Performing as Intended**	**Total Number in As-built**	**Number of Unstable Segments**	**Amount of Unstable Footage**	**% Stable, Performing as Intended**
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition*	1. Texture/Substrate - Riffle maintains coarser substrate	-	10			-
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	0	10			0%
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	0	10			0%
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	9	10			90%
		2. Thalweg centering at downstream of meander (Glide)	9	10			90%
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			4	100	98%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	4	100	98%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	0	6			0%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	0	6			0%
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	0	6			0%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in EEP monitoring guidance document)	0	6			0%
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	0	6			0%

*=sand based system lacking identifiable riffles

Project Number and Name: 407 - Valley Fields Farm							
Assessed Length	1,275		Reach - Upper B				
Major Channel Category	**Channel Sub-Category**	**Metric**	**Number Stable, Performing as Intended**	**Total Number in As-built**	**Number of Unstable Segments**	**Amount of Unstable Footage**	**% Stable, Performing as Intended**
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition*	1. Texture/Substrate - Riffle maintains coarser substrate	-	2			-
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	2	2			100%
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	2	2			100%
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	2	2			100%
		2. Thalweg centering at downstream of meander (Glide)	2	2			100%
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			2	61	98%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	2	61	98%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	2	2			100%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	2	2			100%
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	2	2			100%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in EEP monitoring guidance document)	2	2			100%
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	2	2			100%

*=sand based system lacking identifiable riffles

Project Number and Name: 407 - Valley Fields Farm							
Assessed Length	1,275		Reach - Lower B				
Major Channel Category	**Channel Sub-Category**	**Metric**	**Number Stable, Performing as Intended**	**Total Number in As-built**	**Number of Unstable Segments**	**Amount of Unstable Footage**	**% Stable, Performing as Intended**
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition*	1. Texture/Substrate - Riffle maintains coarser substrate	-	2			-
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	0	2			0%
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	0	2			0%
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	2	2			100%
		2. Thalweg centering at downstream of meander (Glide)	2	2			100%
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			3	105	96%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	3	105	96%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	1	1			100%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	1	1			100%
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	1	1			100%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in EEP monitoring guidance document)	1	1			100%
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	1	1			100%

*=sand based system lacking identifiable riffles

Project Number and Name: 407 - Valley Fields Farm							
Assessed Length	1,500		Reach - C				
Major Channel Category	**Channel Sub-Category**	**Metric**	**Number Stable, Performing as Intended**	**Total Number in As-built**	**Number of Unstable Segments**	**Amount of Unstable Footage**	**% Stable, Performing as Intended**
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition*	1. Texture/Substrate - Riffle maintains coarser substrate	-	24			-
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	1	24			4%
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	1	24			4%
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	24	24			100%
		2. Thalweg centering at downstream of meander (Glide)	24	24			100%
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are modest, appear sustainable and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	0	0	100%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	17	17			100%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	17	17			100%
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	17	17			100%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance for this table in EEP monitoring guidance document)	17	17			100%
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	17	17			100%

*=sand based system lacking identifiable riffles

TABLE 6. VEGETATION CONDITION ASSESMENT

Table 6. Vegetation Condition Assessment
Project Number and Name: 407 - Valley Fields Farm

Planted Acreage 81.9 **Easement Acreage 97.5**

Vegetation Category	Definitions	Mapping Threshold	CCPV Depiction	Number of Polygons	Combined Acreage	% of Planted Acreage
1. Bare Areas	Very limited cover of both woody and herbaceous material.	0.1 acre	Pattern and Color	0	0.00	0.0%
2. Low Stem Density Areas	Woody stem densities clearly below target levels based on MY3, 4, or 5 stem count criteria.	0.1 acre	Pattern and Color	0	0.00	0.0%
			Total	0	0.00	0.0%
3. Areas of Poor Growth Rates or Vigor	Areas with woody stems of a size class that are obviously small given the monitoring year.	0.25 acre	Pattern and Color	0	0.00	0.0%
			Cumulative Total	0	0.00	0.0%
4. Invasive Areas of Concern	Areas or points (if too small to render as polygons at map scale).	1,000 SF	Purple Polygon	16	1.20	1.2%
5. Easement Encroachment Areas	Areas or points (if too small to render as polygons at map scale).	none	Green Polygon	7	1.50	1.5%

STREAM AND WETLAND PHOTOS

PA 01 – 12/18/2013

PA 02 – 12/18/2013

PA 03 – 12/18/2013

PA 04 – 12/18/2013

PA 05 – 12/18/2013

PA 06 – 12/18/2013

PA 07 – 12/18/2013

PA 08 – 12/18/2013

PA 09 – 12/18/2013

PA 10 – 12/18/2013

PA 11 – 12/18/2013

PA 12 – 12/18/2013

PA 13 – 12/18/2013

PA 14 – 12/18/2013

PA 15 – 12/18/2013

PA 16 – 12/18/2013

PA 17 – 12/18/2013

PB 01 – 12/18/2013

PB 02 – 12/18/2013

PB 03 – 12/18/2013

PB 04 – 12/18/2013

PB 05 – 12/18/2013

PB 06 – 12/18/2013

PB 07 – 12/18/2013

PB 08 – 12/18/2013

PB 09 – 12/18/2013

PB 10 – 12/18/2013

PB 11 – 12/18/2013

PC 01 – 12/18/2013

PC 02 – 12/18/2013

PC 03 – 12/18/2013

PC 04 – 12/18/2013

PC 05 – 12/18/2013

PC 06 – 12/18/2013

PD 01 – 12/18/2013

PD 02 – 12/18/2013

PD 03 – 12/18/2013

STREAM PROBLEM AREA PHOTOS

Bank erosion (Station 79+00) – 12/18/2013

Thalweg shift (Station 84+00) – 12/18/2013

Beaver dam (Station 95+75) – 12/18/2013

Beaver dam (Station 99+75) – 12/18/2013

Bank erosion (Station 50+00) – 12/18/2013

Deposition (typical along Reach B) – 12/18/2013

VEGETATION PLOT PHOTOS

Plot VQA02 – 8/1/2013

Plot VQA07 – 8/1/2013

Plot VQA03 – 7/31/2013

Plot VQA08 – 7/31/2013

Plot VQA05 – 8/1/2013

Plot VQA11 – 7/31/2013

Plot VQA12 – 7/31/2013

Plot VQB03 – 7/29/2013

Plot VQA13 – 7/31/2013

Plot VQB06 – 7/30/2013

Plot VQB02 – 7/30/2013

Plot VQB07 – 7/30/2013

Plot VQC01 – 8/1/2013

Plot VQW01 – 7/29/2013

Plot VQC03 – 8/1/2013

Plot VQW04 – 8/1/2013

Plot VQD01 – 7/30/2013

APPENDIX C – VEGETATION PLOT DATA

TABLE 7. VEGETATION PLOTS WOODY STEM SUCCESS CRITERIA ATTAINMENT TABLE

Success Criteria Achieved/Number of Planted Stems per Acre					
Plot Name	MY-01 (2010)	MY-02 (2011)	MY-03 (2013)	MY-04 (2014)	MY-05 (2015)
VQA1	No	Yes	No/0		
VQA2	No	No	No/150		
VQA3	No	No	No/50		
VQA5	Yes	Yes	No/300		
VQA7	No	Yes	No/250		
VQA8	No	No	Yes/400		
VQA11	Yes	Yes	No/300		
VQA12	No	Yes	Yes/400		
VQA13	Yes	Yes	No/100		
VQB2	No	No	No/200		
VQB3	Yes	Yes	Yes/450		
VQB6	No	No	No/300		
VQB7	No	Yes	Yes/350		
VQC1	Yes	Yes	Yes/400		
VQC3	Yes	Yes	Yes/700		
VQD1	No	No	No/150		
VQW1	Yes	Yes	No/300		
VQW4	No	No	No/300		

TABLE 8. VEGETATION PLOT SAMPLING METADATA

Report Prepared By	Tommy Seelinger
Date Prepared	10/25/2013 14:16
Database name	N/A[1]
Database location	N/A[1]

1=no CVS project data was able to be located within EEP's servers

TABLE 9. TOTAL AND PLANTED STEM COUNT BY PLOT AND SPECIES

Scientific Name	Common Name	VQA 1	VQA 2	VQA 3	VQA 5	VQA 7	VQA 8	VQA 11	VQA 12	VQA 13	VQB 2	VQB 3	VQB 6	VQB 7	VQC 1	VQC 3	VQD 1	VQ W1	VQ W4
Acer negundo	Box Elder		2				1	2	1				3						
Alnus serrulata	Tag Alder					2						1				6			
Betula nigra	River Birch					1						3							
Celtis laevigata	Sugarberry																		1
Cephalanthus occidentalis	Buttonbush																2		
Cornus amomum	Silky Dogwood						1		4			1							
Corylus americana	Hazelnut			1			2												
Diospyros virginiana	Persimmon								1	2	1								
Fraxinus pennsylvanica	Green Ash		1					4	1			1	1					4	4
Hamamelis virginiana	Witch Hazel																	1	
Juglans nigra	Black Walnut						2												
Liriodendron tulipifera	Tulip Poplar								1					1	1				
Platanus occidentalis	American Sycamore				3	2	2					3		4		3			
Quercus lyrata	Overcup Oak										1								
Quercus phellos	Willow Oak				1									1					
Salix nigra	Black Willow				1										5	5	1		
Salix sericea	Silky Willow													1	1				
Ulmus alata	Winged Elm										2								
Ulmus americana	American Elm												2		1			1	1
Planted Stem Count		0	3	1	5	5	8	6	8	2	4	9	6	7	8	14	3	6	6
Volunteer Stem Count		0	31	41	21	2	14	4	42	15	0	35	19	19	47	8	18	18	11
Species Count		0	4	11	5	5	7	3	7	4	3	6	4	7	8	4	6	6	5
Planted Stems/acre		0	150	50	250	250	400	300	400	100	200	450	300	350	400	700	150	300	300
Total Stems/acre		0	1700	2100	1300	350	1100	500	2500	850	200	2200	1250	1300	2750	1100	1050	1200	850

			Annual Means							
		Species	MY3 (2013)		MY2 (2011)		MY1 (2010)		MY0 (2008)	
Scientific Name	Common Name	Type	P-all	T	P-all	T	P-all	T	P-all	T
Acer negundo	Boxelder	Tree	9	47	2	2	1	1	1	1
Acer rubrum	Red Maple	Tree		4	1	1	2	2	2	2
Aesculus sylvatica	Painted Buckeye	Tree		9						
Albizia julibrissin	Mimosa	Tree		1						
Alnus serrulata	Tag Alder	Tree	9		1	1	1	1	1	1
Asimina triloba	Paw-paw	Tree		1						
Betula nigra	River Birch	Tree	4	11	2	2	2	1	2	2
Carpinus caroliniana	Hornbeam	Tree		5	2	2	2	2	2	2
Celtis laevigata	Sugarberry	Tree	1	2		1				
Cephalanthus occidentalis	Buttonbush	Tree	2		2	2	3	3	3	3
Cercis canadensis	Redbud	Tree		1						
Cornus amomum	Silky Dogwood	Tree	6		1	3	1	1	1	1
Corylus americana	American Hazelnut	Tree	3	7						
Crategeou crus-gali	Cockspur Hawthorn	Tree			1	1	1	1	1	1
Diospyros virginiana	Persimmon	Tree	6	13		4		5		
Fraxinus pennsylvanica	Green Ash	Tree	16	86	1	4	1	3	1	1
Hamamelis virginiana	Witch Hazel	Tree	1			2				
Ilex opaca	American Holly	Tree			1	1		2		
Juglans nigra	Black Walnut	Tree	2	7						
Juniperus virginiana	Eastern Redcedar	Tree		2						
Lindera benzoin	Spicebush	Tree		14						
Liquidambar styraciflua	Sweetgum	Tree		75		3		2		
Liriodendron tulipera	Tulip Poplar	Tree	3	8	1	3	1	6	1	1
Nyssa sylvatica	Black Gum	Tree		1						
Pinus echinata	Shortleaf Pine	Tree					1	1	1	1
Pinus taeda	Loblolly Pine	Tree		1						
Plantanus occidentalis	American Sycamore	Tree	17	65	2	5	3	5	3	3
Pyrus calleryana	Callery Pear	Tree		3						
Quercus lyrata	Overcup Oak	Tree	1							
Quercus michauxii	Swamp Chestnut Oak	Tree			1	1	1	1	1	1
Quercus nigra	Water Oak	Tree			1	1	1	1	1	1
Quercus phellos	Willow Oak	Tree	2	4				1		
Quercus shumardii	Shumard Oak	Tree				1		1		
Quercus sp.	Oak	Tree				1				
Salix nigra	Black Willow	Tree	12	55		5		5		
Salix sericea	Silky Willow	Tree	2			4				
Ulmus alata	Winged Elm	Tree	1							
Ulmus americana	American Elm	Tree	5	6		1		2		
Ulmus parvifolia	Lacebark Elm	Tree		1						
Unknown					7	1	6	6	6	6
		Stem count	102	429	26	50	26	53	26	26
		size (ares)	8		8		8		8	
		size (ACRES)	0.20		0.20		0.20		0.20	
		Species count	19	25	15	24	15	22	15	15
		Stems per ACRE	516	2170	131	255.3	131.5	267	131.5	132

APPENDIX D – STREAM SURVEY DATA

CROSS-SECTION PLOTS

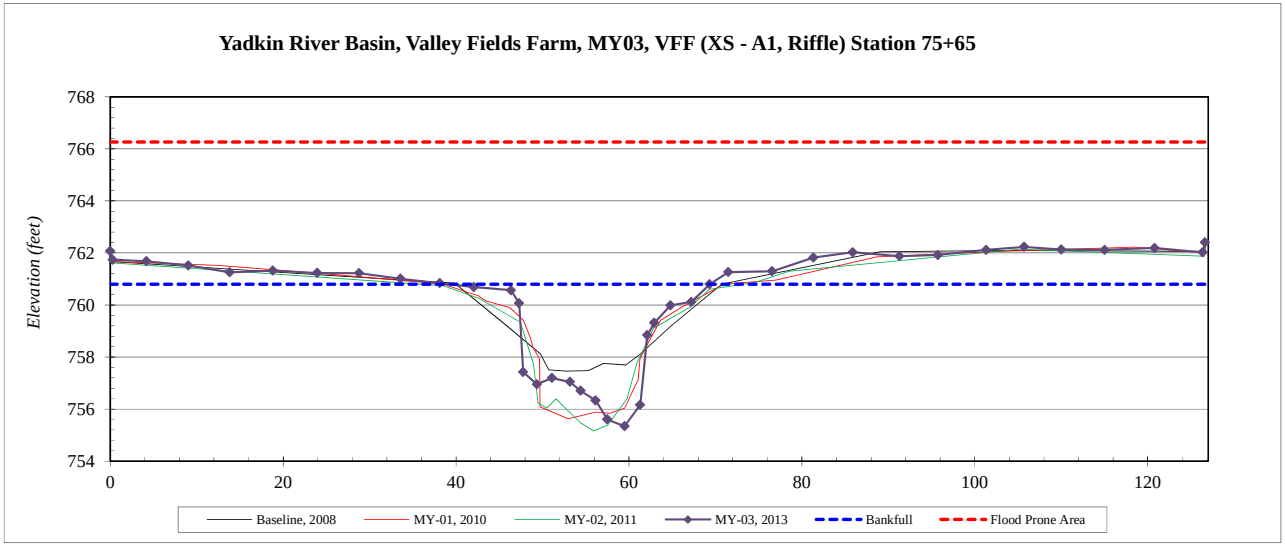
River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - A1, Riffle) Station 75+65
Drainage Area (sq mi):	6.5
Date:	12/6/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	762.07
0.3	761.74
4.2	761.68
9.0	761.52
13.8	761.26
18.8	761.32
24.0	761.23
28.8	761.22
33.6	761.01
38.1	760.84
42.1	760.69
46.3	760.57
47.3	760.07
47.8	757.42
49.3	756.95
51.1	757.19
53.2	757.05
54.4	756.70
56.1	756.33
57.5	755.60
59.5	755.34
61.3	756.16
62.1	758.84
62.9	759.31
64.8	759.99
67.2	760.12
69.3	760.80
71.5	761.26
76.6	761.30
81.3	761.82
85.9	762.03
91.3	761.88
95.7	761.92
101.3	762.12
105.7	762.23

*additonal point not included due to space

SUMMARY DATA	
Bankfull Elevation:	760.8
Bankfull Cross-Sectional Area:	64.2
Bankfull Width:	23.6
Flood Prone Area Elevation:	766.3
Flood Prone Width:	>120
Max Depth at Bankfull:	5.5
Mean Depth at Bankfull:	2.7
W / D Ratio:	8.7
Entrenchment Ratio:	5.1
Bank Height Ratio:	1.0

Stream Type	C5

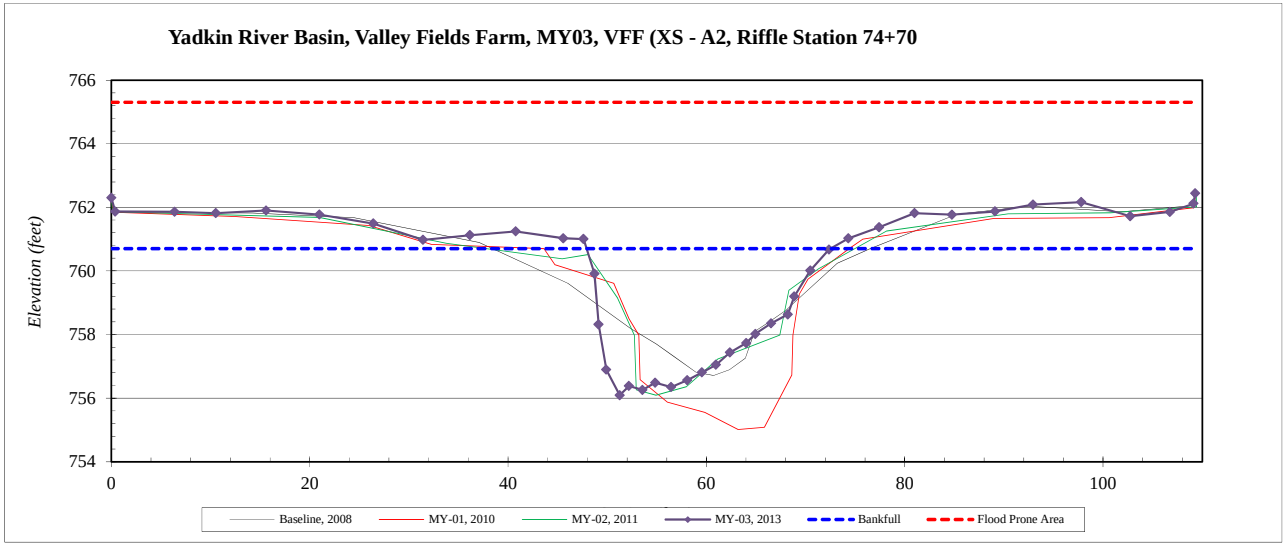


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - A2, Riffle Station 74+70
Drainage Area (sq mi):	6.5
Date:	12/6/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	762.30
0.4	761.87
6.4	761.86
10.5	761.82
15.6	761.90
21.0	761.77
26.4	761.49
31.4	760.98
36.1	761.12
40.8	761.25
45.6	761.03
47.6	761.01
48.7	759.91
49.1	758.32
49.9	756.90
51.3	756.09
52.2	756.38
53.6	756.26
54.8	756.49
56.4	756.35
58.1	756.56
59.6	756.81
61.0	757.05
62.4	757.44
64.0	757.73
64.9	758.02
66.5	758.35
68.2	758.63
68.9	759.20
70.5	760.01
72.4	760.67
74.3	761.02
77.4	761.38
81.0	761.82
84.8	761.77

SUMMARY DATA	
Bankfull Elevation:	760.7
Bankfull Cross-Sectional Area:	67.7
Bankfull Width:	23.6
Flood Prone Area Elevation:	765.3
Flood Prone Width:	>100
Max Depth at Bankfull:	4.6
Mean Depth at Bankfull:	2.9
W / D Ratio:	8.2
Entrenchment Ratio:	4.2
Bank Height Ratio:	1.0

Stream Type	C5



*additonal points not included due to space

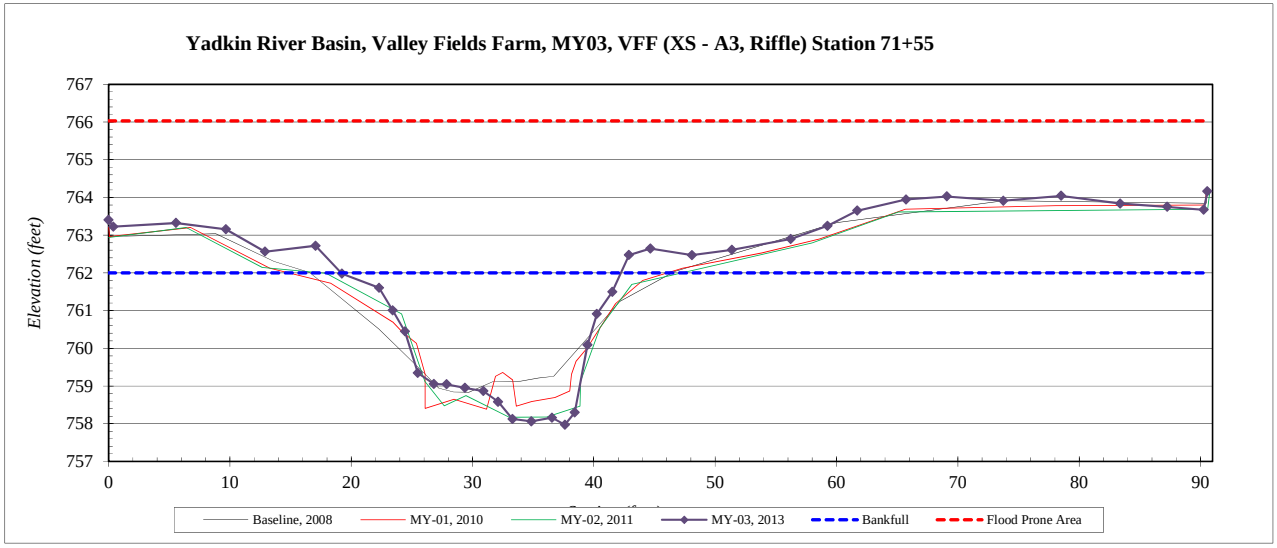
River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - A3, Riffle) Station 71+55
Drainage Area (sq mi):	6.5
Date:	12/6/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	763.40
0.4	763.23
5.6	763.32
9.7	763.15
12.9	762.56
17.1	762.72
19.2	761.98
22.3	761.60
23.4	761.01
24.4	760.45
25.5	759.34
26.8	759.05
27.9	759.04
29.4	758.95
30.9	758.86
32.1	758.58
33.3	758.13
34.8	758.06
36.6	758.16
37.6	757.97
38.4	758.30
39.5	760.09
40.3	760.91
41.5	761.50
42.9	762.47
44.7	762.65
48.1	762.47
51.4	762.61
56.2	762.90
59.3	763.25
61.7	763.65
65.7	763.95
69.1	764.03
73.8	763.91
78.5	764.04

*additional points not included due to space

SUMMARY DATA	
Bankfull Elevation:	762.0
Bankfull Cross-Sectional Area:	54.6
Bankfull Width:	23.1
Flood Prone Area Elevation:	766.0
Flood Prone Width:	>90
Max Depth at Bankfull:	4.0
Mean Depth at Bankfull:	2.4
W / D Ratio:	10.1
Entrenchment Ratio:	3.9
Bank Height Ratio:	1.0

Stream Type	C5

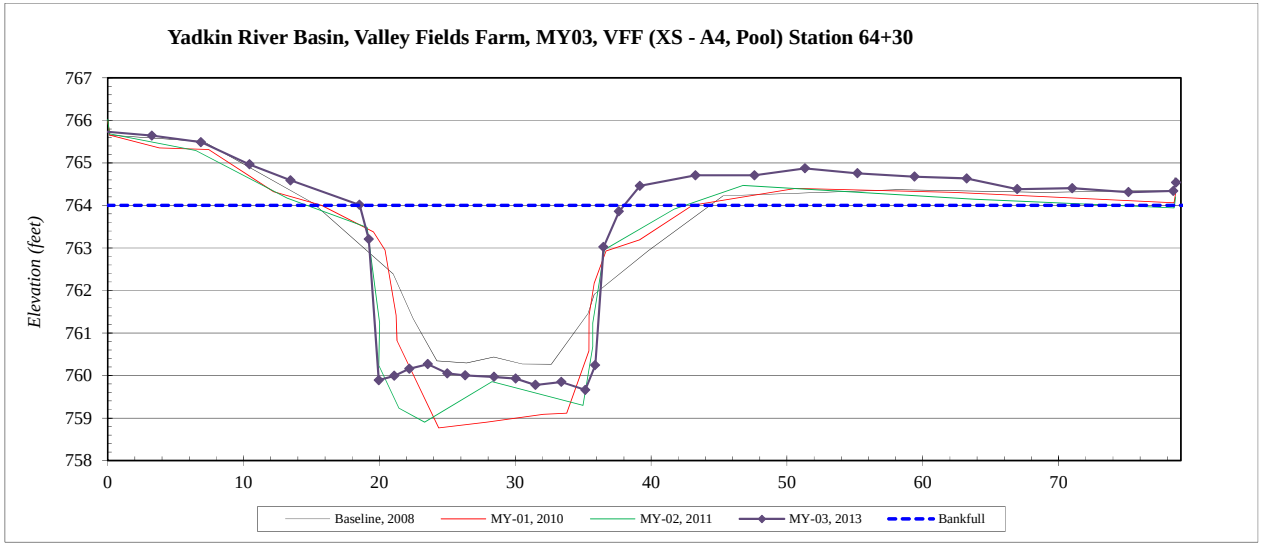


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - A4, Pool) Station 64+30
Drainage Area (sq mi):	6.5
Date:	12/6/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	765.73
3.3	765.64
6.9	765.49
10.4	764.97
13.5	764.59
18.5	764.01
19.2	763.21
20.0	759.89
21.1	759.99
22.2	760.16
23.6	760.27
25.0	760.05
26.3	760.00
28.5	759.97
30.0	759.93
31.5	759.78
33.4	759.85
35.2	759.66
35.9	760.24
36.5	763.02
37.6	763.86
39.2	764.46
43.3	764.71
47.6	764.71
51.3	764.87
55.2	764.76
59.4	764.68
63.2	764.63
67.0	764.38
71.0	764.40
75.2	764.31
78.4	764.34
78.6	764.54

SUMMARY DATA	
Bankfull Elevation:	764.0
Bankfull Cross-Sectional Area:	68.5
Bankfull Width:	19.4
Flood Prone Area Elevation:	-
Flood Prone Width:	-
Max Depth at Bankfull:	4.3
Mean Depth at Bankfull:	3.5
W / D Ratio:	-
Entrenchment Ratio:	-
Bank Height Ratio:	-

Stream Type	C5



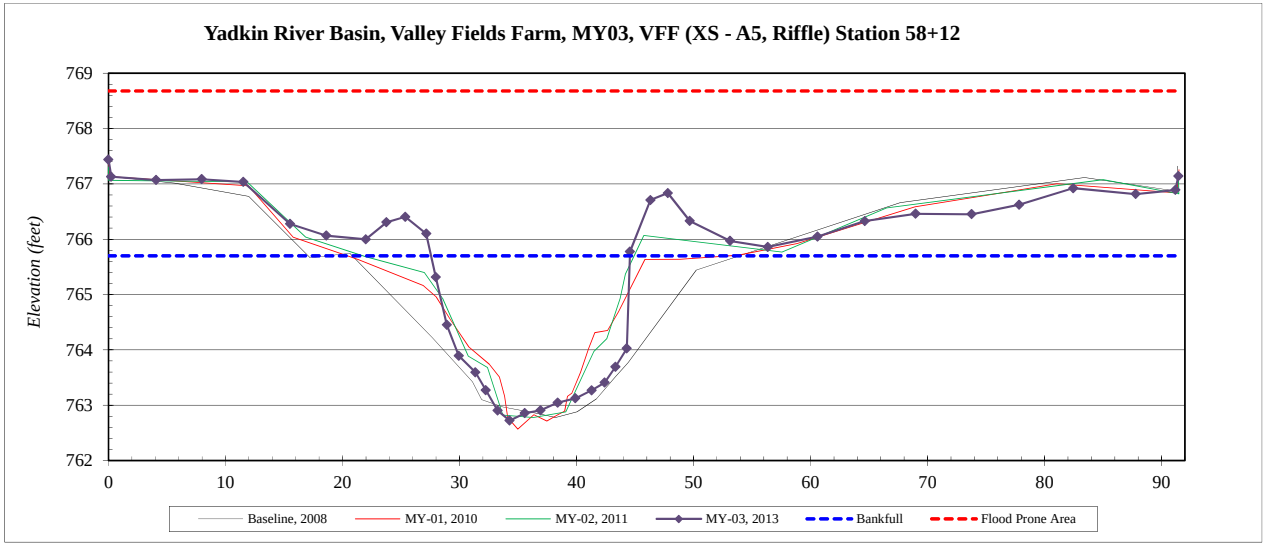
River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - A5, Riffle) Station 58+12
Drainage Area (sq mi):	6.5
Date:	12/6/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	767.44
0.2	767.13
4.1	767.07
8.0	767.08
11.5	767.04
15.5	766.28
18.6	766.07
22.0	766.00
23.8	766.31
25.4	766.40
27.2	766.10
28.0	765.31
28.9	764.45
29.9	763.89
31.4	763.59
32.3	763.27
33.3	762.90
34.3	762.72
35.6	762.86
36.9	762.91
38.4	763.05
39.9	763.12
41.3	763.27
42.4	763.41
43.3	763.69
44.3	764.03
44.6	765.78
46.3	766.71
47.8	766.83
49.7	766.33
53.1	765.97
56.3	765.86
60.6	766.05
64.6	766.33
69.0	766.46

*additional points not included due to space

SUMMARY DATA	
Bankfull Elevation:	765.7
Bankfull Cross-Sectional Area:	33.4
Bankfull Width:	16.6
Flood Prone Area Elevation:	768.7
Flood Prone Width:	>90
Max Depth at Bankfull:	3.0
Mean Depth at Bankfull:	2.0
W / D Ratio:	8.3
Entrenchment Ratio:	5.4
Bank Height Ratio:	1.0

Stream Type	C5



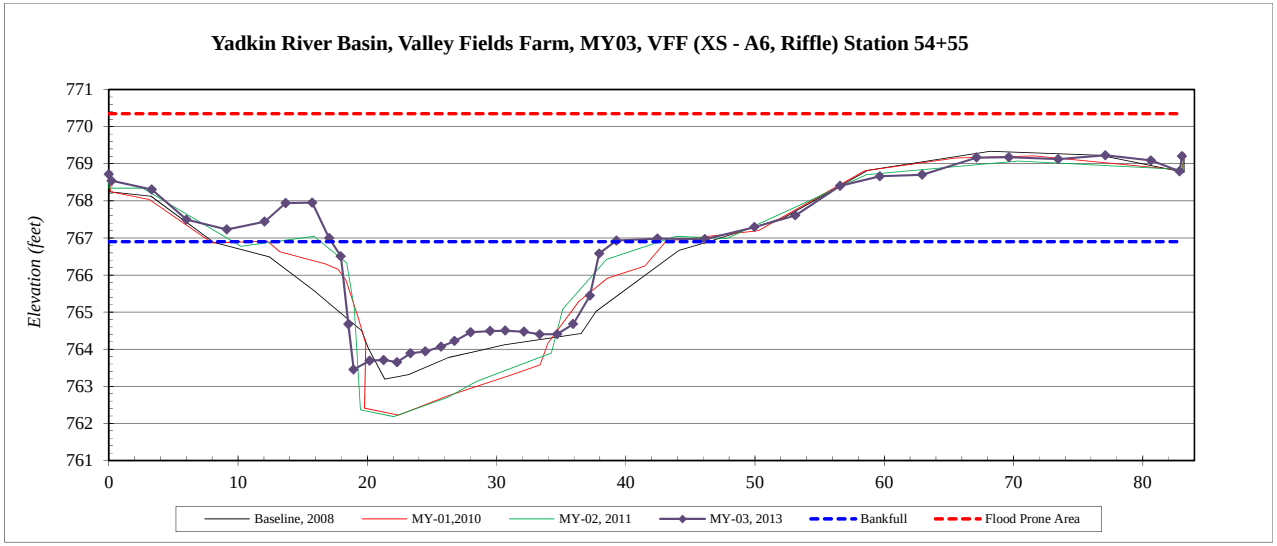
River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - A6, Riffle) Station 54+55
Drainage Area (sq mi):	6.5
Date:	12/6/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	768.72
0.2	768.54
3.3	768.31
6.0	767.50
9.1	767.23
12.1	767.44
13.7	767.94
15.7	767.95
17.1	766.99
18.0	766.51
18.5	764.67
18.9	763.45
20.2	763.69
21.3	763.71
22.3	763.65
23.3	763.89
24.5	763.94
25.7	764.07
26.8	764.22
28.0	764.46
29.5	764.49
30.7	764.50
32.1	764.47
33.4	764.40
34.7	764.41
35.9	764.68
37.2	765.44
37.9	766.58
39.3	766.93
42.5	766.98
46.1	766.96
50.0	767.29
53.1	767.60
56.6	768.40
59.7	768.66

*additional points not included due to space

SUMMARY DATA	
Bankfull Elevation:	766.9
Bankfull Cross-Sectional Area:	45.4
Bankfull Width:	20.2
Flood Prone Area Elevation:	770.3
Flood Prone Width:	>90
Max Depth at Bankfull:	3.4
Mean Depth at Bankfull:	2.2
W / D Ratio:	9.0
Entrenchment Ratio:	4.5
Bank Height Ratio:	1.0

Stream Type	C5



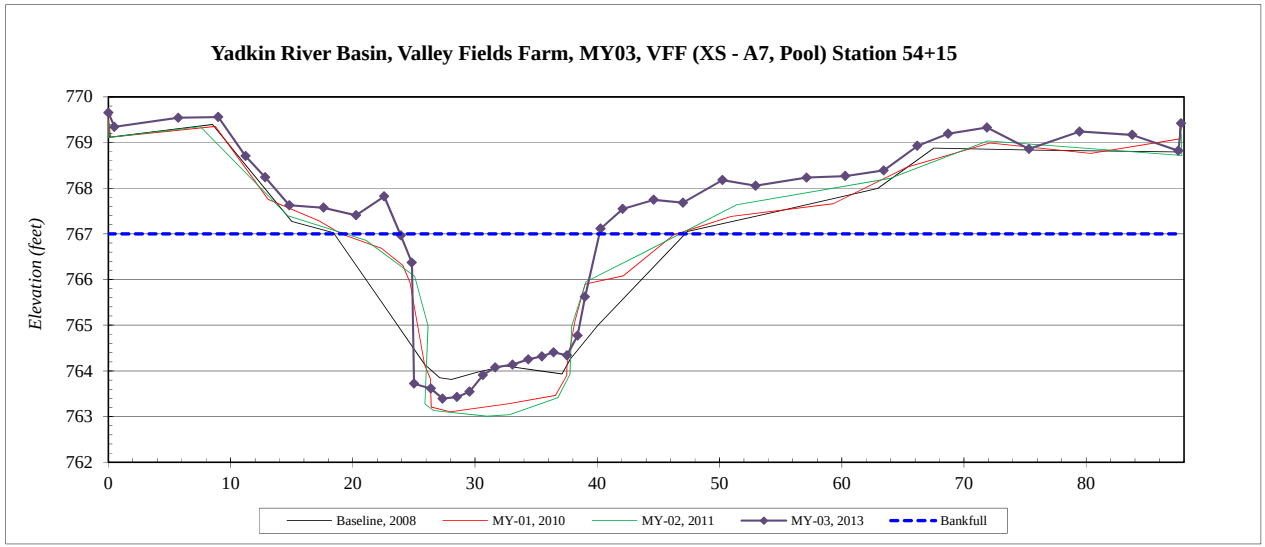
River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - A7, Pool) Station 54+15
Drainage Area (sq mi):	6.5
Date:	12/6/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	769.65
0.5	769.34
5.7	769.54
9.0	769.56
11.2	768.70
12.8	768.24
14.8	767.63
17.6	767.57
20.3	767.41
22.6	767.82
23.9	766.96
24.8	766.37
25.0	763.72
26.4	763.61
27.3	763.39
28.5	763.43
29.6	763.55
30.7	763.91
31.7	764.08
33.1	764.14
34.4	764.25
35.5	764.32
36.4	764.41
37.5	764.34
38.4	764.77
39.0	765.62
40.3	767.11
42.1	767.55
44.6	767.75
47.0	767.68
50.2	768.18
53.0	768.05
57.1	768.23
60.3	768.27
63.4	768.39

*additional points not included due to space

SUMMARY DATA	
Bankfull Elevation:	767.0
Bankfull Cross-Sectional Area:	43.2
Bankfull Width:	16.3
Flood Prone Area Elevation:	-
Flood Prone Width:	-
Max Depth at Bankfull:	3.6
Mean Depth at Bankfull:	2.7
W / D Ratio:	-
Entrenchment Ratio:	-
Bank Height Ratio:	-

Stream Type	C5



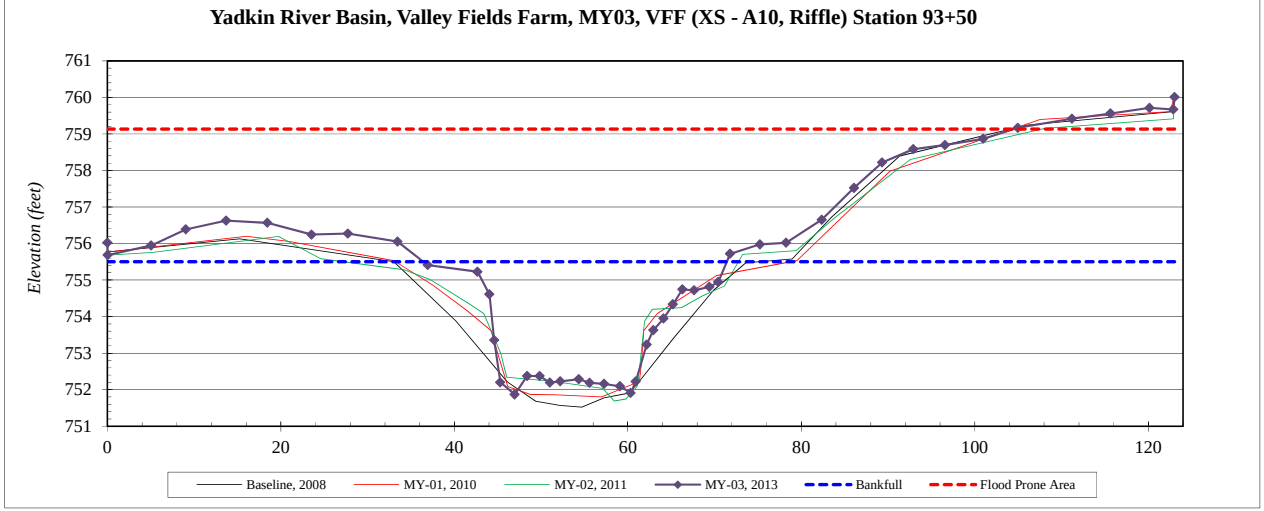
River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - A10, Riffle) Station 93+50
Drainage Area (sq mi):	6.5
Date:	12/4/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	756.02
0.0	755.68
5.1	755.95
9.0	756.39
13.7	756.63
18.5	756.57
23.5	756.25
27.7	756.27
33.5	756.05
36.9	755.41
42.7	755.23
44.0	754.61
44.6	753.35
45.3	752.20
47.0	751.87
48.4	752.37
49.8	752.37
51.0	752.19
52.2	752.23
54.3	752.29
55.6	752.19
57.3	752.16
59.1	752.09
60.3	751.91
60.9	752.22
62.2	753.23
62.9	753.63
64.1	753.95
65.2	754.34
66.3	754.75
67.6	754.72
69.4	754.82
70.4	754.95
71.8	755.72
75.2	755.98

*additional points not included due to space

SUMMARY DATA	
Bankfull Elevation:	755.5
Bankfull Cross-Sectional Area:	69.3
Bankfull Width:	35.0
Flood Prone Area Elevation:	759.1
Flood Prone Width:	>90
Max Depth at Bankfull:	3.6
Mean Depth at Bankfull:	2.0
W / D Ratio:	17.7
Entrenchment Ratio:	2.6
Bank Height Ratio:	1.0

Stream Type	C5



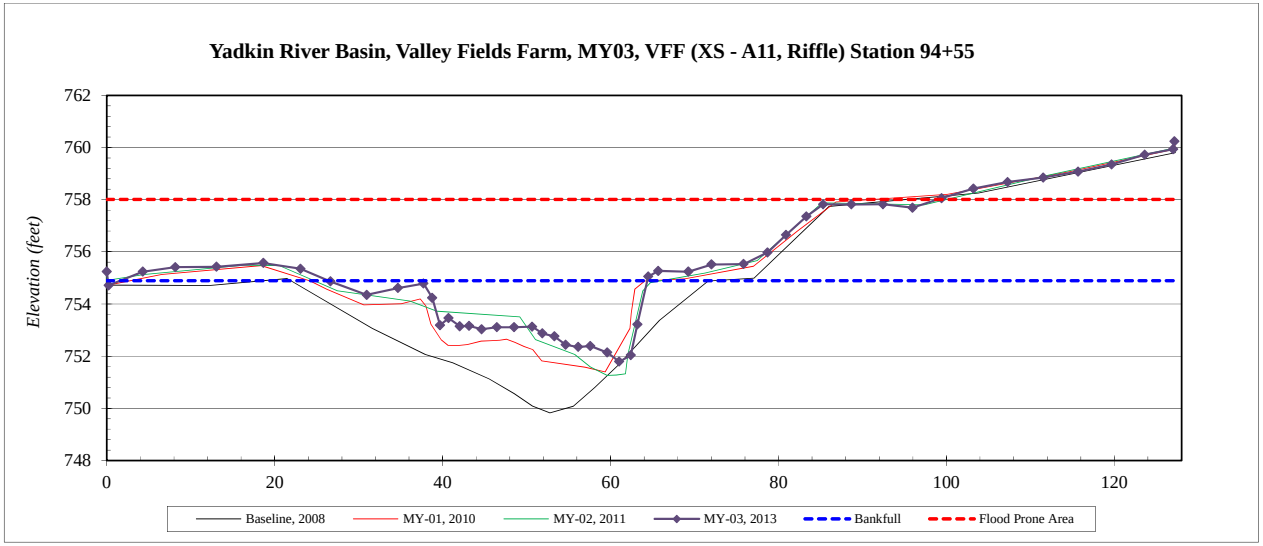
River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - A11, Riffle) Station 94+55
Drainage Area (sq mi):	6.5
Date:	12/4/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	755.24
0.2	754.72
4.3	755.24
8.2	755.41
13.1	755.43
18.7	755.57
23.1	755.35
26.6	754.87
31.0	754.35
34.7	754.62
37.7	754.79
38.8	754.23
39.7	753.19
40.7	753.46
42.1	753.15
43.2	753.16
44.7	753.03
46.5	753.11
48.5	753.11
50.7	753.13
51.9	752.87
53.3	752.76
54.7	752.44
56.1	752.35
57.6	752.39
59.6	752.14
61.0	751.79
62.4	752.03
63.2	753.21
64.5	755.05
65.7	755.27
69.3	755.24
72.0	755.52
75.9	755.53
78.7	755.98

*additional points not included due to space

SUMMARY DATA	
Bankfull Elevation:	754.9
Bankfull Cross-Sectional Area:	44.9
Bankfull Width:	26.1
Flood Prone Area Elevation:	758.0
Flood Prone Width:	>90
Max Depth at Bankfull:	3.1
Mean Depth at Bankfull:	1.7
W / D Ratio:	15.2
Entrenchment Ratio:	3.4
Bank Height Ratio:	1.0

Stream Type	C5



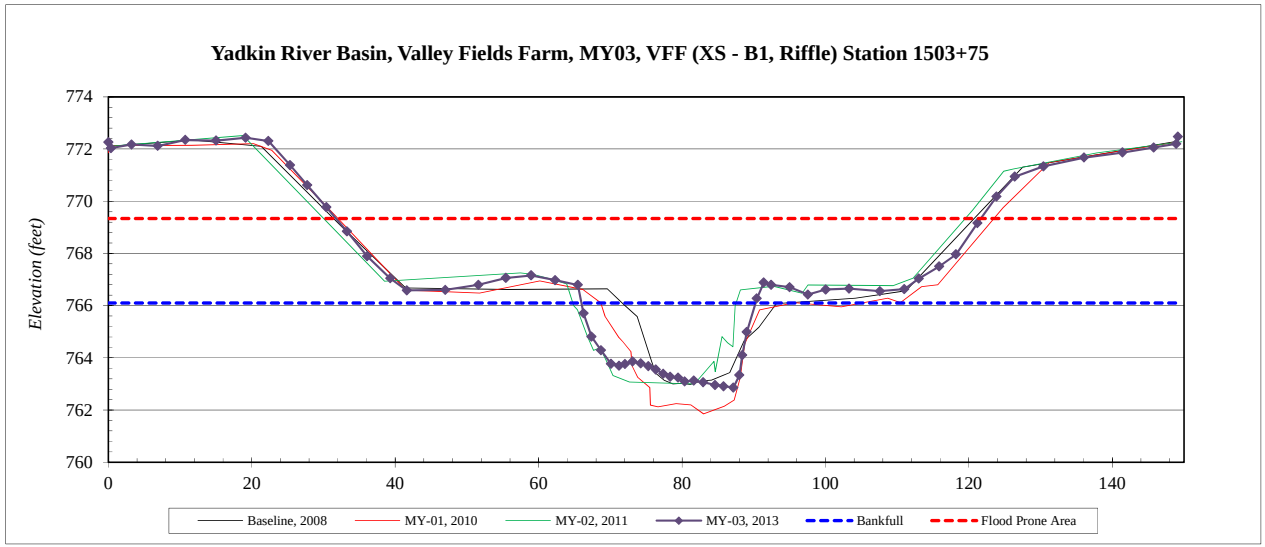
River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - B1, Riffle) Station 1503+75
Drainage Area (sq mi):	2.3
Date:	12/4/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	772.26
0.4	772.04
3.2	772.17
6.9	772.12
10.7	772.35
15.0	772.32
19.2	772.43
22.3	772.31
25.3	771.38
27.7	770.61
30.4	769.77
33.3	768.84
36.1	767.89
39.3	767.04
41.6	766.59
47.0	766.60
51.6	766.80
55.4	767.06
59.0	767.16
62.3	766.98
65.5	766.79
66.3	765.71
67.4	764.81
68.7	764.29
70.1	763.77
71.2	763.70
72.1	763.77
73.1	763.86
74.2	763.79
75.3	763.68
76.4	763.55
77.4	763.39
78.4	763.28
79.4	763.24
80.4	763.10

*additional points not included due to space

SUMMARY DATA	
Bankfull Elevation:	766.1
Bankfull Cross-Sectional Area:	58.0
Bankfull Width:	24.3
Flood Prone Area Elevation:	769.3
Flood Prone Width:	89.9
Max Depth at Bankfull:	3.2
Mean Depth at Bankfull:	2.4
W / D Ratio:	10.2
Entrenchment Ratio:	3.7
Bank Height Ratio:	1.0

Stream Type	C5



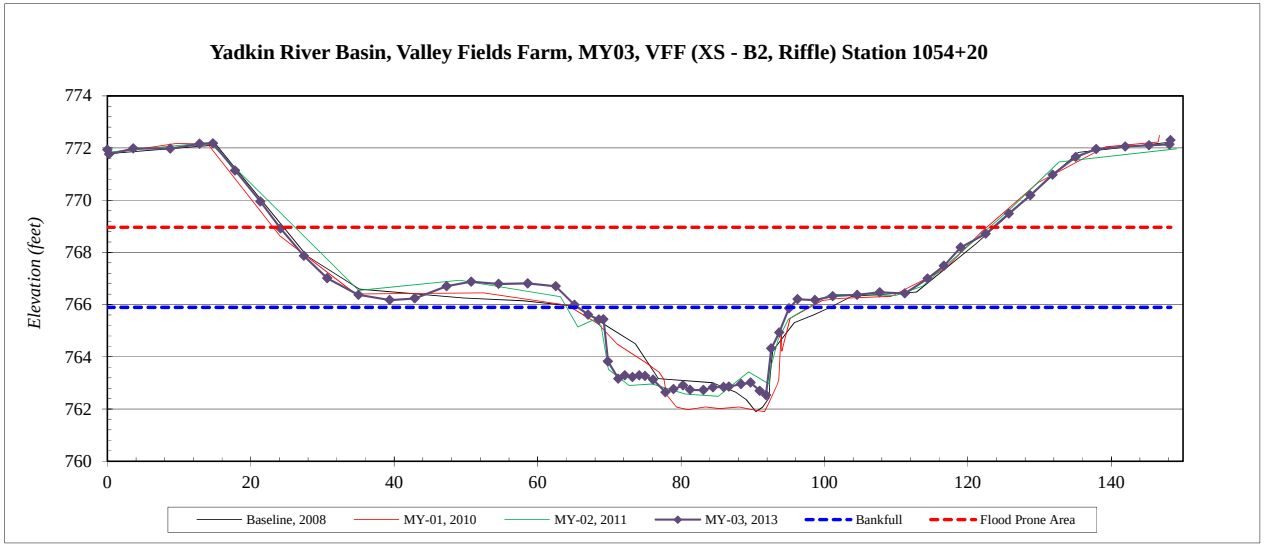
River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - B2, Riffle) Station 1054+20
Drainage Area (sq mi):	2.3
Date:	12/4/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	772.24
0.3	772.07
3.6	772.28
8.8	772.28
12.9	772.46
14.7	772.48
17.8	771.44
21.3	770.25
24.2	769.22
27.4	768.17
30.7	767.31
35.0	766.67
39.4	766.48
42.9	766.54
47.3	767.01
50.8	767.18
54.6	767.09
58.6	767.11
62.5	767.00
65.2	766.29
67.0	765.92
68.6	765.73
69.2	765.74
69.8	764.13
71.3	763.46
72.2	763.59
73.2	763.52
74.2	763.59
75.0	763.57
76.1	763.42
77.8	762.94
79.0	763.07
80.3	763.21
81.3	763.04
83.1	763.03

*additional points not included due to space

SUMMARY DATA	
Bankfull Elevation:	765.9
Bankfull Cross-Sectional Area:	62.1
Bankfull Width:	27.5
Flood Prone Area Elevation:	769.0
Flood Prone Width:	97.2
Max Depth at Bankfull:	3.1
Mean Depth at Bankfull:	2.3
W / D Ratio:	12.2
Entrenchment Ratio:	3.5
Bank Height Ratio:	1.0

Stream Type	C5



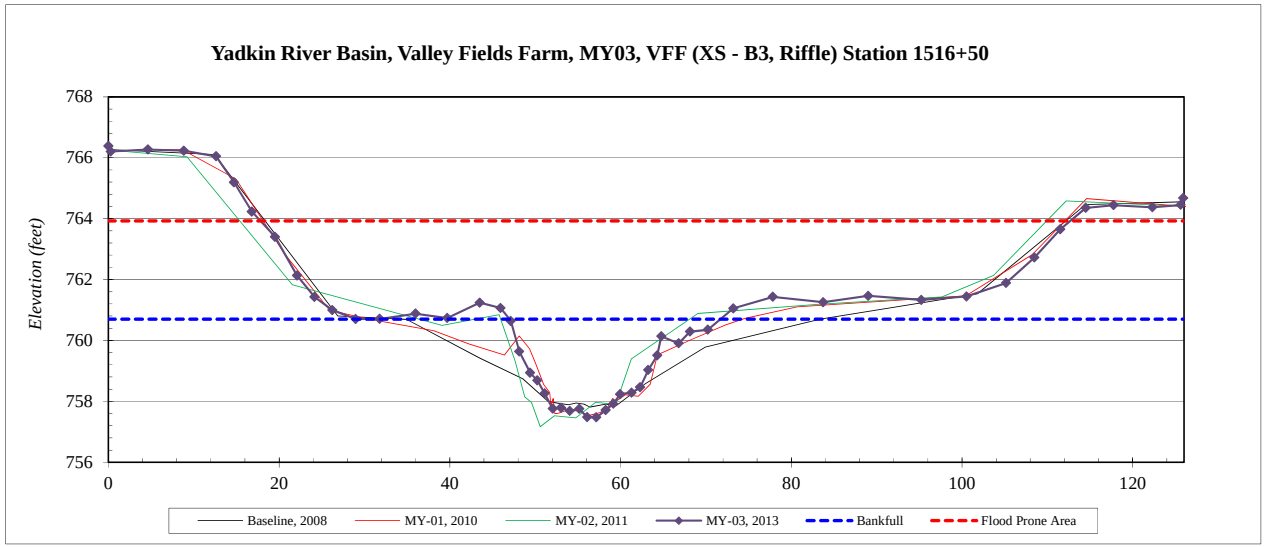
River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - B3, Riffle) Station 1516+50
Drainage Area (sq mi):	2.3
Date:	12/4/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	766.38
0.3	766.20
4.6	766.27
8.9	766.23
12.6	766.05
14.7	765.19
16.8	764.23
19.5	763.40
22.1	762.13
24.1	761.43
26.2	761.00
29.0	760.71
31.8	760.71
36.0	760.88
39.7	760.74
43.5	761.24
45.9	761.07
47.1	760.64
48.1	759.63
49.4	758.94
50.3	758.69
51.1	758.26
52.1	757.76
53.0	757.79
54.1	757.68
55.2	757.75
56.1	757.48
57.2	757.47
58.3	757.71
59.2	757.92
60.0	758.24
61.3	758.29
62.3	758.46
63.2	759.03
64.3	759.51

*additional points not included due to space

SUMMARY DATA	
Bankfull Elevation:	760.7
Bankfull Cross-Sectional Area:	37.5
Bankfull Width:	23.1
Flood Prone Area Elevation:	763.9
Flood Prone Width:	90.8
Max Depth at Bankfull:	3.2
Mean Depth at Bankfull:	1.6
W / D Ratio:	14.2
Entrenchment Ratio:	3.9
Bank Height Ratio:	1.0

Stream Type	B5



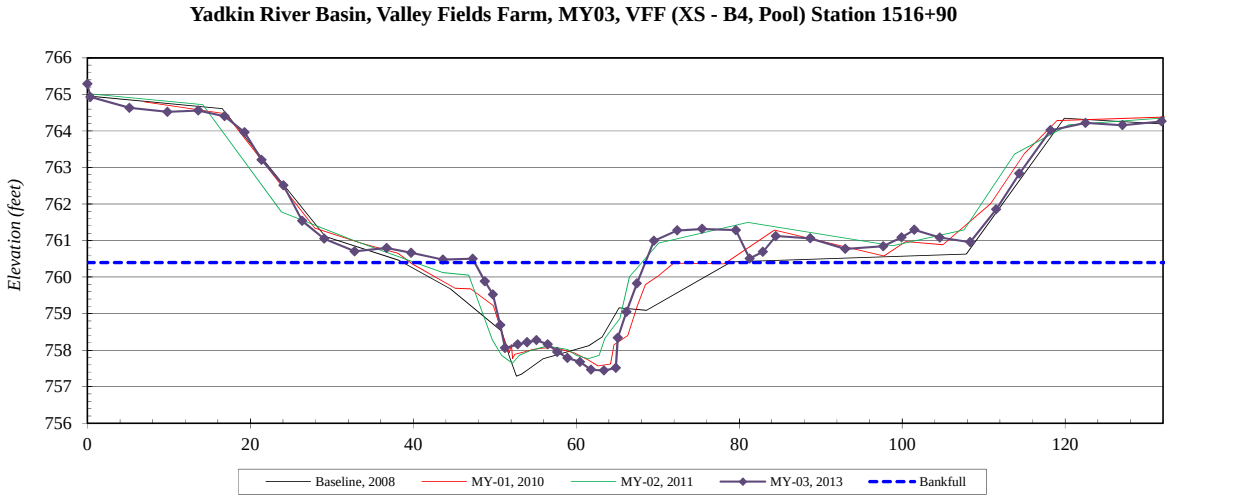
River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - B4, Pool) Station 1516+90
Drainage Area (sq mi):	2.3
Date:	12/4/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	765.29
0.4	764.93
5.2	764.63
9.8	764.52
13.6	764.56
16.8	764.40
19.3	763.96
21.4	763.20
24.1	762.51
26.4	761.54
29.1	761.05
32.8	760.70
36.7	760.80
39.8	760.66
43.6	760.48
47.3	760.50
48.8	759.88
49.8	759.53
50.7	758.69
51.3	758.06
52.8	758.16
54.0	758.22
55.1	758.27
56.5	758.16
57.7	757.95
58.9	757.79
60.5	757.68
61.8	757.47
63.4	757.44
64.9	757.52
65.1	758.34
66.2	759.05
67.4	759.82
69.5	760.99
72.4	761.28

*additional points not included due to space

SUMMARY DATA	
Bankfull Elevation:	760.4
Bankfull Cross-Sectional Area:	35.6
Bankfull Width:	19.7
Flood Prone Area Elevation:	-
Flood Prone Width:	-
Max Depth at Bankfull:	3.0
Mean Depth at Bankfull:	2.0
W / D Ratio:	-
Entrenchment Ratio:	-
Bank Height Ratio:	-

Stream Type	B5

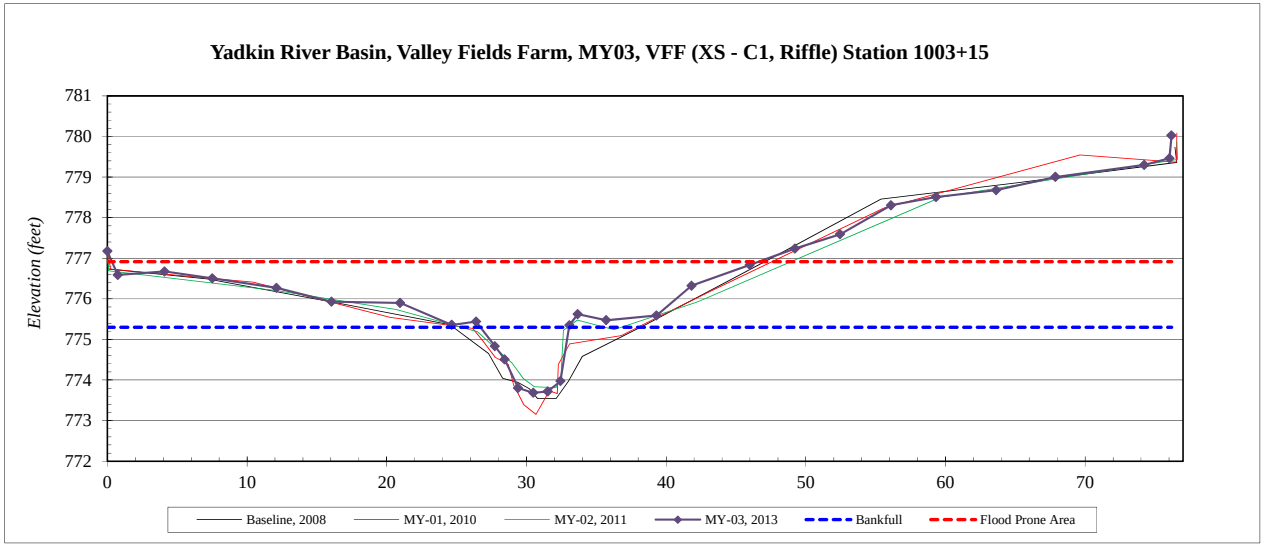


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - C1, Riffle) Station 1003+15
Drainage Area (sq mi):	0.2
Date:	12/5/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	777.17
0.7	776.59
4.1	776.67
7.5	776.51
12.1	776.27
16.0	775.93
21.0	775.90
24.7	775.36
26.4	775.44
27.7	774.83
28.4	774.51
29.4	773.80
30.5	773.69
31.5	773.72
32.4	773.97
33.1	775.35
33.7	775.62
35.7	775.47
39.3	775.59
41.8	776.32
46.0	776.84
49.2	777.24
52.5	777.59
56.1	778.30
59.3	778.51
63.6	778.68
67.9	779.00
74.2	779.30
76.0	779.46
76.2	780.02

SUMMARY DATA	
Bankfull Elevation:	775.3
Bankfull Cross-Sectional Area:	5.6
Bankfull Width:	5.8
Flood Prone Area Elevation:	776.9
Flood Prone Width:	46.0
Max Depth at Bankfull:	1.6
Mean Depth at Bankfull:	1.0
W / D Ratio:	6.0
Entrenchment Ratio:	7.9
Bank Height Ratio:	1.0

Stream Type	C5

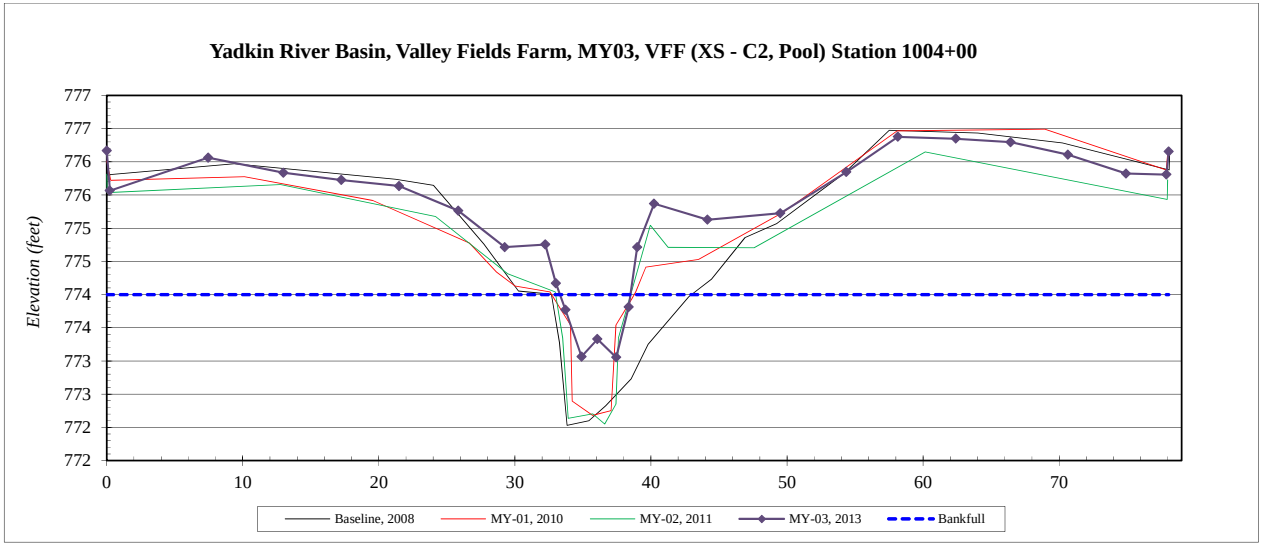


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - C2, Pool) Station 1004+00
Drainage Area (sq mi):	0.2
Date:	12/5/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	776.17
0.2	775.56
7.5	776.06
13.0	775.83
17.2	775.73
21.5	775.63
25.8	775.26
29.3	774.71
32.2	774.75
33.0	774.17
33.7	773.77
34.9	773.07
36.1	773.33
37.4	773.05
38.4	773.81
39.0	774.71
40.2	775.37
44.2	775.13
49.5	775.23
54.4	775.85
58.1	776.38
62.4	776.35
66.4	776.29
70.7	776.11
74.9	775.82
77.9	775.81
78.1	776.15

SUMMARY DATA	
Bankfull Elevation:	774.0
Bankfull Cross-Sectional Area:	3.3
Bankfull Width:	5.2
Flood Prone Area Elevation:	-
Flood Prone Width:	-
Max Depth at Bankfull:	0.9
Mean Depth at Bankfull:	0.6
W / D Ratio:	-
Entrenchment Ratio:	-
Bank Height Ratio:	-

Stream Type	C5

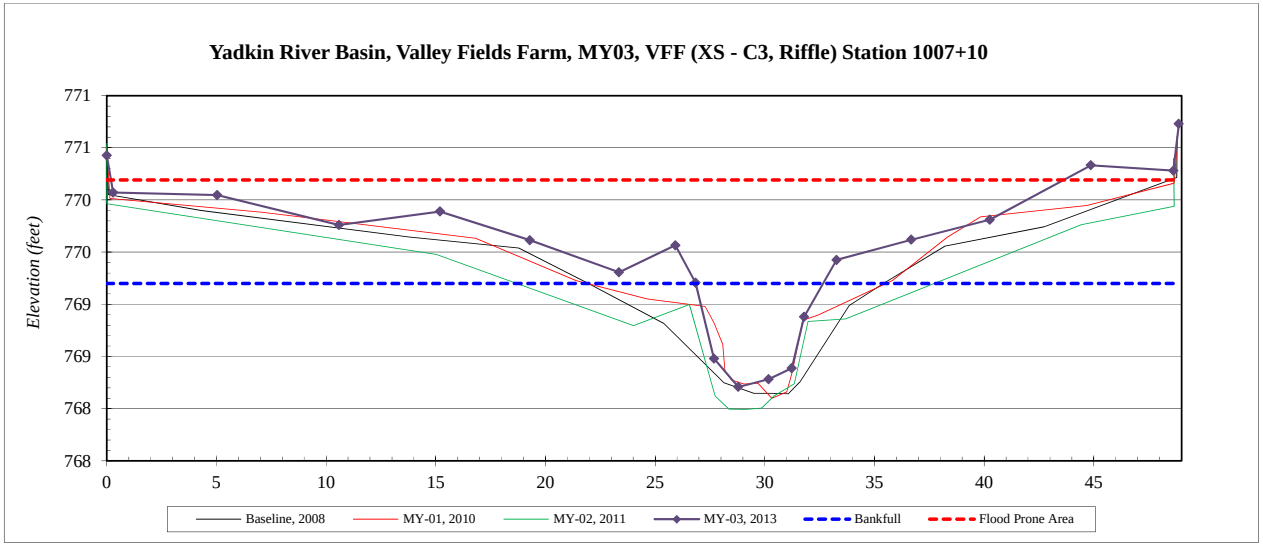


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - C3, Riffle) Station 1007+10
Drainage Area (sq mi):	0.2
Date:	12/5/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	770.43
0.3	770.07
5.0	770.05
10.6	769.76
15.2	769.89
19.3	769.61
23.4	769.31
25.9	769.57
26.8	769.21
27.7	768.48
28.8	768.21
30.2	768.28
31.2	768.39
31.8	768.88
33.3	769.43
36.7	769.62
40.3	769.81
44.9	770.33
48.6	770.28
48.9	770.73

SUMMARY DATA	
Bankfull Elevation:	769.2
Bankfull Cross-Sectional Area:	3.9
Bankfull Width:	5.8
Flood Prone Area Elevation:	770.2
Flood Prone Width:	43.4
Max Depth at Bankfull:	1.0
Mean Depth at Bankfull:	0.7
W / D Ratio:	8.6
Entrenchment Ratio:	7.5
Bank Height Ratio:	1.0

Stream Type	C5

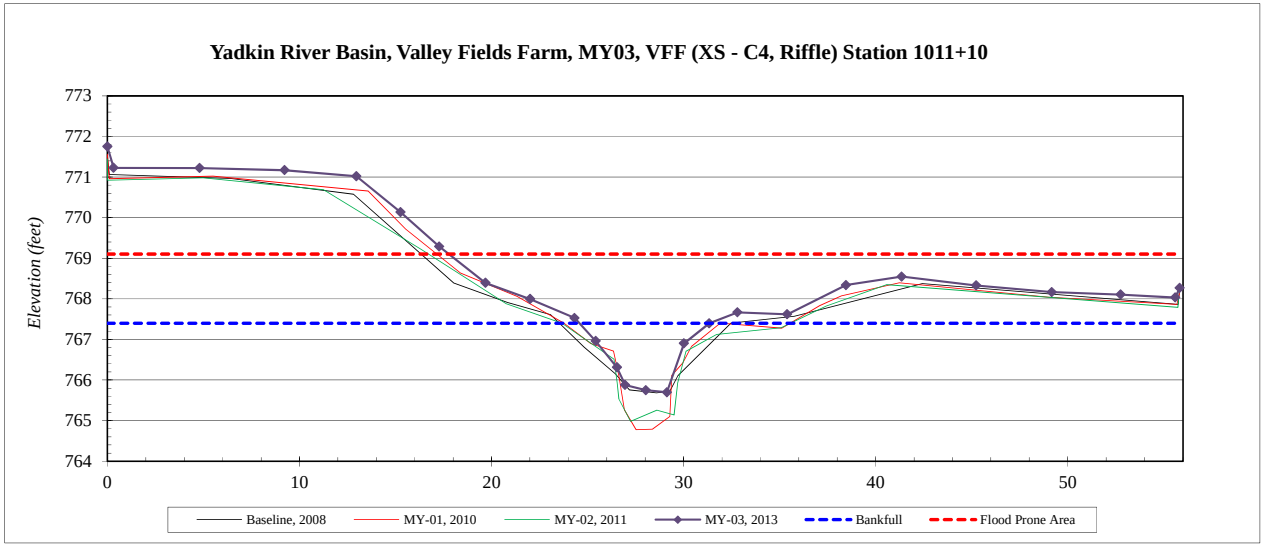


River Basin:	Yadkin
Watershed:	Valley Fields Farm, MY03
XS ID	VFF (XS - C4, Riffle) Station 1011+10
Drainage Area (sq mi):	0.2
Date:	12/5/2013
Field Crew:	T. Seelinger, M. Koss

Station	Elevation
0.0	771.75
0.3	771.23
4.8	771.22
9.2	771.17
13.0	771.02
15.3	770.13
17.3	769.29
19.7	768.39
22.0	768.00
24.3	767.53
25.4	766.96
26.5	766.31
27.0	765.88
28.0	765.75
29.1	765.70
30.0	766.90
31.3	767.40
32.8	767.67
35.4	767.62
38.5	768.34
41.4	768.55
45.2	768.33
49.2	768.17
52.8	768.11
55.6	768.03
55.8	768.27

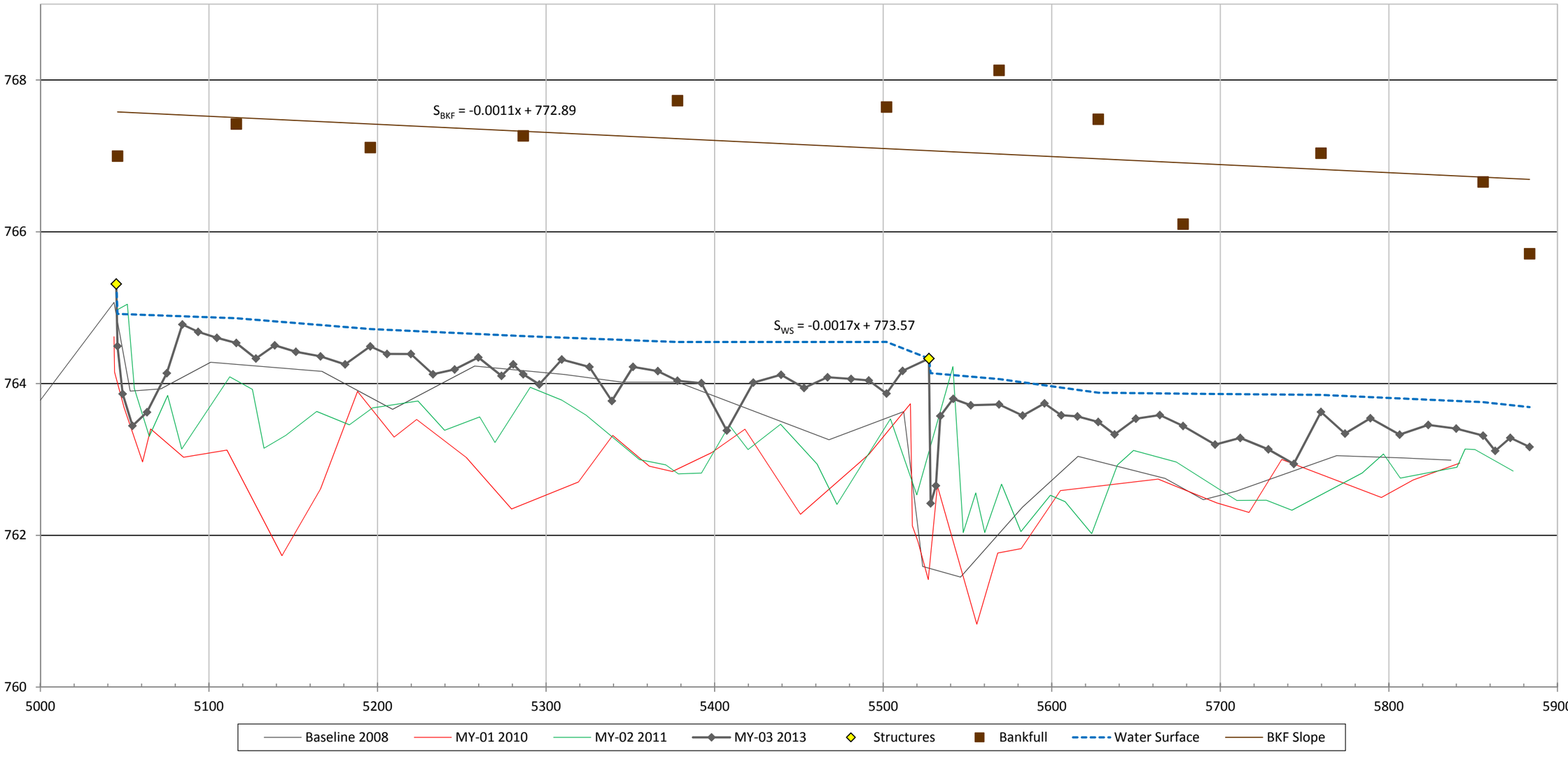
SUMMARY DATA	
Bankfull Elevation:	767.4
Bankfull Cross-Sectional Area:	5.1
Bankfull Width:	4.6
Flood Prone Area Elevation:	769.1
Flood Prone Width:	38.0
Max Depth at Bankfull:	1.7
Mean Depth at Bankfull:	1.1
W / D Ratio:	4.1
Entrenchment Ratio:	8.3
Bank Height Ratio:	1.0

Stream Type	C5

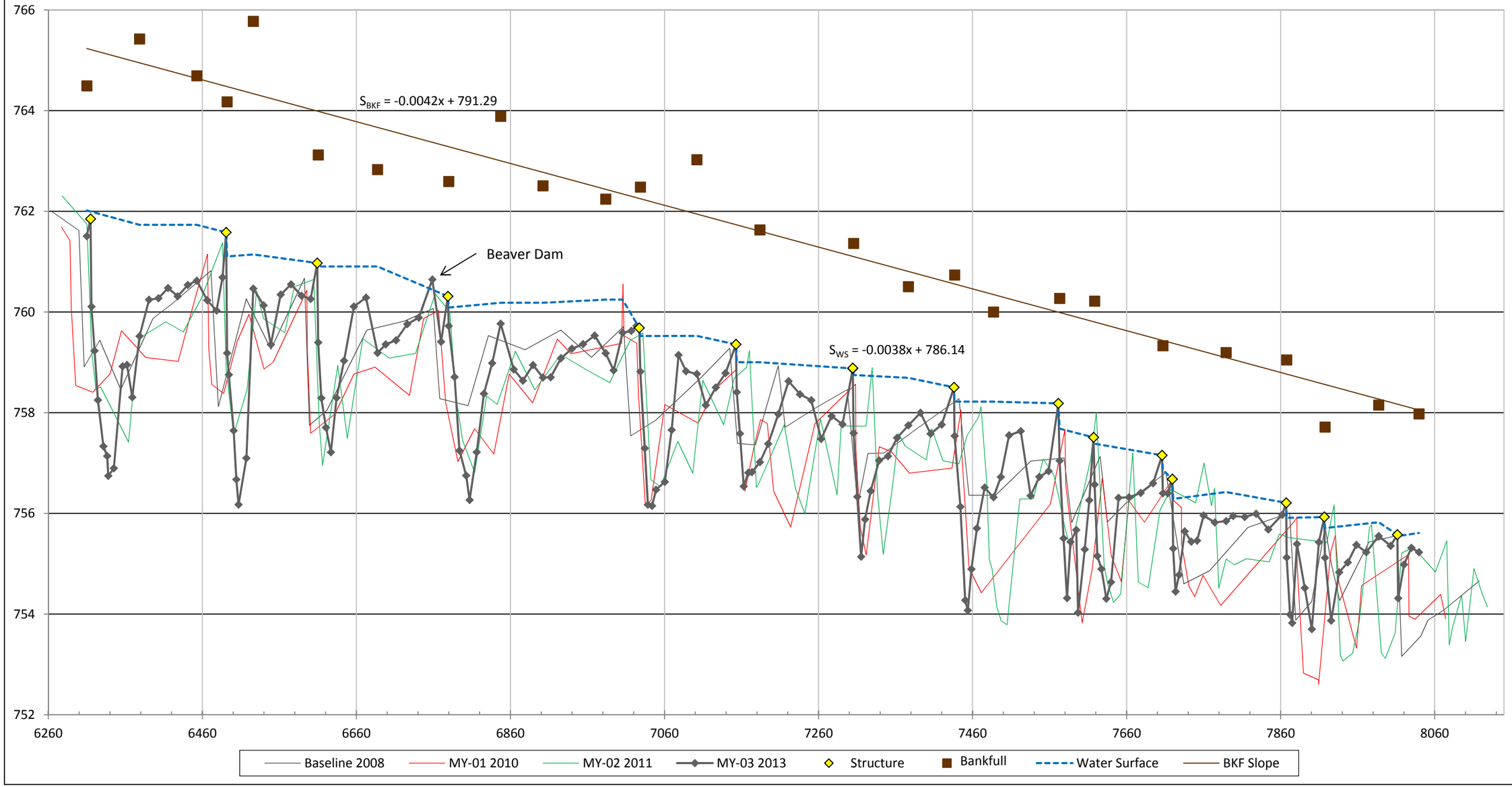


LONGITUDINAL PROFILE PLOTS

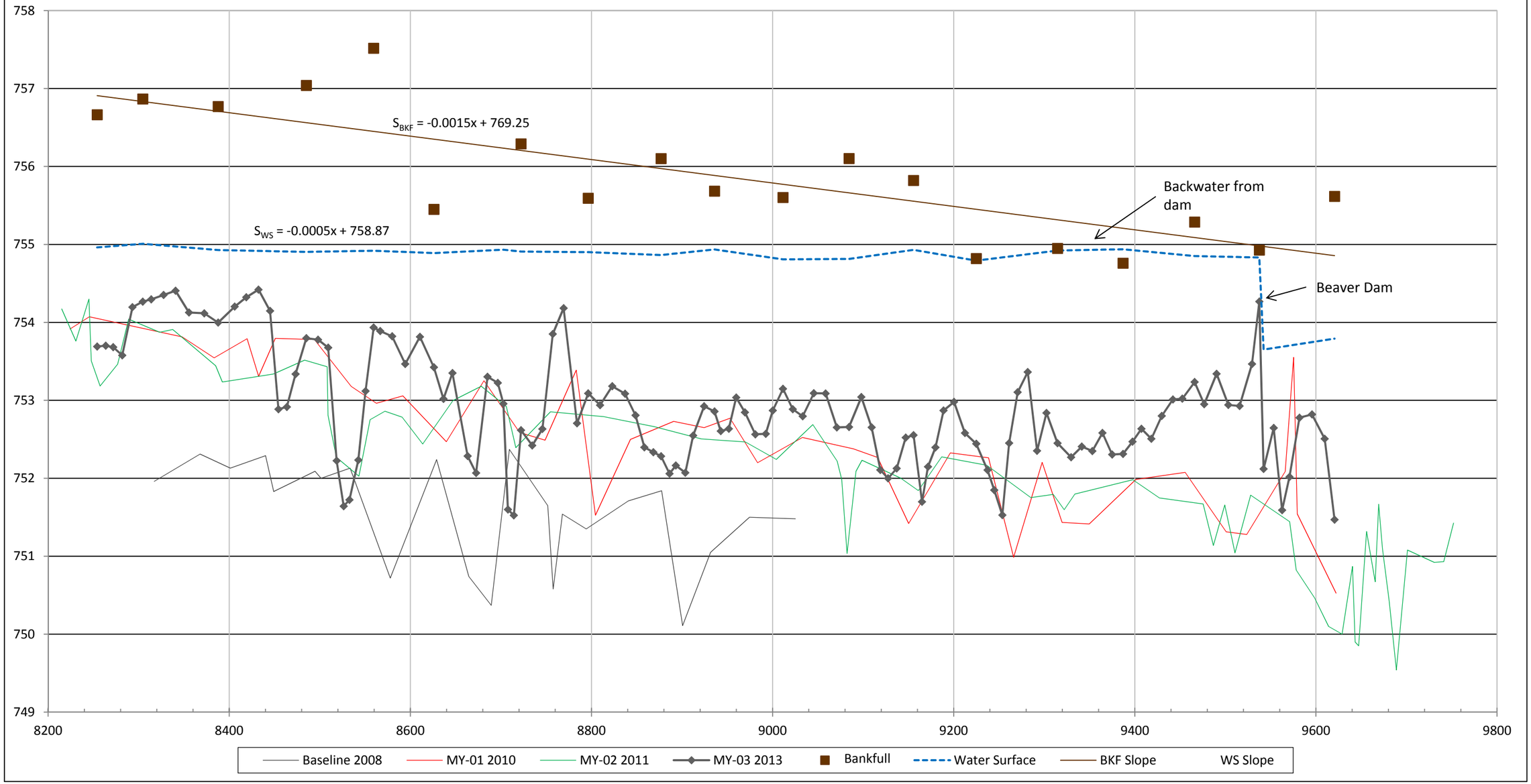
Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 50+00-58+40 (Upper A)



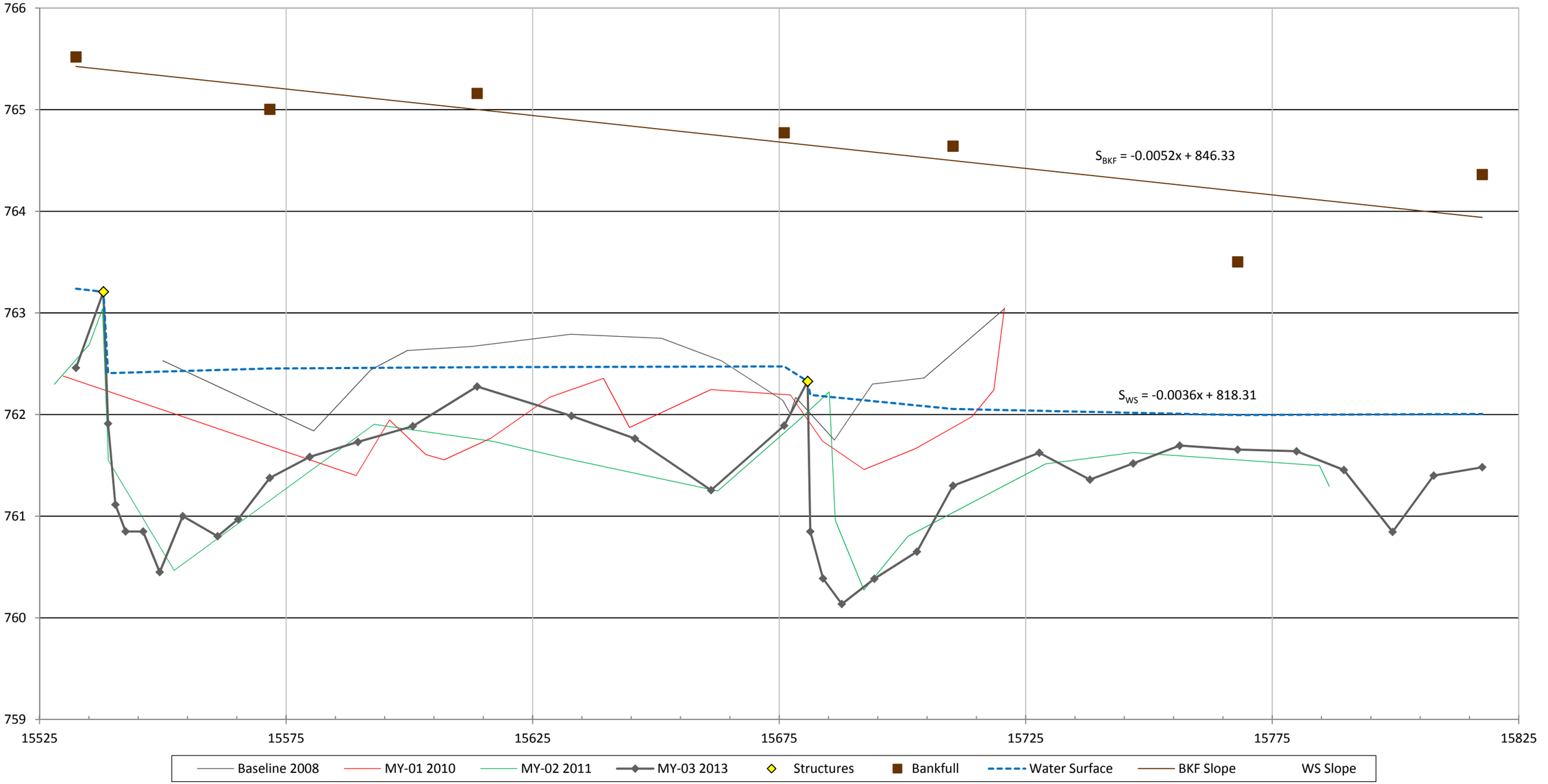
Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 62+60-81+50 (Upper A2)



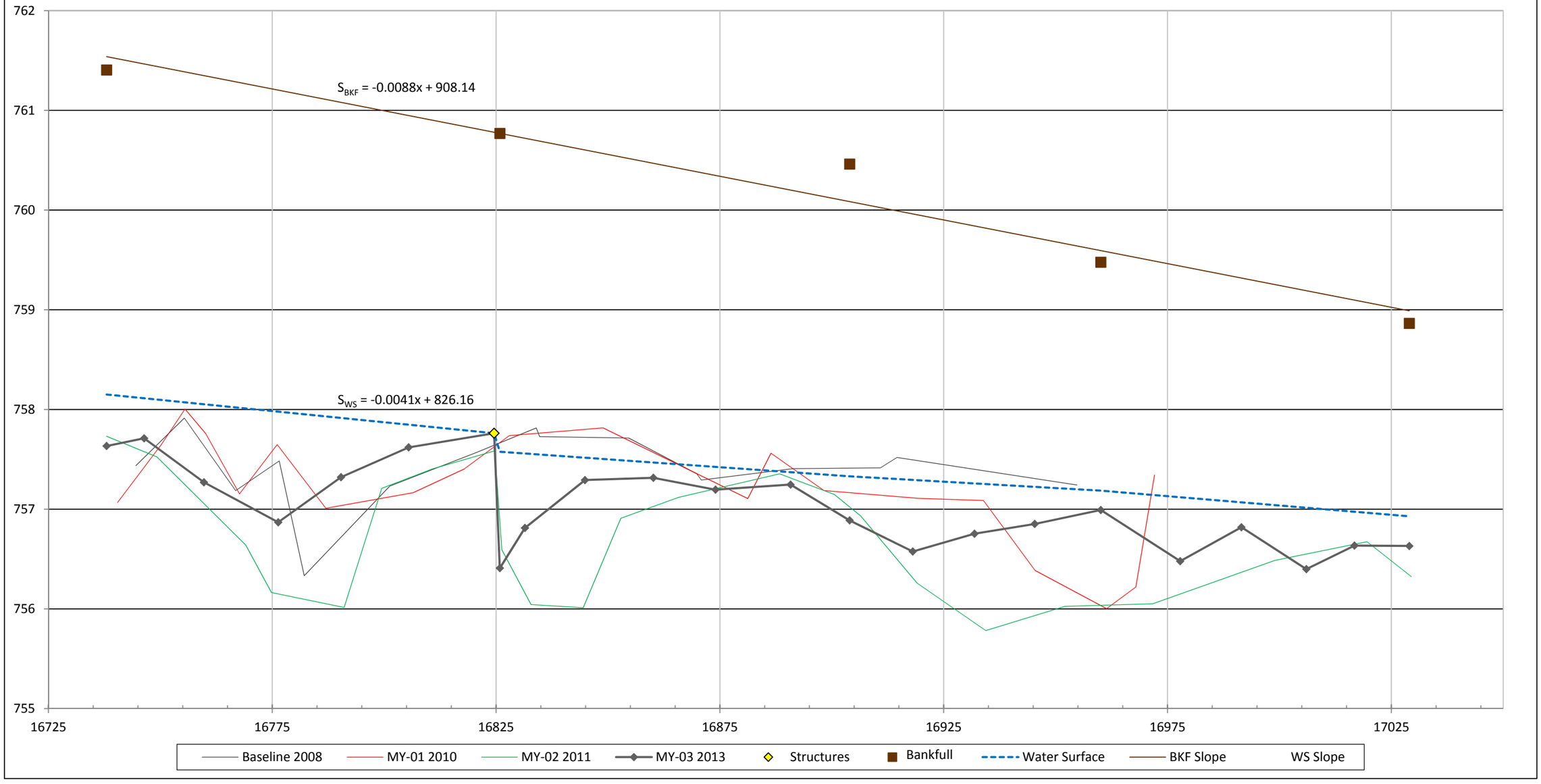
Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 82+00-98+00 (Lower A)



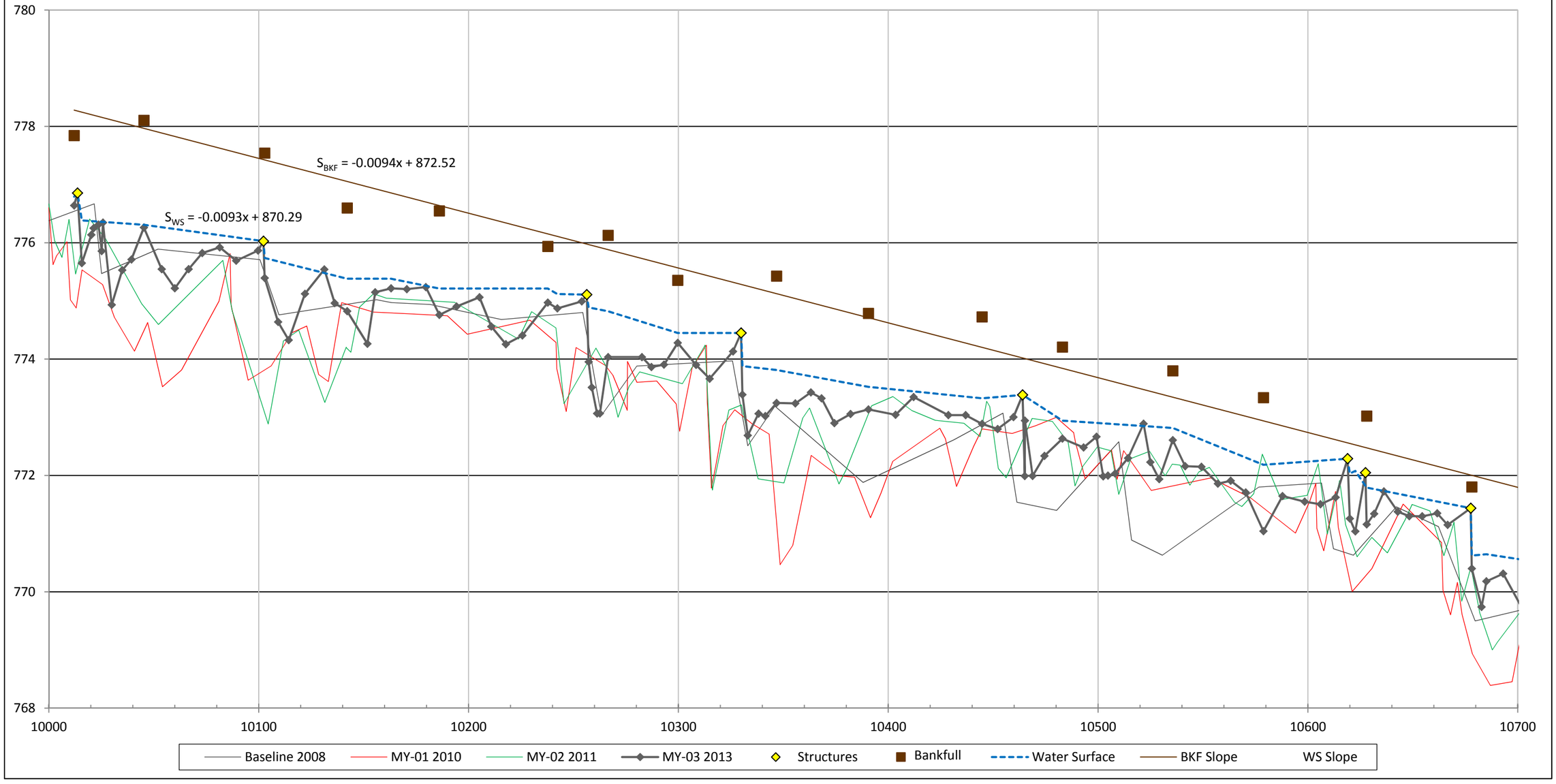
Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 155+25 - 158+25 (Upper B)



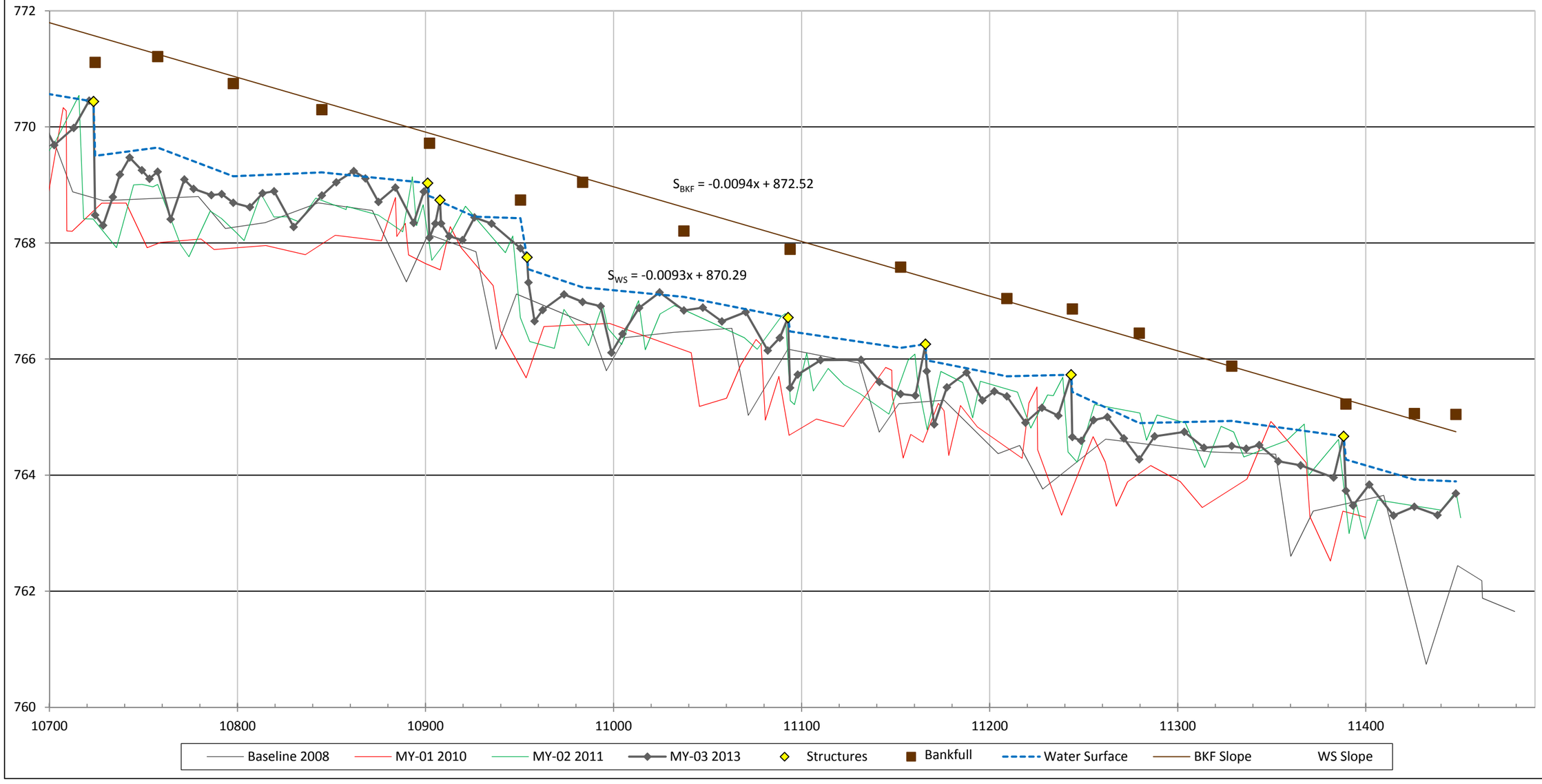
Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 167+25 - 170+50 (Lower B)



Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 100+00 - 107+00 (Reach C)



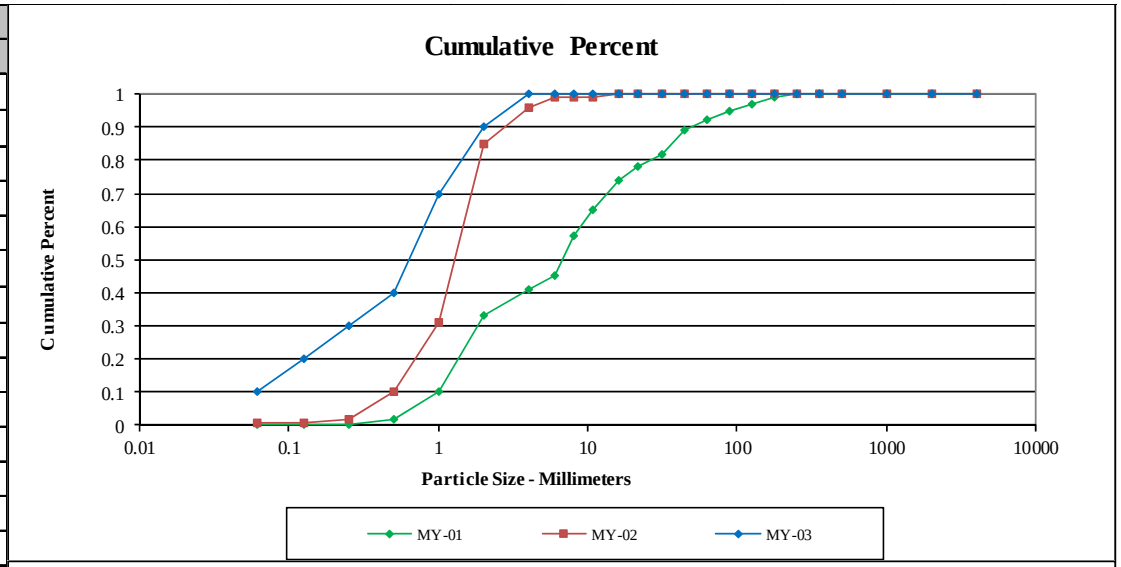
Longitudinal Profile
Valley Fields Farm
EEP Project Number - 407
Station 107+00 - 114+90 (Reach C)

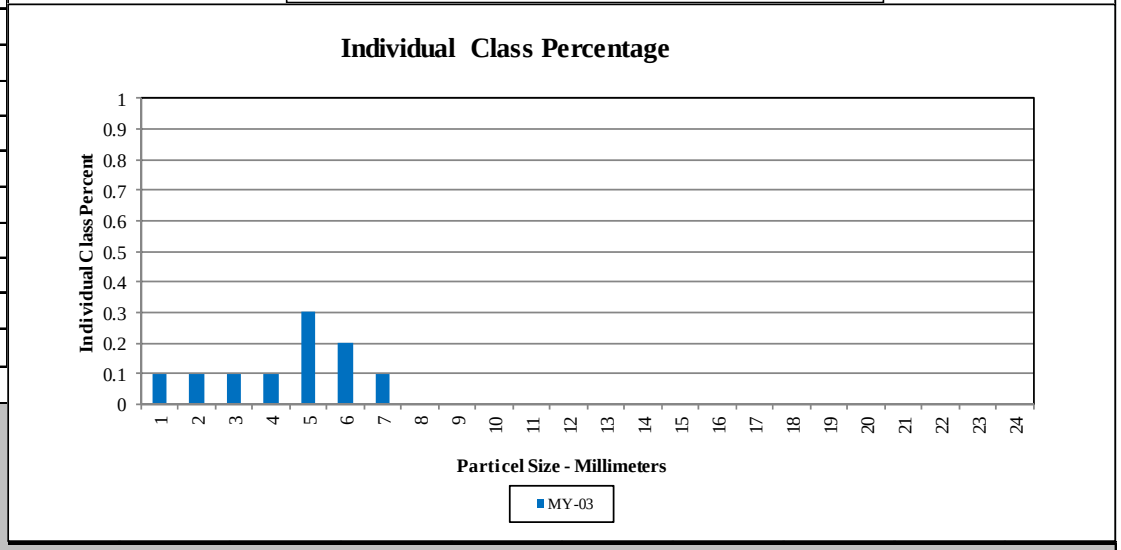


PEBBLE COUNT PLOTS

Cross-Section A1 Riffle - VFF MY-03					
Particle	Millimeter	Material	Count	Item %	Cum %
Silt/Clay	< 0.062	S/C	10	10%	10%
Very Fine	.062 - .125	S	10	10%	20%
Fine	.125 - .25	A	10	10%	30%
Medium	.25 - .50	N	10	10%	40%
Coarse	.50 - 1	D	30	30%	70%
Very Coarse	1 - 2	S	20	20%	90%
Very Fine	2 - 4		10	10%	100%
Fine	4 - 5.7	G		0%	100%
Fine	5.7 - 8	R		0%	100%
Medium	8 - 11.3	A		0%	100%
Medium	11.3 - 16	V		0%	100%
Coarse	16 - 22.6	E		0%	100%
Coarse	22.6 - 32	L		0%	100%
Very Coarse	32 - 45	S		0%	100%
Very Coarse	45 - 64			0%	100%
Small	64 - 90	C		0%	100%
Small	90 - 128	O		0%	100%
Large	128 - 180	B		0%	100%
Large	180 - 256	L		0%	100%
Small	256 - 362	B		0%	100%
Small	362 - 512	L		0%	100%
Medium	512 - 1024	D		0%	100%
Lrg- Very Lrg	1024 - 2048	R		0%	100%
Bedrock	>2048	BDRK		0%	100%
		Total	100	100%	100%

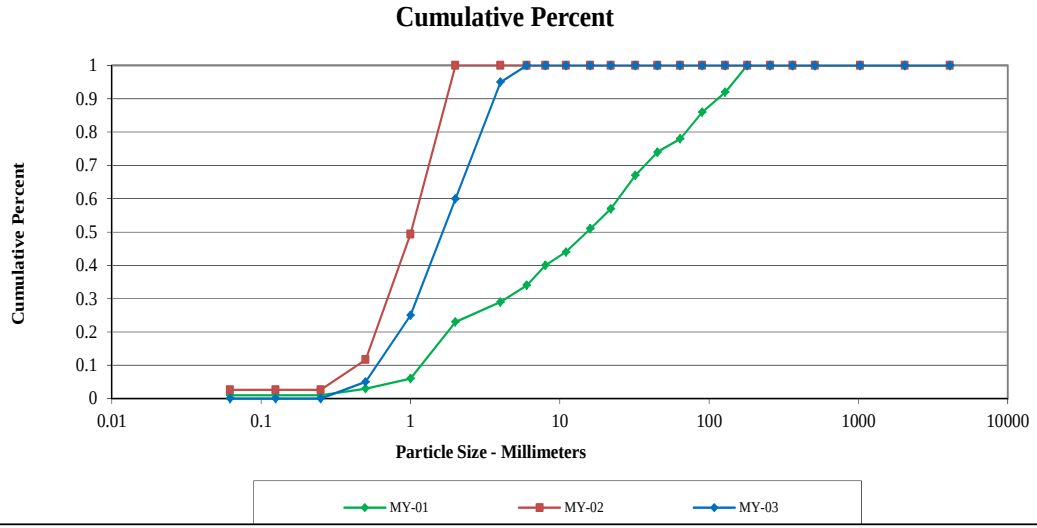
Size (mm)		Type	
D50	0.63	silt/clay	10%
D84	1.6	sand	80%
D95	2.8	gravel	10%
		cobble	0%

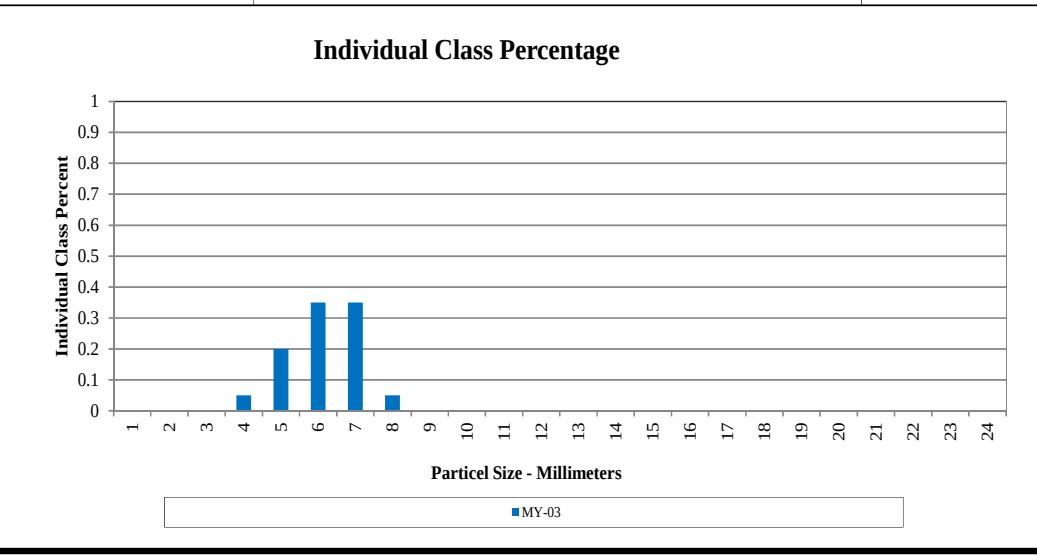




Cross-Section A2 Riffle - VFF MY-03					
Particle	Millimeter	Material	Count	Item %	Cum %
Silt/Clay	< 0.062	S/C		0%	0%
Very Fine	.062 - .125	S		0%	0%
Fine	.125 - .25	A		0%	0%
Medium	.25 - .50	N	5	5%	5%
Coarse	.50 - 1	D	20	20%	25%
Very Coarse	1 - 2	S	35	35%	60%
Very Fine	2 - 4		35	35%	95%
Fine	4 - 5.7	G	5	5%	100%
Fine	5.7 - 8	R		0%	100%
Medium	8 - 11.3	A		0%	100%
Medium	11.3 - 16	V		0%	100%
Coarse	16 - 22.6	E		0%	100%
Coarse	22.6 - 32	L		0%	100%
Very Coarse	32 - 45	S		0%	100%
Very Coarse	45 - 64			0%	100%
Small	64 - 90	C		0%	100%
Small	90 - 128	O		0%	100%
Large	128 - 180	B		0%	100%
Large	180 - 256	L		0%	100%
Small	256 - 362	B		0%	100%
Small	362 - 512	L		0%	100%
Medium	512 - 1024	D		0%	100%
Lrg- Very Lrg	1024 - 2048	R		0%	100%
Bedrock	>2048	BDRK		0%	100%
		Total	100	100%	100%

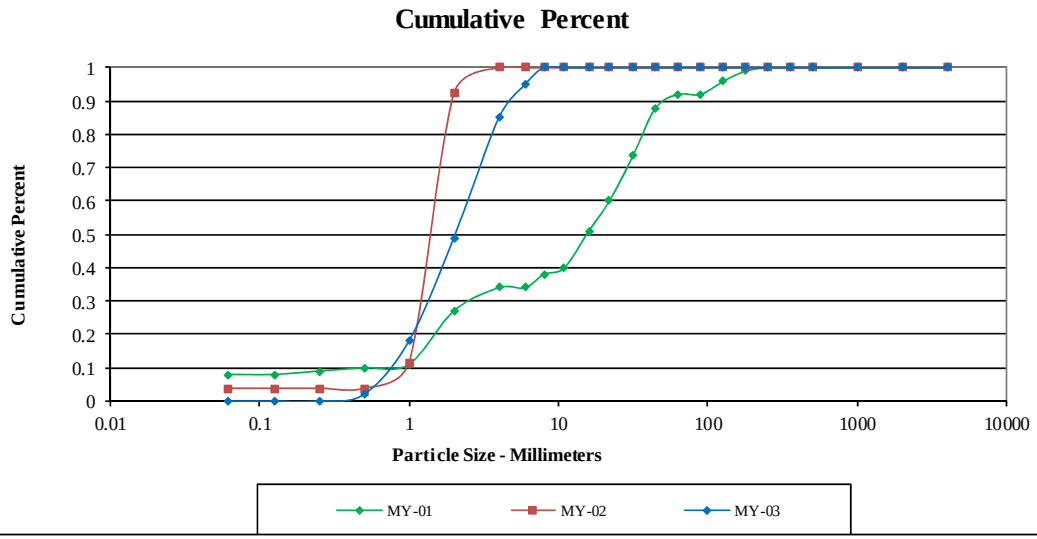
Size (mm)		Type	
D50	1.6	silt/clay	0%
D84	3.2	sand	60%
D95	4	gravel	40%
		cobble	0%

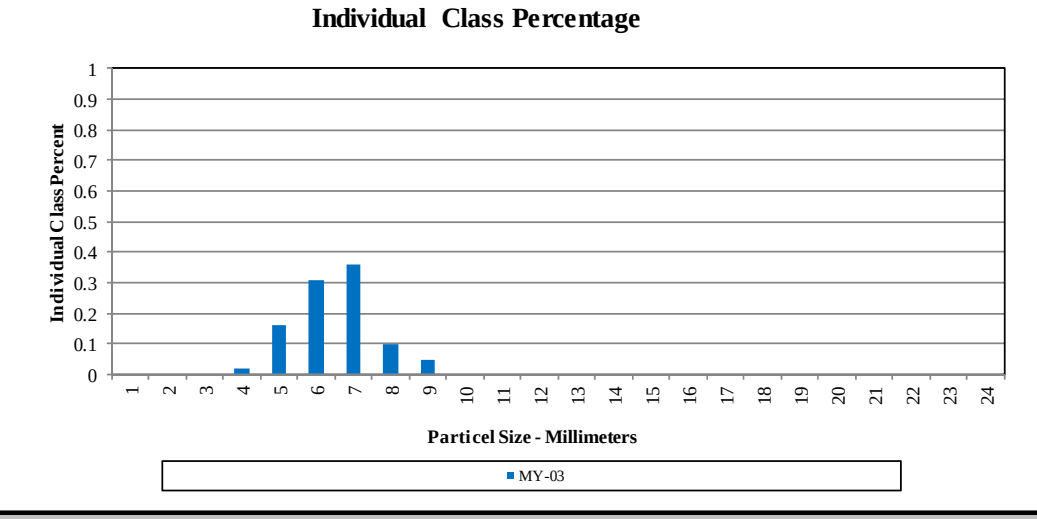




Cross-Section A3 Riffle - VFF MY-03					
Particle	Millimeter	Material	Count	Item %	Cum %
Silt/Clay	< 0.062	S/C		0%	0%
Very Fine	.062 - .125	S		0%	0%
Fine	.125 - .25	A		0%	0%
Medium	.25 - .50	N	2	2%	2%
Coarse	.50 - 1	D	16	16%	18%
Very Coarse	1 - 2	S	31	31%	49%
Very Fine	2 - 4		36	36%	85%
Fine	4 - 5.7	G	10	10%	95%
Fine	5.7 - 8	R	5	5%	100%
Medium	8 - 11.3	A		0%	100%
Medium	11.3 - 16	V		0%	100%
Coarse	16 - 22.6	E		0%	100%
Coarse	22.6 - 32	L		0%	100%
Very Coarse	32 - 45	S		0%	100%
Very Coarse	45 - 64			0%	100%
Small	64 - 90	C		0%	100%
Small	90 - 128	O		0%	100%
Large	128 - 180	B		0%	100%
Large	180 - 256	L		0%	100%
Small	256 - 362	B		0%	100%
Small	362 - 512	L		0%	100%
Medium	512 - 1024	D		0%	100%
Lrg- Very Lrg	1024 - 2048	R		0%	100%
Bedrock	>2048	BDRK		0%	100%
		Total	100	100%	100%

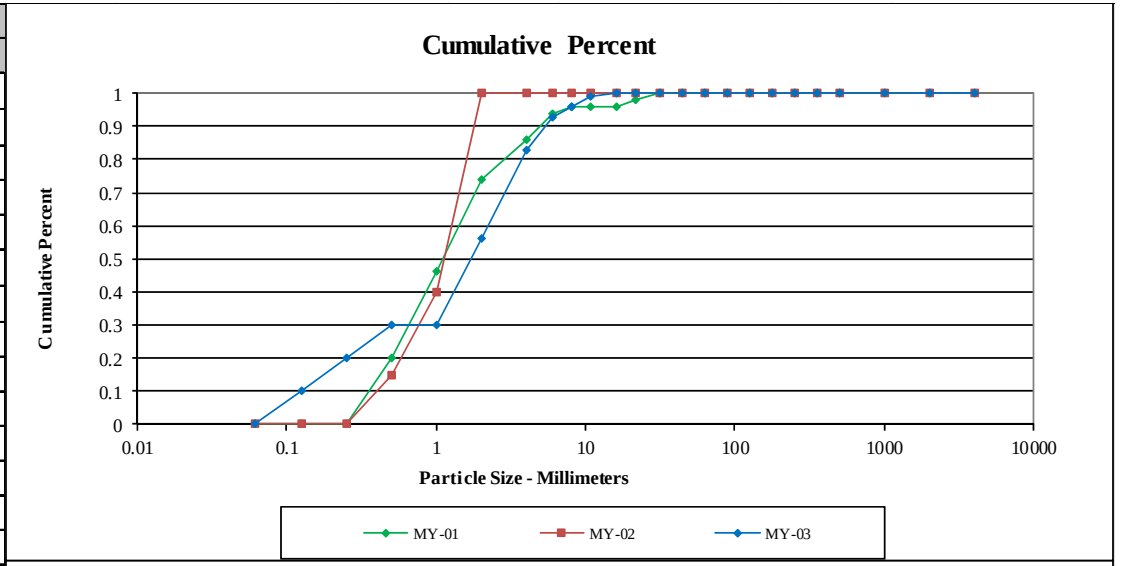
Size (mm)		Type	
D50	2	silt/clay	0%
D84	3.9	sand	49%
D95	6	gravel	51%
		cobble	0%

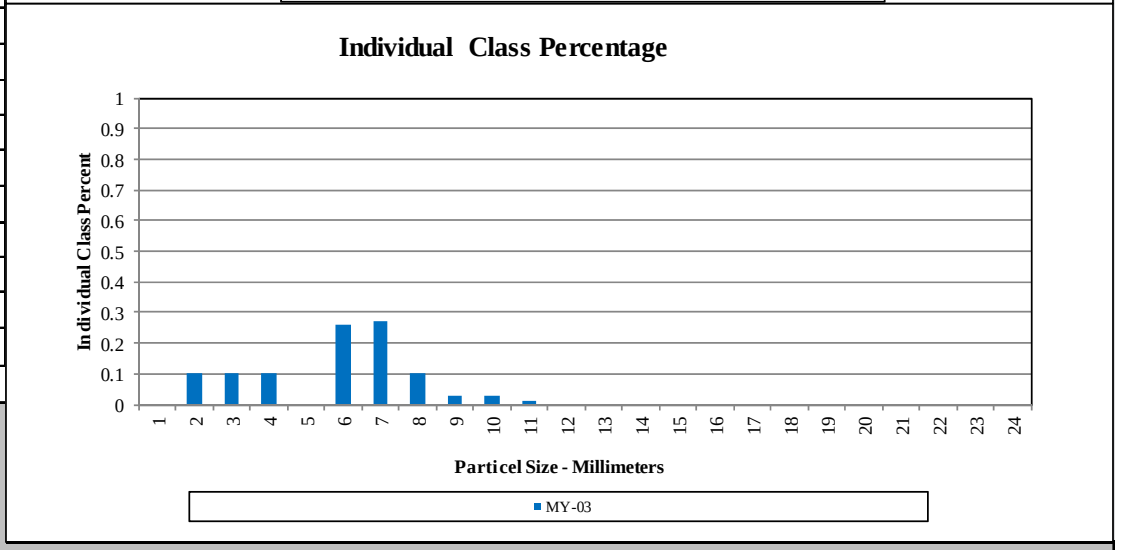




Cross-Section A10 Riffle - VFF MY-03					
Particle	Millimeter	Material	Count	Item %	Cum %
Silt/Clay	< 0.062	S/C		0%	0%
Very Fine	.062 - .125	S	10	10%	10%
Fine	.125 - .25	A	10	10%	20%
Medium	.25 - .50	N	10	10%	30%
Coarse	.50 - 1	D		0%	30%
Very Coarse	1 - 2	S	26	26%	56%
Very Fine	2 - 4		27	27%	83%
Fine	4 - 5.7	G	10	10%	93%
Fine	5.7 - 8	R	3	3%	96%
Medium	8 - 11.3	A	3	3%	99%
Medium	11.3 - 16	V	1	1%	100%
Coarse	16 - 22.6	E		0%	100%
Coarse	22.6 - 32	L		0%	100%
Very Coarse	32 - 45	S		0%	100%
Very Coarse	45 - 64			0%	100%
Small	64 - 90	C		0%	100%
Small	90 - 128	O		0%	100%
Large	128 - 180	B		0%	100%
Large	180 - 256	L		0%	100%
Small	256 - 362	B		0%	100%
Small	362 - 512	L		0%	100%
Medium	512 - 1024	D		0%	100%
Lrg- Very Lrg	1024 - 2048	R		0%	100%
Bedrock	>2048	BDRK		0%	100%
		Total	100	100%	100%

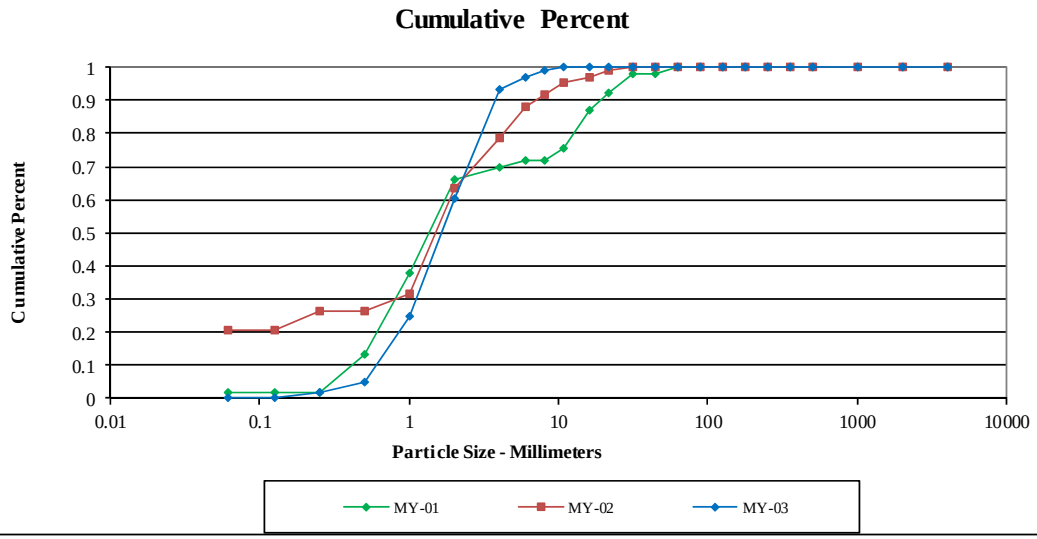
Size (mm)		Type	
D50	1.7	silt/clay	0%
D84	4.2	sand	56%
D95	7.3	gravel	44%
		cobble	0%

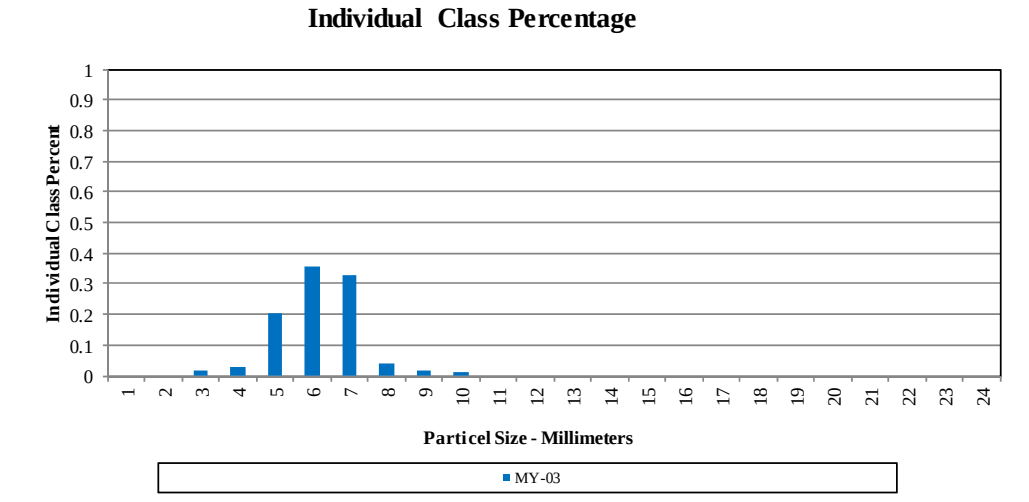




Cross-Section B1 Riffle - VFF MY-03					
Particle	Millimeter	Material	Count	Item %	Cum %
Silt/Clay	< 0.062	S/C		0%	0%
Very Fine	.062 - .125	S		0%	0%
Fine	.125 - .25	A	2	2%	2%
Medium	.25 - .50	N	3	3%	5%
Coarse	.50 - 1	D	21	20%	25%
Very Coarse	1 - 2	S	37	36%	61%
Very Fine	2 - 4		34	33%	93%
Fine	4 - 5.7	G	4	4%	97%
Fine	5.7 - 8	R	2	2%	99%
Medium	8 - 11.3	A	1	1%	100%
Medium	11.3 - 16	V		0%	100%
Coarse	16 - 22.6	E		0%	100%
Coarse	22.6 - 32	L		0%	100%
Very Coarse	32 - 45	S		0%	100%
Very Coarse	45 - 64			0%	100%
Small	64 - 90	C		0%	100%
Small	90 - 128	O		0%	100%
Large	128 - 180	B		0%	100%
Large	180 - 256	L		0%	100%
Small	256 - 362	B		0%	100%
Small	362 - 512	L		0%	100%
Medium	512 - 1024	D		0%	100%
Lrg- Very Lrg	1024 - 2048	R		0%	100%
Bedrock	>2048	BDRK		0%	100%
		Total	104	100%	100%

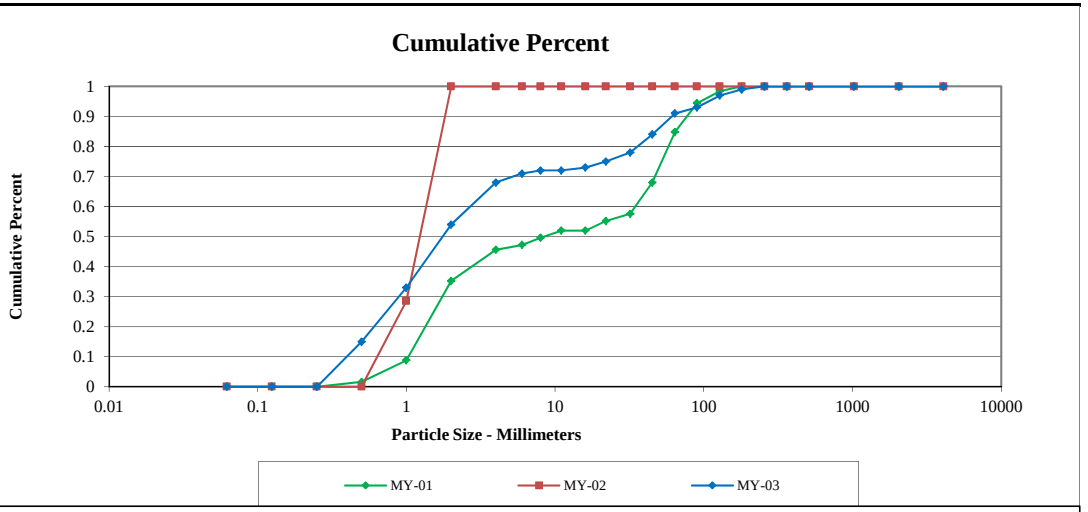
Size (mm)		Type	
D50	1.6	silt/clay	0%
D84	3.3	sand	61%
D95	4.8	gravel	39%
		cobble	0%





Cross-Section C3 Riffle - VFF MY-03					
Particle	Millimeter	Material	Count	Item %	Cum %
Silt/Clay	< 0.062	S/C		0%	0%
Very Fine	.062 - .125	S		0%	0%
Fine	.125 - .25	A		0%	0%
Medium	.25 - .50	N	15	15%	15%
Coarse	.50 - 1	D	18	18%	33%
Very Coarse	1 - 2	S	21	21%	54%
Very Fine	2 - 4		14	14%	68%
Fine	4 - 5.7	G	3	3%	71%
Fine	5.7 - 8	R	1	1%	72%
Medium	8 - 11.3	A		0%	72%
Medium	11.3 - 16	V	1	1%	73%
Coarse	16 - 22.6	E	2	2%	75%
Coarse	22.6 - 32	L	3	3%	78%
Very Coarse	32 - 45	S	6	6%	84%
Very Coarse	45 - 64		7	7%	91%
Small	64 - 90	C	2	2%	93%
Small	90 - 128	O	4	4%	97%
Large	128 - 180	B	2	2%	99%
Large	180 - 256	L	1	1%	100%
Small	256 - 362	B		0%	100%
Small	362 - 512	L		0%	100%
Medium	512 - 1024	D		0%	100%
Lrg- Very Lrg	1024 - 2048	R		0%	100%
Bedrock	>2048	BDRK		0%	100%
		Total	100	100%	100%

Size (mm)		Type	
D50	1.8	silt/clay	0%
D84	45	sand	54%
D95	110	gravel	30%
		cobble	9%



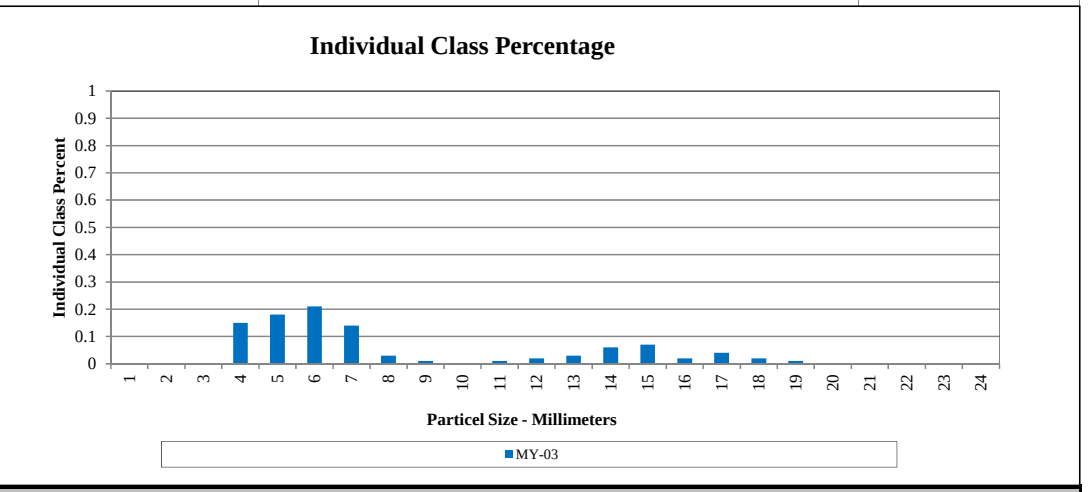


TABLE 10. BASELINE STREAM DATA SUMMARY TABLE

Table 10a.1 Baseline Stream Data Summary
Valley Fields Farm/407 - Upper A: 800 feet

Parameter	Gauge[2]	Regional Curve			Pre-Existing Condition						Reference Reach(es) Data						Design			Monitoring Baseline					
Dimension and Substrate - Riffle Only		LL	UL	Eq.	Min	Mean	Med	Max	SD[5]	n	Min	Mean	Med	Max	SD[5]	n	Min	Med	Max	Min	Mean	Med	Max	SD[5]	n
Bankfull Width (ft)		20.502	22.66	21.581			18.2			1	5.7	10.1	9.4	15.2		3		30		29.1	30.05		31		2
Floodprone Width (ft)							20.8			1	23.3	53.033	49.9	85.9		3		66		90	90.7		91.4		2
Bankfull Mean Depth (ft)		2.2206	2.4544	2.3375			1.7			1	0.5	0.9	1	1.2		3		1.9		1.6	1.85		2.1		2
[1]Bankfull Max Depth (ft)							1.9			1	1.2	1.5333	1.5	1.9		3		2.9		2.8	3		3.2		2
Bankfull Cross Sectional Area (ft^2)		52.257	57.758	55.008			30.9			1	2.7	10.2	8.9	19		3		57.5		50.1	55.1		60.1		2
Width/Depth Ratio							10.7			1	9.4	11.167	11.4	12.7		3		15.8		14.2	16.65		19.1		2
Entrenchment Ratio							1.1			1	1.5	6.4667	8.8	9.1		3		2.2		3	3		3		2
[1]Bank Height Ratio							**2.8**			**1**	**1.1**	**1.3333**	**1.4**	**1.5**		**3**		**1**		**1**	**1**		**1**		**2**
Profile																									
Riffle Length (ft)																				56.5	88.5		120.4		1
Riffle Slope (ft/ft)					0.0026	0.003		0.0033		2	0.0061	0.0337	0.0173	0.0961	0.0361	6	0.0031	0.0031	0.0064	0.0034	0.0034		0.0034		1
Pool Length (ft)																				38.5	74.1		98.5		3
Pool Max depth (ft)					2.6	2.6		2.6		1	0.9	1.9	1.4	3.9	1.13	6	2.5	3.8	4.8	3.72	4.21		5.1		3
Pool Spacing (ft)					30	42		77		2	15.3	31.7	31.6	52.4	13.8	6	120	120	150	155.7	248.2		340.6		2
Pattern																									
Channel Beltwidth (ft)					36		59	79		3	43.2	79.2	84.3	105.1	26.1	4	201	229	256	22.1	118.1	126	197.2	71.914	4
Radius of Curvature (ft)					17		72	248		3	16.4	29.5	22	51	14.7	5	60	90	120	10.1	45.7	49.2	79.8	28.527	5
Rc:Bankfull width (ft/ft)					**0.9341**		**3.956**	**13.626**		**3**	**1.7**	**4.1**	**3.7**	**6.8**	**1.7**	**6**	**2**	**3**	**4**	**0.3**	**1.5**		**2.6**	1.1141	**6**
Meander Wavelength (ft)					76		143	196		3	44.7	141.3	114	320.6	106.5	6	240	300	360	117	302.2	292..4	613.9	251.12	6
Meander Width Ratio					4.1758		7.8571	10.769		3	7.6	10.9	11.2	15.5	3.1	5	8	10	12	4.0	10.1		19.8	7.9637	5
Transport parameters																									
Reach Shear Stress (competency) lb/f^2					0.31824												0.560976			0.386724					
Max part size (mm) mobilized at bankfull					23.64698193												42.68793974			28.97191657					
Stream Power (transport capacity) W/m^2					45.2088												46.71576			50.48316					
Additional Reach Parameters																									
Rosgen Classification					G5c/F5						B4/E5/C4						B5c/C5			C5					
Bankfull Velocity (fps)		4.1722	4.6114	4.3918	6.9												4.2			4.382940109					
Bankfull Discharge (cfs)		229.5	253.66	241.58	213.1																				
Valley length (ft)																									
Channel Thalweg length (ft)																									
Sinuosity (ft)					1.1						1.1-1.3						1.2								
Water Surface Slope (Channel) (ft/ft)					0.003						0.0080-0.0215						0.0028			0.0029					
BF slope (ft/ft)					**0.003**						**0.0082-0.0522**						**0.0031**			**0.0024**					
[3]Bankfull Floodplain Area (acres)																									
[4]% of Reach with Eroding Banks																									
Channel Stability or Habitat Metric																									
Biological or Other																									

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile. 2 = For projects with a proximal USGS gauge in-line with the project reach (added bankfull verification - rare).

3. Utilizing survey data produce an estimate of the bankfull floodplain area in acres, which should be the area from the top of bank to the toe of the terrace riser/slope.

4 = Proportion of reach exhibiting banks that are eroding based on the visual survey for comparison to monitoring data; 5. Of value/needed only if the n exceeds 3

Table 10a.2 Baseline Stream Data Summary
Valley Fields Farm/407 - Upper A2: 1,850 feet

Parameter	Gauge[2]	Regional Curve			Pre-Existing Condition						Reference Reach(es) Data						Design			Monitoring Baseline					
Dimension and Substrate - Riffle Only		LL	UL	Eq.	Min	Mean	Med	Max	SD[5]	n	Min	Mean	Med	Max	SD[5]	n	Min	Med	Max	Min	Mean	Med	Max	SD[5]	n
Bankfull Width (ft)		20.502	22.66	21.581	14.6	16.55		18.5		2	5.7	10.1	9.4	15.2		3		30		30.1	30.8		31.1		3
Floodprone Width (ft)					23.7	75.25		126.8		2	23.3	53.033	49.9	85.9		3		66		78.6	98.6		126.6		3
Bankfull Mean Depth (ft)		2.2206	2.4544	2.3375	2.7	2.75		2.8		2	0.5	0.9	1	1.2		3		1.9		1.8	2		2.2		3
[1]Bankfull Max Depth (ft)					3.4	3.45		3.5		2	1.2	1.5333	1.5	1.9		3		2.9		3.2	3.5		4		3
Bankfull Cross Sectional Area (ft^2)		52.257	57.758	55.008	40.4	45		49.6		2	2.7	10.2	8.9	19		3		57.5		55.2	62.2		69		3
Width/Depth Ratio					5.2	6.05		6.9		2	9.4	11.167	11.4	12.7		3		15.8		14	15.3		16.4		3
Entrenchment Ratio					1.6	4.25		6.9		2	1.5	6.4667	8.8	9.1		3		2.2		2.5	3.2		4.1		3
[1]Bank Height Ratio					**1.5**	**1.8**		**2.1**		**2**	**1.1**	**1.3333**	**1.4**	**1.5**		**3**		**1**		**1**	**1**		**1**		**3**
Profile																									
Riffle Length (ft)																				33.3	52		86.3		3
Riffle Slope (ft/ft)					0.0026	0.003	0.0044	0.0033	0.0008	4	0.0061	0.0337	0.0173	0.0961	0.0361	6	0.0031	0.0031	0.0064	0.0016	0.0086		0.0135		5
Pool Length (ft)																				60.8	110.4		238.6		3
Pool Max depth (ft)					2.5	2.8	2.6	3.2		3	0.9	1.9	1.4	3.9	1.13	6	2.5	3.8	4.8	4.15	5.03		5.94		11
Pool Spacing (ft)					30	42	53.7	77		3	15.3	31.7	31.6	52.4	13.8	6	120	120	150	142.7	238		300.6		5
Pattern																									
Channel Beltwidth (ft)					36	60	59.2	79	16	6	43.2	79.2	84.3	105.1	26.1	4	201	229	256	22.1	118.1	126	197.2	71.914	
Radius of Curvature (ft)					14	87.4	58.5	248	87.4	6	16.4	29.5	22	51	14.7	5	60	90	120	10.1	45.7	49.2	79.8	28.527	
Rc:Bankfull width (ft/ft)					**0.8459**	**5.3**	**3.7**	**17**	**6**	**6**	**1.7**	**4.1**	**3.7**	**6.8**	**1.7**	**6**	**2**	**3**	**4**	**0.3**	**1.5**		**2.6**	1.1153	
Meander Wavelength (ft)					58	139.8	58.5	228	65.9	6	44.7	141.3	114	320.6	106.5	6	240	300	360	117	302.2	292..4	613.9	251.12	
Meander Width Ratio					2.5	3.6	3.6	5.4	1.1	6	7.6	10.9	11.2	15.5	3.1	5	8	10	12	3.9	9.8		19.7	8.0101	
Transport parameters																									
Reach Shear Stress (competency) lb/f^2					0.5148												0.560976			1.07328					
Max part size (mm) mobilized at bankfull					39.03306101												42.68793974			83.92826353					
Stream Power (transport capacity) W/m^2					45.2088												46.71576			129.59856					
Additional Reach Parameters																									
Rosgen Classification					G5/Incised E5						B4/E5/C4						B5c/C5			C5					
Bankfull Velocity (fps)		4.1722	4.6114	4.3918	4.9-5.7												4.2			3.882636656					
Bankfull Discharge (cfs)		229.5	253.66	241.58	241.1																				
Valley length (ft)																									
Channel Thalweg length (ft)																									
Sinuosity (ft)					1.0-1.1						1.1-1.3						1.2								
Water Surface Slope (Channel) (ft/ft)					0.0025-0.0040						0.0080-0.0215						0.0028			0.0036					
BF slope (ft/ft)					**0.0030-0.0035**						**0.0082-0.0522**						**0.0031**			**0.0036**					
[3]Bankfull Floodplain Area (acres)																									
[4]% of Reach with Eroding Banks																									
Channel Stability or Habitat Metric																									
Biological or Other																									

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile. 2 = For projects with a proximal USGS gauge in-line with the project reach (added bankfull verification - rare).

3. Utilizing survey data produce an estimate of the bankfull floodplain area in acres, which should be the area from the top of bank to the toe of the terrace riser/slope.

4 = Proportion of reach exhibiting banks that are eroding based on the visual survey for comparison to monitoring data; 5. Of value/needed only if the n exceeds 3

Table 10a.3 Baseline Stream Data Summary
Valley Fields Farm/407 - Lower A: 1,400 feet

Parameter	Gauge[2]	Regional Curve			Pre-Existing Condition						Reference Reach(es) Data						Design			Monitoring Baseline					
Dimension and Substrate - Riffle Only		LL	UL	Eq.	Min	Mean	Med	Max	SD[5]	n	Min	Mean	Med	Max	SD[5]	n	Min	Med	Max	Min	Mean	Med	Max	SD[5]	n
Bankfull Width (ft)		25.261	27.921	26.591			45.1			1	5.7	10.1	9.4	15.2		3		30		30.1	30.8		31.1		3
Floodprone Width (ft)							63.3			1	23.3	53.033	49.9	85.9		3		66		78.6	98.6		126.6		3
Bankfull Mean Depth (ft)		2.5939	2.8669	2.7304			2			1	0.5	0.9	1	1.2		3		1.9		1.8	2		2.2		3
[1]Bankfull Max Depth (ft)							3.5			1	1.2	1.5333	1.5	1.9		3		2.9		3.2	3.5		4		3
Bankfull Cross Sectional Area (ft^2)		72.699	80.351	76.525			91.3			1	2.7	10.2	8.9	19		3		57.5		55.2	62.2		69		3
Width/Depth Ratio							22.6			1	9.4	11.167	11.4	12.7		3		15.8		14	15.3		16.4		3
Entrenchment Ratio							1.4			1	1.5	6.4667	8.8	9.1		3		2.2		2.5	3.2		4.1		3
[1]Bank Height Ratio							**1.7**			**1**	**1.1**	**1.3333**	**1.4**	**1.5**		**3**		**1**		**1**	**1**		**1**		**3**
Profile																									
Riffle Length (ft)																				36.8	44.4		51.6		3
Riffle Slope (ft/ft)					0.0075	0.0089		0.0102		2	0.0061	0.0337	0.0173	0.0961	0.0361	6	0.0031	0.0031	0.0064	0.0016	0.0086		0.0135		5
Pool Length (ft)																				89.6	119.8		152.8		3
Pool Max depth (ft)					4	4.6		5.3		2	0.9	1.9	1.4	3.9	1.13	6	2.5	3.8	4.8	4.15	5.03		5.94		11
Pool Spacing (ft)					53	104		156		2	15.3	31.7	31.6	52.4	13.8	6	120	120	150	142.7	238		300.6		5
Pattern																									
Channel Beltwidth (ft)					36	60	59.2	79	16	6	43.2	79.2	84.3	105.1	26.1	4	201	229	256	22.1	118.1	126	197.2	71.914	
Radius of Curvature (ft)					14	87.4	58.5	248	87.4	6	16.4	29.5	22	51	14.7	5	60	90	120	10.1	45.7	49.2	79.8	28.527	
Rc:Bankfull width (ft/ft)					**2**	**5.3**	**3.7**	**17**	**6**	**6**	**1.7**	**4.1**	**3.7**	**6.8**	**1.7**	**6**	**2**	**3**	**4**	**0.3**	**1.5**		**2.6**	1.1153	
Meander Wavelength (ft)					58	139.8	58.5	228	65.9	6	44.7	141.3	114	320.6	106.5	6	240	300	360	117	302.2	292..4	613.9	251.12	
Meander Width Ratio					2.5	3.6	3.6	5.4	1.1	6	7.6	10.9	11.2	15.5	3.1	5	8	10	12	3.9	9.8		19.7	8.0101	
Transport parameters																									
Reach Shear Stress (competency) lb/f^2							1.11072											0.560976					1.07328		
Max part size (mm) mobilized at bankfull							86.98116865											42.68793974					83.92826353		
Stream Power (transport capacity) W/m^2							134.11944											46.71576					129.59856		
Additional Reach Parameters																									
Rosgen Classification							G5/Incised E5						B4/E5/C4					B5c/C5					C5		
Bankfull Velocity (fps)		4.2541	4.7019	4.478			4.9-5.7											4.2					3.882636656		
Bankfull Discharge (cfs)		325.54	359.81	342.68			241.1																		
Valley length (ft)																									
Channel Thalweg length (ft)																									
Sinuosity (ft)							1.0-1.1						1.1-1.3					1.2							
Water Surface Slope (Channel) (ft/ft)							0.0025-0.0040						0.0080-0.0215					0.0028					0.0015		
BF slope (ft/ft)							**0.0030-0.0035**						**0.0082-0.0522**					**0.0031**					**0.002**		
[3]Bankfull Floodplain Area (acres)																									
[4]% of Reach with Eroding Banks																									
Channel Stability or Habitat Metric																									
Biological or Other																									

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile. 2 = For projects with a proximal USGS gauge in-line with the project reach (added bankfull verification - rare).

3. Utilizing survey data produce an estimate of the bankfull floodplain area in acres, which should be the area from the top of bank to the toe of the terrace riser/slope.

4 = Proportion of reach exhibiting banks that are eroding based on the visual survey for comparison to monitoring data; 5. Of value/needed only if the n exceeds 3

Table 10a.4 Baseline Stream Data Summary
Valley Fields Farm/407 - Upper B: 200 feet

Parameter	Gauge[2]	Regional Curve			Pre-Existing Condition						Reference Reach(es) Data						Design			Monitoring Baseline					
Dimension and Substrate - Riffle Only		LL	UL	Eq.	Min	Mean	Med	Max	SD[5]	n	Min	Mean	Med	Max	SD[5]	n	Min	Med	Max	Min	Mean	Med	Max	SD[5]	n
Bankfull Width (ft)		15.54	17.176	16.358	14.3	15.4		16.4		2	5.7	10.1	9.4	15.2		3		27.5				21.4			1
Floodprone Width (ft)					20	20.8		21.6		2	23.3	53.033	49.9	85.9		3		60.5				88.1			1
Bankfull Mean Depth (ft)		1.8069	1.9971	1.902	1.9	2.1		2.2		2	0.5	0.9	1	1.2		3		1.6				2			1
[1]Bankfull Max Depth (ft)					2.5	2.7		2.8		2	1.2	1.5333	1.5	1.9		3		2.3				3.1			1
Bankfull Cross Sectional Area (ft^2)		33.717	37.267	35.492	27.1	31.7		36.2		2	2.7	10.2	8.9	19		3		43.1				42.4			1
Width/Depth Ratio					7.3	7.4		7.5		2	9.4	11.167	11.4	12.7		3		17.5				10.8			1
Entrenchment Ratio					1.3	1.4		1.4		2	1.5	6.4667	8.8	9.1		3		2.2				4.1			1
[1]Bank Height Ratio					**2.6**	**2.8**		**3**		**2**	**1.1**	**1.3333**	**1.4**	**1.5**		**3**		**1**				**1**			**1**
Profile																									
Riffle Length (ft)																						18.4			1
Riffle Slope (ft/ft)					0.0053	0.0131		0.0181		2	0.0061	0.0337	0.0173	0.0961	0.0361	6		0.0039				0.0005			1
Pool Length (ft)																				41.1	41.6		42.2		2
Pool Max depth (ft)					2.8	3		3.2		2	0.9	1.9	1.4	3.9	1.13	6	2	3.2	3.9	3.23	3.24		3.24		2
Pool Spacing (ft)					31	42		61		2	15.3	31.7	31.6	52.4	13.8	6	110	110	138			107.5			1
Pattern																									
Channel Beltwidth (ft)					29	50	46	75		3	43.2	79.2	84.3	105.1	26.1	4	101	109	120	108.7	170.8	164.6	261..6	34.204	4
Radius of Curvature (ft)					15	105.67	76	226		3	16.4	29.5	22	51	14.7	5	55	83	110	23.8	55.4	50.5	110.1	36.202	5
Rc:Bankfull width (ft/ft)					**1**	**6.8667**	**4.9**	**14.7**		**3**	**1.7**	**4.1**	**3.7**	**6.8**	**1.7**	**6**	**2**	**3.0182**	**4**			**2.4**			**6**
Meander Wavelength (ft)					108	358.67	296	672		3	44.7	141.3	114	320.6	106.5	6	220	275	330	148.2	327.6	266.7	621	201.06	6
Meander Width Ratio					7	23.267	19.2	43.6		3	7.6	10.9	11.2	15.5	3.1	5	8	10	12			12.5			5
Transport parameters																									
Reach Shear Stress (competency) lb/f^2					1.716624												0.559728			0.067392					
Max part size (mm) mobilized at bankfull					136.9105109												42.58898812			4.691537038					
Stream Power (transport capacity) W/m^2					197.41176												58.77144			8.137584					
Additional Reach Parameters																									
Rosgen Classification					G5/Incised E5						B4/E5/C4						B5c/C5			E5					
Bankfull Velocity (fps)		4.0661	4.4941	4.2801	4.5-5.6												4.2			3.837264151					
Bankfull Discharge (cfs)		144.31	159.5	151.91	162.7																				
Valley length (ft)																									
Channel Thalweg length (ft)																									
Sinuosity (ft)					1.1						1.1-1.3						1.1								
Water Surface Slope (Channel) (ft/ft)					0.0046						0.0080-0.0215						0.0039			Flat					
BF slope (ft/ft)					**0.0131**						**0.0082-0.0522**						**0.0047**			**0.0047**					
[3]Bankfull Floodplain Area (acres)																									
[4]% of Reach with Eroding Banks																									
Channel Stability or Habitat Metric																									
Biological or Other																									

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile. 2 = For projects with a proximal USGS gauge in-line with the project reach (added bankfull verification - rare).

3. Utilizing survey data produce an estimate of the bankfull floodplain area in acres, which should be the area from the top of bank to the toe of the terrace riser/slope.

4 = Proportion of reach exhibiting banks that are eroding based on the visual survey for comparison to monitoring data; 5. Of value/needed only if the n exceeds 3

Table 10a.5 Baseline Stream Data Summary
Valley Fields Farm/407 - Lower B: 230 feet

Parameter	Gauge[2]	Regional Curve			Pre-Existing Condition						Reference Reach(es) Data						Design			Monitoring Baseline					
Dimension and Substrate - Riffle Only		LL	UL	Eq.	Min	Mean	Med	Max	SD[5]	n	Min	Mean	Med	Max	SD[5]	n	Min	Med	Max	Min	Mean	Med	Max	SD[5]	n
Bankfull Width (ft)		16.16	17.861	17.011	14.3	15.4		16.4		2	5.7	10.1	9.4	15.2		3		27.5				48.4			1
Floodprone Width (ft)					20	20.8		21.6		2	23.3	53.033	49.9	85.9		3		60.5				91.3			1
Bankfull Mean Depth (ft)		1.8602	2.056	1.9581	1.9	2.1		2.2		2	0.5	0.9	1	1.2		3		1.6				1.4			1
[1]Bankfull Max Depth (ft)					2.5	2.7		2.8		2	1.2	1.5333	1.5	1.9		3		2.3				2.9			1
Bankfull Cross Sectional Area (ft^2)		35.869	39.645	37.757	27.1	31.7		36.2		2	2.7	10.2	8.9	19		3		43.1				67.8			1
Width/Depth Ratio					7.3	7.4		7.5		2	9.4	11.167	11.4	12.7		3		17.5				34.5			1
Entrenchment Ratio					1.3	1.4		1.4		2	1.5	6.4667	8.8	9.1		3		2.2				1.9			1
[1]Bank Height Ratio					**2.6**	**2.8**		**3**		**2**	**1.1**	**1.3333**	**1.4**	**1.5**		**3**		**1**				**1**			**1**
Profile																									
Riffle Length (ft)																				14	25.5		40.2		2
Riffle Slope (ft/ft)					0.0053	0.0131		0.0181		2	0.0061	0.0337	0.0173	0.0961	0.0361	6		0.0039		0.0027	0.0067		0.0087		2
Pool Length (ft)																				19.1	20.3		21.5		2
Pool Max depth (ft)					2.8	3		3.2		2	0.9	1.9	1.4	3.9	1.13	6	2	3.2	3.9			4.1			1
Pool Spacing (ft)					31	42		61		2	15.3	31.7	31.6	52.4	13.8	6	110	110	138			88.9			1
Pattern																									
Channel Beltwidth (ft)					29	50	46	75		3	43.2	79.2	84.3	105.1	26.1	4	97	106	122	108.7	170.8	164.6	261..6	34.204	4
Radius of Curvature (ft)					15	105.67	76	226		3	16.4	29.5	22	51	14.7	5	57	85	114	23.8	55.4	50.5	110.1	36.202	5
Rc:Bankfull width (ft/ft)					**1**	**6.8667**	**4.9**	**14.7**		**3**	**1.7**	**4.1**	**3.7**	**6.8**	**1.7**	**6**	**2.0727**	**3.0909**	**4.1455**			**1.0**			**6**
Meander Wavelength (ft)					108	358.67	296	672		3	44.7	141.3	114	320.6	106.5	6	227	284	341	148.2	327.6	266.7	621	201.06	6
Meander Width Ratio					7	23.267	19.2	43.6		3	7.6	10.9	11.2	15.5	3.1	5	8.2545	10.327	12.4			5.5			5
Transport parameters																									
Reach Shear Stress (competency) lb/f^2					1.716624												0.559728			0.5826912					
Max part size (mm) mobilized at bankfull					136.9105109												42.58898812			44.41116115					
Stream Power (transport capacity) W/m^2					197.41176												58.77144			100.514232					
Additional Reach Parameters																									
Rosgen Classification					G5/Incised E5						B4/E5/C4						B5c/C5			B5					
Bankfull Velocity (fps)		4.0809	4.5105	4.2957	4.5-5.6												4.2			2.399705015					
Bankfull Discharge (cfs)		154.08	170.3	162.19	162.7																				
Valley length (ft)																									
Channel Thalweg length (ft)																									
Sinuosity (ft)					1.1						1.1-1.3						1.1								
Water Surface Slope (Channel) (ft/ft)					0.0046						0.0080-0.0215						0.0039			0.0035					
BF slope (ft/ft)					**0.0131**						**0.0082-0.0522**						**0.0047**			**0.0047**					
[3]Bankfull Floodplain Area (acres)																									
[4]% of Reach with Eroding Banks																									
Channel Stability or Habitat Metric																									
Biological or Other																									

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile. 2 = For projects with a proximal USGS gauge in-line with the project reach (added bankfull verification - rare).

3. Utilizing survey data produce an estimate of the bankfull floodplain area in acres, which should be the area from the top of bank to the toe of the terrace riser/slope.

4 = Proportion of reach exhibiting banks that are eroding based on the visual survey for comparison to monitoring data; 5. Of value/needed only if the n exceeds 3

Table 10a.6 Baseline Stream Data Summary
Valley Fields Farm/407 - Reach C: 1,400 feet

Parameter	Gauge[2]	Regional Curve			Pre-Existing Condition						Reference Reach(es) Data						Design			Monitoring Baseline					
Dimension and Substrate - Riffle Only		LL	UL	Eq.	Min	Mean	Med	Max	SD[5]	n	Min	Mean	Med	Max	SD[5]	n	Min	Med	Max	Min	Mean	Med	Max	SD[5]	n
Bankfull Width (ft)		5.1366	5.6773	5.407			7			1	5.7	10.1	9.4	15.2		3		11.5		8.9	12.133	13.5	14		3
Floodprone Width (ft)							14.1			1	23.3	53.033	49.9	85.9		3		25.3		39.6	45.6	48.5	48.7		3
Bankfull Mean Depth (ft)		0.7927	0.8762	0.8345			0.6			1	0.5	0.9	1	1.2		3		0.7		0.6	0.8333	0.9	1		3
[1]Bankfull Max Depth (ft)							0.9			1	1.2	1.5333	1.5	1.9		3		1.2		1.1	1.5333	1.7	1.8		3
Bankfull Cross Sectional Area (ft^2)		5.8553	6.4716	6.1634			3.3			1	2.7	10.2	8.9	19		3		7.8		7.5	9.6	8.9	12.4		3
Width/Depth Ratio							11.7			1	9.4	11.167	11.4	12.7		3		17.2		8.9	16.267	15.9	24		3
Entrenchment Ratio							2			1	1.5	6.4667	8.8	9.1		3		2.2		3.5	3.8333	3.6	4.4		3
[1]Bank Height Ratio							**1**			**1**	**1.1**	**1.3333**	**1.4**	**1.5**		**3**		**1**		**1**	**1**	**1**	**1**		**3**
Profile																									
Riffle Length (ft)																				21.7	41.6	36.7	90.8	23.5	7
Riffle Slope (ft/ft)											0.0061	0.0337	0.0173	0.0961	0.0361	6		0.0086		0.0017	0.0066	0.0082	0.0104	0.0035	7
Pool Length (ft)																				25.8	50.2	56.4	66.7	16.7	6
Pool Max depth (ft)											0.9	1.9	1.4	3.9	1.13	6	0.9	1.5	1.7	2.18	2.52	2.58	2.78	0.25	7
Pool Spacing (ft)											15.3	31.7	31.6	52.4	13.8	6	45	69	92	46	92.5	91.9	152.2	37.9	9
Pattern																									
Channel Beltwidth (ft)											43.2	79.2	84.3	105.1	26.1	4	33	46	58	84.1	97.4	96.4	112	11.417	4
Radius of Curvature (ft)											16.4	29.5	22	51	14.7	5	23	35	46	20.8	32.5	30.7	59.4	16.521	5
Rc:Bankfull width (ft/ft)											**1.7**	**4.1**	**3.7**	**6.8**	**1.7**	**6**	**2**	**3.0435**	**4**	**2.3**	**2.7**	**2.3**	**4.2**	0.9237	**6**
Meander Wavelength (ft)											44.7	141.3	114	320.6	106.5	6	92	115	138	72.5	187.8	131.2	595.1	237.02	6
Meander Width Ratio											7.6	10.9	11.2	15.5	3.1	5	8	10	12	8.1	15.5	9.7	42.5	16.01	5
Transport parameters																									
Reach Shear Stress (competency) lb/f^2																		0.643968				0.370656			
Max part size (mm) mobilized at bankfull																		49.28807318				27.71871363			
Stream Power (transport capacity) W/m^2																		129.59856				123.57072			
Additional Reach Parameters																									
Rosgen Classification							Incised B5						B4/E5/C4					C5/E5				E5			
Bankfull Velocity (fps)		3.6682	4.0543	3.8612			6.5											3.1				18.28089888			
Bankfull Discharge (cfs)		22.609	24.989	23.799			21.6																		
Valley length (ft)																									
Channel Thalweg length (ft)																									
Sinuosity (ft)													1.1-1.3					1.1							
Water Surface Slope (Channel) (ft/ft)													0.0080-0.0215					0.0066				0.0099			
BF slope (ft/ft)													**0.0082-0.0522**					**0.0086**				**0.0095**			
[3]Bankfull Floodplain Area (acres)																									
[4]% of Reach with Eroding Banks																									
Channel Stability or Habitat Metric																									
Biological or Other																									

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile. 2 = For projects with a proximal USGS gauge in-line with the project reach (added bankfull verification - rare).

3. Utilizing survey data produce an estimate of the bankfull floodplain area in acres, which should be the area from the top of bank to the toe of the terrace riser/slope.

4 = Proportion of reach exhibiting banks that are eroding based on the visual survey for comparison to monitoring data; 5. Of value/needed only if the n exceeds 3

Table 10b. Baseline Stream Data Summary (Substrate, Bed, Bank, and Hydrologic Containment Parameter Distributions)
Valley Fields Farm/407

	Parameter	Pre-Existing Condition							Reference Reach(es) Data							Design							As-built/Baseline						
Upper A (800 feet)	[1]Ri% / Ru% / P% / G% / S%	10	20	30	40	0										30	10	40	20	0			30	10	40	20	0		
	[1]SC% / Sa% / G% / C% / B% / Be%	16	1.18	69.41	29.41	0	0		2.85	31.7	59.76	4.06	0.82	0.81															
	[1]d16 / d35 / d50 / d84 / d95 / di^p / di^{sp} (mm)	0.6	0.93	1.35	6.49	9.96			0.43	2.25	12.08	39.69	71.35																
	[2]Entrenchment Class <1.5 / 1.5-1.99 / 2.0-4.9 / 5.0-9.9 / >10	800	0	0	0	0						X	X										0	0	0	300	500		
	[3]Incision Class <1.2 / 1.2-1.49 / 1.5-1.99 / >2.0	0	0	200	600				X														800	0	0	0			
Upper A2 (1,850 feet)	[1]Ri% / Ru% / P% / G% / S%	10	10	20	60	0										30	10	40	20	0			30	10	40	20	0		
	[1]SC% / Sa% / G% / C% / B% / Be%	14	60	26	0	0	0		2.85	31.7	59.76	4.06	0.82	0.81															
	[1]d16 / d35 / d50 / d84 / d95 / di^p / di^{sp} (mm)	0.09	0.65	1.25	6.16	11.3			0.43	2.25	12.08	39.69	71.35																
	[2]Entrenchment Class <1.5 / 1.5-1.99 / 2.0-4.9 / 5.0-9.9 / >10	1500	350	0	0	0						X	X										0	0	0	0	1850		
	[3]Incision Class <1.2 / 1.2-1.49 / 1.5-1.99 / >2.0	0	0	1000	850				X														1850	0	0	0			
Lower A (1,400 feet)	[1]Ri% / Ru% / P% / G% / S%	5	10	5	80	0										30	10	40	20	0			30	10	40	20	0		
	[1]SC% / Sa% / G% / C% / B% / Be%	8.33	33.3	58.3	0	0	0		2.85	31.7	59.76	4.06	0.82	0.81															
	[1]d16 / d35 / d50 / d84 / d95 / di^p / di^{sp} (mm)	0.19	1.5	2.62	8.88	11.3			0.43	2.25	12.08	39.69	71.35																
	[2]Entrenchment Class <1.5 / 1.5-1.99 / 2.0-4.9 / 5.0-9.9 / >10	100	900	400	0	0						X	X										0	0	1400	0	0		
	[3]Incision Class <1.2 / 1.2-1.49 / 1.5-1.99 / >2.0	0	0	1200	200				X														1400	0	0	0			
Reach B (430 feet)	[1]Ri% / Ru% / P% / G% / S%	10	10	30	50	0										30	10	40	20	0			30	10	40	20	0		
	[1]SC% / Sa% / G% / C% / B% / Be%	0	19	81	0	0	0		2.85	31.7	59.76	4.06	0.82	0.81															
	[1]d16 / d35 / d50 / d84 / d95 / di^p / di^{sp} (mm)	1.81	4	7.01	22.23	29.83			0.43	2.25	12.08	39.69	71.35																
	[2]Entrenchment Class <1.5 / 1.5-1.99 / 2.0-4.9 / 5.0-9.9 / >10	430	0	0	0	0						X	X										0	0	430	0	0		
	[3]Incision Class <1.2 / 1.2-1.49 / 1.5-1.99 / >2.0	0	0	0	430				X														430	0	0	0			
Reach C (1,400 feet)	[1]Ri% / Ru% / P% / G% / S%															30	10	40	20	0			30	10	40	20	0		
	[1]SC% / Sa% / G% / C% / B% / Be%	18.63	34.31	47.06	0	0	0		2.85	31.7	59.76	4.06	0.82	0.81															
	[1]d16 / d35 / d50 / d84 / d95 / di^p / di^{sp} (mm)	0.05	1.17	1.86	5.67	7.49			0.43	2.25	12.08	39.69	71.35																
	[2]Entrenchment Class <1.5 / 1.5-1.99 / 2.0-4.9 / 5.0-9.9 / >10	600	800	0	0	0						X	X										0	0	1000	400	0		
	[3]Incision Class <1.2 / 1.2-1.49 / 1.5-1.99 / >2.0	1000	400	0	0				X														1400	0	0	0			

Shaded cells indicate that these will typically not be filled in.

1 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

2 = Entrenchment Class - Assign/bin the reach footage into the classes indicated and provide the percentage of the total reach footage in each class in the table. This will result from the measured cross-sections as well as visual estimates

3 = Assign/bin the reach footage into the classes indicated and provide the percentage of the total reach footage in each class in the table. This will result from the measured cross-sections as well as the longitudinal profile

TABLE 11. MONITORING MORPHOLOGY DATA TABLE

Table 11a. Monitoring Data - Dimensional Morphology Summary (Dimensional Parameters – Cross Sections)
Valley Fields Farm/407

	Cross Section A1 (Riffle)							Cross Section A2 (Riffle)							Cross Section A3 (Riffle)							Cross Section A4 (Pool)							Cross Section A5 (Riffle)						
Based on fixed baseline bankfull elevation[1]	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+
Record elevation (datum) used	760.8	760.8	760.8	760.8				760.7	760.7	760.7	760.7				762.0	762.0	762.0	762.0				764.0	764.0	764.0	764.0				765.7	765.7	765.7	765.7			
Bankfull Width (ft)	31.1	33.3	37.3	23.6				38.2	30.8	37.1	23.6				30.1	33.4	29.7	23.1				31.1	27.5	32.0	19.4				31.0	29.9	23.2	16.6			
Floodprone Width (ft)	>120	>120	>120	>120				>100	>100	>100	>100				>90	>90	>90	>90				-	-	-	-				>90	>90	>90	>90			
Bankfull Mean Depth (ft)	2.0	2.3	2.1	2.7				1.9	3.0	1.9	2.9				1.8	1.7	2.0	2.4				2.2	2.8	2.4	3.5				1.6	1.2	1.5	2.0			
Bankfull Max Depth (ft)	3.4	5.2	5.6	5.5				4.0	5.7	4.6	4.6				3.2	3.6	3.8	4.0				4.0	5.2	5.1	4.3				2.8	3.1	2.9	3.0			
Bankfull Cross Sectional Area (ft^2)	62.5	76.4	79.1	64.2				72.8	92.8	69.1	67.7				55.2	57.4	59.5	54.6				69.0	75.9	78.2	68.5				50.1	35.5	35.3	33.4			
Bankfull Width/Depth Ratio	15.5	14.6	17.6	8.7				20.1	10.2	19.9	8.2				16.4	19.4	14.8	10.1				-	-	-	-				19.1	25.1	15.2	8.3			
Bankfull Entrenchment Ratio	4.1	3.8	3.4	5.1				2.9	3.6	3.0	4.2				3.0	2.7	3.1	3.9				-	-	-	-				3.0	3.1	4.0	5.4			
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0				1.0	1.0	1.0	1.0				1.0	1.0	1.0	1.0				-	-	-	-				1.0	1.0	1.0	1.0			
Cross Sectional Area between end pins (ft^2)	147.0	156.0	199.5	190.2				154.0	176.0	193.1	185.8				149.0	154.0	189.6	162.1				165.0	184.0	215.4	187.0				133.0	114.0	125.7	136.9			
d50 (mm)		6.7	1.4	0.6					15.3	1.4	1.6					15.6	26.6	2.0																	
	Cross Section A6 (Riffle)							**Cross Section A7 (Pool)**							**Cross Section A10 (Riffle)**							**Cross Section A11 (Riffle)**													
Based on fixed baseline bankfull elevation[1]	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+							
Record elevation (datum) used	766.9	766.9	766.9	766.9				767.0	767.0	767.0	767.0				755.5	755.5	755.5	755.5				754.9	754.9	754.9	754.9										
Bankfull Width (ft)	38.3	34.7	26.2	20.2				29.1	27.2	27.4	16.3				41.3	47.1	42.9	35.0				72.2	41.6	41.5	26.1										
Floodprone Width (ft)	>90	>90	>90	>90				-	-	-	-				>90	>90	>90	>90				>90	>90	>90	>90										
Bankfull Mean Depth (ft)	1.9	2.2	2.6	2.2				2.1	2.0	2.0	2.7				2.3	2.3	1.7	2.0				1.9	1.8	1.5	1.7										
Bankfull Max Depth (ft)	3.7	4.7	4.7	3.4				3.2	3.9	4.0	3.6				4.0	3.8	3.8	3.6				5.1	3.5	3.6	3.1										
Bankfull Cross Sectional Area (ft^2)	71.0	75.6	68.7	45.4				60.1	54.8	54.7	43.2				95.5	85.4	74.0	69.3				137.4	74.6	61.4	44.9										
Bankfull Width/Depth Ratio	20.6	16.0	10.0	9.0				-	-	-	-				17.9	26.0	24.8	17.7				38.0	23.1	28.0	15.2										
Bankfull Entrenchment Ratio	2.2	2.4	3.2	4.5				-	-	-	-				2.8	2.3	2.9	2.6				1.8	2.5	2.6	3.4										
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0				-	-	-	-				1.0	1.0	1.0	1.0				1.0	1.0	1.0	1.0										
Cross Sectional Area between end pins (ft^2)	166.0	172.0	200.0	166.7				168.0	162.0	189.1	166.9				448.0	440.0	456.7	455.2				596.0	539.0	565.0	547.9										
d50 (mm)																		1.7																	
	Cross Section B1 (Riffle)							**Cross Section B2 (Riffle)**							**Cross Section B3 (Riffle)**							**Cross Section B4 (Pool)**													
Based on fixed baseline bankfull elevation[1]	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+							
Record elevation (datum) used	766.1	766.1	766.1	766.1				765.9	765.9	765.9	765.9				760.7	760.7	760.7	760.7				760.4	760.4	760.4	760.4										
Bankfull Width (ft)	21.4	36.4	22.8	24.3				35.7	34.3	33.7	27.5				48.4	44.4	22.1	23.1				44.1	38.3	27.9	19.7										
Floodprone Width (ft)	88.1	98.7	88.6	89.9				106.1	106.7	99.6	97.2				91.3	93.7	96.5	90.8				-	-	-	-										
Bankfull Mean Depth (ft)	2.0	1.8	2.4	2.4				1.9	2.4	2.3	2.3				1.4	1.2	2.0	1.6				1.3	1.3	1.6	2.0										
Bankfull Max Depth (ft)	3.1	4.3	3.1	3.2				4.0	4.0	3.4	3.1				2.9	3.2	3.5	3.2				3.2	2.8	2.8	3.0										
Bankfull Cross Sectional Area (ft^2)	42.4	66.6	54.7	58.0				67.7	81.5	75.9	62.1				67.8	55.3	44.0	37.5				57.7	49.1	43.8	35.6										
Bankfull Width/Depth Ratio	10.8	19.9	9.5	10.2				18.8	14.4	15.0	12.2				34.5	35.8	11.1	14.2				-	-	-	-										
Bankfull Entrenchment Ratio	4.1	2.7	3.9	3.7				3.0	3.1	3.0	3.5				1.9	2.1	4.4	3.9				-	-	-	-										
Bankfull Bank Height Ratio	1.0	1.0	1.2	1.0				1.0	1.0	1.1	1.0				1.0	1.0	1.0	1.0				-	-	-	-										
Cross Sectional Area between end pins (ft^2)	586.0	619.0	574.2	616.2				690.0	718.0	638.3	688.0				582.0	571.0	549.2	563.8				479.0	431.0	444.3	433.3										
d50 (mm)		1.4	1.6	1.6																															
	Cross Section C1 (Riffle)							**Cross Section C2 (Pool)**							**Cross Section C3 (Riffle)**							**Cross Section C4 (Riffle)**													
Based on fixed baseline bankfull elevation[1]	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+							
Record elevation (datum) used	775.3	775.3	775.3	775.3				774.0	774.0	774.0	774.0				769.2	769.2	769.2	769.2				767.4	767.4	767.4	767.4										
Bankfull Width (ft)	14.0	11.7	7.6	5.8				12.9	5.9	5.5	5.2				13.5	14.1	19.0	5.8				8.9	11.2	11.9	4.6										
Floodprone Width (ft)	48.5	50.4	48.0	46.0				59.2	54.5	71.3	-				48.7	48.7	48.7	43.4				39.6	40.8	41.5	38.0										
Bankfull Mean Depth (ft)	0.9	0.8	0.8	1.0				0.9	1.1	1.4	0.6				0.6	0.4	0.4	0.7				1.0	0.8	0.9	1.1										
Bankfull Max Depth (ft)	1.8	2.1	1.5	1.6				2.0	1.9	2.0	0.9				1.1	1.2	1.2	1.0				1.7	2.6	2.4	1.7										
Bankfull Cross Sectional Area (ft^2)	12.4	9.1	6.1	5.6				12.0	6.3	7.6	3.3				7.5	5.7	8.4	3.9				8.9	9.4	10.2	5.1										
Bankfull Width/Depth Ratio	15.9	14.9	9.4	6.0				13.9	5.5	4.0	-				24.0	34.4	43.3	8.6				8.9	13.3	13.8	4.1										
Bankfull Entrenchment Ratio	3.5	4.3	6.3	6.2				4.6	9.3	12.9	-				3.6	3.5	2.6	7.5				4.4	3.7	3.5	8.3										
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0				1.0	1.1	1.0	-				1.0	1.0	1.0	1.0				1.0	1.0	1.0	1.0										
Cross Sectional Area between end pins (ft^2)	199.0	199.0	238.1	241.9				53.0	52.0	53.5	52.1				39.0	33.0	60.7	51.9				142.0	133.0	165.1	102.7										
d50 (mm)									8.6	57.0	1.8																								

1 = Widths and depths for monitoring resurvey will be based on the baseline bankfull datum regardless of dimensional/depositional development. Input the elevation used as the datum, which should be consistent and based on the baseline datum established. If the performer has inherited the project and cannot acquire the datum used for prior years this must be discussed with EEP. If this cannot be resolved in time for a given years report submission a footnote in this should be included that states: "It is uncertain if the monitoring datum has been consistent over the monitoring history, which may influence calculated values. Additional data from a prior performer is being acquired to provide confirmation. Values will be recalculated in a future submission based on a consistent datum if determined to be necessary."

Exhibit Table 11b.1 Monitoring Data - Stream Reach Data Summary
Valley Fields Farm/407 - Upper A: 800 feet

Parameter	Baseline						MY-1						MY-2						MY- 3						MY- 4						MY- 5					
Dimension and Substrate - Riffle only	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n
Bankfull Width (ft)	29.1	30.1		31.0		2	33.3	33.3		33.4		2	23.2	25.6		27.4		3	16.6	18.4		20.0		2												
Floodprone Width (ft)	90.0	90.7		91.4		2	90.5	108.6		126.7		2	83.2	87.5		91.5		3	>90	>90		>90		2												
Bankfull Mean Depth (ft)	1.6	1.9		2.1		2	1.7	2.0		2.3		2	1.5	2.0		2.6		3	2.0	2.1		2.2		2												
[1]Bankfull Max Depth (ft)	2.8	3.0		3.2		2	3.6	4.4		5.2		2	2.9	3.9		4.7		3	3.0	3.2		3.4		2												
Bankfull Cross Sectional Area (ft^2)	50.1	55.1		60.1		2	57.4	66.9		76.4		2	35.3	52.9		68.7		3	33.4	39.4		45.4		2												
Width/Depth Ratio	14.2	16.7		19.1		2	14.6	17.0		19.4		2	10.0	13.0		15.2		3	8.3	8.7		9.0		2												
Entrenchment Ratio	3.0	3.0		3.0		2	2.7	3.3		3.8		2	3.2	3.4		4.0		3	4.5	5.0		5.4		2												
[1]Bank Height Ratio	1.0	1.0		1.0		2	1.0	1.0		1.0		2	1.0	1.0		1.0		3	1.0	1.0		1.0		2												
Profile																																				
Riffle Length (ft)	56.5	88.5		120.4		1	21.7	63.7		105.7		2	14.9	30.0		52.1			No identifiable riffles																	
Riffle Slope (ft/ft)	0.003	0.003		0.003		1	0.003	0.004		0.004		2	0.006	0.011		0.014																				
Pool Length (ft)	38.5	74.1		98.5		3	36.9	72.0		95.9		2	47.5	103.2		164.8			5.8	10.1		14.4		2												
Pool Max depth (ft)	3.7	4.2		5.1		3	3.3	4.0		4.5		3	2.1	2.6		3.2			1.4	1.6		1.7		2												
Pool Spacing (ft)	155.7	248.2		340.6		2	80.2	102.9		134.0		3	48.4	122.4		179.7			464.9	464.9		464.9		1												
Pattern																																				
Channel Beltwidth (ft)	22.1	118.1	126.0	197.2	71.9	4																														
Radius of Curvature (ft)	10.1	45.7	49.2	79.8	28.5	5					Pattern data will not typically be collected unless visual data, dimensional data or profile data indicate significant shifts from baseline																									
Rc:Bankfull width (ft/ft)	0.3	1.5		2.6	1.1	6																														
Meander Wavelength (ft)	117.0	302.2	292.4	613.9	206.7	6																														
Meander Width Ratio	4.0	10.1		19.8	8.0	5																														
Additional Reach Parameters																																				
Rosgen Classification	C5						C5						C5						C5																	
Channel Thalweg length (ft)																																				
Sinuosity (ft)	1.1						1.1						1.1						1.1																	
Water Surface Slope (Channel) (ft/ft)	0.0029						0.0025						0.0002						0.0017																	
BF slope (ft/ft)	0.0024						0.002						0.001						0.001																	
[3]Ri% / Ru% / P% / G% / S%																																				
[3]SC% / Sa% / G% / C% / B% / Be%																			3%/61%/36%/0%/0%/0%																
[3] d50 / d84 / d95 /																			1.5/3.2/5.0																
[2]% of Reach with Eroding Banks																			4.1%																	
Channel Stability or Habitat Metric																																				
Biological or Other																																				

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile.

2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table

3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

4. = Of value/needed only if the n exceeds 3

Exhibit Table 11b.2 Monitoring Data - Stream Reach Data Summary
Valley Fields Farm/407 - Upper A2: 1,850 feet

Parameter	Baseline						MY-1						MY-2						MY- 3						MY- 4						MY- 5					
Dimension and Substrate - Riffle only	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n
Bankfull Width (ft)	30.1	30.8		31.1		3	27.2	28.6		29.9		2	29.7	34.0		37.3	3.8	4	23.1	23.4		23.6		3												
Floodprone Width (ft)	78.6	98.6		126.6		3	87.7	89.6		91.5		2	78.6	101.4		126.7	21.1	4	>90	>90		>90		3												
Bankfull Mean Depth (ft)	1.8	2.0		2.2		3	1.2	1.6		2.0		2	1.9	2.1		2.4	0.2	4	2.4	2.7		2.9		3												
[1]Bankfull Max Depth (ft)	3.2	3.5		4.0		3	3.1	3.5		3.9		2	3.8	4.8		5.6	0.8	4	4.0	4.7		5.5		3												
Bankfull Cross Sectional Area (ft^2)	55.2	62.2		69.0		3	35.5	45.2		54.8		2	59.5	71.5		79.1	9.2	4	54.6	62.2		67.7		3												
Width/Depth Ratio	14.0	15.3		16.4		3	13.6	19.3		25.1		2	13.1	16.4		19.9	3.0	4	8.2	9.0		10.1		3												
Entrenchment Ratio	2.5	3.2		4.1		3	3.1	3.1		3.2		2	2.5	3.0		3.4	0.4	4	3.9	4.4		5.1		3												
[1]Bank Height Ratio	1.0	1.0		1.0		3	1.0	1.0		1.0		2	1.0	1.0		1.0	0.0	4	1.0	1.0		1.0		3												
Profile																																				
Riffle Length (ft)	33.3	52.0		86.3		3	18.8	35.8		52.8		3	5.5	19.2		45.6			18.0	18.0		18.0		1												
Riffle Slope (ft/ft)	0.002	0.009		0.01		5	0.002	0.004		0.005		5	0.006	0.07		0.2			0.008	0.008		0.008		1												
Pool Length (ft)	60.8	110.4		238.6		3	77.4	141.2		405.4		3	14.0	50.9		84.7			7.1	18.6		28.7	6.9	11												
Pool Max depth (ft)	4.2	5.0		5.9		11	4.6	4.9		5.4		11	1.9	3.1		4.7			1.8	3.3		4.9	1.1	11												
Pool Spacing (ft)	142.7	238.0		300.6		5	50.7	142.4		244.4		5	38.2	122.3		249.5			31.3	117.8		212.4	47.8	10												
Pattern																																				
Channel Beltwidth (ft)	22.1	118.1	126.0	197.2	71.9	4																														
Radius of Curvature (ft)	10.1	45.7	49.2	79.8	28.5	5																														
Rc:Bankfull width (ft/ft)	0.3	1.5		2.6	1.1	6																														
Meander Wavelength (ft)	117.0	302.2	292.4	613.9	206.7	6																														
Meander Width Ratio	3.9	9.8		19.7	8.0	5																														

Pattern data will not typically be collected unless visual data, dimensional data or profile data indicate significant shifts from baseline

Additional Reach Parameters																																				
Rosgen Classification	C5						C5						C5						C5																	
Channel Thalweg length (ft)																																				
Sinuosity (ft)	1.18						1.18						1.18						1.18																	
Water Surface Slope (Channel) (ft/ft)	0.0036						0.004						0.0035						0.0038																	
BF slope (ft/ft)	0.0036						0.004						0.0036						0.0042																	
[3]Ri% / Ru% / P% / G% / S%																																				
[3]SC% / Sa% / G% / C% / B% / Be%																			3%/61%/36%/0%/0%/0%																
[3]d50 / d84 / d95 /																			1.5/3.2/5.0																
[2]% of Reach with Eroding Banks																			4.1%																	
Channel Stability or Habitat Metric																																				
Biological or Other																																				

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile.

2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table

3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

4. = Of value/needed only if the n exceeds 3

Exhibit Table 11b.3 Monitoring Data - Stream Reach Data Summary
Valley Fields Farm/447 - Lower A: 1,400 feet

Parameter	Baseline						MY-1						MY-2						MY- 3						MY- 4						MY- 5					
Dimension and Substrate - Riffle only	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n
Bankfull Width (ft)	30.1	30.8	31.1	31.1		3			47.1			1	27.4	35.1		42.9		2	26.1	30.6		35.0		2												
Floodprone Width (ft)	78.6	98.6	90.6	126.6		3			109.3			1	87.8	105.4		122.9		2	>90	>90		>90		2												
Bankfull Mean Depth (ft)	1.8	2.0	2.0	2.2		3			1.8			1	1.7	1.9		2.0		2	1.7	1.9		2.0		2												
[1]Bankfull Max Depth (ft)	3.2	3.5	3.4	4.0		3			3.8			1	3.8	3.9		4.0		2	3.1	3.4		3.6		2												
Bankfull Cross Sectional Area (ft^2)	55.2	62.2	62.5	69.0		3			85.4			1	54.7	64.4		74.0		2	44.9	57.1		69.3		2												
Width/Depth Ratio	14.0	15.3	15.5	16.4		3			26.0			1	13.7	19.2		24.8		2	15.2	16.5		17.7		2												
Entrenchment Ratio	2.5	3.2	3.0	4.1		3			2.3			1	2.9	3.0		3.2		2	2.6	3.0		3.4		2												
[1]Bank Height Ratio	1.0	1.0	1.0	1.0		3			1.0			1	1.0	1.0		1.0		2	1.0	1.0		1.0		2												
Profile																																				
Riffle Length (ft)	36.8	44.4		51.6		3							25.1	63.2		118.2			No identifiable riffles or pools																	
Riffle Slope (ft/ft)	0.002	0.009		0.014		5							0.002	0.006		0.017																				
Pool Length (ft)	89.6	119.8		152.8		3							30.7	58.4		97.7																				
Pool Max depth (ft)	4.2	5.0		5.9		11							0.9	1.2		2.1																				
Pool Spacing (ft)	142.7	238.0		300.6		5							54.0	126.7		288.6																				
Pattern																																				
Channel Beltwidth (ft)	22.1	118.1	126.0	197.2	71.9	4																														
Radius of Curvature (ft)	10.1	45.7	49.2	79.8	28.5	5							Pattern data will not typically be collected unless visual data, dimensional data or profile data indicate significant shifts from baseline																							
Rc:Bankfull width (ft/ft)	0.3	1.5		2.6	1.1	6																														
Meander Wavelength (ft)	117.0	302.2	292..4	613.9	251.1	6																														
Meander Width Ratio	3.9	9.8		19.7	8.0	5																														
Additional Reach Parameters																																				
Rosgen Classification	C5						C5						C5						C5																	
Channel Thalweg length (ft)																																				
Sinuosity (ft)	1.14						1.14						1.14						1.14																	
Water Surface Slope (Channel) (ft/ft)	0.0015						0.0004						0.002						0.0005																	
BF slope (ft/ft)	0.002						0.002						0.0012						0.0015																	
[3]Ri% / Ru% / P% / G% / S%																																				
[3]SC% / Sa% / G% / C% / B% / Be%																			3%/61%/36%/0%/0%/0%																
[3]d50 / d84 / d95 /																			1.5/3.2/5.0																
[2]% of Reach with Eroding Banks																			3.6%																	
Channel Stability or Habitat Metric																																				
Biological or Other																																				

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile.

2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table

3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

4. = Of value/needed only if the n exceeds 3

Exhibit Table 11b.4 Monitoring Data - Stream Reach Data Summary
Valley Fields Farm/407 - Upper B: 200 feet

Parameter	Baseline						MY-1						MY-2						MY- 3						MY- 4						MY- 5					
Dimension and Substrate - Riffle only	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n
Bankfull Width (ft)			21.4			1			36.36			1	22.77	28.25		33.73		2	24.3	25.9		27.5		2												
Floodprone Width (ft)			88.1			1			98.67			1	88.56	94.09		99.62		2	89.9	93.6		97.2		2												
Bankfull Mean Depth (ft)			2			1			1.83			1	2.25	2.325		2.4		2	2.3	2.4		2.4		2												
[1]Bankfull Max Depth (ft)			3.1			1			4.26			1	3.1	3.255		3.41		2	3.1	3.2		3.2		2												
Bankfull Cross Sectional Area (ft[2])			42.4			1			66.57			1	54.67	65.27		75.87		2	58	60.1		62.1		2												
Width/Depth Ratio			10.8			1			19.87			1	9.49	12.24		14.99		2	10.2	11.2		12.2		2												
Entrenchment Ratio			4.1			1			2.71			1	2.95	3.42		3.89		2	3.5	3.6		3.7		2												
[1]Bank Height Ratio			**1.0**			**1**			**1.0**			**1**	**1.12**	**1.1**		**1.16**		**2**	**1.0**	**1.0**		**1.0**		**2**												
Profile																																				
Riffle Length (ft)			18.4			1													No identifiable riffles																
Riffle Slope (ft/ft)			5E-04			1																														
Pool Length (ft)	41.1	41.6		42.2		2			79.3			1	44.25	49.4		136.64			21.6	24.0		26.4		2												
Pool Max depth (ft)	3.23	3.24		3.24		2			3.3				1.5	1.7		1.89			2.0	2.0		2.0		2												
Pool Spacing (ft)			107.5			1								136.64					116.0	116.0		116.0		1												
Pattern																																				
Channel Beltwidth (ft)	108.7	170.8	164.6	261..6	34.2	4																														
Radius of Curvature (ft)	23.8	55.4	50.5	110.1	36.2	5							Pattern data will not typically be collected unless visual data, dimensional data or profile data indicate significant shifts from baseline																							
Rc:Bankfull width (ft/ft)			**2.4**			**6**																														
Meander Wavelength (ft)	148.2	327.6	266.7	621	201.1	6																														
Meander Width Ratio			12.5			5																														

Additional Reach Parameters																																				
Rosgen Classification	E5						C5						C5						C5																	
Channel Thalweg length (ft)																																				
Sinuosity (ft)	1.13						1.13						1.13						1.13																	
Water Surface Slope (Channel) (ft/ft)	Flat						0.00004						0.0041						0.0036																	
BF slope (ft/ft)	0.0047						0.0047						0.0033						0.0052																	
[3]Ri% / Ru% / P% / G% / S%																																				
[3]SC% / Sa% / G% / C% / B% / Be%																			0%/61%/39%/0%/0%/0%																
[4]d50 / d84 / d95 /																			1.6/3.3/4.8																	
[2]% of Reach with Eroding Banks																			15.20%																	
Channel Stability or Habitat Metric																																				
Biological or Other																																				

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile.

2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table

3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

4. = Of value/needed only if the n exceeds 3

Exhibit Table 11b.5 Monitoring Data - Stream Reach Data Summary
Valley Fields Farm/407 -Lower B: 230 feet

Parameter	Baseline						MY-1						MY-2						MY- 3						MY- 4						MY- 5					
Dimension and Substrate - Riffle only	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n
Bankfull Width (ft)			48.4			1			44.41			1	22.1	25.0		27.9		2	23.1	23.1		23.1		1												
Floodprone Width (ft)			91.3			1			93.68			1	93.9	95.2		96.5		2	90.8	90.8		90.8		1												
Bankfull Mean Depth (ft)			1.4			1			1.24			1	1.6	1.8		2.0		2	1.6	1.6		1.6		1												
[1]Bankfull Max Depth (ft)			2.9			1			3.17			1	2.8	3.1		3.5		2	3.2	3.2		3.2		1												
Bankfull Cross Sectional Area (ft^2)			67.8			1			55.25			1	43.8	43.9		44.0		2	37.5	37.5		37.5		1												
Width/Depth Ratio			34.5			1			35.81			1	11.1	14.5		17.8		2	14.2	14.2		14.2		1												
Entrenchment Ratio			1.9			1			2.11			1	3.4	3.9		4.4		2	3.9	3.9		3.9		1												
[1]Bank Height Ratio			1.0			1			1.0			1	1.0	1.0		1.0		2	1.0	1.0		1.0		1												
Profile																																				
Riffle Length (ft)	14	25.5		40.2		2			23			1	10.9	19.4		29.8			21.7	21.7		21.7		1												
Riffle Slope (ft/ft)	0.0027	0.00667		0.0087		2			0.005			1	0.0	0.0		0.0			0.02	0.02		0.02		1												
Pool Length (ft)	19.1	20.3		21.5		2	40.2	47.1		54.1		2	27.6	59.3		99.9			No identifiable pools																
Pool Max depth (ft)			4.1			1	3.9	4.2		4.4		2	1.2	1.5		1.7																				
Pool Spacing (ft)			88.9			1	82.4	87.8		93.1		2	54.2	99.8		145.3																				
Pattern																																				
Channel Beltwidth (ft)	108.7	170.8	164.6	261..6	34.2	4																														
Radius of Curvature (ft)	23.8	55.4	50.5	110.1	36.2	5							Pattern data will not typically be collected unless visual data, dimensional data or profile data indicate significant shifts from baseline																							
Rc:Bankfull width (ft/ft)			1.0			6																														
Meander Wavelength (ft)	148.2	327.6	266.7	621	201.1	6																														
Meander Width Ratio			5.5			5																														

Additional Reach Parameters																								
Rosgen Classification	B5						B5						B5						B5					
Channel Thalweg length (ft)																								
Sinuosity (ft)	1.17						1.17						1.17						1.17					
Water Surface Slope (Channel) (ft/ft)	0.0035						0.0027						0.0044						0.0041					
BF slope (ft/ft)	0.0047						0.0047						0.0021						0.0088					
[3]Ri% / Ru% / P% / G% / S%																								
[3]SC% / Sa% / G% / C% / B% / Be%																			0%/61%/39%/0%/0%/0%					
[3]d50 / d84 / d95 /																			1.6/3.3/4.8					
[2]% of Reach with Eroding Banks																			22.80%					
Channel Stability or Habitat Metric																								
Biological or Other																								

Shaded cells indicate that these will typically not be filled in.

1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile.

2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table

3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

4. = Of value/needed only if the n exceeds 3

Exhibit Table 11b.6 Monitoring Data - Stream Reach Data Summary
Valley Fields Farm/407 - Reach C: 1,400 feet

Parameter	Baseline						MY-1						MY-2						MY- 3						MY- 4						MY- 5					
Dimension and Substrate - Riffle only	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n	Min	Mean	Med	Max	SD[4]	n
Bankfull Width (ft)	8.9	12.1	13.5	14.0		3	11.2	12.3	11.7	14.1		3	5.5	11.0	9.7	19.0	6.0	4	4.6	5.4	5.8	5.8		3												
Floodprone Width (ft)	39.6	45.6	48.5	48.7		3	40.8	46.7	48.7	50.4		3	41.5	52.4	48.3	71.3	13.0	4	36.0	39.1	38.0	43.4		3												
Bankfull Mean Depth (ft)	0.6	0.8	0.9	1.0		3	0.4	0.7	0.8	0.8		3	0.4	0.9	0.8	1.4	0.4	4	0.7	0.9	1.0	1.1		3												
[1]Bankfull Max Depth (ft)	1.1	1.5	1.7	1.8		3	1.2	2.0	2.1	2.6		3	1.2	1.8	1.7	2.4	0.5	4	1.0	1.4	1.6	1.7		3												
Bankfull Cross Sectional Area (ft^2)	7.5	9.6	8.9	12.4		3	5.7	8.1	9.1	9.4		3	6.1	8.1	8.0	10.2	1.7	4	3.9	4.9	5.1	5.6		3												
Width/Depth Ratio	8.9	16.3	15.9	24.0		3	13.3	20.9	14.9	34.4		3	4.0	17.6	11.6	43.3	17.6	4	4.1	6.2	6.0	8.6		3												
Entrenchment Ratio	3.5	3.8	3.6	4.4		3	3.5	3.8	3.7	4.3		3	2.6	6.3	4.9	12.9	4.7	4	6.2	7.3	7.5	8.3		3												
[1]Bank Height Ratio	1.0	1.0	1.0	1.0		3	1.0	1.0	1.0	1.0		3	1.0	1.0	1.0	1.0	0.0	4	1.0	1.0	1.0	1.0		3												
Profile																																				
Riffle Length (ft)	21.7	41.6	36.7	90.8	23.5	7	18.8	31.3		50.4		3	2.3	22.2		51.5			11.6	18.0		24.4		2												
Riffle Slope (ft/ft)	0.0	0.0	0.0	0.0	0.0	7	0.0	0.0		0.0		3	0.0	0.0		0.3			0.0	0.0		0.0		2												
Pool Length (ft)	25.8	50.2	56.4	66.7	16.7	6	9.4	74.9		166.3		3	11.6	24.0		38.6			3.8	3.8		3.8		1												
Pool Max depth (ft)	2.2	2.5	2.6	2.8	0.3	7	2.5	2.8		3.1		3	0.7	1.1		1.6			1.8	1.8		1.8		1												
Pool Spacing (ft)	46.0	92.5	91.9	152.2	37.9	9	22.8	88.5		195.7		3	11.2	39.3		88.6			-	-		-		-												
Pattern																																				
Channel Beltwidth (ft)	84.1	97.4	96.4	112.0	11.4	4																														
Radius of Curvature (ft)	20.8	32.5	30.7	59.4	16.5	5																														
Rc:Bankfull width (ft/ft)	2.3	2.7	2.3	4.2	0.9	6																														
Meander Wavelength (ft)	72.5	187.8	131.2	595.1	237.0	6																														
Meander Width Ratio	8.1	15.5	9.7	42.5	16.0	5																														

Pattern data will not typically be collected unless visual data, dimensional data or profile data indicate significant shifts from baseline

Additional Reach Parameters																																				
Rosgen Classification							C5						C5						C5																	
Channel Thalweg length (ft)																																				
Sinuosity (ft)	1.09						1.09						1.09						1.09																	
Water Surface Slope (Channel) (ft/ft)	0.0099						0.0086						0.0093						0.0093																	
BF slope (ft/ft)	0.0095						0.0094						0.0093						0.0094																	
[3]Ri% / Ru% / P% / G% / S%																																				
[3]SC% / Sa% / G% / C% / B% / Be%																			0%/54%/30%/9%/0%/0%																
[3]d50 / d84 / d95 /																			1.8/45/110																
[2]% of Reach with Eroding Banks																			0%																	
Channel Stability or Habitat Metric																																				
Biological or Other																																				

Shaded cells indicate that these will typically not be filled in.

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2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table

3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave

4. = Of value/needed only if the n exceeds 3

APPENDIX E – HYDROLOGIC DATA

TABLE 12. VERIFICATION OF BANKFULL EVENTS

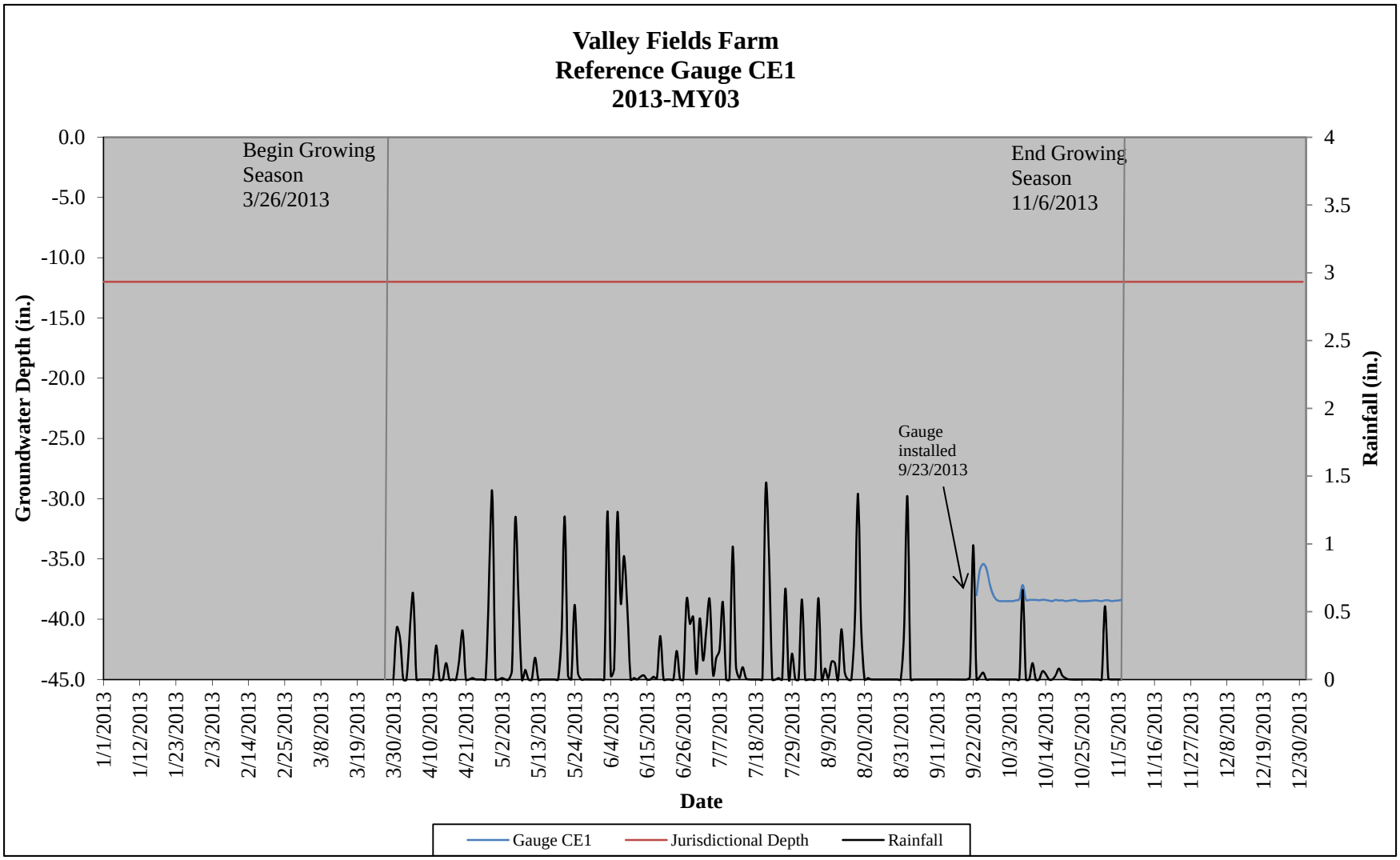
Date of Data Collection	Date of Occurrence	Method	Photo # (if available)
7/8/2010	N/A	Wrackline observed in floodplain	See MY-02 report
11/4/2010	N/A	Wrackline observed at bankfull	See MY-02 report
4/10/2010	N/A	Wrackline observed at bankfull	See MY-02 report
11/2/2011	N/A	Wrackline observed at bankfull	See MY-02 report

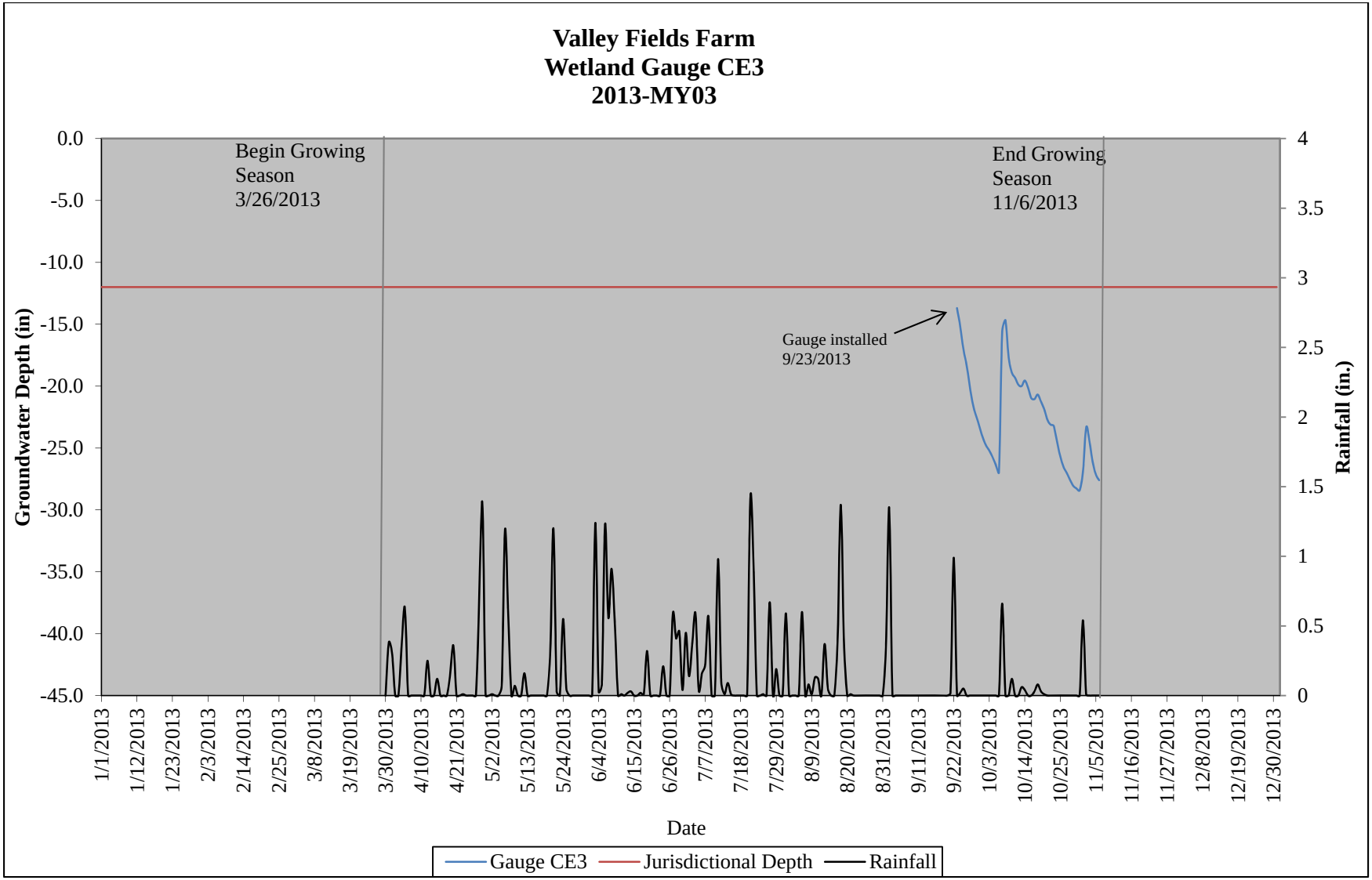
TABLE 13. WETLAND HYDROLOGY CRITERIA ATTAINMENT TABLE

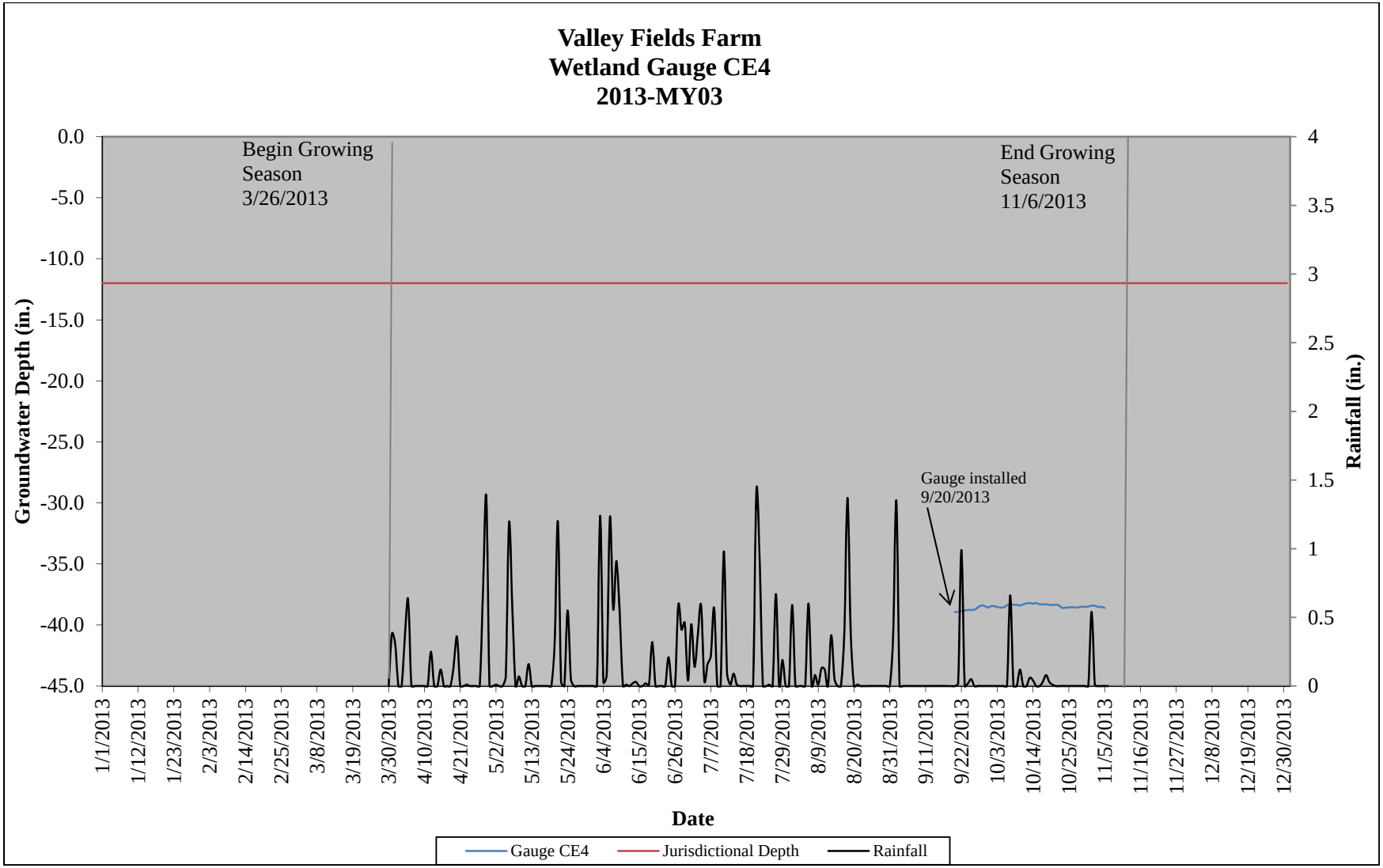
Success Criteria Achieved/Max Consecutive Days During Growing Season (Percentage)					
Gauge Name	MY-01 (2010)	MY-02 (2011)	MY-03 (2013)*	MY-04 (2014)	MY-05 (2015)
CE1	Yes/103 (45.6%)	Yes/67 (29.6%)	No/0 (0%)		
CE3	Yes/109 (48.2%)	Yes/68 (30.1%)	No/0 (0%)		
CE4	Yes/86 (38.1%)	Yes/21 (9.3%)	No/0 (0%)		
CE6	Yes/97 (42.9%)	Yes/38 (16.8%)	No/0 (0%)		

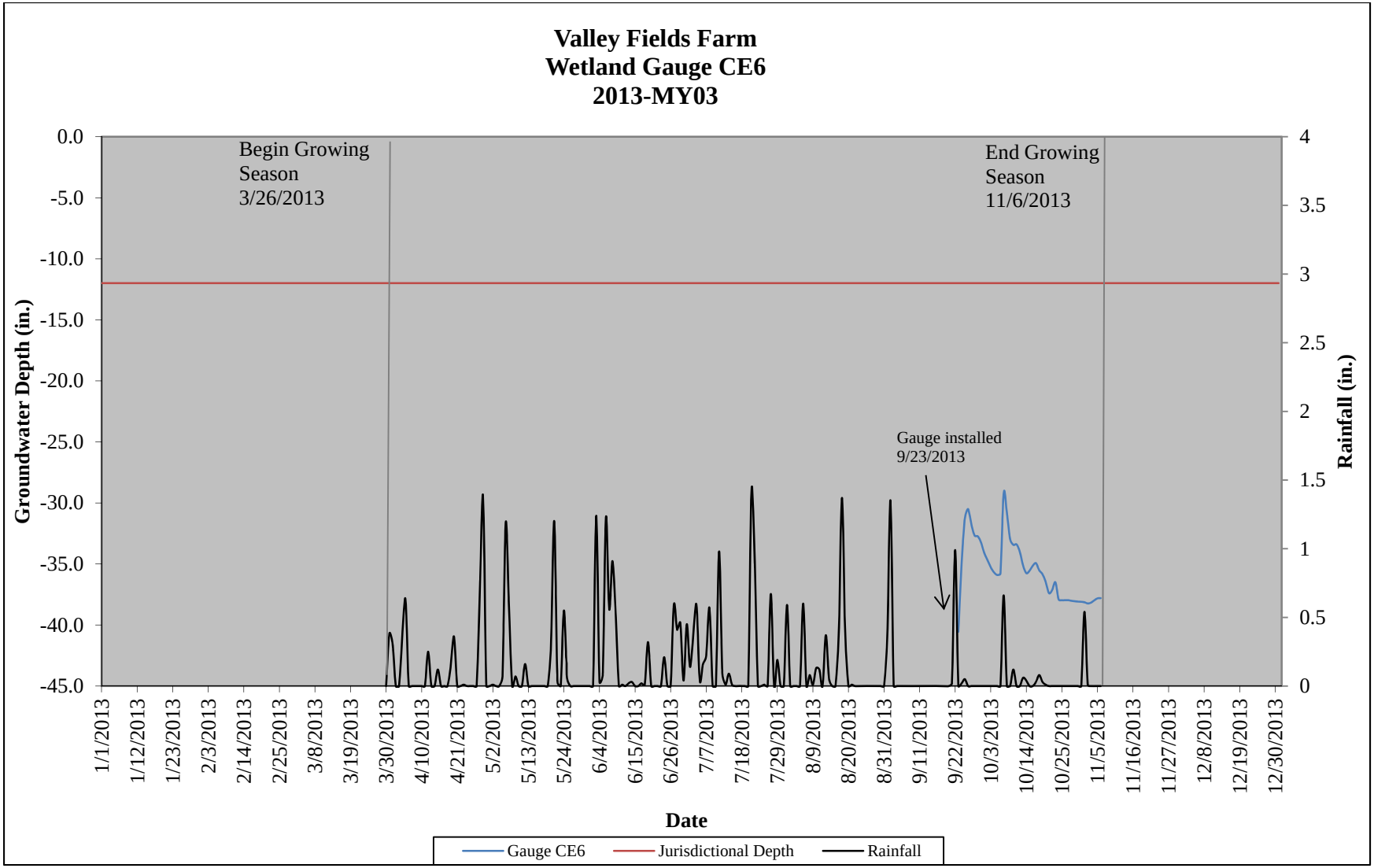
*Gauges reinstalled 9/23/2013, monitoring only occurred for 21% of growing season

GROUNDWATER LEVEL MONITORING WELL PLOTS




Valley Fields Farm
Wetland Gauge CE3
2013-MY03
Begin Growing Season 3/26/2013
End Growing Season 11/6/2013
Gauge installed 9/23/2013
Groundwater Depth (in)
Rainfall (in.)
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
4
3.5
3
2.5
2
1.5
1
0.5
0
1/1/2013
1/12/2013
1/23/2013
2/3/2013
2/14/2013
2/25/2013
3/8/2013
3/19/2013
3/30/2013
4/10/2013
4/21/2013
5/2/2013
5/13/2013
5/24/2013
6/4/2013
6/15/2013
6/26/2013
7/7/2013
7/18/2013
7/29/2013
8/9/2013
8/20/2013
8/31/2013
9/11/2013
9/22/2013
10/3/2013
10/14/2013
10/25/2013
11/5/2013
11/16/2013
11/27/2013
12/8/2013
12/19/2013
12/30/2013
Date
Gauge CE3
Jurisdictional Depth
Rainfall


Valley Fields Farm
Wetland Gauge CE4
2013-MY03
Begin Growing Season 3/26/2013
End Growing Season 11/6/2013
Gauge installed 9/20/2013
Groundwater Depth (in.)
Rainfall (in.)
0.0
-5.0
-10.0
-15.0
-20.0
-25.0
-30.0
-35.0
-40.0
-45.0
4
3.5
3
2.5
2
1.5
1
0.5
0
1/1/2013
1/12/2013
1/23/2013
2/3/2013
2/14/2013
2/25/2013
3/8/2013
3/19/2013
3/30/2013
4/10/2013
4/21/2013
5/2/2013
5/13/2013
5/24/2013
6/4/2013
6/15/2013
6/26/2013
7/7/2013
7/18/2013
7/29/2013
8/9/2013
8/20/2013
8/31/2013
9/11/2013
9/22/2013
10/3/2013
10/14/2013
10/25/2013
11/5/2013
11/16/2013
11/27/2013
12/8/2013
12/19/2013
12/30/2013
Date
Gauge CE4
Jurisdictional Depth
Rainfall


Valley Fields Farm
Wetland Gauge CE6
2013-MY03
Begin Growing Season 3/26/2013
End Growing Season 11/6/2013
Gauge installed 9/23/2013
Groundwater Depth (in.)
Rainfall (in.)
Date
Gauge CE6
Jurisdictional Depth
Rainfall