UT TO BEAR CREEK STREAM RESTORATION – NCEEP Project #92347
2010 FINAL MONITORING REPORT – YEAR 1

CONDUCTED FOR THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

Submitted on March 1, 2011 to:

North Carolina Department of
Environment and Natural Resources
Ecosystem Enhancement Program
1652 Mail Service Center
Raleigh, NC 27699-1652

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1.0 Executive Summary

The goals of the UT to Bear Creek Restoration Project are to improve water quality, reduce excess sedimentation input from channel banks, attenuate floodwater flows, and restore aquatic and riparian habitat. To achieve these goals, the project has the following objectives:

- Reduce nutrient loading from the on-site cattle operation by fencing out cattle and re-vegetating the riparian buffer;
- Restore stable channel dimension, pattern, and profile so that on-site streams will transport watershed flows and sediment loads without aggradation or erosion;
- Improve aquatic habitat by enhancing stream bed variability, providing shaded areas within the channel, and introducing woody debris in the form of rootwads, log vanes, and log sills;
- Enhance wildlife habitat by re-vegetating the riparian buffers with native plants, helping to create a wildlife corridor through existing agricultural lands.

The average live planted woody stem density (418 live stems per acre) has exceeded the vegetation success criteria (360 live stems per acre in Year 1) by 16 percent. Planted stem density in plots 1, 2, 4, 7, 8, and 9 is below the required the 320 stems/acre success criteria for monitoring year three.

RJG&A staff collected cross-section, longitudinal, and pebble data in November and December 2010. A more detailed longitudinal profile conducted in December 2010 has improved the quality of the morphologic data compared to the baseline report and may account for some changes to calculated feature lengths and spacing. Overall the project appears to have met its morphological goals and profile parameters closely mirror design numbers.

In Chatham County wetland hydrologic success requires that soils be saturated for at least 27 day (12.5% of the growing season). Data downloaded from gauge 138BDBD7 indicates that soils were saturated within 12 inches of the surface for 20 days; gauge 9BEA457 indicates that soils were saturated within 12 inches of the surface for 21 days. Neither gauge meets the hydrologic success criteria. Lower than normal rainfall may account for the failure of either gauge to meet the success criteria. The crest gauge installed along the Northern UT was checked during fall data collection. Based on the crest gauge and on-site evidence, the project appears to have experienced several bankfull events during 2010. Hydrologic results can be found in Appendix E.

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. Narrative background and supporting information formerly found in these reports can be found in the mitigation and restoration plan documents available on EEP's website. All raw data supporting the tables and figures in the appendices is available from EEP upon request.

2.0 Methodology

Monitoring methodologies follow the current EEP-provided templates and guidelines (Lee *et al* 2006). Photographs were taken digitally. A Trimble Geo XT handheld mapping-grade unit was used to collect cross section, vegetation corner, photopoint, and problem area locations. All problem areas identified on the spring 2010 versions of the CCPV were re-evaluated.

2.1 Stream Methodology

Nine cross sections were established on April 20, 2010 and collected as part of the first year monitoring report on November 22-23, 2010. The entirety of the Northern and Southern reaches were surveyed between December 3, 2010 and December 15, 2010. Methods employed were a combination of those specified in the Mitigation Plan and standard regulatory guidance and procedures documents. Stream monitoring data was collected using the techniques described in USACE *Stream Mitigation Guidelines*, US Forest Service's Stream *Channel Reference Sites*, and *Applied River Morphology* (USACE, 2003; Harrelson et al., 1994; Rosgen, 1996). A South Total Station and Nikon automatic level were used for collecting all geomorphic data. Longitudinal stationing for each stream point was assigned in ArcMap using the as-built centerline data collected in May 2009. Photographs facing downstream were taken at each cross section. Particle distribution was assessed using the Wolman pebble count methodology.

2.2 Vegetation Methodology

A total of twelve representative vegetation survey plots were selected and installed on the Northern and Southern reaches in April 2010. Monitoring Year 1 data were collected on October 29 and November 3, 2010. All plots measure 100 square meters in area. Pursuant to the guidelines, the four corners of each plot (0,0; 0,20; 5,0; and 5,20.) are marked with metal pipe.

Level 1 (planted woody stems) and Level 2 (volunteer woody stems) data collection was performed in all plots, pursuant to the most recent CVS/EEP protocol (Lee *et al* 2006). Within each plot, each planted woody stem location (x and y) was recorded, and height and live stem diameter were recorded for each stem location. All planted stems were identified with pink flagging. Vegetation was identified using Weakley (Weakley 2007). Photos were taken of each vegetation plot from the 0,0 corner.

2.3 Hydrology

2.3.1 Wetlands

Data was collected monthly from two automated groundwater monitoring gauges installed in the riparian wetland adjacent to the Northern UT on April 20, 2010 in accordance with USACE guidance (USACE 2000). Gauge data were plotted against precipitation data from the Siler City Airport ECONet station (SILR). Wetland gauge plots can be found in Appendix E, Figures 8.0 and 8.1.

2.3.2 Streams

The UT to Bear Creek restoration includes a crest gauge at Station 2280 to verify the on-site occurrence of bankfull events. The crest gauge was evaluated during the spring and fall data collection and the overall site assessed for evidence of bankfull events. Dates of potential bankfull events were inferred using precipitation data from the Siler City Airport ECONet station (SILR) (NC CRONOS, 2010). Results of these investigations can be found in Table 12 in Appendix E.

3.0 References

Harrelson, Cheryl, C. L. Rawlins, and John Potpondy. (1994). *Stream Channel Reference Sites: An Illustrated Guide to Field Technique*. USDA, Forest Service. General Technical Report RM-245.

Lee, Michael T., Peet, Robert K., Roberts, Steven D., Wentworth, Thomas R. (2006). *CVS-EEP Protocol for Recording Vegetation Version 4.0*. Retrieved October 30, 2006, from: http://www.nceep.net/business/monitoring/veg/datasheets.htm.

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Ward Consulting Engineering (2008). *UT to Rocky River (Smith Tract) Stream and Buffer Restoration, Enhancement, and Preservation, Chatham County, North Carolina Final Monitoring Report*. February 15, 2008.

Weakley, Alan (2007). *Flora of the Carolinas, Virginia, Georgia, and Surrounding Areas*. Retrieved March 27, 2007 from: http://www.herbarium.unc.edu/flora.htm.

Appendix A. Project Vicinity Map and Background Tables

Figure 1.0. Project Vicinity Map and Directions
Table 1.0-1.1 Project Restoration Components
Table 2.0 Project Activity and Reporting History
Table 3.0 Project Contacts Table
Table 4.0 Project Attribute Table

Directions to the Site:

From Pittsboro, take 15-501 South. At the intersection with NC 87, take a right on to NC 87 North. Take a left on to NC 902 West. Stay on 902 through the Town of Bear Creek. Cross US Hwy 421 and then Old US Highway 421. Access to the Northern UT is a gravel road on your left, across from Chatham Central High School. Access to the Southern UT is approximately 3/4 mile further west on 902.

The subject project site is an environmental restoration site of the NCDENR Ecosystem Enhancement Program (EEP) and is encompassed by a recorded conservation easement, but is bordered by land under private ownership. Accessing the site may require traversing areas near or along the easement boundary and therefore access by the general public is not permitted. Access by authorized personnel of state and federal agencies or their designees/contractors involved in the development, oversight and stewardship of the restoration site is permitted within the terms and time frames of their defined roles. Any intended site visitation or activity by any person outside of these previously sanctioned roles and activities requires prior coordination with EEP.

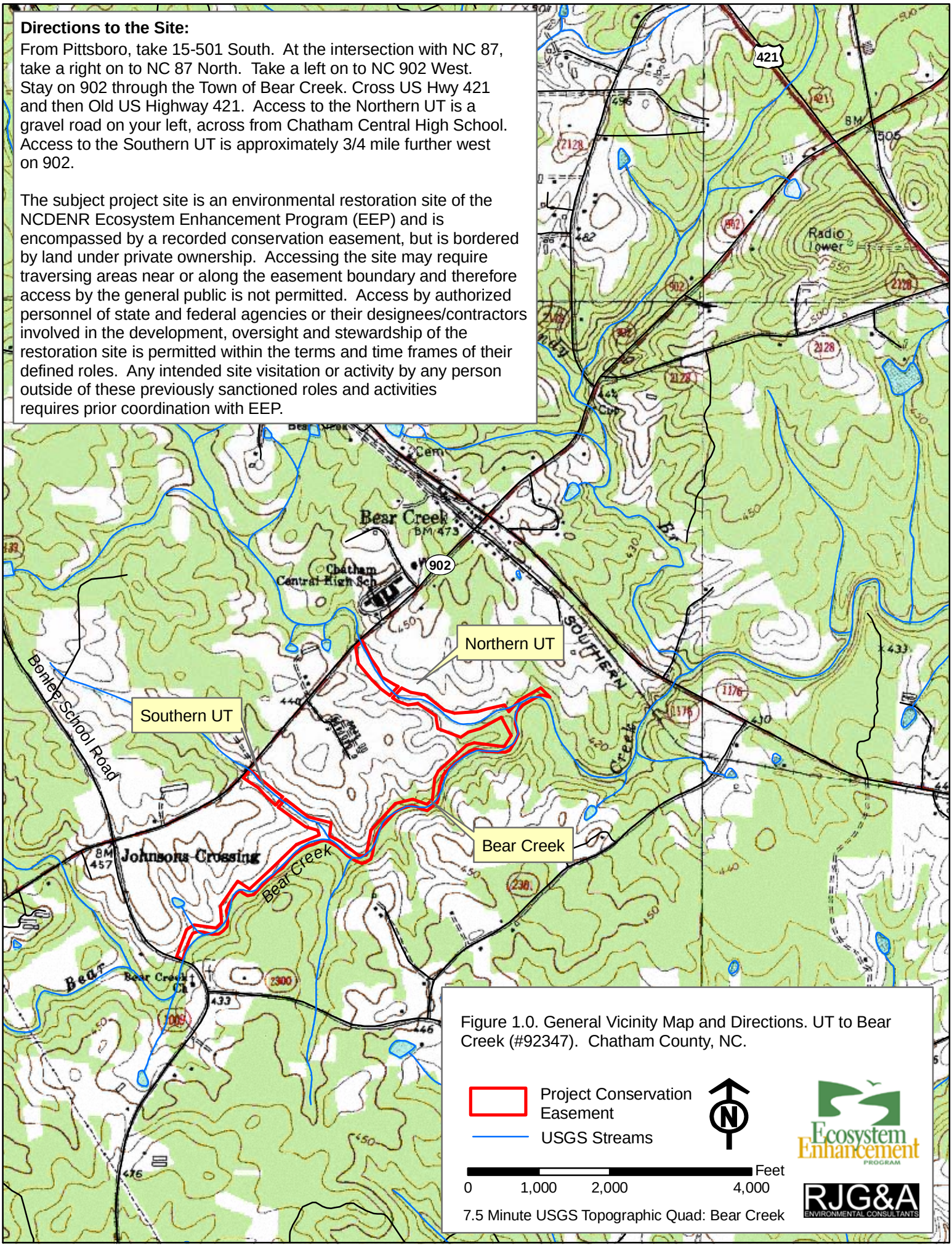

Figure 1.0. General Vicinity Map and Directions. UT to Bear Creek (#92347). Chatham County, NC.

Project Conservation Easement

USGS Streams

N

Feet

0 1,000 2,000 4,000

7.5 Minute USGS Topographic Quad: Bear Creek

Ecosystem Enhancement Program

RJG&A Environmental Consultants

Table 1.1. Project Restoration Components UT of Bear Creek Stream Restoration - Project #92347									
Project Component or Reach ID	**Existing Feet/Acres**	**Restoration Level**	**Approach**	**Footage or Acreage**	**Stationing**	**Mitigation Ratio**	**Ratio Multplier**	**Mitigation Units**	**Comment**
Northern UT to Bear Creek Buffer	4.66	R	--	4.66 ac.	--	1:1	1	4.66	Vegetative Plantings to pasture areas within 50 feet of creek where density of existing vegetation is less than 100 stems/acre.
	0.78	E	--	0.78 ac.	--	2:1	0.5	0.39	Vegetative Plantings to pasture areas within 50 feet of creek where density of existing vegetation is greater than 100 stems/acre, but less than 200 stems/acre
Southern UT to Bear Creek Buffer	2.32	R	--	2.32 ac.	--	1:1	1	2.32	Vegetative Plantings to pasture areas within 50 feet of creek where density of existing vegetation is less than 100 stems/acre.
	0.42	E	--	0.42 ac.	--	2:1	0.5	0.21	Vegetative Plantings to pasture areas within 50 feet of creek where density of existing vegetation is greater than 100 stems/acre, but less than 200 stems/acre
Northern UT to Bear Creek	2,832	R	PI	550 ft.	10+00-15+50	1:1	1	550	Restore channel on new location
			PII	125 ft.	15+50-16+75	1:1	1	125	
			PI	225 ft.	16+75-19+00	1:1	1	225	
			PII	350 ft.	19+50-23+00	1:1	1	350	
			PI	1,675 ft.	23+00-39+75	1:1	1	1,675	
			PII	157 ft.	39+75-41+32	1:1	1	157	
Southern UT to Bear Creek	1,635	R	PI	1,298 ft.	10+00-16+67 17+19-23+50	1:1	1	1,298	Restore channel on new location
			PII	395 ft.	23+50-27+45	1:1	1	395	
Riparian Wetland along Northern UT	0.49	E	--	0.39 ac.	--	2:1	0.5	0.2	Supplemental plantings to existing wetlands

Table 1.1. Component Summations
UT of Bear Creek Stream Restoration - Project #92347

Restoration Level	Stream (lf)	Riparian Wetland (Ac)		Non-Ripar (Ac)	Upland (Ac)	Buffer (Ac)	BMP
		Riverine	Non-Riverine				
Restoration	4,775					6.98	
Enhancement		0.39					
Enhancement I						1.2	
Enhancement II							
Creation							
Preservation							
HQ Preservation							
Totals (Feet/Acres)	**4,775**	**0.39**		**0**	**0**	**8.18**	**0**
MU Totals	**4,775**	**0.2**		**0**	**0**	**7.58**	**0**

Non-Applicable

Table 2. Project Activity and Reporting History UT of Bear Creek Stream Restoration - Project #92347		
Elapsed Time Since Grading Complete: 1 yrs 1 months		
Elapsed Time Since Planting Complete: 1 yr 1 Months		
Number of Reporting Years[1]: 0		
Activity or Deliverable	**Data Collection Complete**	**Completion or Delivery**
Restoration Plan	U	Jul-07
Final Design – Construction Plans	U	Jan-08
Construction	NA	Apr-09
Containerized, bare root and B&B plantings for entire project	NA	Apr-09
Mitigation Plan / As-built (Year 0 Monitoring – baseline)	Apr-10	Aug-10
Year 1 Monitoring	Nov-10	Dec-10

Table 3. Project Contacts Table UT of Bear Creek Stream Restoration - Project #92347	
Designer	Ko & Associates, P.C. 1011 Schaub Drive, Suite 202 Raleigh, North Carolina 27606 R. Kevin Williams, PE, (919) 851-6066
Construction Contractor	Land Mechanics Designs, Inc. 126 Circle G Lane Willow Spring, NC 27592-9671 (919) 639-6132
Survey Contractor	Stewart Proctor 319 Chapanoke Road, Suite 106 Raleigh NC 27603 (919) 779-1855
Planting Contractor	Habitat Assessment and Restoration Program 301 McCullough Drive, 4th Floor Charlotte, NC 28262 (704) 841-2841
Seeding Contractor	Land Mechanics Designs, Inc. 126 Circle G Lane Willow Spring, NC 27592-9671 (919) 639-6132
Seed Mix Sources	U
Nursery Stock Suppliers	Arbrogen aka South Carolina Super Tree Nursery Cure Nursery Foggy Mountain Nursery Virginia Department of Forestry
Monitoring Performers	Robert J. Goldstein & Associates 1221 Corporation Parkway, Ste. 100 Raleigh NC 27610 Sean Doig, (919) 872-1174

Table 4. Project Attribute Table UT to Bear Creek (NCEEP #92347)	
Project County	Chatham
Physiographic Region	Piedmont
Ecoregion	Carolina Slate Belt
Project River Basin	Cape Fear
USGS HUC for Project (14 digit)	03030003070050
NCDWQ Sub-basin for Project	03-06-12
Within extent of EEP Watershed Plan?	Cape Fear River Basin Restoration Priorities (2009) and Upper and Middle Rocky River Watershed Plan (2005)
WRC Hab Class (Warm, Cool, Cold)	Warm
% of project easement fenced or demarcated	100%
Beaver activity observed during design phase?	No

Restoration Component Attribute Table

	Bear Creek	Northern UT to Bear	Southern UT to Bear	Northern UT Wetland
Drainage area	25.0 sq miles	2.36 sq miles	0.34 sq miles	NA
Stream order	4th	2nd	1st	NA
Restored length (feet)	--	3132	1,745	0.4 acres
Perennial or Intermittent	Perennial	Perennial	Perennial	NA
Watershed type (Rural, Urban, Developing etc.)	Rural	Rural	Rural	NA
Watershed LULC Distribution (e.g.)				
Residential	3%	7%	6%	NA
Commercial	1%	1%	0%	NA
Ag-Row Crop	3%	1%	2%	NA
Ag-Livestock	30%	28%	51%	NA
Forested	52%	54%	35%	NA
Shrub/Scrub/Early Successional	11%	9%	6%	NA
Watershed impervious cover (%)	2%	3%	2%	NA
NCDWQ AU/Index number	17-43-16	17-43-16	17-43-16	NA
NCDWQ classification	C	C	C	NA
303d listed?	No	No	No	NA
Upstream of a 303d listed segment?	No	No	No	NA
Reasons for 303d listing or stressor	NA	NA	NA	NA
Total acreage of easement	15.48	11.75	4.65	NA
Total vegetated acreage within the easement	12.15	1.58	0.55	NA
Total planted acreage as part of the restoration	3.23	11.75	4.56	0.40
Rosgen classification of pre-existing channel	NA	E4/F4	E4/F4	NA

	Bear Creek	Northern UT to Bear	Southern UT to Bear	Northern UT Wetland
Rosgen classification of As-built	NA	C4/C5	C4/C5	NA
Valley type	VIII	VIII	VIII	NA
Valley slope	0.1%	0.4%	1%	NA
Valley side slope range (e.g. 2-3.%)	3-15%	3-4%	3-11%	NA
Valley toe slope range (e.g. 2-3.%)	1-20%	7-8%	3-5%	NA
Cowardin classification	R3UBH	R3UBH	R3UBH	PSS1B
Trout waters designation	NA	NA	NA	NA
Species of concern, endangered etc.? (Y/N)	No	No	No	No
Dominant soil series and characteristics				
Series	Georgeville	Chewacla	Cid-Lignum	Chewacla
Depth	0-80	0-80	0-80	0-80
Clay%	5-40	5-40	10-50	5-40
K	0.17-0.37	0.24-0.37	0.24-.043	0.24-0.37
T	5	5	2	5

Use N/A for items that may not apply. Use "-" for items that are unavailable and "U" for items that are unknown

Appendix B. Visual Assessment Data

Figure 2.0.-2.2	Current Conditions Plan View
Table 5.0-5.1	Visual Morphological Stability Assessment
Table 6.0	Vegetation Condition Assessment Table
e-Table	Stream Problem Areas Inventory Table
e-Table	Vegetation Problem Areas Inventory Table
Figure 3.0-3.8	Stream Station Photos
e-Photos	Stream Problem Area Photos
Figures 4.0-4.5	Vegetation Monitoring Plot Photos
e-Photos	Vegetation Problem Area Photos

Figure 2.0. Current Conditions Plan View. UT of Bear Creek (Northern Reach) - 2010. Chatham County. NCEEP Project #92347

- Photopoints
- Cross-Sections
- Vegetation monitoring plot
- Thalweg MY1 (12/3-12/7/10)
- As-Built Thalweg (May 2009)
- In-Stream Structures
- Conservation Easement
- Top of Bank

Stream Problem Areas

- Scour
- Gully

Vegetation Problem Areas

- Bare soil
- Low planted stem density

Feet
0 50 100 200

902

1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600

Match Line Figure 1.0
Match Line Figure 1.1

1 2 3 4 5 6

Ecosystem Enhancement PROGRAM

RJG&A ENVIRONMENTAL CONSULTANTS 800-407-0889 www.RJGAcarolina.com

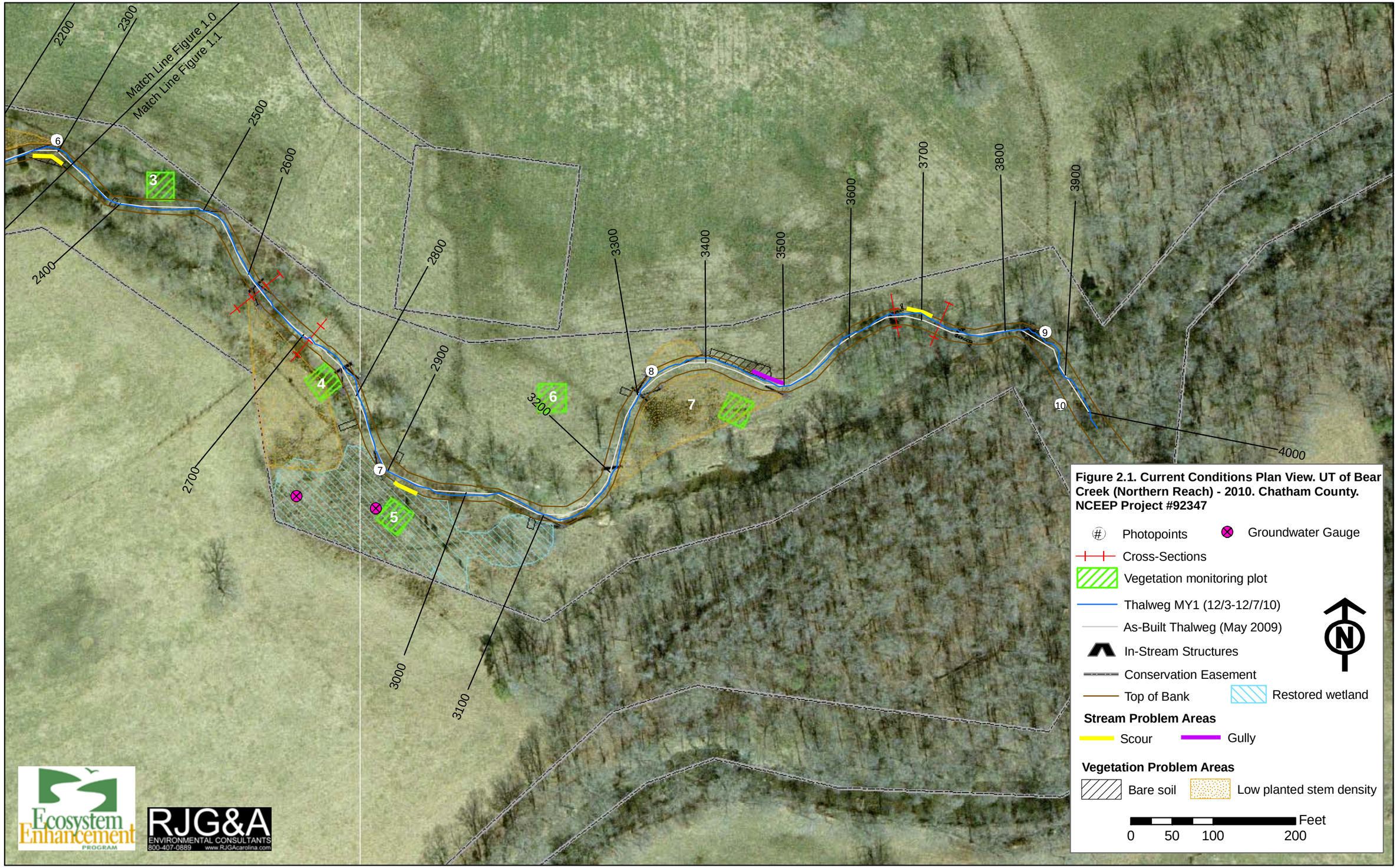
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Figure 2.1. Current Conditions Plan View. UT of Bear Creek (Northern Reach) - 2010. Chatham County. NCEEP Project #92347
Photopoints
Groundwater Gauge
Cross-Sections
Vegetation monitoring plot
Thalweg MY1 (12/3-12/7/10)
As-Built Thalweg (May 2009)
In-Stream Structures
Conservation Easement
Top of Bank
Restored wetland
Stream Problem Areas
Scour
Gully
Vegetation Problem Areas
Bare soil
Low planted stem density
Feet
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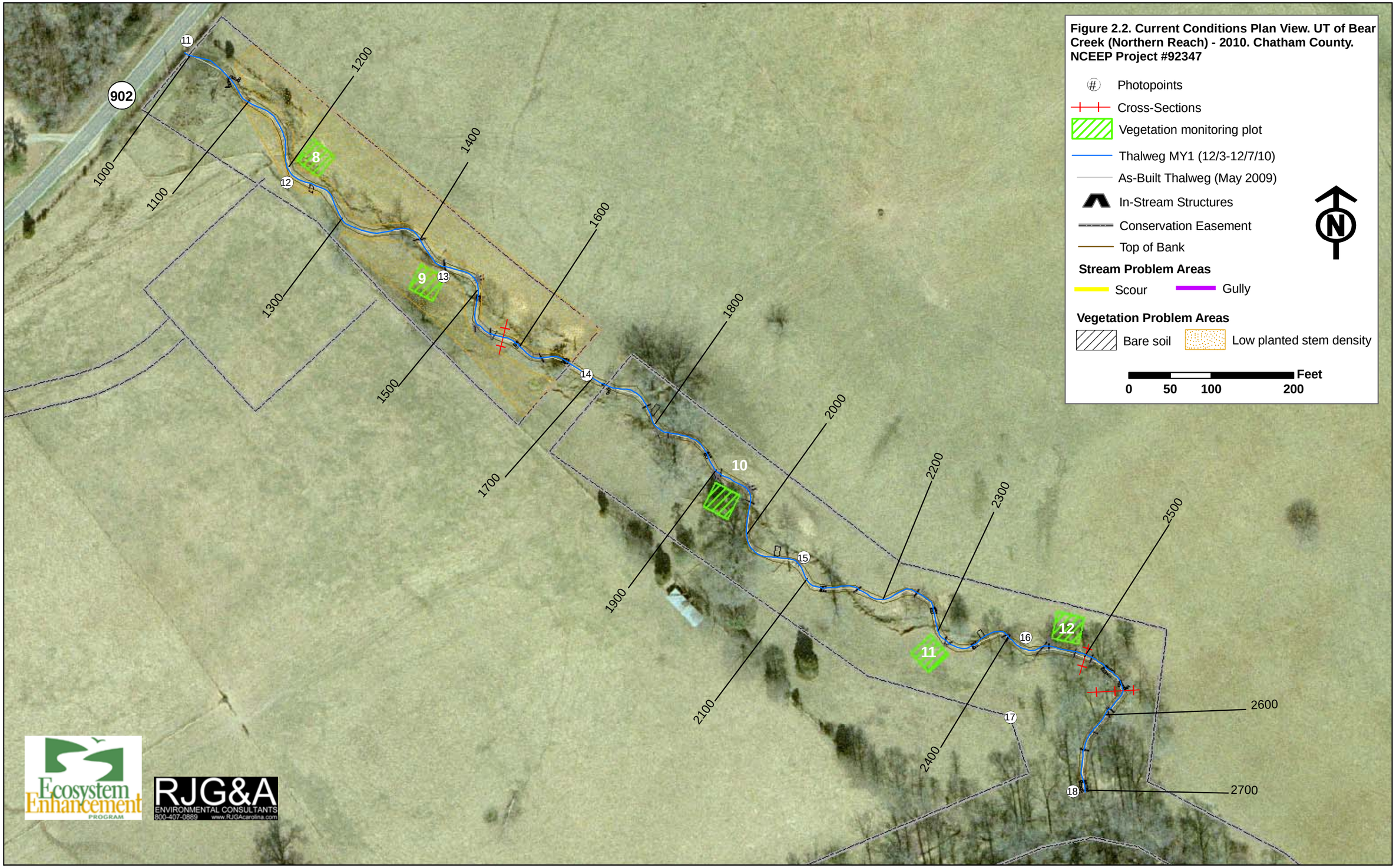
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Figure 2.2. Current Conditions Plan View. UT of Bear Creek (Northern Reach) - 2010. Chatham County. NCEEP Project #92347
Photopoints
Cross-Sections
Vegetation monitoring plot
Thalweg MY1 (12/3-12/7/10)
As-Built Thalweg (May 2009)
In-Stream Structures
Conservation Easement
Top of Bank
Stream Problem Areas
Scour
Gully
Vegetation Problem Areas
Bare soil
Low planted stem density
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UT to Bear Creek Stream Restoration – EEP Project #92347

Table 5.0 **Visual Stream Morphology Stability Assessment**
Reach ID **Northern UT**
Assessed Length **2,975**

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody	Footage with Stabilizing Woody	Adjusted % for Stabilizing Woody
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	21	21			100%			
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	31	31			100%			
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	31	31			100%			
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	31	31			100%			
		2. Thalweg centering at downstream of meander (Glide)	31	31			100%			
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			5	140	98%	0	0	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%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%		0	100%
				Totals	5	140	98%	0	0	98%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	22	22			100%			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	10	10			100%			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	10	10			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)	22	22			100%			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	22	22			100%			

UT to Bear Creek Stream Restoration – EEP Project #92347

Table 5.1 **Visual Stream Morphology Stability Assessment**
Reach ID **Southern UT**
Assessed Length **1,700**

Major Channel Category	Channel Sub-Category	Metric	Number Stable, Performing as	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended	Number with Stabilizing Woody	Footage with Stabilizing Woody	Adjusted % for Stabilizing Woody
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	27	27			100%			
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.6)	48	48			100%			
		2. Length appropriate (>30% of centerline distance between tail of upstream riffle and head of downstrem riffle)	48	48			100%			
	4.**Thalweg Position**	1. Thalweg centering at upstream of meander bend (Run)	48	48			100%			
		2. Thalweg centering at downstream of meander (Glide)	48	48			100%			
2. Bank	**1. Scoured/Eroding**	Bank lacking vegetative cover resulting simply from poor growth and/or scour and erosion			0	0	100%	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%	0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%		0	100%
				Totals	0	0	100%	0	0	100%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	32	32			100%			
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	28	28			100%			
	2a. Piping	Structures lacking any substantial flow underneath sills or arms.	28	28			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)	32	32			100%			
	4. Habitat	Pool forming structures maintaining ~ Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.6 Rootwads/logs providing some cover at base-flow.	32	32			100%			

Table 6 Vegetation Condition Assessment. UT to Bear Creek (EEP# 92347)

Planted Acreage[1] **18.2**

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.	0.01	black cross-hatch	3	0.03	0.2%
2. Low Stem Density Areas	Woody stem densities clearly below target levels based on MY3, 4, or 5 stem count criteria.	0.1 acres	orange stipules	10	2.12	11.6%
			Total	13	2.15	11.8%
3. Areas of Poor Growth Rates or Vigor	Areas with woody stems of a size class that are obviously small given the monitoring year.	none	Pattern and Color	0	0.00	0.0%
			Cumulative Total	13	2.15	11.8%

Easement Acreage[2] **30.35**

Vegetation Category	Definitions	Mapping Threshold	CCPV Depiction	Number of Polygons	Combined Acreage	% of Easement Acreage
4. Invasive Areas of Concern[4]	Areas or points (if too small to render as polygons at map scale).	none	Pattern and Color	0	0.00	0.0%
				0		
5. Easement Encroachment Areas[3]	Areas or points (if too small to render as polygons at map scale).	none	Pattern and Color	2	0.00	0.0%

1 = Enter the planted acreage within the easement. This number is calculated as the easement acreage minus any existing mature tree stands that were not subject to supplemental planting of the understory, the channel acreage, crossings or any other elements not directly planted as part of the project effort.

2 = The acreage within the easement boundaries.

3 = Encroachment may occur within or outside of planted areas and will therefore be calculated against the overall easement acreage. In the event a polygon is cataloged into items 1, 2 or 3 in the table and is the result of encroachment, the associated acreage should be tallied in the relevant item (i.e., item 1,2 or 3) as well as a parallel tally in item 5.

4 = Invasives may occur in or out of planted areas, but still within the easement and will therefore be calculated against the overall easement acreage. Invasives of concern/interest are listed below. The list of high concern spcies are those with the potential to directly outcompete native, young, woody stems in the short-term (e.g. monitoring period or shortly thereafter) or affect the community structure for existing, more established tree/shrub stands over timeframes that are slightly longer (e.g. 1-2 decades). The low/moderate concern group are those species that generally do not have this capacity over the timeframes discussed and therefore are not expected to be mapped with regularity, but can be mapped, if in the judgement of the observer their coverage, density or distribution is suppressing the viability, density, or growth of planted woody stems. Decisions as to whether remediation will be needed are based on the integration of risk factors by EEP such as species present, their coverage, distribution relative to native biomass, and the practicality of treatment. For example, even modest amounts of Kudzu or Japanese Knotweed early in the projects history will warrant control, but potentially large coverages of Microstegium in the herb layer will not likley trigger control because of the limited capacities to impact tree/shrub layers within the timeframes discussed and the potential impacts of treating extensive amounts of ground cover. Those species with the "watch list" designator in gray shade are of interest as well, but have yet to be observed across the state with any frequency. Those in *red italics* are of particular interest given their extreme risk/threat level for mapping as points where isolated specimens are found, particularly ealry in a projects monitoring history. However, areas of discreet, dense patches will of course be mapped as polygons. The symbology scheme below was one that was found to be helpful for symbolzing invasives polygons, particulalry for situations where the conditon for an area is somewhere between isolated specimens and dense, discreet patches. In any case, the point or polygon/area feature can be symbolized to describe things like high or low concern and species can be listed as a map inset, in legend items if the number of species are limited or in the narrative section of the executive summary.

Problem Areas - Northern UT (electronic submission only)
UT Bear Creek Stream Restoration - MY1 (2010) - Project #92347

Stream Problem Areas

Problem	Station	Suspected Cause	Photo #
Bank scour (right bank)	2058-2079	Coir gone and low planted stem survival	3
Bank scour (right bank)	2270-2310	Coir gone and low planted stem survival	4
Bank scour (right bank)	2912-2940	Coir gone and low planted stem survival	5
Bare soil/gully (left bank)	3475-3497	Coir gone and low planted stem survival	7
Bank scour (left bank)	3676-3705	Coir gone and low planted stem survival	8

Vegetation Problem Areas

Problem	Station	Suspected Cause	Photo #
Low planted stem density	1180-1340	Poor soil medium	NA
Low planted stem density	1605-1900	Poor soil medium	NA
Low planted stem density	1750-1900	Poor soil medium	1
Bare soil	1945-1970	Poor soil medium/overbank erosion	2
Low planted stem density	2085-2290	Poor soil medium	NA
Bare soil	2270-1310	Poor soil medium/overbank erosion	4
Low planted stem density	2630-2850	Poor soil medium	NA
Low planted stem density	3180-3500	Poor soil medium	6
Low planted stem density	3335-3400	Poor soil medium	NA
Bare soil	3415-3470	Poor soil medium/overbank erosion	7

Problem Areas - Southern UT (electronic submission only)
UT Bear Creek Stream Restoration - MY1 (2010) - Project #92347

Stream-No Identified Problem Areas

Problem	Vegetation Station	Suspected Cause	Photo #
Low planted stem density - left bank	1055-1650	Poor soil medium	10
Low planted stem density - right bank	1100-1245	Poor soil medium	NA
Low planted stem density - right bank	1310-1650	Poor soil medium	11

Representative Problem Area Photos - UT Bear Creek Stream Restoration - MY1 (2010) - Project #92347

1. Low Planted Stem Density (Sta. 19+00)-Northern UT

2. Bare Soil (Sta. 19+50)-Northern UT

3. Bank scour/bare soil (Sta. 20+70) - Northern UT

4. Bank scour/bare soil (Sta. 22+70) - Northern UT

Representative Problem Area Photos - UT Bear Creek Stream Restoration - MY1 (2010) - Project #92347

5. Bank Scour (Sta. 29+15) - Northern UT

6. Low Planted Stem Density (Sta. 33+50)-Northern UT

7. Bare Soil/Gully Formation (Sta. 34+70)

8. Bank Scour (Sta. 36+76)-Northern UT

Representative Problem Area Photos - UT Bear Creek Stream Restoration - MY1 (2010) - Project #92347

10. Low Planted Stem Density Left Bank (Sta. 11+50)-Southern UT

11. Low Planted Stem Density Right Bank (Sta. 16+00)-Southern UT

Figure 3.0 Stream Photo Station Photo - UT Bear Creek Stream Restoration - Baseline Monitoring (2010) - Project #92347

PP 1 looking at northern UT from NC 902 (Sta. 10+00)

(3/25/2010)

(11/24/2010)

PP 2 Looking Downstream on northern UT (Sta. 13+60)

(3/24/2010)

(11/24/2010)

Figure 3.1 Stream Photo Station Photo - UT Bear Creek Stream Restoration - Baseline Monitoring (2010) - Project #92347

PP 3 from CE corner looking upstream on northern UT (Sta. 15+30)

(3/24/2010)

(11/24/2010)

PP 4 looking at floodplain interceptor on northern UT (Sta. 17+55)

(3/24/2010)

(11/24/2010)

Figure 3.2 Stream Photo Station Photo - UT Bear Creek Stream Restoration - Baseline Monitoring (2010) - Project #92347

PP 5 at cattle crossing looking downstream (Sta. 19+30)

(03/24/2010)

(11/24/2010)

PP 6 looking upstream on northern UT (Sta. 22+95)

(03/24/2010)

(11/24/2010)

Figure 3.3 Stream Photo Station Photo - UT Bear Creek Stream Restoration - Baseline Monitoring (2010) - Project #92347

PP 7 looking downstream on northern UT (28+95)

(03/24/2010)

(11/24/2010)

PP 8 looking upstream on northern UT (33+30)

(03/24/2010)

(11/24/2010)

Figure 3.4 Stream Photo Station Photo - UT Bear Creek Stream Restoration - Baseline Monitoring (2010) - Project #92347

PP 9 looking upstream on northern UT (Sta. 38+50)

(03/24/2010)

(11/24/2010)

PP 10 looking upstream above confluence with Bear Creek (39+75)

(03/24/2010)

(11/24/2010)

Figure 3.5 Stream Photo Station Photo - UT Bear Creek Stream Restoration - Baseline Monitoring (2010) - Project #92347

PP 11 looking at southern UT from NC 902 (Sta. 0+0)

(3/25/2010)

(11/24/2010)

PP 12 looking downstream on southern UT (Sta. 12+10)

(03/25/2010)

(11/24/2010)

Figure 3.6 Stream Photo Station Photo - UT Bear Creek Stream Restoration - Baseline Monitoring (2010) - Project #92347

PP 13 looking upstream on southern UT (Sta. 14+45)

(03/25/2010)

(11/24/2010)

PP 14 looking downstream on southern UT (Sta. 16+90)

(03/25/2010)

(11/24/2010)

Figure 3.7 Stream Photo Station Photo - UT Bear Creek Stream Restoration - Baseline Monitoring (2010) - Project #92347

PP 15 looking downstream on southern UT (Sta. 20+80)

(03/25/2010)

(11/24/2010)

PP 16 looking downstream on southern UT (Sta. 24+20)

(03/25/2010)

(11/24/2010)

Figure 3.8 Stream Photo Station Photo - UT Bear Creek Stream Restoration - Baseline Monitoring (2010) - Project #92347

PP 17 from CE corner looking upstream on southern UT (Sta. 24+25)

(03/25/2010)

(11/24/2010)

PP 18 looking upstream on southern UT (Sta. 27+00)

(03/25/2010)

(11/24/2010)

Appendix B. Figure 4.0. Vegetation Monitoring Plot Photos

VP 1 (Northern UT Sta. 12+20)

4/14/2010

10/29/2010

VP 2 (Northern UT Sta. 18+15)

4/14/2010

10/29/2010

Appendix B. Figure 4.1. Vegetation Monitoring Plot Photos

VP 3 (Northern UT Sta. 24+35)

4/14/2010

10/29/2010

VP 4 (Northern UT Sta. 27+75)

4/14/2010

10/29/2010

Appendix B. Figure 4.2. Vegetation Monitoring Plot Photos

VP 5 (Northern UT Sta. 29+50)

4/14/2010

10/29/2010

VP 6 (Northern UT Sta. 31+10)

4/14/2010

10/29/2010

Appendix B. Figure 4.3. Vegetation Monitoring Plot Photos

VP 7 (Northern UT Sta. 33+75)

4/14/2010

10/29/2010

VP 8 (Southern UT Sta. 12+00)

4/15/2010

11/3/2010

Appendix B. Figure 4.4. Vegetation Monitoring Plot Photos

VP 9 (Southern UT Sta. 14+45)

4/15/2010

11/3/2010

VP 10 (Southern UT Sta. 19+35)

4/15/2010

11/3/2010

Appendix B. Figure 4.5. Vegetation Monitoring Plot Photos

VP 11 (Southern UT Sta. 23+25)

4/15/2010

11/3/2010

VP 12 (Southern UT Sta. 24+55)

4/15/2010

11/3/2010

Appendix C. Vegetation Plot Data

Table 7.0	Vegetation Plot Mitigation Success Summary Table
Table 8.0	Vegetation Metadata
Table 9.0	Stem Count Total and Planted by Plot and Species
e-Tables	Raw CVS vegetation data sheets

Table 7. Vegetation Plot Attribute Table UT to Bear Creek (NCEEP# 92347)		
Plot ID	Vegeation Survival Threshold Met	Tract Mean
1	N	43%
2	N	
3	Y	
4	N	
5	Y	
6	Y	
7	N	
8	N	60%
9	N	
10	Y	
11	Y	
12	Y	

Table 8. Vegetation Metadata
UT to Bear Creek (EEP #92347)

Report Prepared By	sean doig
Date Prepared	11/17/2010 11:49
database name	92347UTBear.mdb
database location	C:\Documents and Settings\Owner\Desktop\EEP2010
computer name	GATELAP
file size	46141440

DESCRIPTION OF WORKSHEETS IN THIS DOCUMENT----------

Metadata	Description of database file, the report worksheets, and a summary of project(s) and project data.
Proj, planted	Each project is listed with its PLANTED stems per acre, for each year. This excludes live stakes.
Proj, total stems	Each project is listed with its TOTAL stems per acre, for each year. This includes live stakes, all planted stems, and all natural/volunteer stems.
Plots	List of plots surveyed with location and summary data (live stems, dead stems, missing, etc.).
Vigor	Frequency distribution of vigor classes for stems for all plots.
Vigor by Spp	Frequency distribution of vigor classes listed by species.
Damage	List of most frequent damage classes with number of occurrences and percent of total stems impacted by each.
Damage by Spp	Damage values tallied by type for each species.
Damage by Plot	Damage values tallied by type for each plot.
Planted Stems by Plot and Spp	A matrix of the count of PLANTED living stems of each species for each plot; dead and missing stems are excluded.
ALL Stems by Plot and spp	A matrix of the count of total living stems of each species (planted and natural volunteers combined) for each plot; dead and missing stems are excluded.

PROJECT SUMMARY----------

Project Code	92347
project Name	UT to Bear Creek
Description	Northern and Southern Uts to Bear Creek just east of NC 902.
River Basin	Cape Fear
length(ft)	4877
stream-to-edge width (ft)	50 (average)
area (sq m)	45304.23
Required Plots (calculated)	12
Sampled Plots	0

Table 9. Planted and Total Stem Counts (Species by Plot with Annual Means)
UT to Bear Creek Stream Restoration (EEP #92347)

Scientific Name	Common Name	Species Type	Plot 1			Plot 2			Plot 3			Plot 4			Plot 5			Plot 6			Plot 7			Plot 8		
			P-LS	P-all	T	P-LS	P-all	T	P-LS	P-all	T	P-LS	P-all	T	P-LS	P-all	T	P-LS	P-all	T	P-LS	P-all	T	P-LS	P-all	T
Acer rubrum	red maple	T															2								
Aesculus sylvatica	painted buckeye	S																							
Alnus serrulata	hazel alder	S																							
Baccharis halimifolia	eastern baccharis	S			13			2																	
Betula nigra	river birch	T		1	1		2	2		2	2		2	2		1	1					2	2		3	3
Celtis laevigata	sugarberry	T											1	1					1	1						
Cephalanthus occidentalis	common buttonbush	S														12	12								
Cornus amomum	silky dogwood	S															1								
Fraxinus pennsylvanica	green ash	T			7		2	15		3	13		1	20		18	27		2	59		1	1		1	3
Gleditsia triacanthos	honeylocust	T						2																	
Liquidambar styraciflua	sweetgum	T															5								
Nyssa sylvatica	blackgum	T								2	2								1	1					
Platanus occidentalis	American sycamore	T		1	1								1	1		2	2		5	5		1	1			
Quercus	oak	T																							
Quercus falcata	southern red oak	T					1	1																	
Quercus michauxii	swamp chestnut oak	T								2	2		1	1								1	1			
Quercus nigra	water oak	T																							
Quercus phellos	willow oak	T								1	1											2	2			
Rubus argutus	sawtooth blackberry	S																								4
Salix	willow	S																								
Salix nigra	black willow	S	1	1	2																					
Symphoricarpos orbiculatus	coralberry	S			1			1																		
Ulmus	elm	T															4									3
Ulmus alata	winged elm	T														4	4									
Ulmus americana	American elm	T																								
Unknown		U																								
Stem count			1	3	25	0	5	23	0	10	20	0	6	25	0	37	58	0	9	66	0	7	7	0	4	13
size (ares)			1			1			1			1			1			1			1			1		
size (ACRES)			0.0247			0.0247			0.0247			0.0247			0.0247			0.0247			0.0247			0.0247		
Species count			1	3	6	0	3	6	0	5	5	0	5	5	0	5	9	0	4	4	0	5	5	0	2	4
Stems per ACRE			40.47	121.4	1012	0	202.3	930.8	0	404.7	809.4	0	242.8	1012	0	1497	2347	0	364.2	2671	0	283.3	283.3	0	161.9	526.1

Table 9. Planted and Total Stem Counts (Species by Plot with Annual Means)
UT to Bear Creek Stream Restoration (EEP #92347)

Scientific Name	Common Name	Species Type	Plot 9			Plot 10			Plot 11			Plot 12			MY1 (2010)			Baseline (2010)		
			P-LS	P-all	T	P-LS	P-all	T	P-LS	P-all	T	P-LS	P-all	T	P-LS	P-all	T	P-LS	P-all	T
Acer rubrum	red maple	T															2			4
Aesculus sylvatica	painted buckeye	S																	1	1
Alnus serrulata	hazel alder	S					1	1		2	2					3	3		2	3
Baccharis halimifolia	eastern baccharis	S															15		0	2
Betula nigra	river birch	T		3	4		2	2		1	1		1	1		20	21		21	22
Celtis laevigata	sugarberry	T														2	2		3	3
Cephalanthus occidentalis	common buttonbush	S														12	12		12	12
Cornus amomum	silky dogwood	S															1			0
Fraxinus pennsylvanica	green ash	T		1	6		3	12		6	6		8	25		46	194		34	341
Gleditsia triacanthos	honeylocust	T															2		3	5
Liquidambar styraciflua	sweetgum	T															5			4
Nyssa sylvatica	blackgum	T														3	3		5	5
Platanus occidentalis	American sycamore	T					2	2		2	2		1	1		15	15		14	16
Quercus	oak	T																	2	2
Quercus falcata	southern red oak	T														1	1		1	1
Quercus michauxii	swamp chestnut oak	T					2	2		1	1		1	1		8	8		5	5
Quercus nigra	water oak	T																		1
Quercus phellos	willow oak	T								5	5		1	1		9	9		9	9
Rubus argutus	sawtooth blackberry	S			3			2			4			3			16		1	16
Salix	willow	S																		1
Salix nigra	black willow	S													1	1	2		1	16
Symphoricarpos orbiculatus	coralberry	S						1			18						21		1	60
Ulmus	elm	T			1			1						2			11			7
Ulmus alata	winged elm	T														4	4		4	4
Ulmus americana	American elm	T																	3	14
Unknown		U																	3	3
Stem count			0	4	14	0	10	23	0	17	39	0	12	34	1	124	347	0	125	557
size (ares)			1			1			1			1			12			12		
size (ACRES)			0.0247			0.0247			0.0247			0.0247			0.2965			0.2965		
Species count			0	2	4	0	5	8	0	6	8	0	5	7	1	12	20	0	20	26
Stems per ACRE			0	161.87	566.56	0	404.69	930.78	0	687.97	1578.3	0	485.62	1375.9	3.3724	418.18	1170.2	0	421.55	1878.4

Plot 92347-sd/gp-0001 — Please fill in any missing data and fix incorrect data. — **Vegetation Monitoring Data (VMD) Datasheet**

VMD Year (1-5): 1 Date: 10/29/ - 10/29/ Party: CH, SD Role: Notes on plot: 48-49

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) Datum: NAD83/WGS84

Longitude or UTM-E: UTM Zone:

Coordinate Accuracy (m): 1 X-Axis bearing (deg):

Plot Dimensions: X: 10 Y: 10 ☐ Plot has reverse orientation for X and Y axis (Y is 90 degrees to the right of X

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Apr 2010 Data: ddh 1 mm	Height 1cm*	DBH 1 cm	THIS YEAR'S DATA: ddh 1mm	Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
987	Betula nigra	a	R	0.1	0.2	6	58.0		10	56			3		tag broken
at 0,0 corner															
988	Platanus occidentalis	b	R	6.9	4.1	8	66.0		11	87		☐	4		
989	Quercus sp.	c	R	8.3	0.4	4	11.0						M		

 # stems: 3 New Stems, not included last year, but are obviously planted. If more space needed, use blank PWS (Planted Woody Stems) Form:

Species Name	Source*	X (m)	Y (m)	ddh 1 mm	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
Salix nigra		9.5	7	16	120		4		
Salix		0.1	1.5	19	117		4		
Symph.		9.5	1.0	4	64		3		more to natural

see photo from VP2

Natural Woody Stems - tallied by species

Explanation of cut-off & subsampling**:

Height Cut-Off (All stems shorter than this are ignored. If >10cm, explain why to the right.): ☐ 10cm ☐ 50cm ☐ 100cm ☐ 137cm

Species Name	☑ c	Seedlings — Height Classes: Sub-Seed	10 cm-50 cm	50 cm-100 cm	100 cm-137 cm	Saplings — DBH: Sub-Sapl	0-1 cm	1-2.5	Trees — DBH: 2.5-	5-	=10 (write DBH)
Bass		—	••	4	•	—					
[illegible]		—				—					
Frox		—	5	•		—					
		—				—					
		—				—					
		—				—					
		—				—					

**Required if cut-off >10cm or subsample ? 100%. ●1 ●2 ●3 ●4 ●5 ●6 ●7 ●8 ●9 ●10 Form WS2, ver 9.1

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown p. 1

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

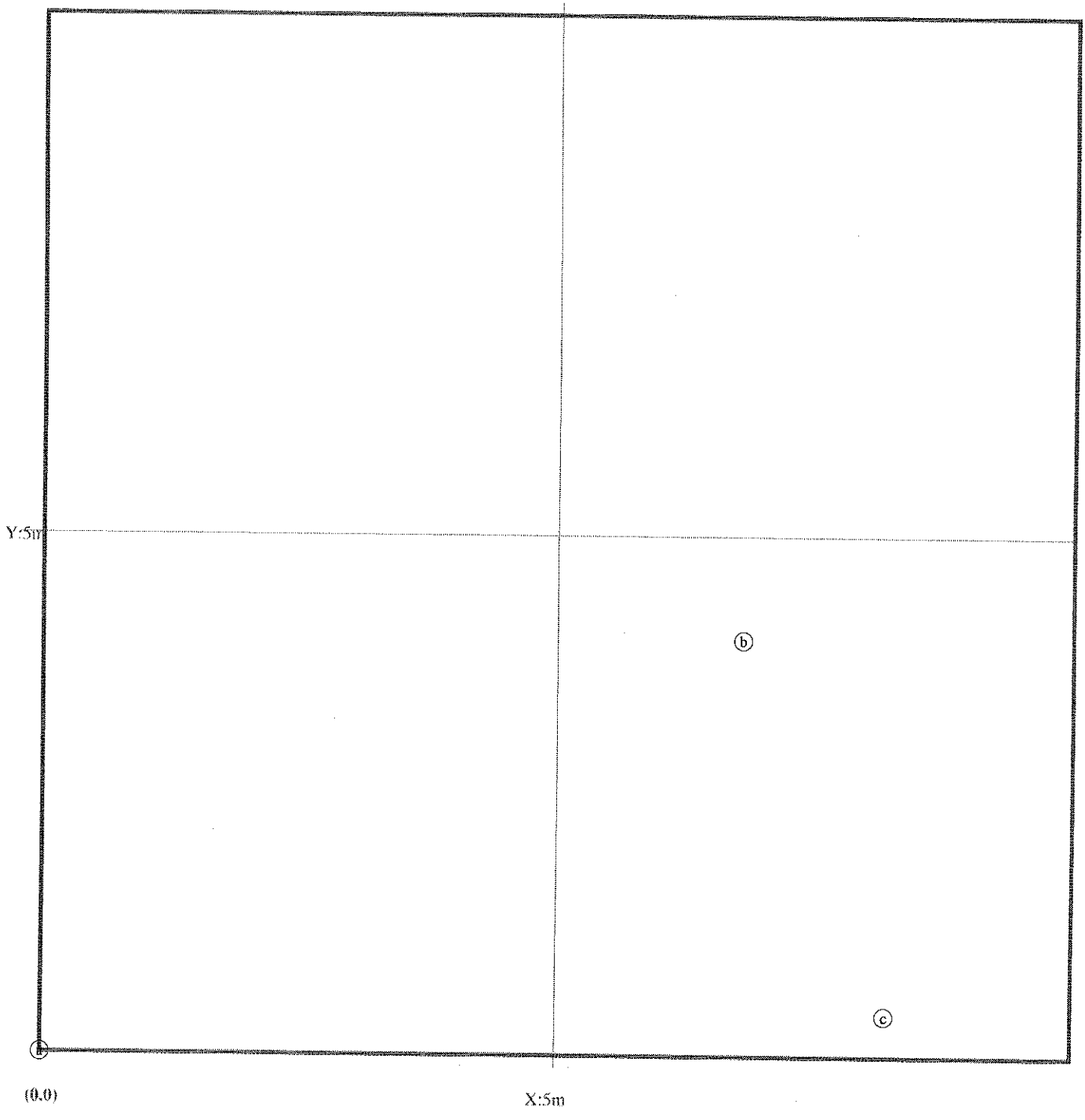
*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Printed in the CVS-EEP Entry Tool ver. 2.2.7

Map of stems on plot 92347-sd/gp-0001

Please measure bearing of X-axis and record at top of plot.

 # stems: 3
map size: LARGE



*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Plot 92347-sd/gp-0002 — **Please fill in any missing data and fix incorrect data.** — **Vegetation Monitoring Data (VMD) Datasheet**

VMD Year (1-5): 1 Date: 10/29/10 - 10/29/10 Party: CH, SV Role: , record Notes on plot: photo 46-47

Taxonomic Standard: Weakley

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) Datum: NAD83/WGS84

Longitude or UTM-E: UTM Zone:

Coordinate Accuracy (m): 1 X-Axis bearing (deg):

Plot Dimensions: X: 10 Y: 10 ☐ Plot has reverse orientation for X and Y axis (Y is 90 degrees to the right of X

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Apr 2010 Data ddh 1 mm	Apr 2010 Data Height 1cm*	Apr 2010 Data DBH 1 cm	THIS YEAR'S DATA ddh 1mm	Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
996	Betula nigra	g	R	9.9	0.1	5	48.0		5	50	✓	☐	3		
997	Symphoricarpos orbiculatus	f	R	7.0	7.7	4	48.0		5	65	✓	☐	3		
998	Fraxinus pennsylvanica	b	R	2.0	4.6	4	30.0		6	36		☐	1		
999	Gleditsia triacanthos	c	R	2.0	7.2	4	38.0		7	64	✓	☐	4		
1000	Gleditsia triacanthos	d	R	4.2	7.0	7	77.0		12	98	✓	☐	4		
1001	Fraxinus pennsylvanica	a	R	1.0	9.5	3	28.0		6	39	✓	☐	3		
1002	Quercus falcata	e	R	5.0	4.0	4	27.0		4	32	✓	☐	3		

 # stems: 7 New Stems, not included last year, but are obviously planted. If more space needed, use blank PWS (Planted Woody Stems) Form:

Species Name	Source*	X (m)	Y (m)	ddh 1 mm	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
Betula		2.5	0.0	6	67	✓	3		

Natural Woody Stems - tallied by species

Explanation of cut-off & subsampling**:

Height Cut-Off (All stems shorter than this are ignored. If >10cm, explain why to the right.): ☐ 10cm ☐ 50cm ☐ 100cm ☐ 137cm

Species Name	☑ c	SEEDLINGS — HEIGHT CLASSES: Sub-Seed	10 cm-50 cm	50 cm-100 cm	100 cm-137 cm	SAPLINGS — DBH: Sub-Sapl	0-1 cm	1-2.5	TREES — DBH: 2.5-	5-	=10 (write DBH)
Bacchar is		---	1	1		---					
Frax		---	[illegible]			---					
		---				---					
		---				---					
		---				---					
		---				---					
		---				---					

**Required if cut-off >10cm or subsample ?100%.

●1 ●2 ●3 ●4 ●5 ●6 ●7 ●8 ●9 ●10

Form WS2, ver 9.1

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

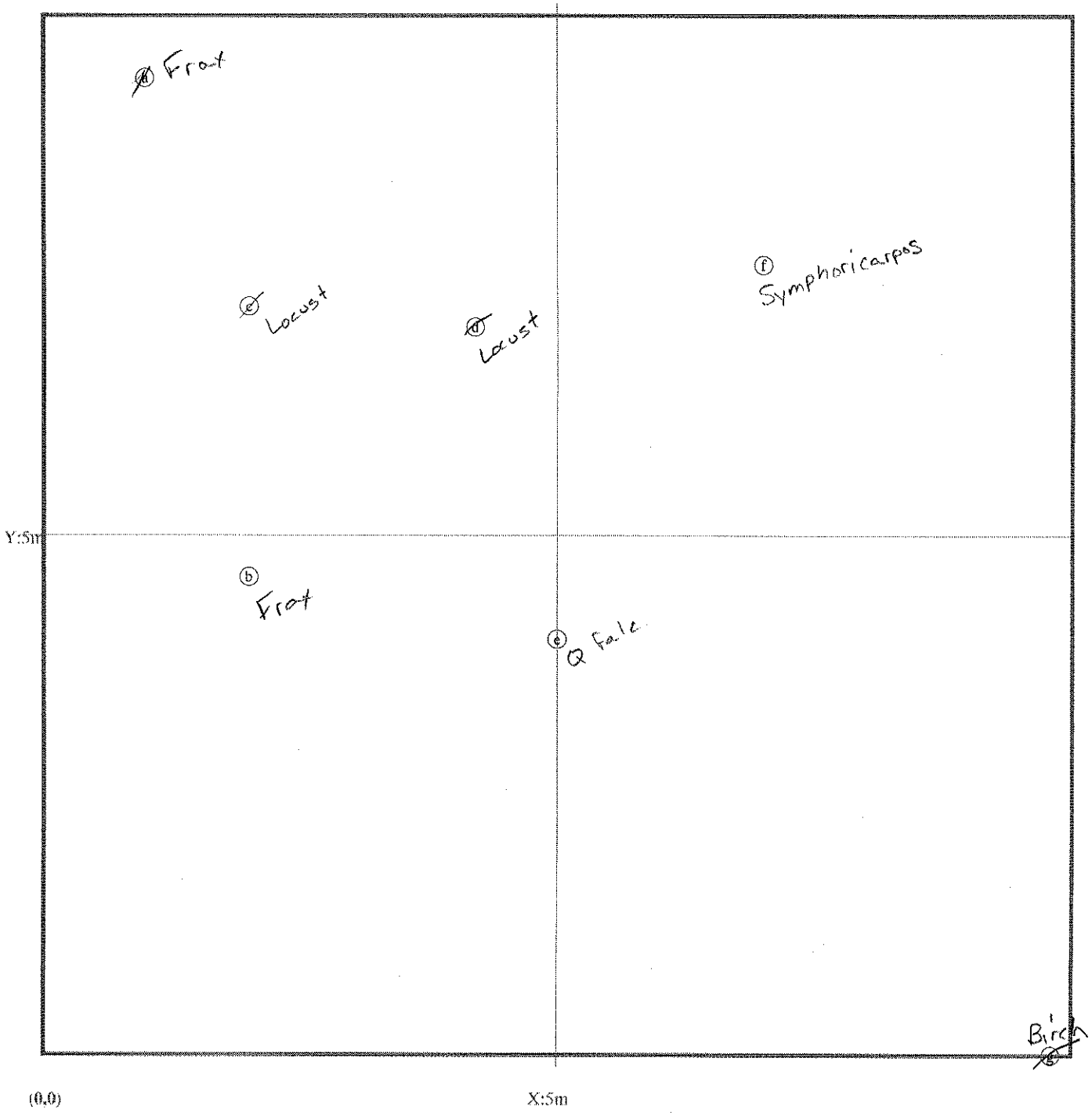
*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Printed in the CVS-EEP Entry Tool ver. 2.2.7

Map of stems on plot 92347-sd/gp-0002

Please measure bearing of X-axis and record at top of plot.

 # stems: 7
map size: LARGE



*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Plot 92347-sd/gp-0003 — **Please fill in any missing data and fix incorrect data.** — **Vegetation Monitoring Data (VMD) Datasheet**

VMD Year (1-5): 1 Date: 10/29/10 - 10/29/10

Taxonomic Standard: Wentz/Ley

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m)

Longitude or UTM-E:

Datum: NAD83/WGS84

UTM Zone:

Coordinate Accuracy (m): 1 X-Axis bearing (deg):

Plot Dimensions: X: 10 Y: 10 ☐ Plot has reverse orientation for X and Y axis (Y is 90 degrees to the right of X

Party: CH, SD

Role:

Notes on plot: * Move to VOL. Gleditsia (b) - VOL? ph 42 43

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Apr 2010 Data ddh 1 mm	Apr 2010 Data Height 1cm*	Apr 2010 Data DBH 1 cm	THIS YEAR'S DATA ddh 1mm	Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1007	Fraxinus pennsylvanica	(c)	R	1.1	1.1	3	23.0		2	25		☐	2		
1008	Quercus phellos	(d)	R	2.9	1.4	5	61.0		5	58		☐	3		
1009	Quercus michauxii	(i)	R	5.5	0.2	6	48.0		9	42		☐	3		
1010	Betula nigra	(m)	R	9.5	0.6	5	48.0		10	54		☐	3		
1011	Quercus michauxii	(l)	R	6.6	2.5	5	42.0		5	31		☐	2		Top dead
1012	Nyssa sp.	(a)	R	0.4	3.1	4	27.0		5	15		☐	1		
1013	Betula nigra	(f)	R	3.9	4.1	5	40.0		7	45		☐	2		many stems
1014	Fraxinus pennsylvanica	(j)	R	8.7	4.2	4	30.0		6	43		☐	3		
1015	Fraxinus pennsylvanica	(k)	R	8.0	5.4	8	62.0		9	62		☐	2		
1016	Celtis laevigata	(h)	R	5.2	7.0	4	43.0					☐			M
1017	Fraxinus pennsylvanica	(b)	R	0.9	7.9	4	17.0					☐			M
1018	Gleditsia triacanthos	(g)	R	5.0	8.2	3	21.0					☐			M
1019	Nyssa sp.	(e)	R	3.2	8.7	4	44.0		5	38		☐	1		

 # stems: 13

New Stems, not included last year, but are obviously planted. If more space needed, use blank PWS (Planted Woody Stems) Form:

Species Name	Source*	X (m)	Y (m)	ddh 1 mm	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Plot (continued): 92347-sd/gp-0003

ID	Species	map char	source	X (m)	Y (m)	Apr 2010 Data: ddh (mm)	Height (cm)	DBH (cm)		THIS YEAR'S DATA: ddh (mm)	Height (cm)	DBH (cm)	Re-sprout	Vigor*	Damage*	Notes

Natural Woody Stems - tallied by species

Explanation of cut-off & subsampling**:

Height Cut-Off (All stems shorter than this are ignored. If >10cm, explain why to the right.): ☐ 10cm ☐ 50cm ☐ 100cm ☐ 137cm

Species Name	☑ c	SEEDLINGS — HEIGHT CLASSES: Sub-Seed	10 cm-50 cm	50 cm-100 cm	100 cm-137 cm	SAPLINGS — DBH: Sub-Sapl	0-1 cm	1-2.5	TREES — DBH: 2.5-	5-	=10 (write DBH)
Fraxpen		___	☒			___					
		___				___					
		___				___					
		___				___					
		___				___					
		___				___					
		___				___					

**Required if cut-off >10cm or subsample ? 100%.

●1 ●2 ●3 ●4 ●5 ●6 ●7 ●8 ●9 ●10

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

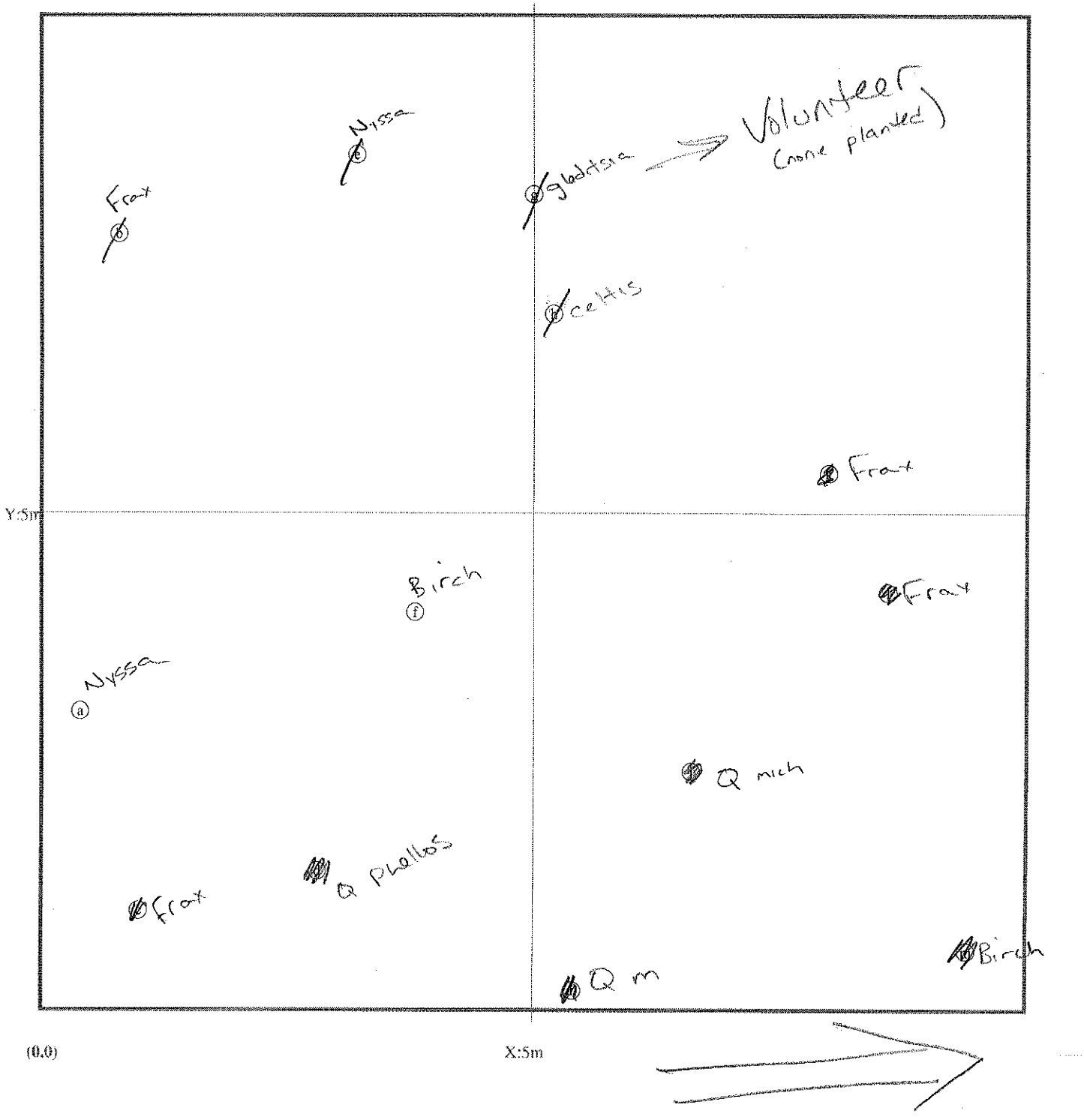
*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Map of stems on plot 92347-sd/gp-0003

Please measure bearing of X-axis and record at top of plot.

 # stems: 13
map size: LARGE



*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Printed in the CVS-EEP Entry Tool ver. 2.2.7

Plot 92347-sd/gp-0004 — Please fill in any missing data and fix incorrect data. — **Vegetation Monitoring Data (VMD) Datasheet**

VMD Year (1-5): 1 Date: 10/29/10 - 10/29/10 Party: Role:

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) Datum: NAD83/WGS84

Longitude or UTM-E: UTM Zone:

Coordinate Accuracy (m): 1 X-Axis bearing (deg):

Plot Dimensions: X: 10 Y: 10 ☐ Plot has reverse orientation for X and Y axis (Y is 90 degrees to the right of X

Notes on plot: ph 40 41

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Apr 2010 Data ddh 1 mm	Apr 2010 Data Height 1cm*	Apr 2010 Data DBH 1 cm	THIS YEAR'S DATA ddh 1mm	Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1025	Fraxinus pennsylvanica	(f)	R	8.5	0.0	8	48.0		13	60		☐	4		
1026	Celtis laevigata	(e)	R	7.4	3.0	5	54.0		5	56		☐	3		
1027	Quercus michauxii	(c)	R	4.2	2.5	5	33.0	—	7	42		☐	3		
1028	Nyssa sylvatica	(a)	R	1.0	3.6	3	40.0								M
1029	Platanus occidentalis	(g)	R	9.8	3.6	8	72.0		13	106		☐	4		
1030	Betula nigra	(d)	R	7.2	5.8	6	53.0		7	67		☐	4		
1031	Betula nigra	(b)	R	4.0	6.3	5	60.0		4	33		☐	2		dying @ top

 # stems: 7 New Stems, not included last year, but are obviously planted. If more space needed, use blank PWS (Planted Woody Stems) Form:

Species Name	Source*	X (m)	Y (m)	ddh 1 mm	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes

Natural Woody Stems - tallied by species

Height Cut-Off (All stems shorter than this are ignored. If >10cm, explain why to the right.): ☐ 10cm ☐ 50cm ☐ 100cm ☐ 137cm

Explanation of cut-off & subsampling:**

Species Name	☑ c	Seedlings — Height Classes: Sub-Seed	10 cm-50 cm	50 cm-100 cm	100 cm-137 cm	Saplings — DBH: Sub-Sapl	0-1 cm	1-2.5	Trees — DBH: 2.5-	5-	=10 (write DBH)
Fraxinus penn		---	☒			---					
		---				---					
		---				---					
		---				---					
		---				---					
		---				---					
		---				---					

****Required** if cut-off >10cm or subsample ? 100%. ●1 ●2 ●3 ●4 ●5 ●6 ●7 ●8 ●9 ⊠10 Form WS2, ver 9.1

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

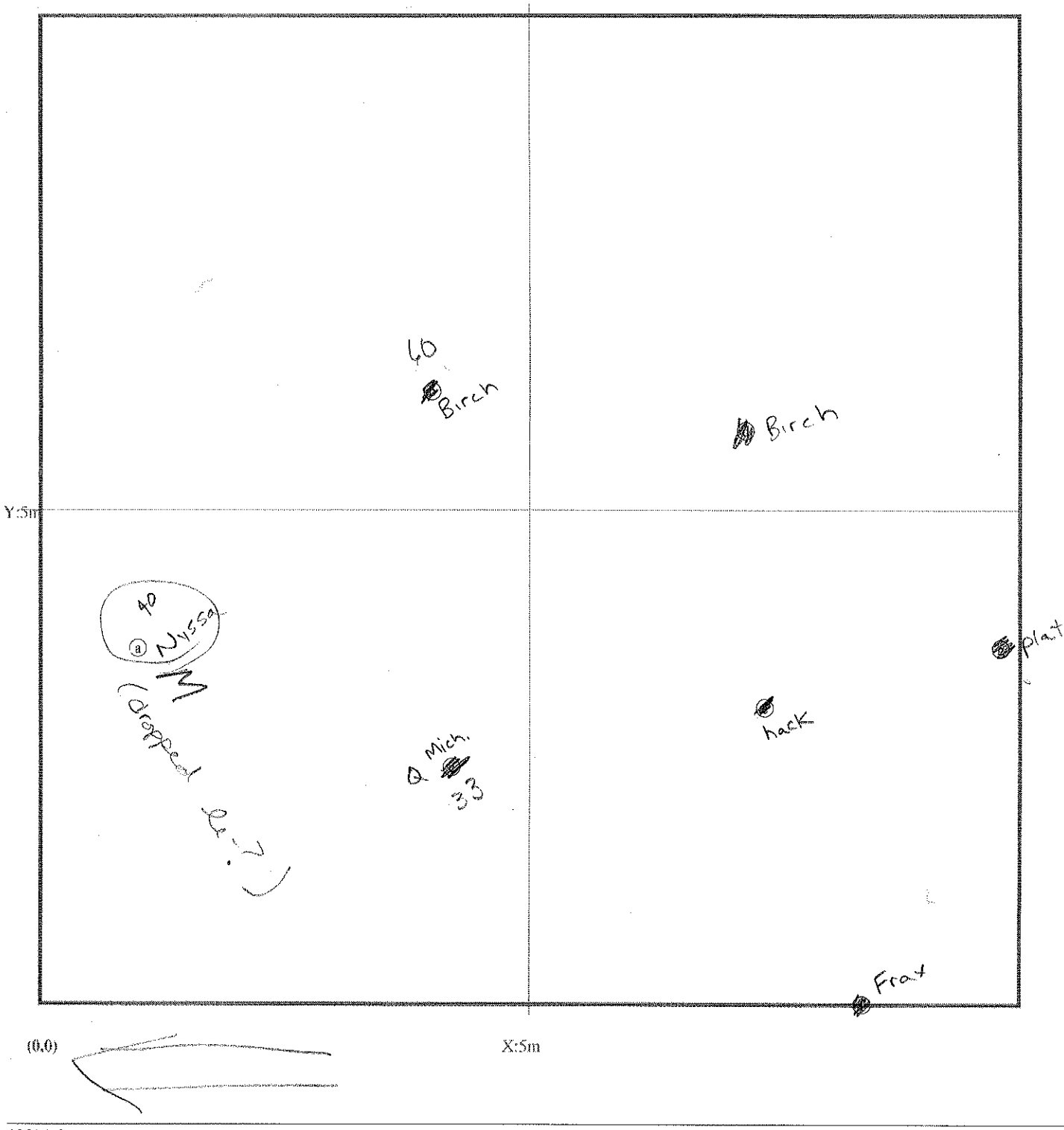
*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Map of stems on plot 92347-sd/gp-0004

Please measure bearing of X-axis and record at top of plot.

 # stems: 7
map size: LARGE



*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Printed in the CVS-EEP Entry Tool ver. 2.2.7

Plot 92347-sd/gp-0005 — **Please fill in any missing data and fix incorrect data.** — **Vegetation Monitoring Data (VMD) Datasheet**

VMD Year (1-5): 1 Date: 10/29/10 - 10/29/10

Party: CH, SD Role:

Notes on plot: P+W Switched damage # should be Vigor A, x, D (3 points moved)

Taxonomic Standard: Wentzley 2007

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) Datum: NAD83/WGS84

Longitude or UTM-E: UTM Zone:

Coordinate Accuracy (m): 1 X-Axis bearing (deg):

Plot Dimensions: X: 10 Y: 10 ☐ Plot has reverse orientation for X and Y axis (Y is 90 degrees to the right of X

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Apr 2010 Data ddh 1 mm	Apr 2010 Data Height 1cm*	Apr 2010 Data DBH 1 cm	THIS YEAR'S DATA ddh 1mm	Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1037	Fraxinus pennsylvanica	e	R	1.9	1.5	5	50.0		7	59			3		
1038	Cephalanthus occidentalis	g	R	2.2	1.0	6	48.0		7	60			3		
1039	Fraxinus pennsylvanica	k	R	3.2	0.4	5	50.0		6	55			3		
1040	Fraxinus pennsylvanica	o	R	4.6	0.9	6	48.0		13	80			3		
1041	Fraxinus pennsylvanica	s	R	5.5	1.0	7	63.0		14	100				4	
1042	Fraxinus pennsylvanica	B	R	7.9	1.1	12	87.0		19	125				4	
1043	Platanus occidentalis	I	R	9.5	0.1	8	75.0		15	146	.3			3 4	
1044	Fraxinus pennsylvanica	K	R	9.8	0.4	13	101.0	*DBH?*	22	139	.2			4	
1045	Fraxinus pennsylvanica	E	R	8.2	2.5	9	84.0		16	106				4	
1046	Cephalanthus occidentalis	z	R	7.1	2.2	15	90.0		15	160	.5			4	
1047	Cephalanthus occidentalis	w	R	6.0	2.6	10	56.0		11	69				3	
1048	Cephalanthus occidentalis	p	R	5.1	2.5	10	45.0		6	80				3	
1049	Cephalanthus occidentalis	I	R	3.5	3.8	8	43.0		14	77				3	
1050	Cephalanthus occidentalis	h	R	2.9	3.7	11	68.0		10	66				2	
1051	Cephalanthus occidentalis	x	R	6.1	4.0	13	108.0	*DBH?*	14	128				4	
1052	Cephalanthus occidentalis	C	R	7.8	4.0	10	78.0		14	103				4	
1053	Platanus occidentalis	G	R	9.0	4.2	4	39.0		11	77				4	
1054	Fraxinus pennsylvanica	H	R	9.0	5.3	11	80.0		20	134				4	
1055	Cephalanthus occidentalis	v	R	5.9	4.6	13	84.0		14	103				4	
1056	Fraxinus pennsylvanica	y	R	6.0	5.1	14	93.0		21	115				4	
1057	Fraxinus pennsylvanica	a	R	0.3	5.6	10	82.0		21	103				3	
1058	Fraxinus pennsylvanica	f	R	1.9	5.2	7	55.0		11	66				3	
1059	Fraxinus pennsylvanica	j	R	3.1	5.4	9	69.0		13	89				3	
1060	Cephalanthus occidentalis	F	R	8.5	6.2	11	58.0		11	75				3	
1061	Cephalanthus occidentalis	D	R	8.0	6.6	18	98.0		20	119				4	
1062	Cephalanthus occidentalis	n	R	4.2	6.9	15	86.0		20	104				4	
1063	Fraxinus pennsylvanica	L	R	3.0	6.6	11	90.0		18	130				4	
1064	Ulmus alata	c	R	1.2	6.7	7	65.0		15	99				3	
1065	Fraxinus pennsylvanica	d	R	1.7	7.5	14	96.0		22	135				4	
1066	Ulmus alata	q	R	5.3	7.7	4	60.0		8	98				4	Term.
1067	Fraxinus pennsylvanica	A	R	7.2	8.5	10	95.0		14	131				4	
1068	Fraxinus pennsylvanica	J	R	9.5	7.3	17	95.0		24	103				3	

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Plot (continued): 92347-sd/gp-0005

ID	Species	map char	source	X (m)	Y (m)	Apr 2010 ddh (mm)	Apr 2010 Height (cm)	Apr 2010 DBH (cm)	THIS YEAR'S ddh (mm)	THIS YEAR'S Height (cm)	THIS YEAR'S DBH (cm)	Re-sprout	Vigor*	Damage*	Notes
1069	Ulmus alata	(t)	R	5.5	8.6	5	50.0		7	85		☐	3		
1070	Ulmus alata	(r)	R	5.2	9.0	4	55.0		5	61		☐	3		
1071	Fraxinus pennsylvanica	(m)	R	3.6	8.2	6	55.0		11	54		☐	3		Stem broke
1072	Fraxinus pennsylvanica	(g)	R	5.4	9.6	9	73.0		15	103		☐	3		
1073	Betula nigra	(b)	R	1.3	1.7	5	55.0		9	104		☐	4		

 # stems: 37

New Stems, not included last year, but are obviously planted. If more space needed, use blank PWS (Planted Woody Stems) Form:

Species Name	Source*	X (m)	Y (m)	ddh 1 mm	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes

Natural Woody Stems - tallied by species

Explanation of cut-off & subsampling**:

Height Cut-Off (All stems shorter than this are ignored. If >10cm, explain why to the right.): ☐ 10cm ☐ 50cm ☐ 100cm ☐ 137cm

Species Name	☑ c	Seedlings — Height Classes: Sub-Seed	10 cm-50 cm	50 cm-100 cm	100 cm-137 cm	Saplings — DBH: Sub-Sapl	0-1 cm	1-2.5	Trees — DBH: 2.5-	5-	=10 (write DBH)
S gum		—		1	1	—		1			
Ulmus sp		—	1	2		—					
Cornus am.		—		1		—					
Frax pen		—	2	1	1	—					
Mr Redmaple		—	1	1		—					
		—				—					
		—				—					

**Required if cut-off >10cm or subsample ? 100%.

●1 ●2 ●3 ●4 ●5 ●6 ●7 ●8 ●9 ●10

Form WS2, ver 9.1

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

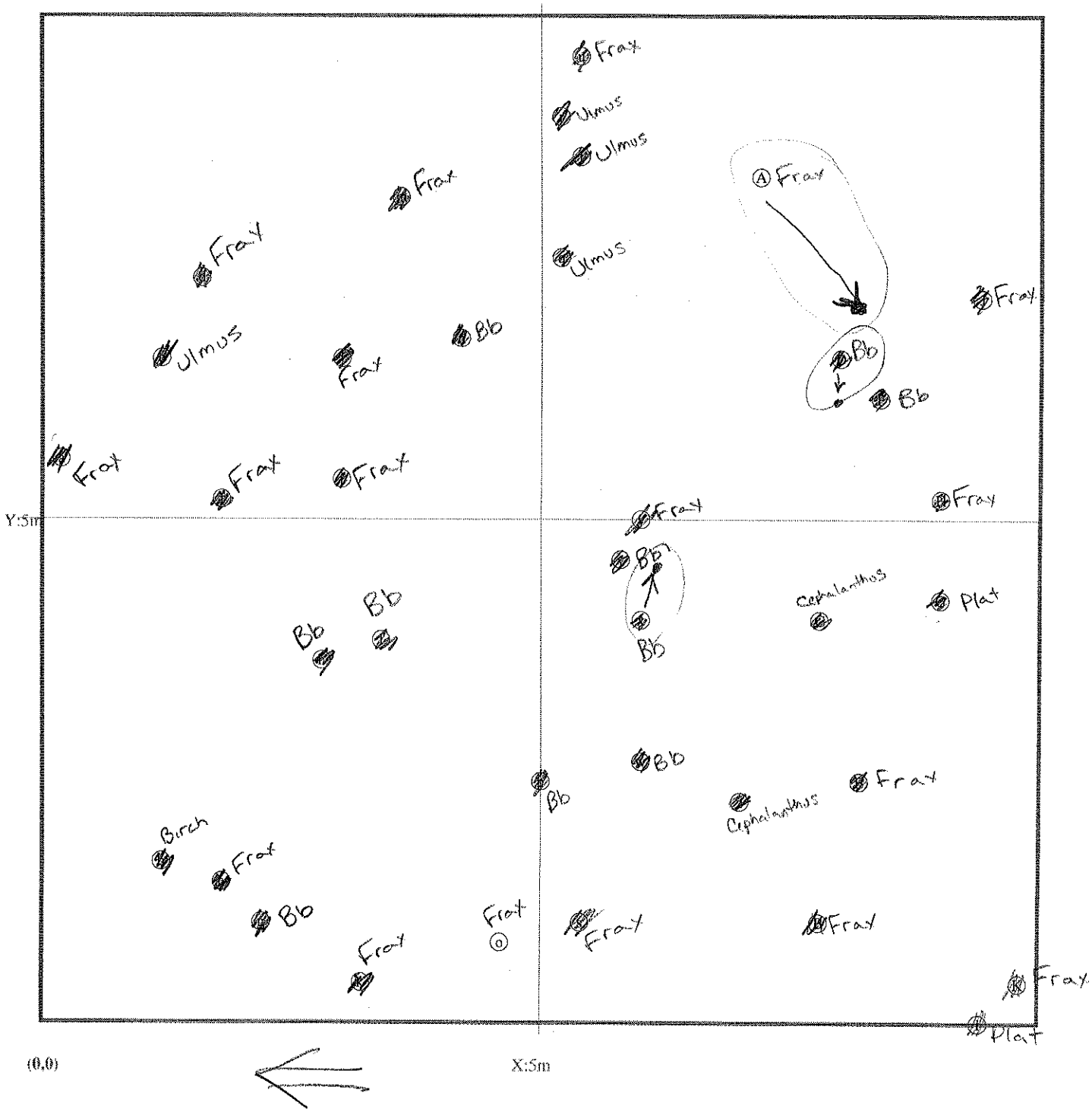
*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Map of stems on plot 92347-sd/gp-0005

CAPITAL LETTERS represent stems that are different from stems marked with lowercase letters (i.e. "A" is different from "a").

Please measure bearing of X-axis and record at top of plot.

 # stems: 37
map size: LARGE



*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Printed in the CVS-EEP Entry Tool ver. 2.2.7

Plot 92347-sd/gp-0006 — **Please fill in any missing data and fix incorrect data.** — **Vegetation Monitoring Data (VMD) Datasheet**

VMD Year (1-5): 1 Date: 10/29/10 - 10/29/10 Party: CH, SJ Role:

Taxonomic Standard: Weakley

Taxonomic Standard DATE: 2007

Latitude or UTM-N: (dec.deg. or m) Datum: NAD83/W

Longitude or UTM-E: UTM Zone:

Coordinate Accuracy (m): 1 X-Axis bearing (deg):

Plot Dimensions: X: 10 Y: 10 ☐ Plot has reverse orientation for X and Y axis (Y is 90 degrees to the right of X

Notes on plot:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Apr 2010 Data ddh 1 mm	Apr 2010 Data Height 1cm*	Apr 2010 Data DBH 1 cm	THIS YEAR'S DATA ddh 1mm	Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1078	Platanus occidentalis	a	R	0.4	0.4	5	58.0		7	69			3		
1079	Platanus occidentalis	d	R	3.4	0.3	5	58.0		8	84			3		
1080	Nyssa sylvatica	g	R	6.4	0.4	4	28.0		5	43			3		
1081	Platanus occidentalis	j	R	9.4	0.4	9	70.0		2	42			3		insects
1082	Celtis laevigata	i	R	8.7	3.5	3	24.0		14	127			4		
1083	Platanus occidentalis	f	R	5.6	3.5	6	63.0		10	76			3		
1085	Platanus occidentalis	k	R	9.5	6.6	4	52.0		3	32			2		resprout
1086	Fraxinus pennsylvanica	h	R	7.1	9.2	5	43.0		9	73			4		
1087	Quercus sp.	e	R	3.9	9.6	5	40.0								missing
1088	Fraxinus pennsylvanica	b	R	0.6	9.6	6	52.0		6	58			3		
1090	Platanus occidentalis	c	R	3.1	6.0	3	21.0						M		
resprout															

 # stems: 11

New Stems, not included last year, but are obviously planted. If more space needed, use blank PWS (Planted Woody Stems) Form:

Species Name	Source*	X (m)	Y (m)	ddh 1 mm	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Printed in the CVS-EEP Entry Tool ver. 2.2.7

Plot (continued): 92347-sd/gp-0006

ID	Species	map char	source	X (m)	Y (m)	Apr 2010 Data: ddh (mm)	Height (cm)	DBH (cm)	THIS YEAR'S DATA: ddh (mm)	Height (cm)	DBH (cm)	Re-sprout	Vigor*	Damage*	Notes

Natural Woody Stems - tallied by species

Explanation of cut-off & subsampling**:

Height Cut-Off (All stems shorter than this are ignored. If >10cm, explain why to the right.): ☐ 10cm ☐ 50cm ☐ 100cm ☐ 137cm

Species Name	☑ c	SEEDLINGS — HEIGHT CLASSES: Sub-Seed	10 cm-50 cm	50 cm-100 cm	100 cm-137 cm	SAPLINGS — DBH: Sub-Sapl	0-1 cm	1-2.5	TREES — DBH: 2.5-	5-	=10 (write DBH)
F. penn		___				___					
		___				___					
		___				___					
		___				___					
		___				___					
		___				___					
		___				___					

**Required if cut-off >10cm or subsample ? 100%.

●1 ●2 ●3 ●4 ●5 ●6 ●7 ●8 ●9 ●10

Form WS2, ver 9.1

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

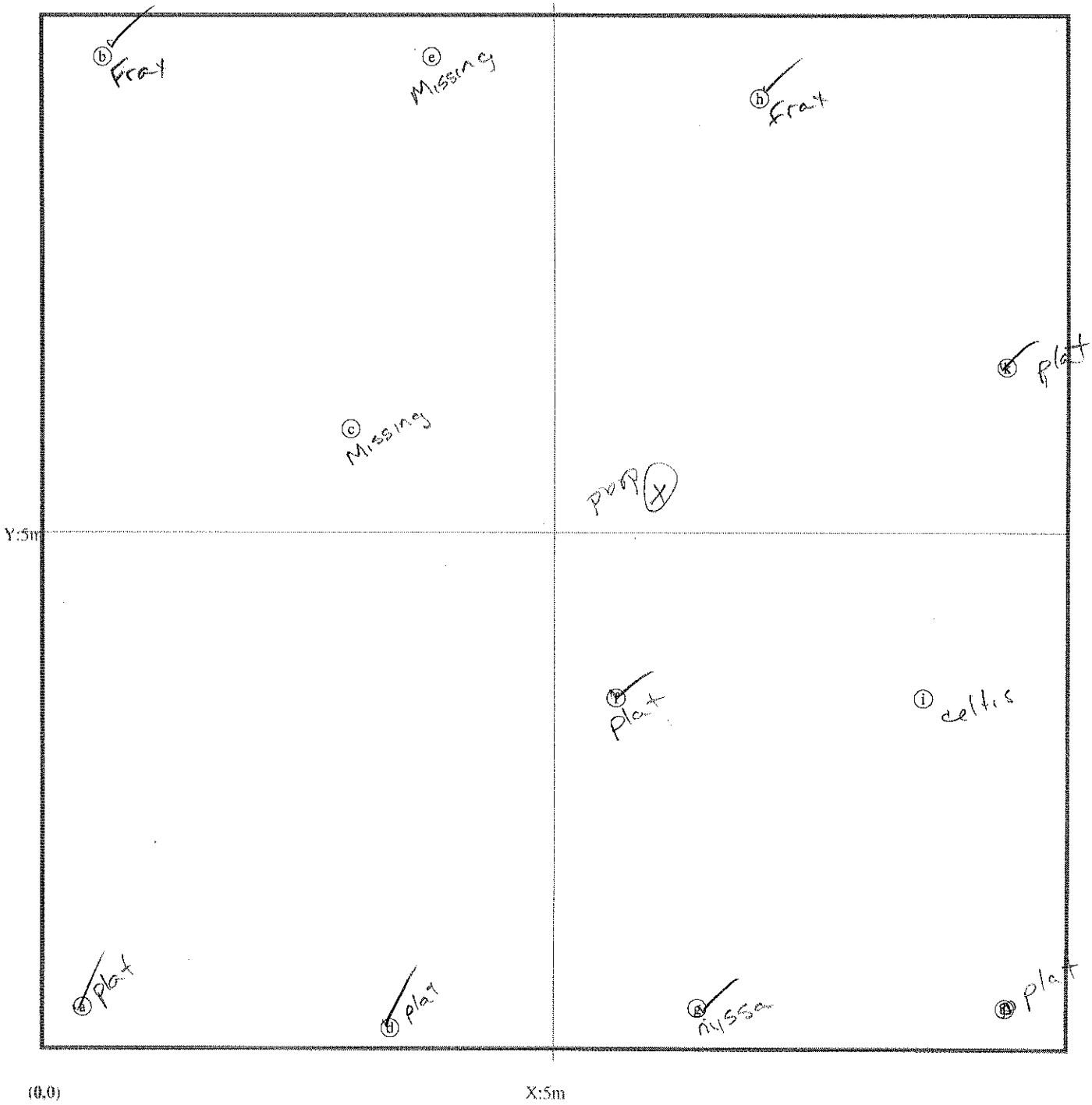
*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Map of stems on plot 92347-sd/gp-0006

Please measure bearing of X-axis and record at top of plot.

 # stems: 11
map size: LARGE



*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Plot 92347-sd/gp-0007 — Please fill in any missing data and fix incorrect data. — **Vegetation Monitoring Data (VMD) Datasheet**

VMD Year (1-5): 1 Date: 29 / Oct / 10 - / /

Taxonomic Standard: Weakley

Taxonomic Standard DATE: 2007

Latitude or UTM-N: (dec.deg. or m)

Longitude or UTM-E:

Datum: NAD83/W

UTM Zone:

Coordinate Accuracy (m): 1 X-Axis bearing (deg):

Plot Dimensions: X: 10 Y: 10 ☐ Plot has reverse orientation for X and Y axis (Y is 90 degrees to the right of X

Party: SD + CH Role:

Notes on plot: ph 35

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Apr 2010 Data ddh 1 mm	Apr 2010 Data Height 1cm*	Apr 2010 Data DBH 1 cm	THIS YEAR'S DATA ddh 1mm	Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1094	Platanus occidentalis	a	R	0.9	1.0	6	67.0		9	69		☐	3		
1095	Betula nigra	d	R	4.4	0.9	9	62.0		9	63		☐	4		
1096	Betula nigra	b	R	1.6	4.6	6	58.0		10	85		☐	4		
1097	Quercus phellos	e	R	9.2	6.9	5	50.0		5	48		☐	3		
1098	Quercus phellos	c	R	3.0	8.4	4	44.0		6	49		☐	3		

 # stems: 5

New Stems, not included last year, but are obviously planted. If more space needed, use blank PWS (Planted Woody Stems) Form:

Species Name	Source*	X (m)	Y (m)	ddh 1 mm	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
Q. michauxii				7	49		3		6.6 x / 4 y
F. pennsylvanica				4	45		3		2.7 x / 0.9 y

Natural Woody Stems - tallied by species

Explanation of cut-off & subsampling**:

Height Cut-Off (All stems shorter than this are ignored. If >10cm, explain why to the right.): ☐ 10cm ☐ 50cm ☐ 100cm ☐ 137cm

Species Name	☑ c	Seedlings — Height Classes: Sub-Seed	10 cm-50 cm	50 cm-100 cm	100 cm-137 cm	Saplings — DBH: Sub-Sapl	0-1 cm	1-2.5	Trees — DBH: 2.5-	5-	=10 (write DBH)
None											

**Required if cut-off >10cm or subsample ? 100%.

●1 ●2 ●3 ●4 ●5 ●6 ●7 ●8 ●9 ●10

Form WS2, ver 9.1

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

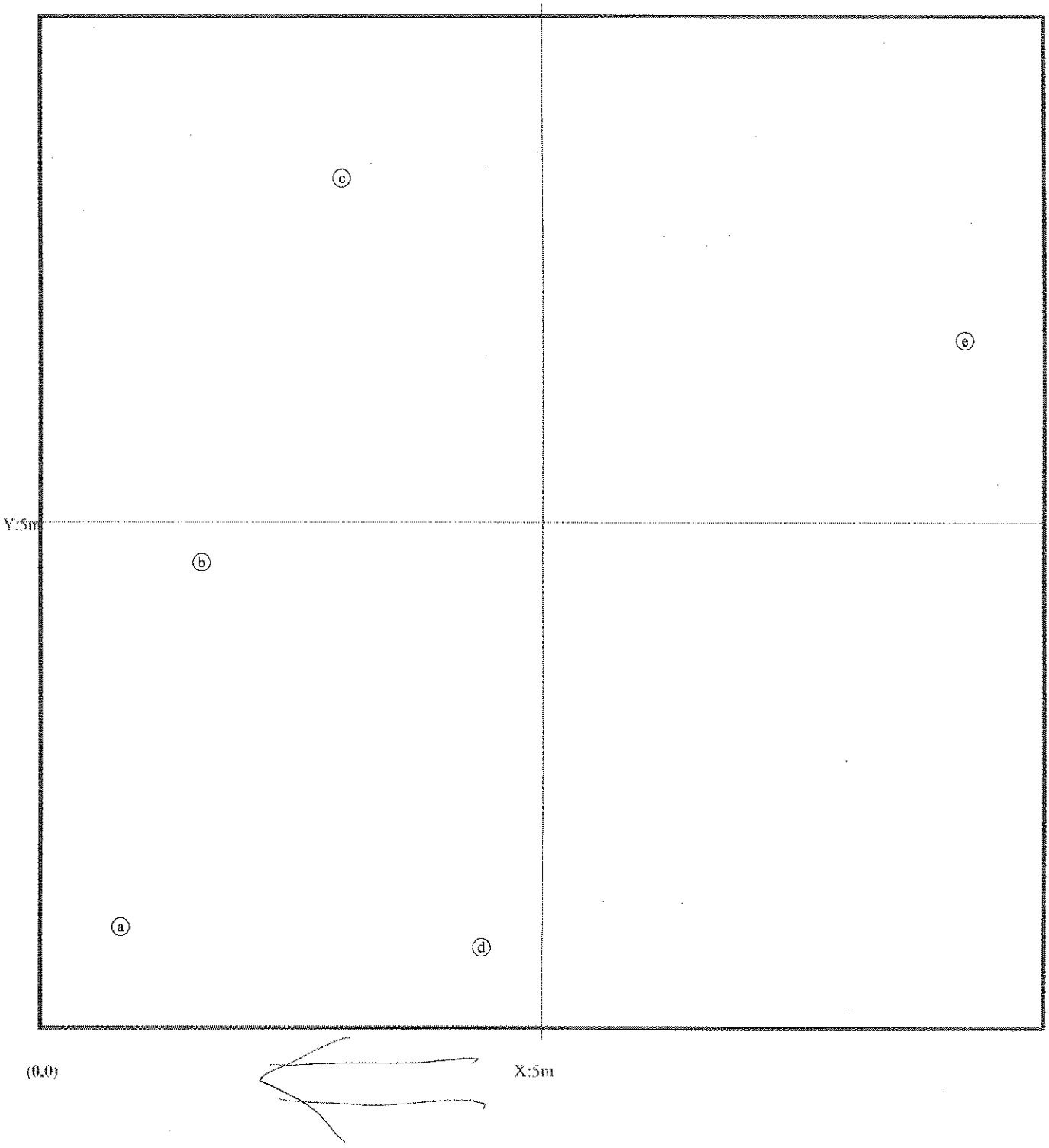
*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Printed in the CVS-EEP Entry Tool ver. 2.2.7

Map of stems on plot 92347-sd/gp-0007

Please measure bearing of X-axis and record at top of plot.

 # stems: 5
map size: LARGE



*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Printed in the CVS-EEP Entry Tool ver. 2.2.7

Plot 92347-sd/gp-0008 — **Please fill in any missing data and fix incorrect data.** — **Vegetation Monitoring Data (VMD) Datasheet**

VMD Year (1-5): 1 Date: 11/3/ - / /

Party: SR GR Role:

Notes on plot:

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) Datum: NAD83/WGS84

Longitude or UTM-E: UTM Zone:

Coordinate Accuracy (m): 1 X-Axis bearing (deg):

Plot Dimensions: X: 10 Y: 10 ☐ Plot has reverse orientation for X and Y axis (Y is 90 degrees to the right of X

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Apr 2010 Data ddh 1 mm	Apr 2010 Data Height 1cm*	Apr 2010 Data DBH 1 cm	THIS YEAR'S DATA ddh 1mm	Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1103	Betula nigra	b	R	0.5	0.2	4	43.0		6	110	/		3		
1104	Betula nigra	c	R	9.9	9.0	7	49.0		10	84	/		4		
1105	Betula nigra	c	R	1.4	9.6	13	48.0		12	141	0.2		4		
1106	Betula nigra	a	R	0.0	0.8	2	33.0		2	71			M		
1107	Fraxinus pennsylvanica	d	R	4.7	2.0	3	16.0		3	35			3		

 # stems: 5

New Stems, not included last year, but are obviously planted. If more space needed, use blank PWS (Planted Woody Stems) Form:

Species Name	Source*	X (m)	Y (m)	ddh 1 mm	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes

Natural Woody Stems - tallied by species

Explanation of cut-off & subsampling**:

Height Cut-Off (All stems shorter than this are ignored. If >10cm, explain why to the right.): ☐ 10cm ☐ 50cm ☐ 100cm ☐ 137cm

Species Name	☑ c	Seedlings — Height Classes: Sub-Seed	10 cm-50 cm	50 cm-100 cm	100 cm-137 cm	Saplings — DBH: Sub-Sapl	0-1 cm	1-2.5	Trees — DBH: 2.5-	5-	=10 (write DBH)
Ulmus americana?			2								
Rubus				2	1						
Frax			2								

**Required if cut-off >10cm or subsample ? 100%.

●1 ●2 ●3 ●4 ●5 ●6 ●7 ●8 ●9 ●10

Form WS2, ver 9.1

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Printed in the CVS-EEP Entry Tool ver. 2.2.7

Plot 92347-sd/gp-0009 — Please fill in any missing data and fix incorrect data. — **Vegetation Monitoring Data (VMD) Datasheet**

VMD Year (1-5): 1 Date: 11/3/10 - 11/3/10 Party: GP, SD Role:

Notes on plot:

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) Datum: NAD83/W

Longitude or UTM-E: UTM Zone:

Coordinate Accuracy (m): 1 X-Axis bearing (deg):

Plot Dimensions: X: 10 Y: 10 ☐ Plot has reverse orientation for X and Y axis (Y is 90 degrees to the right of X

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Apr 2010 Data ddh 1 mm	Apr 2010 Data Height 1cm*	Apr 2010 Data DBH 1 cm	THIS YEAR'S DATA ddh 1mm	Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1111	Betula nigra	e	R	9.5	2.9	7	42.0					☐	D		
1112	Betula nigra	a	R	1.7	3.9	6	41.0		9	88	✓	☐	3		
1113	Betula nigra	d	R	5.7	6.1	8	48.0		9	87	✓	☐	4		
1114	Fraxinus pennsylvanica	c	R	4.0	8.5	3	22.0		4	30		☐	2	INS	
1115	Betula nigra	b	R	2.0	8.5	5	31.0		7	95	✓	☐	3		

 # stems: 5

New Stems, not included last year, but are obviously planted. If more space needed, use blank PWS (Planted Woody Stems) Form:

Species Name	Source*	X (m)	Y (m)	ddh 1 mm	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes

Natural Woody Stems - tallied by species

Explanation of cut-off & subsampling**:

Height Cut-Off (All stems shorter than this are ignored. If >10cm, explain why to the right.): ☐ 10cm ☐ 50cm ☐ 100cm ☐ 137cm

Species Name	☑ c	Seedlings — Height Classes: Sub-Seed	10 cm-50 cm	50 cm-100 cm	100 cm-137 cm	Saplings — DBH: Sub-Sapl	0-1 cm	1-2.5	Trees — DBH: 2.5-	5-	=10 (write DBH)
Rubus		---	1	••		---					
Frax		---	••			---					
Ulmus		---	1			---					
		---				---					
		---				---					
		---				---					
		---				---					

**Required if cut-off >10cm or subsample ? 100%.

●1 ●2 ●3 ●4 ●5 ●6 ●7 ●8 ●9 ●10

Form WS2, ver 9.1

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

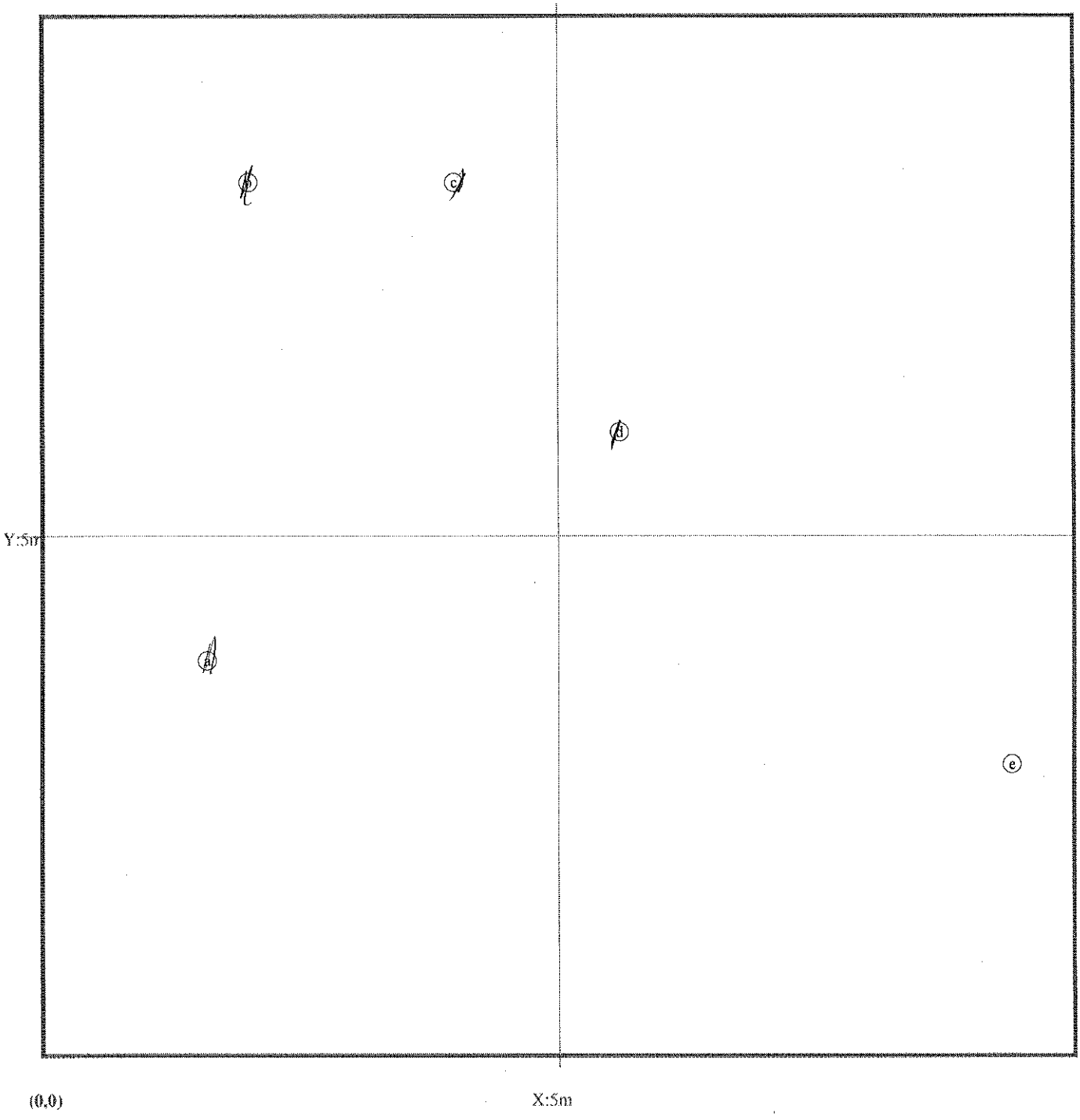
*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Map of stems on plot 92347-sd/gp-0009

Please measure bearing of X-axis and record at top of plot.

 # stems: 5
map size: LARGE



*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Printed in the CVS-EEP Entry Tool ver. 2.2.7

Plot 92347-sd/gp-0010 — **Please fill in any missing data and fix incorrect data.** — **Vegetation Monitoring Data (VMD) Datasheet**

VMD Year (1-5): 1 Date: 11/3/ - / /

Party: GP, SD Role:

Notes on plot:

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) Datum: NAD83/W

Longitude or UTM-E: UTM Zone:

Coordinate Accuracy (m): 1 X-Axis bearing (deg):

Plot Dimensions: X: 10 Y: 10 ☐ Plot has reverse orientation for X and Y axis (Y is 90 degrees to the right of X

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Apr 2010 Data ddh 1 mm	Apr 2010 Data Height 1cm*	Apr 2010 Data DBH 1 cm	THIS YEAR'S DATA ddh 1mm	Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1119	Platanus occidentalis	ⓘ	R	9.4	1.7	6	66.0		15	177	0.3		4		
1120	Fraxinus pennsylvanica	ⓔ	R	5.9	1.7	3	24.0		4	36			3		
1121	Fraxinus pennsylvanica resprout	ⓒ	R	3.0	1.8	2	19.0		4	24			3		
1122	Fraxinus pennsylvanica	ⓕ	R	6.2	3.6	4	30.0		4	47			3		
1123	Betula nigra	ⓖ	R	6.2	4.6	9	62.0		11	109			4		
1124	Platanus occidentalis	ⓑ	R	2.6	4.8	6	53.0		11	147	0.3		4		
1125	Quercus michauxii	ⓓ	R	3.9	6.8	5	35.0		6	40			3		
1126	Quercus michauxii	ⓗ	R	8.0	6.7	7	64.0		8	62			3		
1127	Alnus serrulata	ⓐ	R	1.1	8.2	4	25.0		5	47			4		
1128	Betula nigra	ⓙ	R	9.5	9.5	6	43.0		7	103			3		

 # stems: 10

New Stems, not included last year, but are obviously planted. If more space needed, use blank PWS (Planted Woody Stems) Form:

Species Name	Source*	X (m)	Y (m)	ddh 1 mm	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes

Natural Woody Stems - tallied by species

Explanation of cut-off & subsampling**:

Height Cut-Off (All stems shorter than this are ignored. If >10cm, explain why to the right.): ☐ 10cm ☐ 50cm ☐ 100cm ☐ 137cm

Species Name	☑ c	Seedlings — Height Classes: Sub-Seed	10 cm-50 cm	50 cm-100 cm	100 cm-137 cm	Saplings — DBH: Sub-Sapl	0-1 cm	1-2.5	Trees — DBH: 2.5-	5-	=10 (write DBH)
Frax		—				—					
Ulmus		—				—					
Rubus		—				—					
Did not plant, Symph.		—				—					
		—				—					—
		—				—					
		—				—					

**Required if cut-off >10cm or subsample ?100%. ●1 ●2 ●3 ●4 ●5 ●6 ●7 ●8 ●9 ●10 Form WS2, ver 9.1

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

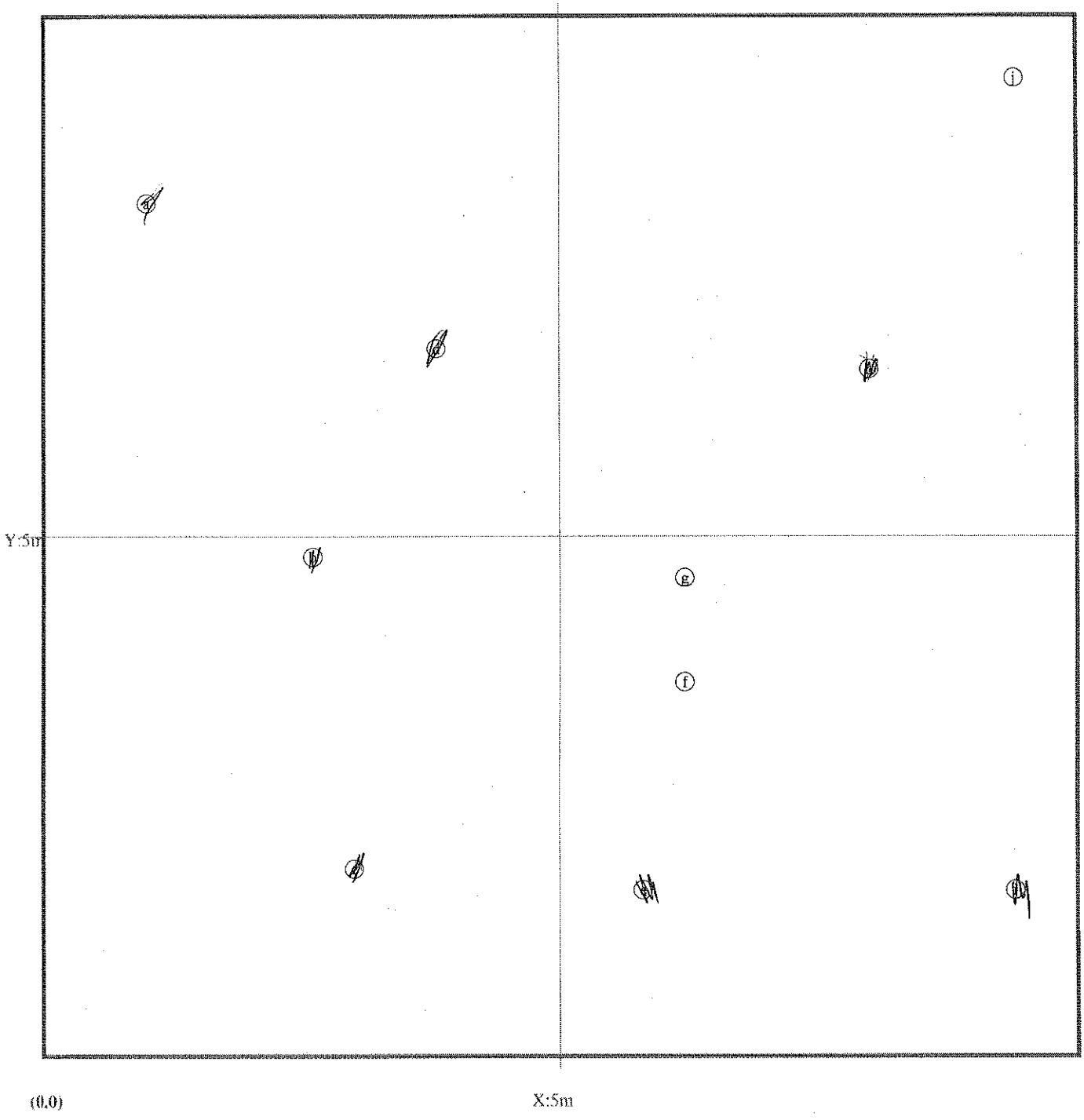
*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Map of stems on plot 92347-sd/gp-0010

Please measure bearing of X-axis and record at top of plot.

 # stems: 10
map size: LARGE



*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Printed in the CVS-EEP Entry Tool ver. 2.2.7

Plot 92347-sd/gp-0011 — Please fill in any missing data and fix incorrect data. — **Vegetation Monitoring Data (VMD) Datasheet**

VMD Year (1-5): 1 Date: 11/3/ - / /

Party: Role: Notes on plot:

SD	
GP	

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) Datum: NAD83/W

Longitude or UTM-E: UTM Zone:

Coordinate Accuracy (m): 1 X-Axis bearing (deg):

Plot Dimensions: X: 10 Y: 10 ☐ Plot has reverse orientation for X and Y axis (Y is 90 degrees to the right of X

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Apr 2010 Data ddh 1 mm	Apr 2010 Data Height 1cm*	Apr 2010 Data DBH 1 cm	THIS YEAR'S DATA ddh 1mm	Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1138	Quercus phellos	a	R	0.6	0.4	5	55.0		4	50			3		
1139	Betula nigra	c	R	2.9	0.4	8	50.0		13	115			4		
1140	Alnus serrulata	f	R	5.6	0.7	4	19.0		4	36			3		
1141	Platanus occidentalis	i	R	9.0	0.3	7	65.0		7	80			3		
1142	Quercus phellos	b	R	2.5	1.8	5	15.0		5	22			2		
1143	Alnus serrulata	h	R	6.8	5.1	6	45.0		7	33			2		
1144	Quercus phellos	j	R	9.1	6.5	7	52.0		8	45			2		
1145	Platanus occidentalis	g	R	6.6	7.6	3	58.0		4	52			2		
1146	Quercus phellos	d	R	4.3	6.3	8	83.0		9	8			2		
1147	Quercus phellos	e	R	4.4	9.4	3	31.0		4	38			3		

 # stems: 10

New Stems, not included last year, but are obviously planted. If more space needed, use blank PWS (Planted Woody Stems) Form:

Species Name	Source*	X (m)	Y (m)	ddh 1 mm	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
[illegible]		6.1	2.8	5	35		2		

Natural Woody Stems - tallied by species

Explanation of cut-off & subsampling**:

Height Cut-Off (All stems shorter than this are ignored. If >10cm, explain why to the right.): ☐ 10cm ☐ 50cm ☐ 100cm ☐ 137cm

Species Name	☑ c	Seedlings — Height Classes: Sub-Seed	10 cm-50 cm	50 cm-100 cm	100 cm-137 cm	Saplings — DBH: Sub-Sapl	0-1 cm	1-2.5	Trees — DBH: 2.5-	5-	=10 (write DBH)
[illegible]			1	1							
[illegible]			2								
[illegible]			2								
[illegible]			1								
[illegible]			1								

**Required if cut-off >10cm or subsample ? 100%.

●1 ●2 ●3 ●4 ●5 ●6 ●7 ●8 ●9 ●10 Form WS2, ver 9.1

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

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Plot 92347-sd/gp-0012 — Please fill in any missing data and fix incorrect data. — **Vegetation Monitoring Data (VMD) Datasheet**

VMD Year (1-5): 1 Date: 11/3/ - 11/3/ Party: GP, SD Role:

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) Datum: NAD83/WGS84

Longitude or UTM-E: UTM Zone:

Coordinate Accuracy (m): 1 X-Axis bearing (deg):

Plot Dimensions: X: 10 Y: 10 ☐ Plot has reverse orientation for X and Y axis (Y is 90 degrees to the right of X

Notes on plot:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Apr 2010 Data ddh 1 mm	Apr 2010 Data Height 1cm*	Apr 2010 Data DBH 1 cm	THIS YEAR'S DATA ddh 1mm	Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1148	Betula nigra	a	R	0.3	0.2	7	50.0		7	64	✓		3		
1149	Aesculus sylvatica	f	R	9.7	0.7	4	40.0			M	-		M		
1150	Platanus occidentalis	d	R	4.5	2.1	8	52.0		15	140	2.2		3		
1151	Fraxinus pennsylvanica	h	R	9.8	3.9	6	40.0		6	50	✓		3		
1152	Quercus phellos	g	R	9.6	4.8	5	55.0		11	89	✓		3		
1153	Nyssa sylvatica Persimmon	e	R	6.0	5.1	4	35.0		5	89	✓		3		
1154	Fraxinus pennsylvanica	c	R	1.0	5.3	4	31.0		8	43	✓		3		
1155	Fraxinus pennsylvanica	b	R	0.6	2.1	4	26.0		4	34	✓		3		

 # stems: 8 New Stems, not included last year, but are obviously planted. If more space needed, use blank PWS (Planted Woody Stems) Form:

Species Name	Source*	X (m)	Y (m)	ddh 1 mm	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
Q. michauxii		1.4	2.8	4	32		3		
Fraxinus p.		2.5	6.3	4	44		3		
Fraxinus p.		4.0	1.0	4	38		3		

NEXT PAGE

Natural Woody Stems - tallied by species

Height Cut-Off (All stems shorter than this are ignored. If >10cm, explain why to the right.): ☐ 10cm ☐ 50cm ☐ 100cm ☐ 137cm

Explanation of cut-off & subsampling**:

Species Name	☑ c	SEEDLINGS — HEIGHT CLASSES: Sub-Seed	10 cm-50 cm	50 cm-100 cm	100 cm-137 cm	SAPLINGS — DBH: Sub-Sapl	0-1 cm	1-2.5	TREES — DBH: 2.5-	5-	=10 (write DBH)
Frax		___	[illegible]	*		___					
Wmus		___	*3			___					
Rubus		___	*	*		___					
		___				___					
		___				___					
		___				___					
		___				___					

**Required if cut-off >10cm or subsample ? 100%. ●1 ●2 ●3 ●4 ●5 ●6 ●7 ●8 ●9 ●10 Form WS2, ver 9.1

*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

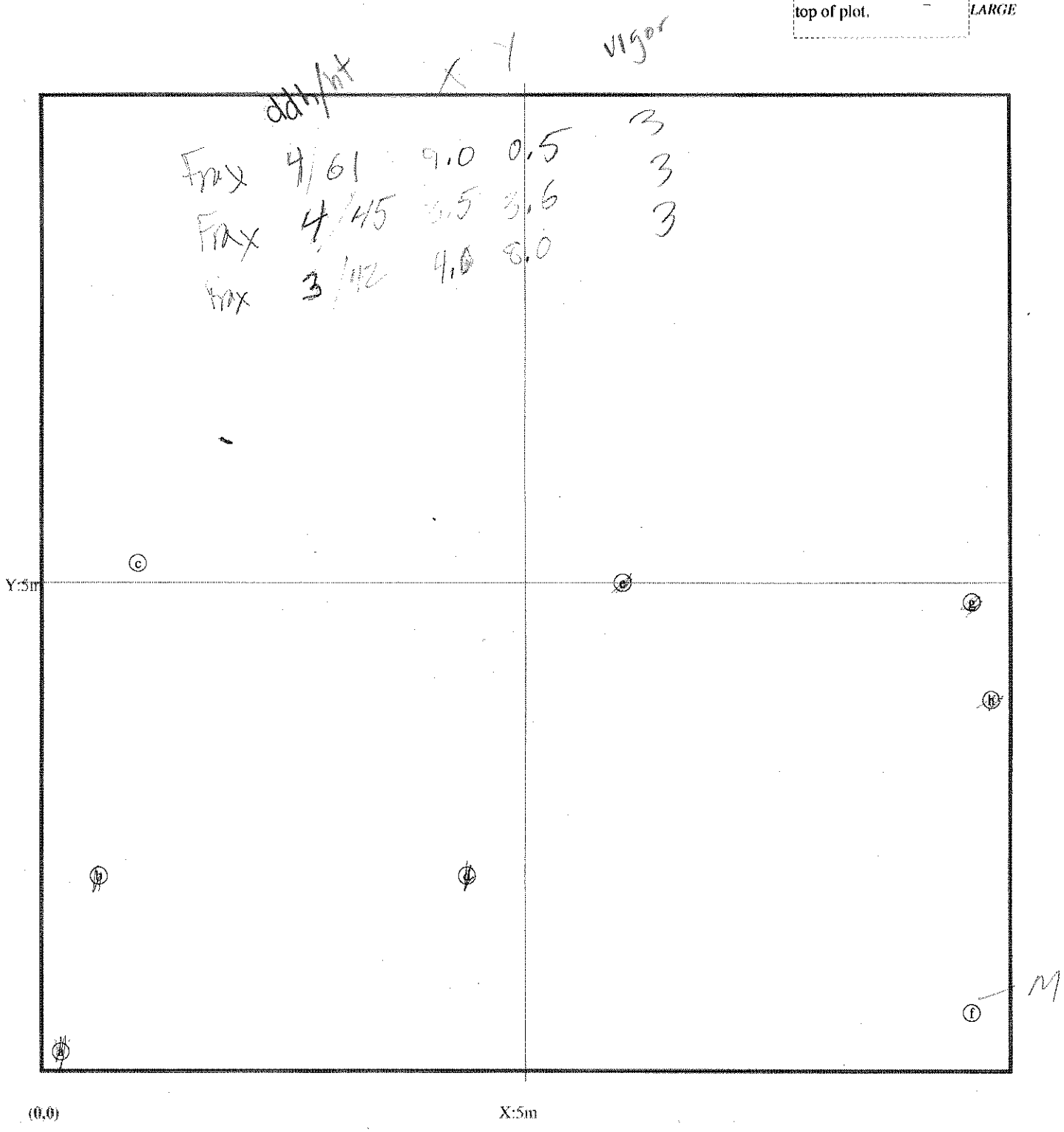
*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

Map of stems on plot 92347-sd/gp-0012

Please measure bearing of X-axis and record at top of plot.

 # stems: 8
map size: LARGE



*SOURCE: Tr=Transplant, L=Live stake, B=Ball and burlap, P=Potted, Tu=Tubling, R=bare Root, M=Mechanically, U=Unknown

*VIGOR: 4=excellent, 3=good, 2=fair, 1=unlikely to survive year, 0=dead, M=missing.

*DAMAGE: REMoval, CUT, MOWing, BEAVer, DEER, RODents, INSects, GAME, LIVESTock, Other/Unknown ANIMal, Human TRAMpled, Site Too WET, Site Too DRY, FLOOD, DROUght, STORM, HURRicane, DISeased, VINE Strangulation, UNKNown, specify other.

*HEIGHT PRECISION drops to 10cm if >2.5m and 50cm if >4m.

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Appendix D. Stream Survey Data

Figures 5.0-5.8	Cross sections with Annual Overlays
e-Tables	Raw cross-section survey data spreadsheets
Figures 6.0-6.4	Longitudinal Profiles with Annual Overlays
e-Tables	Raw longitudinal profile survey data spreadsheets
Figures 7.0-7.5	Pebble Count Plots with Annual Overlays
e-Tables	Raw pebble count data spreadsheets
Tables 10.0-10.1	Baseline Stream Data Summary Table
Table 11.0	Monitoring—Cross-Section Morphology Data Table
Table 11.1-11.2	Monitoring—Stream Reach Morphology Data Table

Figure 5.0 Cross Section Plots and Photos - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (#92347)

River Basin:	Cape Fear
Watershed:	UT to Bear Creek
XS ID	XS 1 (riffle)
Reach:	Northern
Date:	11/22/2010
Field Crew:	S.D. and C.H.

Station	Rod Ht.	Elevation	Notes
0	4.56	100.21	on
0	4.61	100.16	off
0.7	4.91	99.86	
3.7	5.36	99.41	
7.3	5.5	99.27	
10.4	5.52	99.25	
11.7	5.49	99.28	bkf
13.9	6.15	98.62	
15.4	6.76	98.01	
16	6.88	97.89	
16.3	7.48	97.29	
17.7	7.73	97.04	
19	7.65	97.12	
20.8	7.48	97.29	
22.4	7.6	97.17	
23.8	7.56	97.21	
24.9	7.33	97.44	
25.7	7.06	97.71	
27	6.4	98.37	
27.9	6.32	98.45	
30.9	5.28	99.49	
32.1	5.51	99.26	bkf
35	5.66	99.11	
36.5	5.89	98.88	
37.6	5.65	99.12	
40.7	5.59	99.18	
44	5.75	99.02	
48.1	5.69	99.08	
52.4	5.37	99.40	
56	5.34	99.43	

SUMMARY DATA

Bankfull Width (ft)	18.4
Floodprone Width (ft)	100.0
Bankfull Mean Depth (ft)	1.4
Bankfull Max Depth (ft)	2.2
Bankfull Area (ft^2)	25.8
Width/Depth Ratio	13.2
Entrenchment Ratio	5.4
Bank Height Ratio	1.0
Cross Sectional Area	76.9
Wetted Perimeter (ft)	19.4
Hydraulic Radius (ft)	1.33

Stream Type:	C6

View of cross-section XS-1 looking downstream

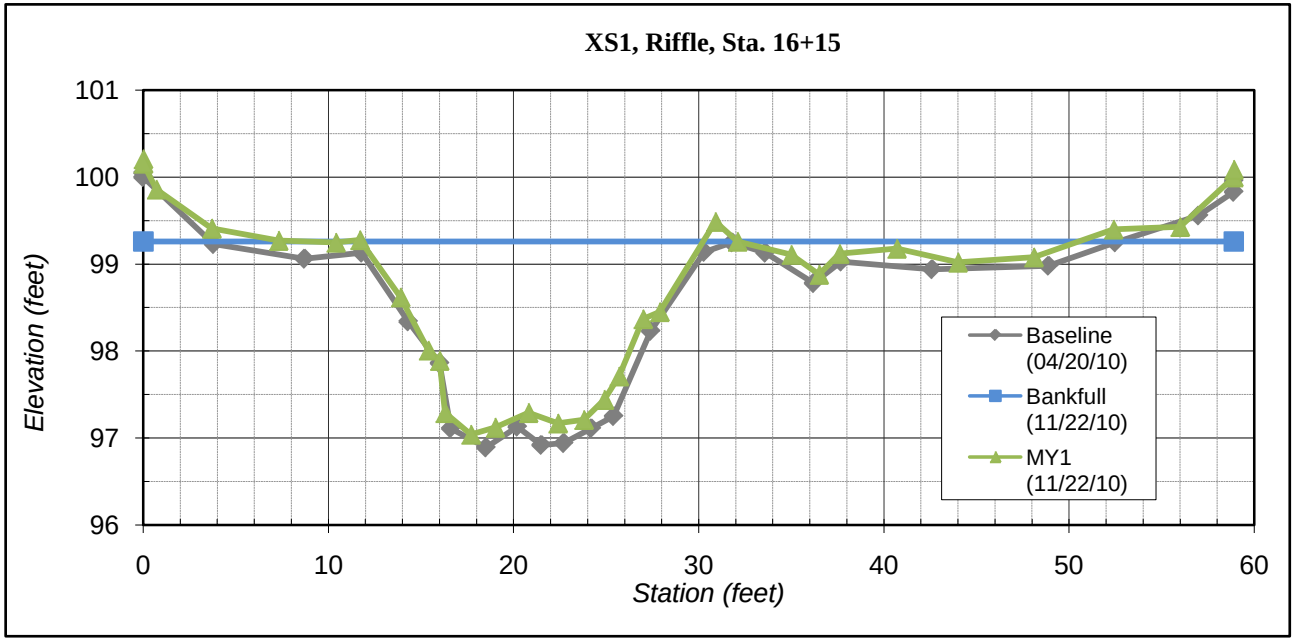


Figure 5.0 Cross Section Plots and Photos - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (#92347)

Cross Section 1, MY 1

Station	Rod Ht.	Elevation	Notes
58.9	4.77	100.00	off
58.9	4.68	100.09	on

Figure 5.1 Cross Section Plots and Photos - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (#92347)

River Basin:	Cape Fear
Watershed:	UT to Bear Creek
XS ID	XS 2 (riffle)
Reach:	Northern
Date:	11/22/2010
Field Crew:	S.D. and C.H.

Station	Rod Ht.	Elevation	Notes
0	4.22	100.09	pin
0	4.31	100	off
2.9	5	99.31	
6.2	5.31	99	
8.7	5.63	98.68	
12.7	5.88	98.43	
16	5.32	98.99	tob
17.9	5.63	98.68	
20.2	6.7	97.61	
21.7	7.1	97.21	
22.8	7.24	97.07	
23.6	7.46	96.85	
24.9	7.51	96.8	
26.5	7.45	96.86	
27.9	7.41	96.9	
29.9	7.48	96.83	
31.2	6.58	97.73	
34.1	5.73	98.58	
35.6	5.47	98.84	bkf
38.9	5.49	98.82	
42.8	5.51	98.8	
45.8	5.41	98.9	
47.6	5.03	99.28	
50.7	4.41	99.9	
53	3.96	100.35	
53	3.87	100.44	on

SUMMARY DATA

Bankfull Width (ft)	18.6
Floodprone Width (ft)	100.0
Bankfull Mean Depth (ft)	1.3
Bankfull Max Depth (ft)	2.0
Bankfull Area (ft^2)	23.9
Width/Depth Ratio	14.4
Entrenchment Ratio	5.4
Bank Height Ratio	1.0
Cross Sectional Area	96.5
Wetted Perimeter (ft)	19.4
Hydraulic Radius (ft)	1.24

Stream Type:	C6

View of cross-section XS-2 looking downstream

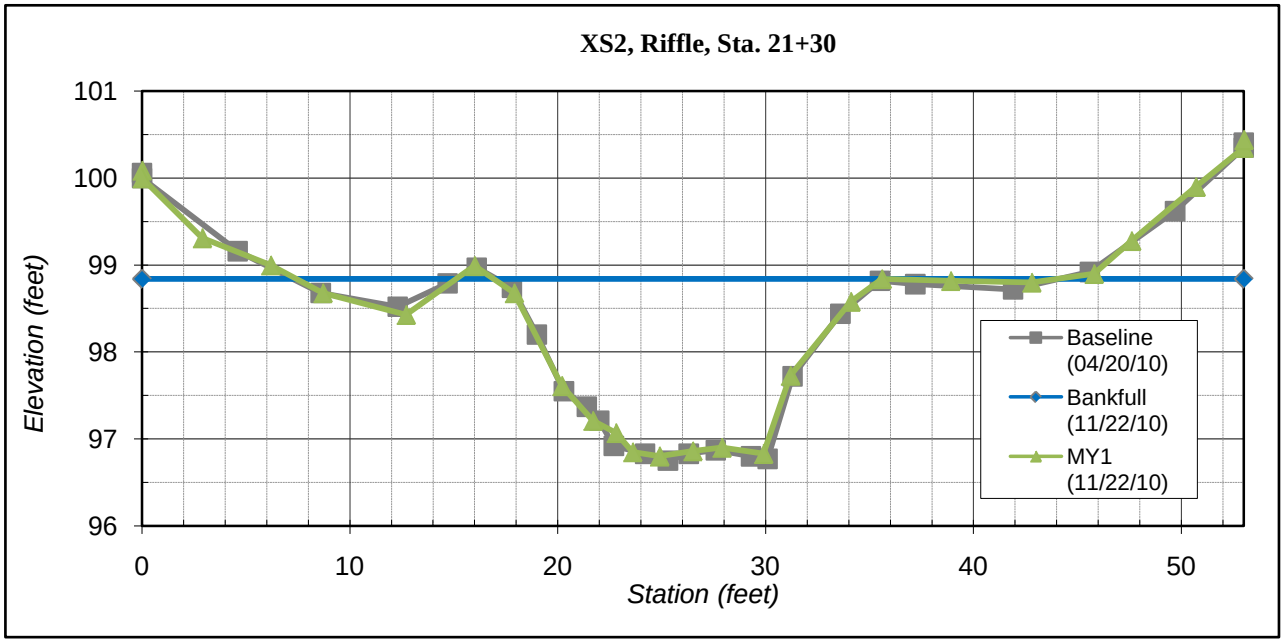


Figure 5.2 Cross Section Plots and Photos - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (#92347)

River Basin:	Cape Fear
Watershed:	UT to Bear Creek
XS ID	XS 3 (pool)
Reach:	Northern
Date:	11/23/2010
Field Crew:	S.D. and C.H.

Station	Rod Ht.	Elevation	Notes
0	5.93	100.12	on
0	6.05	100	off
1.9	6.27	99.78	
5.6	6.34	99.71	
8.8	6.55	99.5	
12.4	6.64	99.41	
16.1	6.62	99.43	
18.8	6.62	99.43	bkf
20.2	6.67	99.38	
21.9	7.2	98.85	
23.5	7.72	98.33	
24	7.79	98.26	
24.4	9.56	96.49	
27.2	9.92	96.13	
29.7	10.39	95.66	
31	10.43	95.62	
31.8	10.32	95.73	
33.1	10.25	95.8	
33.7	9.87	96.18	
34.6	9.71	96.34	
36	9.51	96.54	
36.5	7.36	98.69	
37.1	7.22	98.83	
39.3	6.7	99.35	
40.7	6.49	99.56	bkf
44.1	6.45	99.6	
46.5	6.44	99.61	
49.7	6.38	99.67	
53	6.53	99.52	
57.8	6.45	99.6	

SUMMARY DATA

Bankfull Width (ft)	21.0
Floodprone Width (ft)	100.0
Bankfull Mean Depth (ft)	2.1
Bankfull Max Depth (ft)	3.8
Bankfull Area (ft^2)	44.8
Width/Depth Ratio	9.9
Entrenchment Ratio	4.8
Bank Height Ratio	1.0
Cross Sectional Area	115.9
Wetted Perimeter (ft)	24.6
Hydraulic Radius (ft)	1.82

Stream Type:	C5

View of cross-section XS-3 looking downstream

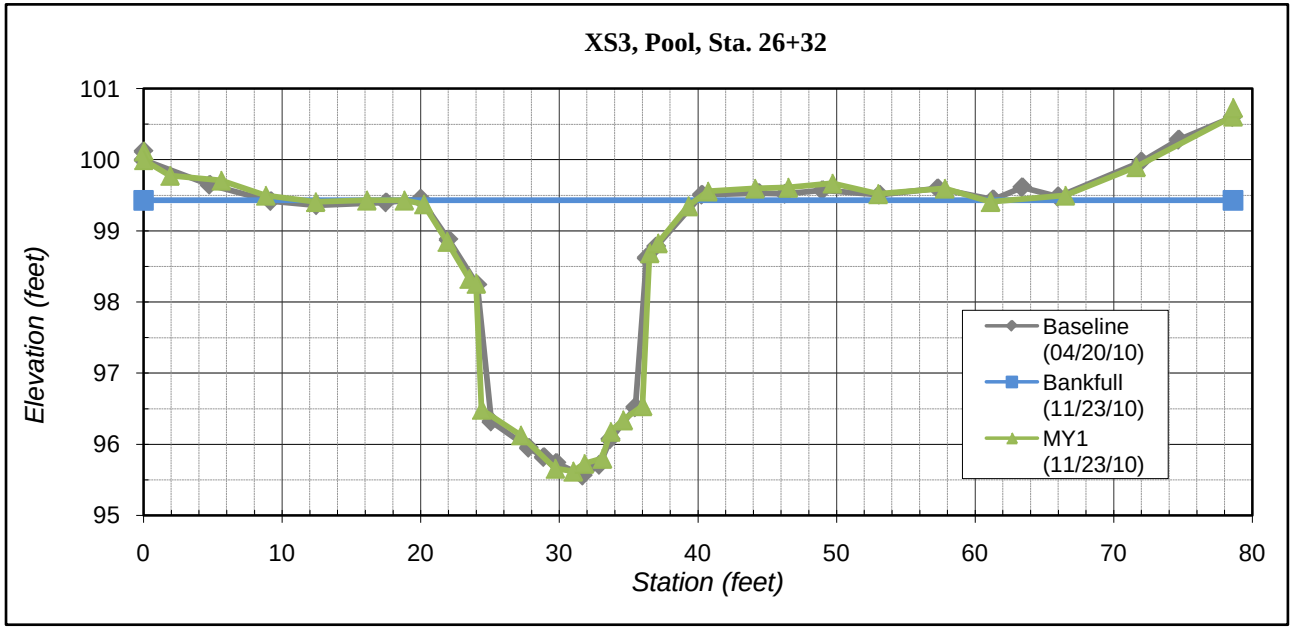


Figure 5.2 Cross Section Plots and Photos - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (#92347)

Cross Section 3, MY 1

Station	Rod Ht.	Elevation	Notes
61.1	6.64	99.41	
66.5	6.55	99.50	
71.6	6.15	99.90	
78.6	5.44	100.61	off
78.6	5.32	100.73	

Figure 5.3 Cross Section Plots and Photos - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (#92347)

River Basin:	Cape Fear
Watershed:	UT to Bear Creek
XS ID	XS 4 (riffle)
Reach:	Northern
Date:	11/22/2010
Field Crew:	S.D. and C.H.

Station	Rod Ht.	Elevation	Notes
0	4.65	100	on pin
0	4.52	100.13	off
2.4	4.75	99.9	
6.3	4.7	99.95	
10.9	5.08	99.57	
15	4.92	99.73	bkf
18.3	5.1	99.55	
22.7	5.08	99.57	
23.9	4.86	99.79	
25.9	5.4	99.25	
28.5	6.85	97.8	
30.5	7.05	97.6	
31.6	7.19	97.46	
32.3	7.2	97.45	
33.4	6.91	97.74	
34.2	6.99	97.66	
35.4	7.07	97.58	
36.7	7.22	97.43	
37.7	7.14	97.51	
38.5	6.42	98.23	
39.8	5.95	98.7	
41.2	5.42	99.23	
43	4.94	99.71	bkf
43.9	4.87	99.78	
47	4.79	99.86	
50.7	4.82	99.83	
54.8	5.03	99.62	
60	4.85	99.8	
69	4.34	100.31	off
69	4.43	100.22	on

SUMMARY DATA

Bankfull Width (ft)	19.1
Floodprone Width (ft)	100.0
Bankfull Mean Depth (ft)	1.5
Bankfull Max Depth (ft)	2.3
Bankfull Area (ft^2)	28.0
Width/Depth Ratio	13.1
Entrenchment Ratio	5.2
Bank Height Ratio	1.0
Cross Sectional Area	59.5
Wetted Perimeter (ft)	20.2
Hydraulic Radius (ft)	1.39

Stream Type:	C6

View of cross-section XS-4 looking downstream

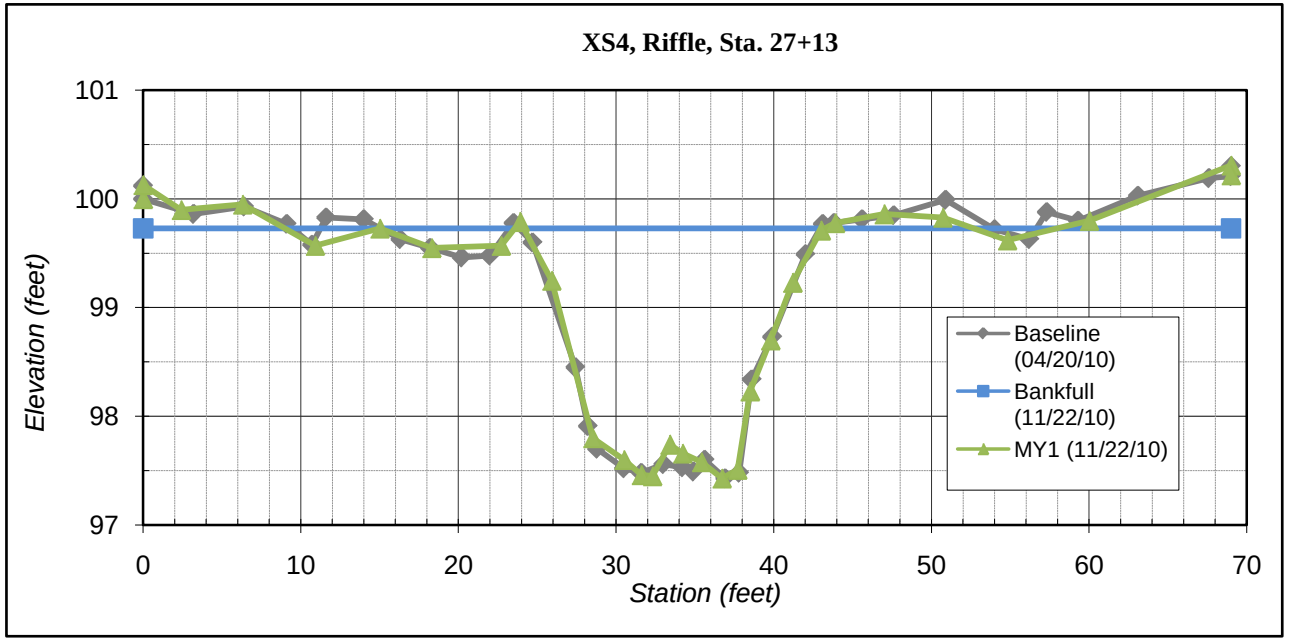


Figure 5.4 Cross Section Plots and Photos - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (#92347)

River Basin:	Cape Fear
Watershed:	UT to Bear Creek
XS ID	XS 5 (pool)
Reach:	Northern
Date:	11/22/2010
Field Crew:	S.D. and C.H.

Station	Rod Ht.	Elevation	Notes
0	4.26	100.1	pin-on
0	4.36	100	off
2.6	4.84	99.52	
4.6	5.06	99.3	
7.1	4.66	99.7	
10.1	5.01	99.35	
12.8	4.83	99.53	
15.6	5.14	99.22	
18.8	5.44	98.92	bkf
20.5	5.98	98.38	
21.5	6.27	98.09	
22.6	6.49	97.87	
23	7.47	96.89	
23.2	7.98	96.38	
24.8	8.41	95.95	
26.6	8.94	95.42	
28.4	8.67	95.69	
29.3	8.46	95.9	
29.8	8.17	96.19	
30.8	8.02	96.34	
31.3	6.35	98.01	
34.7	5.64	98.72	
38	5.16	99.2	bkf
42.4	5.03	99.33	
47.1	4.76	99.6	
49.7	4.66	99.7	
53.1	4.49	99.87	off
53.1	4.39	99.97	on

SUMMARY DATA

Bankfull Width (ft)	22.2
Floodprone Width (ft)	220.0
Bankfull Mean Depth (ft)	1.6
Bankfull Max Depth (ft)	3.8
Bankfull Area (ft^2)	34.9
Width/Depth Ratio	14.1
Entrenchment Ratio	9.9
Bank Height Ratio	1.0
Cross Sectional Area	59.5
Wetted Perimeter (ft)	25
Hydraulic Radius (ft)	1.4

Stream Type:	C4

View of cross-section XS-5 looking downstream

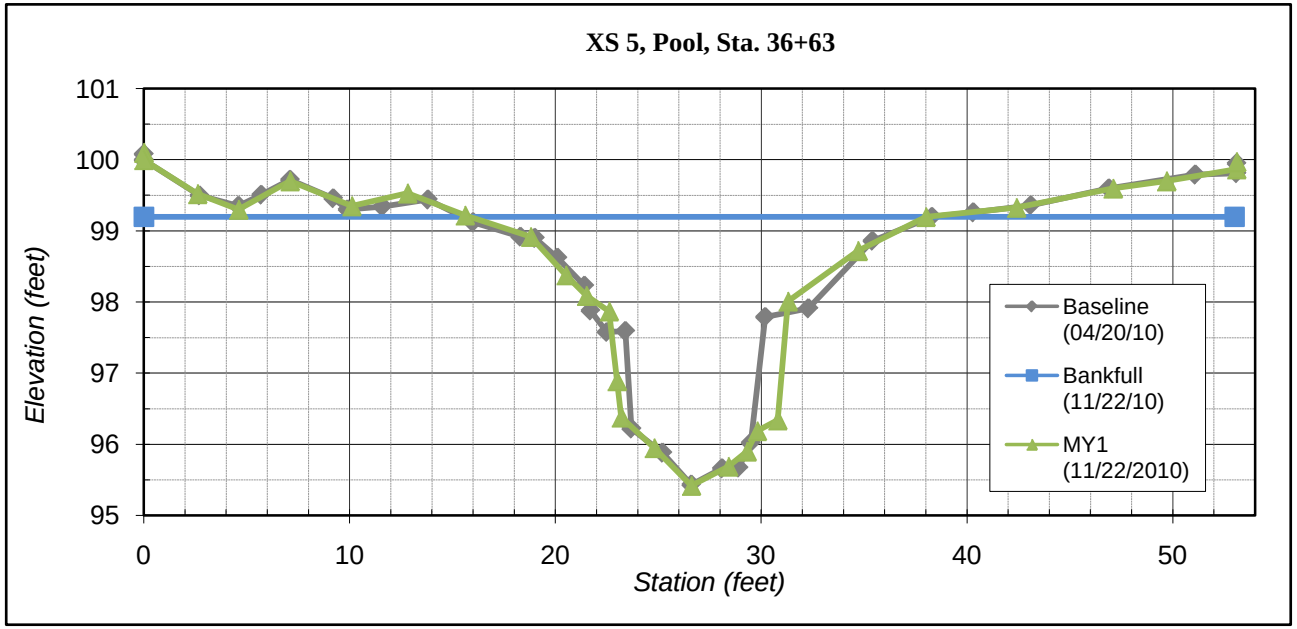


Figure 5.5 Cross Section Plots and Photos - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (#92347)

River Basin:	Cape Fear
Watershed:	UT to Bear Creek
XS ID	XS 6 (riffle)
Reach:	Northern
Date:	11/22/2010
Field Crew:	S.D. and C.H.

Station	Rod Ht.	Elevation	Notes
0	5.56	100.13	on
0	5.69	100	off
2.8	5.44	100.25	
7	5.72	99.97	
8.9	5.85	99.84	
13	5.87	99.82	
15.4	5.86	99.83	
17.7	5.74	99.95	
20.8	5.99	99.7	bkf
22.5	6.03	99.66	
24.4	6.89	98.8	
26.1	7.57	98.12	
27	7.72	97.97	
28.3	7.84	97.85	
29.9	7.69	98	
31.9	7.42	98.27	
33.2	7.51	98.18	
34.3	7.23	98.46	
35.5	7.33	98.36	
36.5	7.3	98.39	
37.7	6.91	98.78	
39.5	6.06	99.63	
41.5	5.66	100.03	
43.3	5.53	100.16	bkf
46	5.38	100.31	
49.6	5.82	99.87	
52.6	5.42	100.27	
54.9	5.67	100.02	
58.3	5.26	100.43	
60.5	5.12	100.57	off
60.5	5.01	100.68	on

SUMMARY DATA

Bankfull Width (ft)	19.1
Floodprone Width (ft)	220.0
Bankfull Mean Depth (ft)	1.1
Bankfull Max Depth (ft)	1.9
Bankfull Area (ft^2)	21.4
Width/Depth Ratio	17.0
Entrenchment Ratio	11.6
Bank Height Ratio	1.0
Cross Sectional Area	56.5
Wetted Perimeter (ft)	19.7
Hydraulic Radius (ft)	1.1

Stream Type:	C5

View of cross-section XS-6 looking downstream

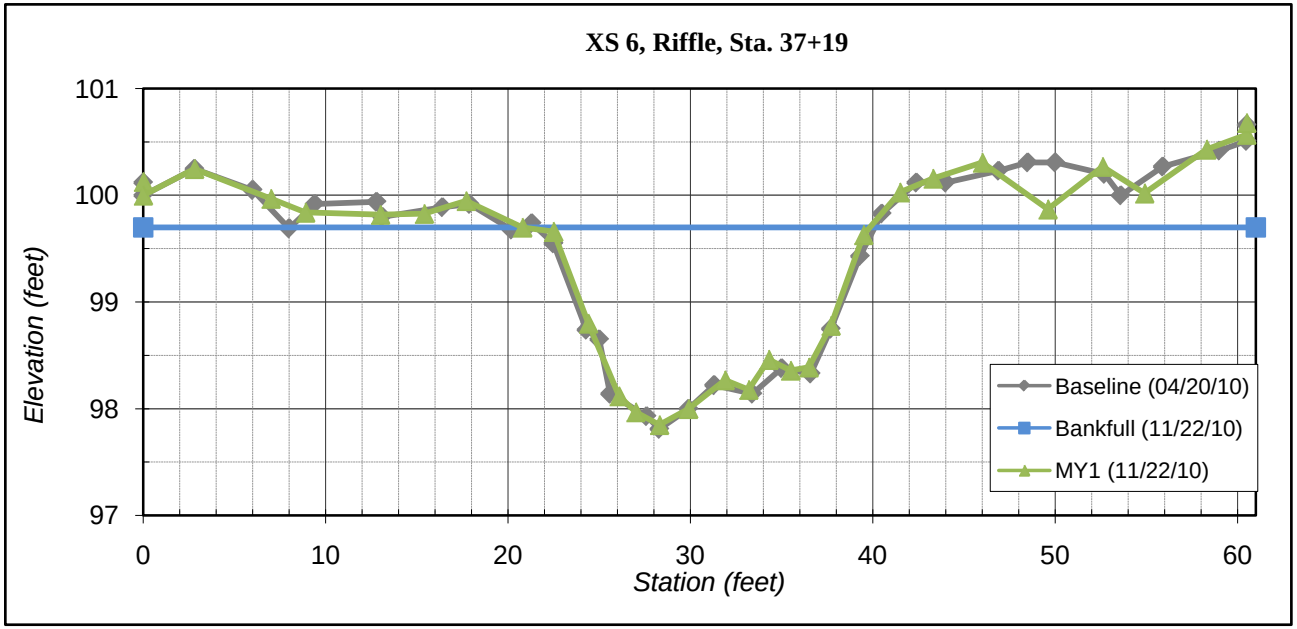


Figure 5.6 Cross Section Plots and Photos - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (#92347)

River Basin:	Cape Fear
Watershed:	UT to Bear Creek
XS ID	XS 7 (riffle)
Reach:	Southern
Date:	11/23/2010
Field Crew:	S.D. and C.H.

Station	Rod Ht.	Elevation	Notes
0	4.9	100.13	on
0	5.03	100.00	off
3	5.08	99.95	
5.8	5.22	99.81	
9.8	5.19	99.84	
13	5.12	99.91	
15.4	5.12	99.91	bkf
17.3	5.14	99.89	
18.1	5.21	99.82	
20	5.95	99.08	
20.4	6.31	98.72	
20.8	6.35	98.68	
21.2	6.51	98.52	
21.9	6.62	98.41	
22.3	6.52	98.51	
22.6	6.35	98.68	
22.8	6.33	98.70	
23.4	5.82	99.21	
24.9	5.49	99.54	
26.2	5.17	99.86	
29.6	5.15	99.88	bkf
32.5	5.21	99.82	
36	5.16	99.87	
39.7	5.12	99.91	
41.6	5	100.03	
43.9	4.83	100.20	
45.5	4.61	100.42	off
45.5	4.55	100.48	on

SUMMARY DATA

Bankfull Width (ft)	12.2
Floodprone Width (ft)	100.0
Bankfull Mean Depth (ft)	0.5
Bankfull Max Depth (ft)	1.5
Bankfull Area (ft^2)	6.0
Width/Depth Ratio	24.9
Entrenchment Ratio	8.2
Bank Height Ratio	1.0
Cross Sectional Area	28.3
Wetted Perimeter (ft)	12.8
Hydraulic Radius (ft)	0.5

Stream Type:	C5

View of cross-section XS-7 looking downstream

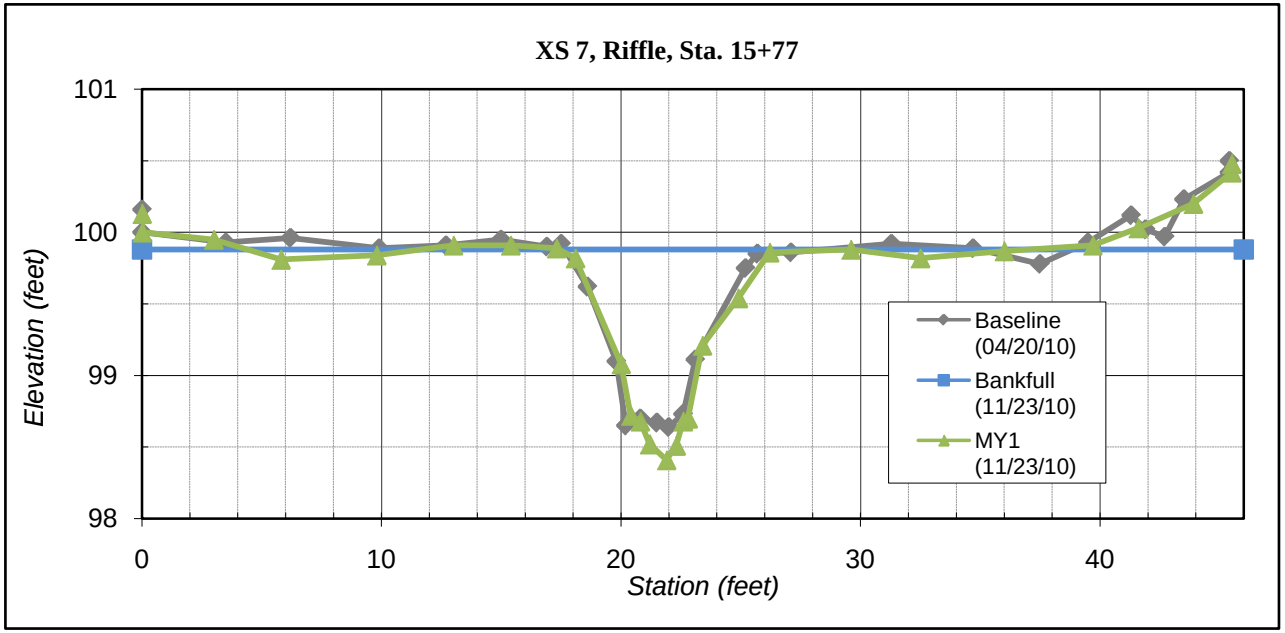


Figure 5.7 Cross Section Plots and Photos - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (#92347)

River Basin:	Cape Fear
Watershed:	UT to Bear Creek
XS ID	XS 8 (riffle)
Reach:	Southern
Date:	11/23/2010
Field Crew:	S.D. and C.H.

Station	Rod Ht.	Elevation	Notes
0	7.53	100.22	on
0	7.75	100.00	off
3.5	8.08	99.67	
8.1	8.86	98.89	
11.4	9.09	98.66	
12.9	9.25	98.50	
13.8	9.55	98.20	
14.5	9.82	97.93	
14.9	10.02	97.73	
15.5	10.33	97.42	
16	10.62	97.13	
16.6	10.6	97.15	
17.7	10.53	97.22	
18.5	10.36	97.39	
19.1	10.03	97.72	
20.1	9.75	98.00	
21.7	9.21	98.54	bkf
25.2	9.15	98.60	
28.7	9.12	98.63	
31.4	9.09	98.66	
35	8.88	98.87	
39.6	8.86	98.89	
41.5	8.74	99.01	off
41.5	8.52	99.23	on

SUMMARY DATA

Bankfull Width (ft)	9.2
Floodprone Width (ft)	50.0
Bankfull Mean Depth (ft)	0.8
Bankfull Max Depth (ft)	1.4
Bankfull Area (ft^2)	7.0
Width/Depth Ratio	12.0
Entrenchment Ratio	5.5
Bank Height Ratio	1.0
Cross Sectional Area	55.4
Wetted Perimeter (ft)	9.7
Hydraulic Radius (ft)	0.7

Stream Type:	C4

View of cross-section XS-8 looking downstream

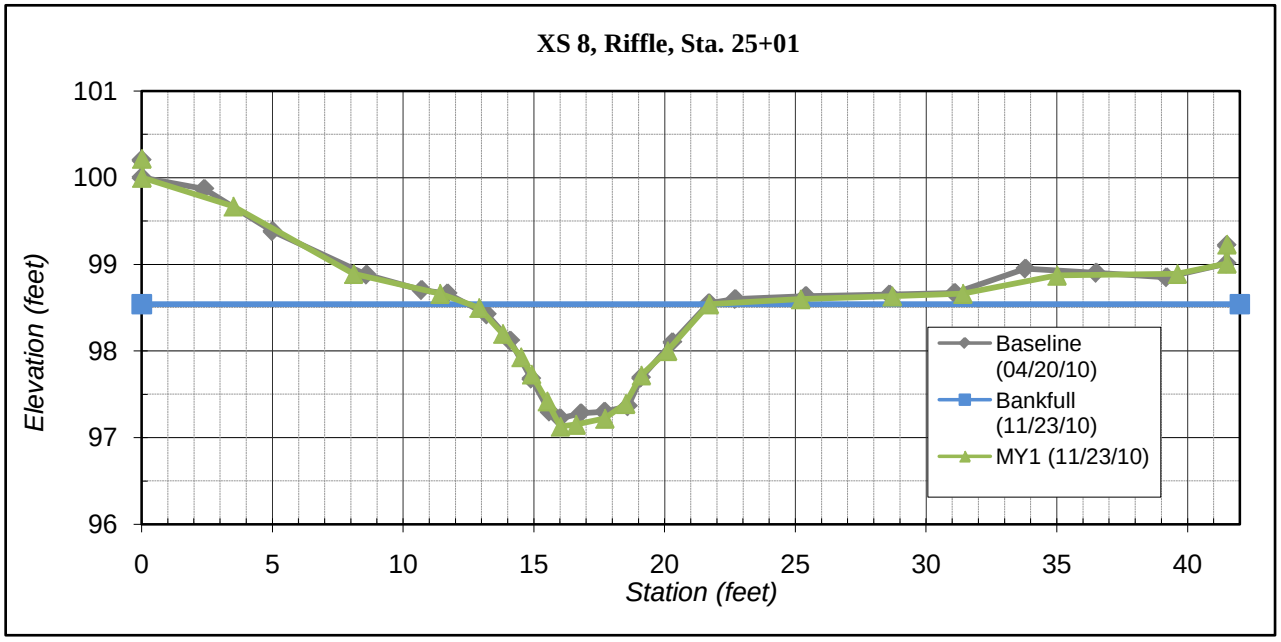


Figure 5.8 Cross Section Plots and Photos - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (#92347)

River Basin:	Cape Fear
Watershed:	UT to Bear Creek
XS ID	XS 9 (pool)
Reach:	Northern
Date:	11/23/2010
Field Crew:	S.D. and C.H.

Station	Rod Ht.	Elevation	Notes
0	5.57	100.16	off
0	5.73	100	on
4.7	6.65	99.08	
8.6	6.75	98.98	
12.5	7.46	98.27	
14.5	7.79	97.94	
15.9	8.21	97.52	
17	9.01	96.72	
17.4	9.74	95.99	
18.2	10.37	95.36	
18.8	10.63	95.1	
19.8	10.64	95.09	
20.7	10.51	95.22	
21.7	10.07	95.66	
22.4	9.85	95.88	
23	9.71	96.02	
23.6	9.16	96.57	
24.4	9.13	96.6	
26.7	8.17	97.56	
28.9	8.09	97.64	
31.7	7.89	97.84	
35	7.71	98.02	bkf
38.3	7.68	98.05	
43.7	7.53	98.2	
48.9	7.23	98.5	
51.5	7.17	98.56	
53.5	7.26	98.47	
56.7	7.12	98.61	
61.1	7.08	98.65	
63.1	6.9	98.83	off

SUMMARY DATA

Bankfull Width (ft)	21.0
Floodprone Width (ft)	50.0
Bankfull Mean Depth (ft)	1.1
Bankfull Max Depth (ft)	2.9
Bankfull Area (ft^2)	22.9
Width/Depth Ratio	19.3
Entrenchment Ratio	2.4
Bank Height Ratio	1.0
Cross Sectional Area	119.1
Wetted Perimeter (ft)	22.6
Hydraulic Radius (ft)	1.0

Stream Type: C6

Station	Rod Ht.	Elevation	Notes
63.1	6.79	98.94	on

View of cross-section XS-9 looking downstream

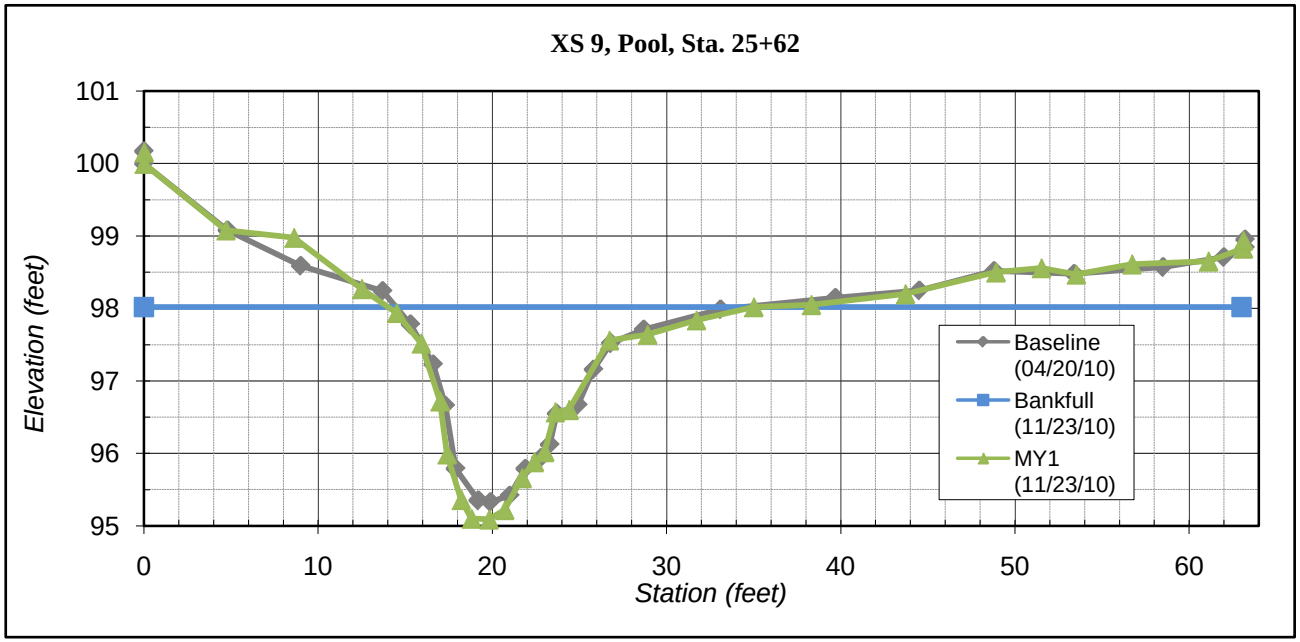


Figure 6.0 UT Bear Creek Longitudinal Profile - Northern UT (Sta. 1000-2000)

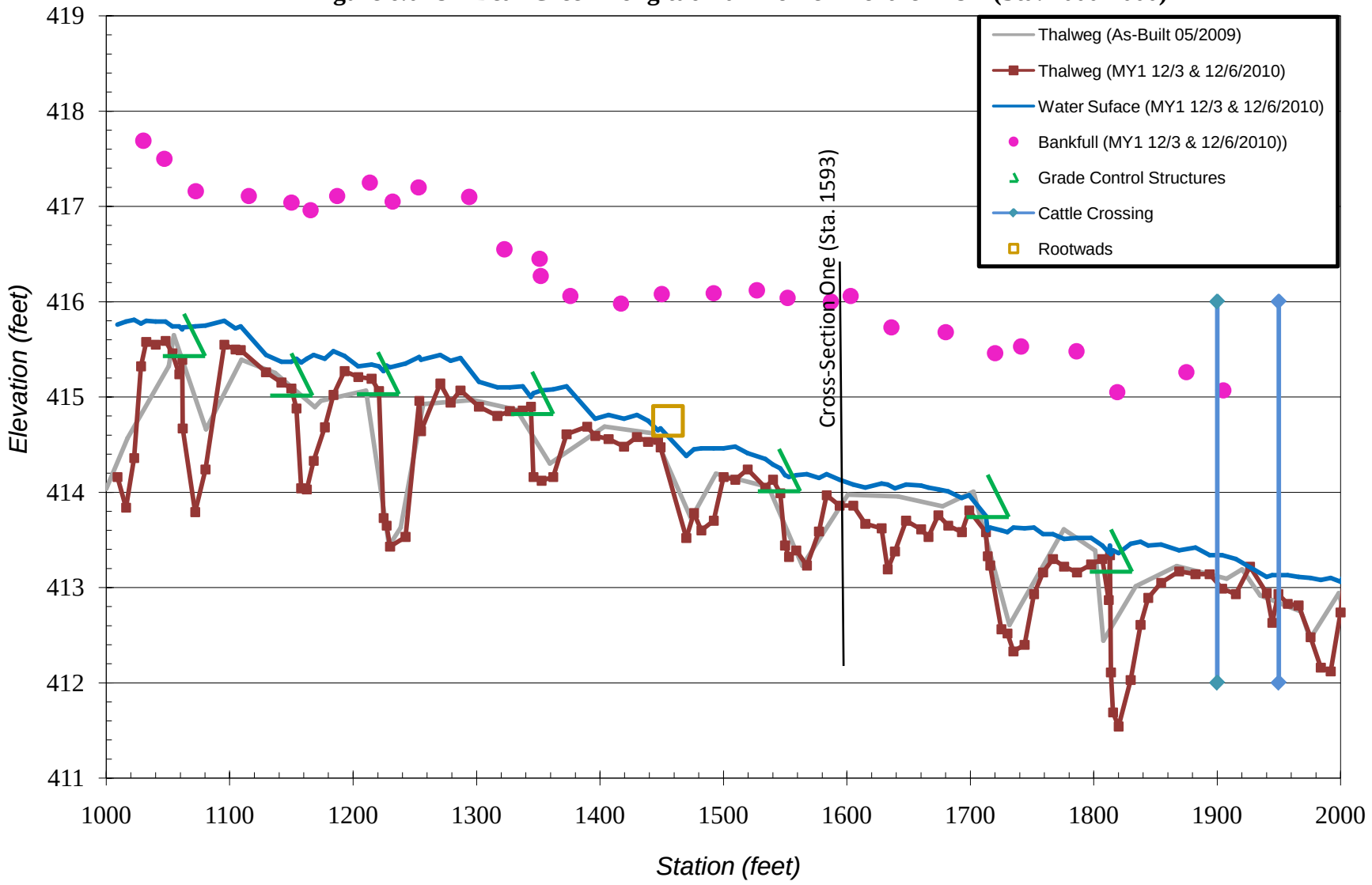


Figure 6.1 UT Bear Creek Longitudinal Profile - Northern UT (Sta. 2000 -3000)

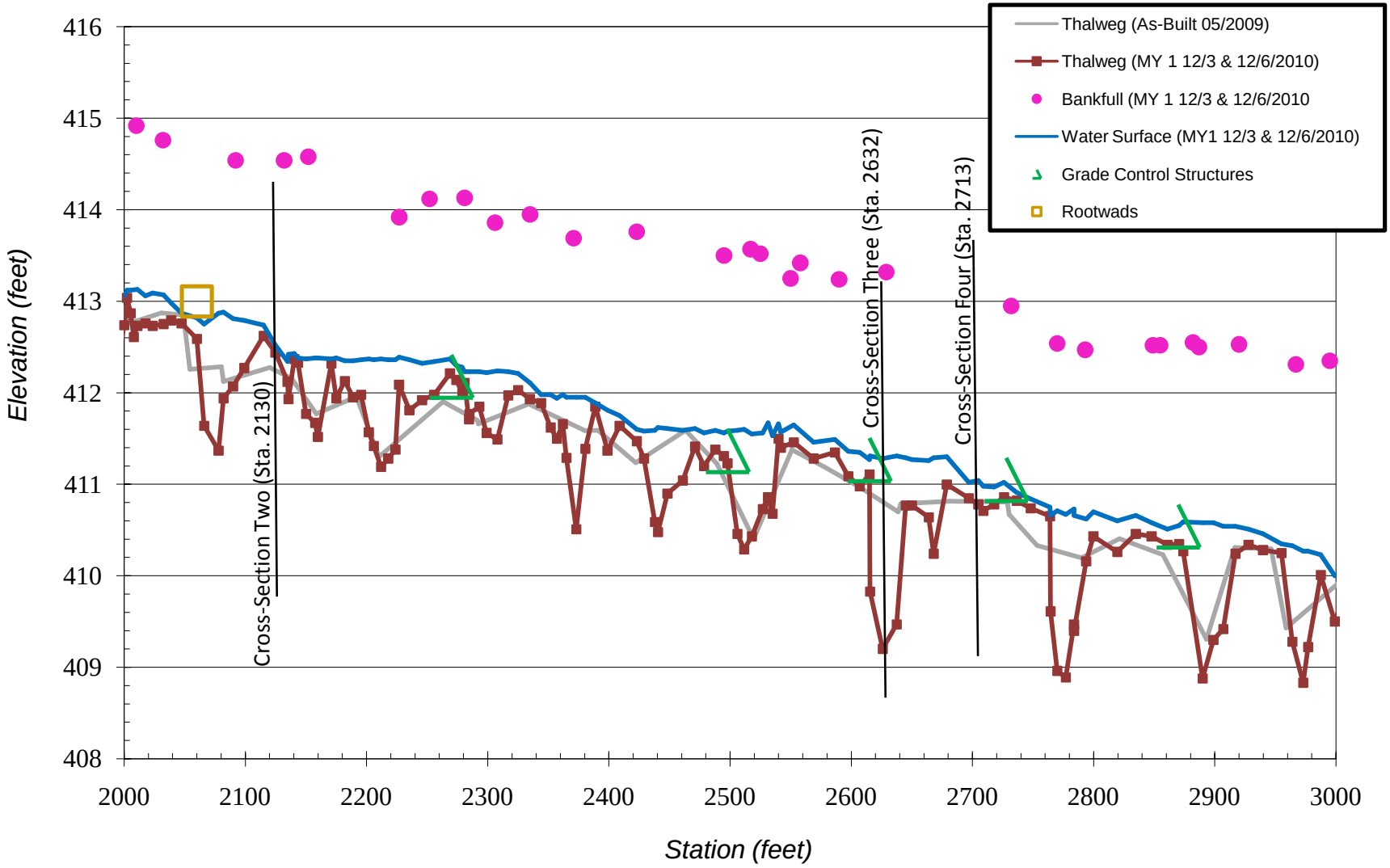


Figure 6.2 UT Bear Creek Longitudinal Profile - Northern UT (Sta. 3000-4000)

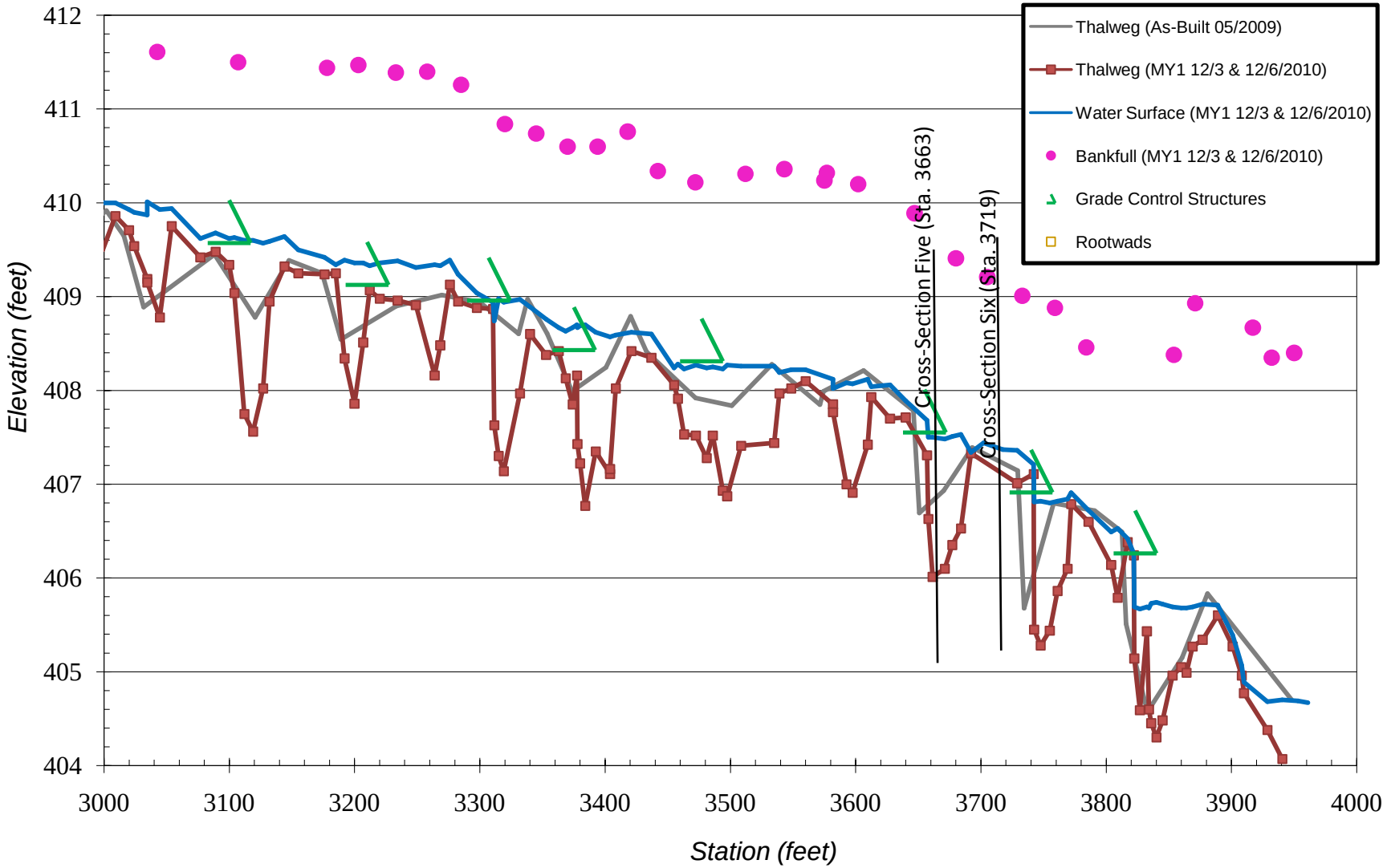


Figure 6.3 UT Bear Creek Longitudinal Profile - Southern UT (Sta. 1000-1900)

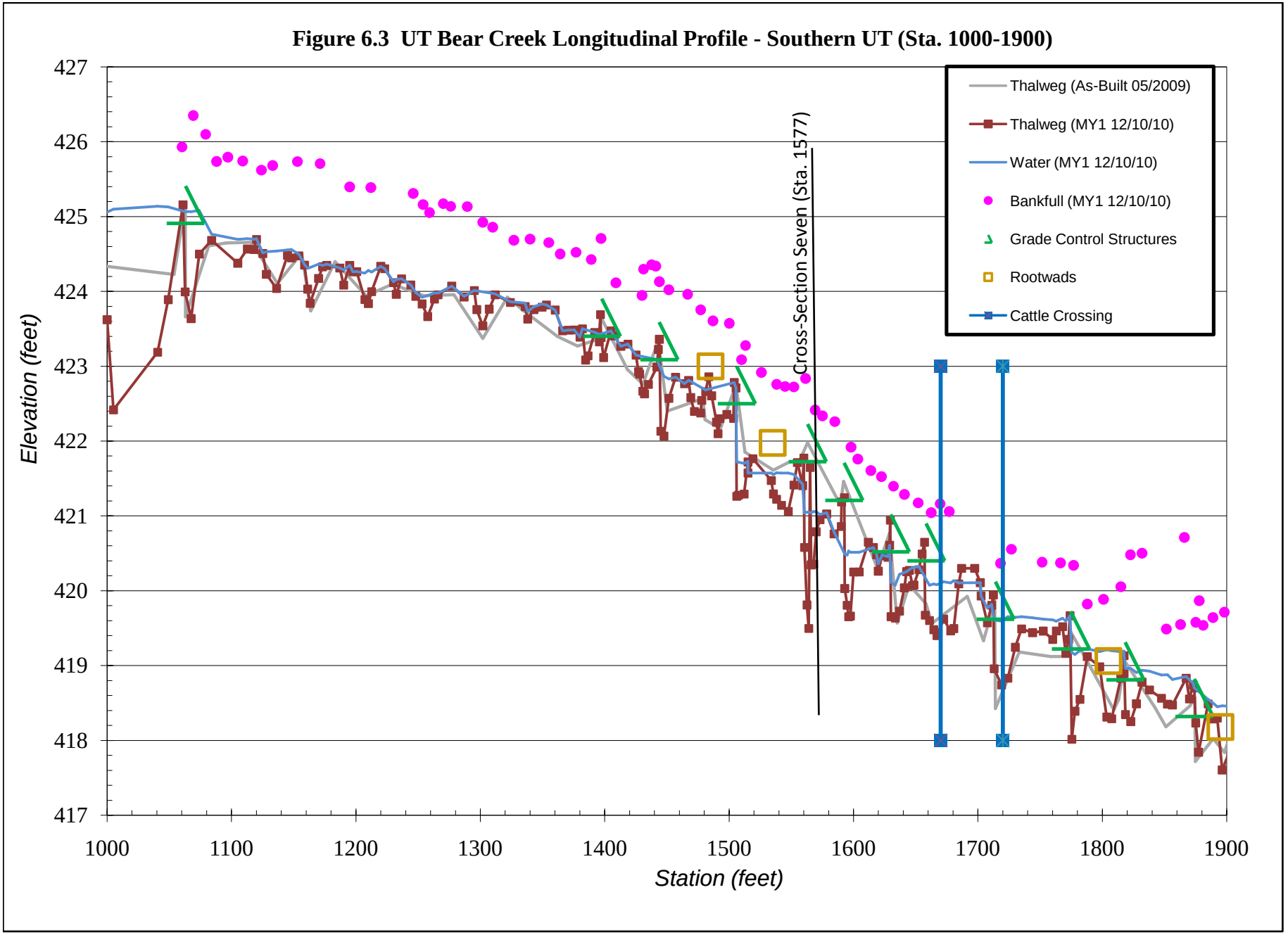
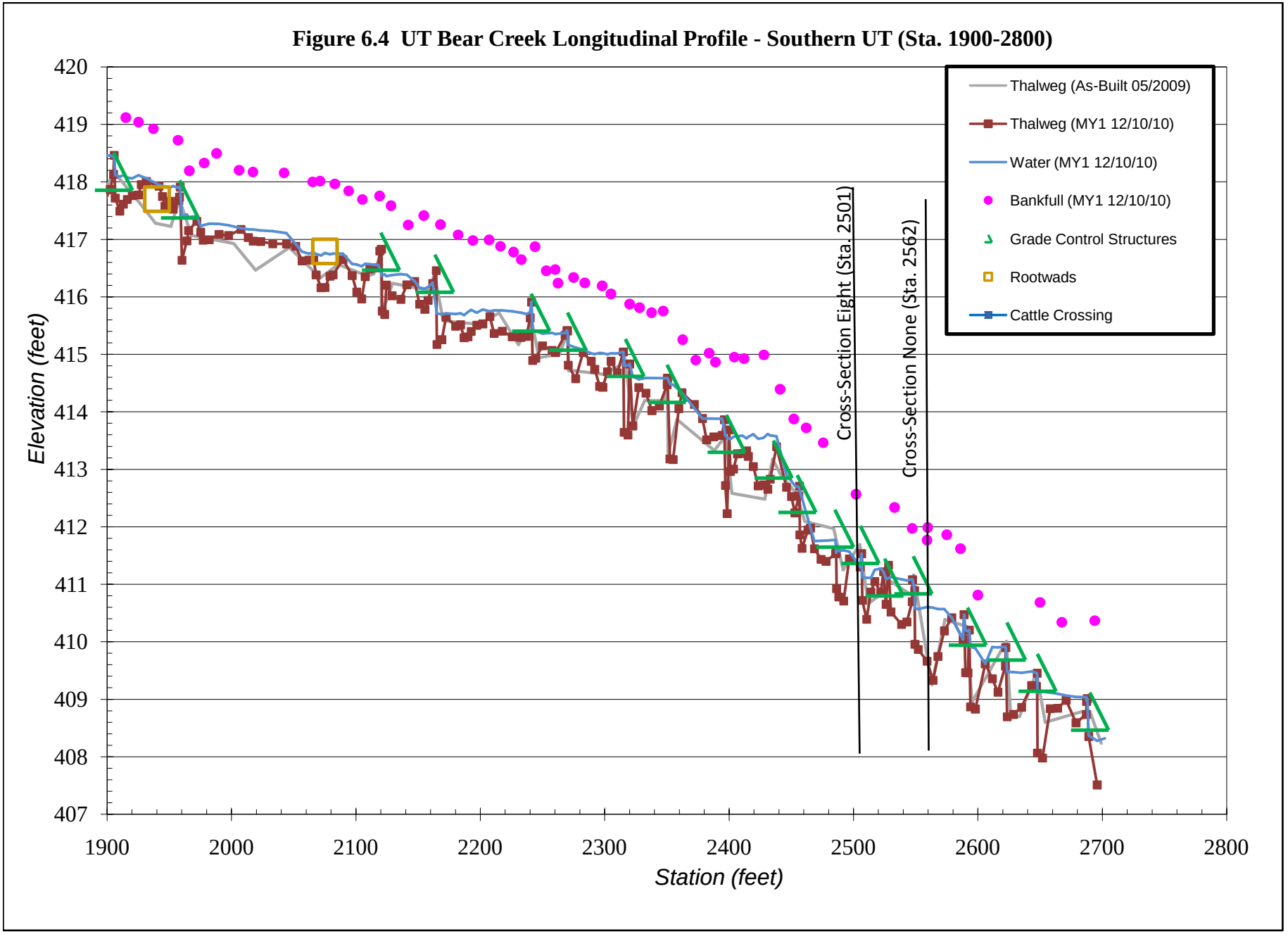


Figure 6.4 UT Bear Creek Longitudinal Profile - Southern UT (Sta. 1900-2800)



Northern UT 12/3/2010 & 12/6/2010

ID	Elevation	Easting	Northing	Descriptio	Station
1	417.6	1883883.902	677625.8342	first occupypt	0
3	419.67	1883900.103	677528.8032	1st backsite	0
4	419.31	1883901.909	677636.1577	vp1 010	0
5	422.46	1883832.007	677882.4012	propcor	0
7	415.43	1883780.997	677844.453	pt 22	0
8	414.31	1883786.706	677838.4671	137	0
9	414.62	1883789.492	677828.099	111	0
10	414.23	1883793.23	677824.1303	155	0
11	414.16	1883796.813	677818.4129	160	9
12	413.84	1883800.216	677811.7129	195	16
13	414.36	1883803.104	677806.4008	145	22.5
14	415.32	1883806.152	677802.155	45	28
15	415.58	1883808.708	677798.0912	22	32.5
16	415.55	1883813.811	677792.0121	tor .24	40
17	415.59	1883817.056	677785.2657	0.2	48
18	415.46	1883819.09	677780.2674	0.28	53.5
19	415.24	1883824.058	677775.8805	0.5	59
20	415.39	1883823.233	677772.6617	0.32	61.5
21	414.67	1883823.001	677772.3006	top 106	62
22	413.79	1883826.416	677763.2574	max 1.95	72
23	414.24	1883828.664	677754.3303	1.51	80.5
24	417.46	1883834.737	677765.8521	bkf	72.5
25	417.8	1883825.535	677791.9091	bkf	47
26	417.99	1883795.824	677790.6254	bkf	30
27	415.55	1883831.677	677739.8146	tor .25	95.5
28	415.5	1883834.917	677731.0382	0.22	104.5
29	415.49	1883835.855	677726.6043	0.25	109
30	417.41	1883850.295	677726.9479	bkf	115.5
31	415.56	1883845.688	677708.5861	1.8	129.5
32	415.45	1883850.863	677696.9212	2.2	142
33	415.39	1883853.692	677690.1967	2.8	150
34	415.18	1883855.578	677686.4852	top .52	154
35	417.34	1883843.917	677689.278	bkf	150
36	414.34	1883857.127	677682.4312	1.32	158
37	414.33	1883857.591	677678.2599	1.37	162.5
38	414.63	1883859.224	677673.3799	1.11	168
39	414.98	1883860.682	677664.3231	0.72	177
40	415.32	1883859.673	677656.635	0.46	184
41	415.57	1883858.532	677647.5634	tor .16	193
42	415.51	1883857.816	677637.0675	0.11	204
43	415.49	1883857.41	677625.976	0.15	215
44	417.55	1883847.501	677628.0251	bkf	213.5
45	417.41	1883846.731	677654.0001	bkf	187
46	417.26	1883847.64	677672.2563	bkf	165.5
47	415.36	1883860.773	677620.3045	top .26	221

48	414.03	1883860.821	677616.5024	1.54	224.5
49	413.95	1883863.064	677613.6962	1.68	227
50	413.73	1883865.314	677610.8892	max 1.88	230
51	413.83	1883865.795	677599.8013	1.82	242.5
52	414.94	1883872.098	677590.0562	0.75	255
53	415.26	1883879.516	677584.9702	0.46	253.5
54	415.44	1883884.751	677578.5013	tor .30	270.5
55	415.24	1883892.423	677573.9895	0.44	279
56	415.37	1883899.732	677571.0171	0.34	287
57	415.5	1883912.742	677564.6062	0.26	302
58	415.4	1883927.15	677558.8773	0.3	317
59	415.45	1883935.995	677554.2266	0.25	327
60	415.46	1883946.422	677551.6019	0.25	337.5
61	415.5	1883950.848	677547.9511	top .1	344
62	417.17	1883950.503	677533.9064	bkf	352
63	417.45	1883928.263	677549.106	bkf	322.5
64	417.4	1883901.186	677558.6829	bkf	294
65	417.5	1883866.346	677581.8759	bkf	253
66	417.35	1883853.125	677608.7397	bkf	232
67	414.76	1883952.171	677545.7909	1.88	346
68	414.72	1883958.008	677542.6619	0.95	352.5
69	414.76	1883963.775	677534.7548	0.92	362
70	415.21	1883967.127	677524.4952	0.5	373
71	415.29	1883969.97	677507.7239	0.45	389.5
72	415.59	1883970.703	677500.8644	tor .18	396
73	415.56	1883971.697	677490.3266	0.25	407
74	415.48	1883970.225	677477.1729	0.29	419.5
75	415.58	1883970.761	677466.7978	0.23	430
76	415.53	1883973.284	677458.4245	0.22	439
77	415.47	1883972.255	677447.9667	0.2	449
78	415.55	1883974.983	677439.6544	0.1	447
79	414.92	1883979.05	677427.828	bor .65	470
80	417.48	1883965.243	677443.0857	bkf	450
81	417.38	1883959.682	677479.6001	bkf	417
82	417.46	1883977.53	677521.7098	bkf	376
83	417.35	1883963.23	677550.306	bkf	351
84	430.06	1883972.174	677324.3722	prop cor	0
85	427.86	1883974.535	677332.3077	occupy 2	0
86	426.09	1884000.806	677316.8212	bs 2	0
87	425.98	1884000.646	677316.9161	bs 2	0
88	415.27	1883978.594	677428.2625	0.6	470
89	415.18	1883981.644	677422.1876	0.67	476
90	415	1883987.391	677416.8587	0.86	482
91	415.1	1883995.645	677411.3252	0.76	492
92	415.56	1884003.696	677409.3361	0.3	500
93	415.53	1884012.297	677405.4892	0.35	509.5
94	415.64	1884021.416	677403.0448	tor .17	519.5

95	415.45	1884034.677	677398.6424	0.3	534
96	415.53	1884041.61	677398.1148	0.16	540
97	415.39	1884048.496	677396.825	top .26	546
98	414.84	1884052.148	677396.7686	0.74	550
99	414.72	1884054.204	677394.9574	max .84	553
100	414.79	1884059.795	677391.8306	0.79	559
101	414.63	1884066.503	677386.0987	0.96	567.5
102	414.99	1884073.174	677379.1824	0.56	577.5
103	415.37	1884076.09	677374.3021	0.22	583.5
104	420.07	1884102.693	677370.3477	prop cor on	0
105	419.17	1884102.631	677370.5272	prop cor off	0
106	418.42	1884098.179	677377.4639	xs1	0
107	417.4	1884085.917	677376.1612	bkf	587
108	417.44	1884054.897	677402.0075	bkf	552
109	417.52	1884032.361	677411.6802	bkf	527
110	417.49	1884001.884	677423.4844	bkf	492
111	415.26	1884082.901	677366.2706	0.27	594
112	415.26	1884088.634	677356.3864	0.22	605
113	415.07	1884092.185	677346.4495	0.38	615
114	415.02	1884100.362	677335.8671	0.47	628
115	414.59	1884103.344	677332.4971	0.89	633
116	414.78	1884105.098	677326.1741	0.66	639
117	415.1	1884107.966	677317.2586	0.38	648
118	415.01	1884111.53	677305.5891	0.46	660
119	414.93	1884111.828	677299.5944	0.52	666
120	415.16	1884111.59	677291.2141	0.27	674
121	415.05	1884114.31	677283.5125	0.36	682
122	414.98	1884114.465	677272.618	0.36	693
123	415.21	1884117.299	677266.4568	0.16	699
124	414.98	1884120.044	677254.376	top .17	712.5
125	414.73	1884120.8	677252.9139	top .27	714
126	414.63	1884121.76	677250.8009	0.4	716
127	413.96	1884124.629	677242.9576	1.04	725
128	413.92	1884126.322	677237.8372	1.06	730
129	413.73	1884130.319	677234.4331	max 1.3	735
130	413.8	1884136.594	677228.9135	1.22	744
131	414.33	1884143.579	677225.0616	0.7	751.5
132	414.56	1884150.656	677223.4734	0.4	759
133	414.7	1884158.156	677220.4779	0.26	767
134	414.62	1884167.292	677216.9554	0.29	776
135	414.56	1884177.384	677216.0086	0.36	786.5
136	414.64	1884189.372	677215.3494	0.28	798
137	414.7	1884197.273	677212.3511	0.14	807
138	414.27	1884201.645	677211.3156	0.5	812
139	414.74	1884203.346	677212.0454	top .1	813
140	413.51	1884204.3	677212.4269	1.24	814
141	413.09	1884206.586	677212.734	max 1.7	815.5

142	412.94	1884210.37	677212.9652	1.82	820
143	413.43	1884220.202	677210.217	1.43	830
144	416.45	1884206.937	677201.942	bkf	819
145	416.88	1884176.062	677208.3173	bkf	786
146	417.2	1884169.526	677198.7535	vp2	0
147	416.93	1884131.523	677221.081	bkf	741
148	416.86	1884113.921	677240.2224	bkf	720
149	417.08	1884101.905	677282.0784	bkf	680
150	417.13	1884110.161	677334.3529	bkf	636
151	417.46	1884095.084	677362.5429	bkf	603
152	414.01	1884227.737	677206.6326	0.87	838
153	414.29	1884233.142	677203.5715	0.55	844
154	414.45	1884242.01	677198.5915	0.4	854.5
155	414.57	1884254.336	677190.9342	0.22	869
156	414.54	1884266.604	677184.0627	0.28	882.5
157	414.54	1884274.791	677176.5281	0.2	894
158	414.39	1884283.712	677171.6986	0.35	904
159	414.33	1884293.163	677165.3438	.37 fence	915
160	416.47	1884290.879	677178.3387	bkf	905
161	416.66	1884265.044	677195.751	bkf	875
162	414.62	1884302.798	677158.5183	0.18	926.5
163	414.34	1884313.941	677151.9486	.17 fence	940
164	414.03	1884317.639	677150.4499	0.5	944.5
165	414.33	1884321.199	677146.2489	0.2	949.5
166	414.23	1884327.817	677140.997	0.3	957
167	414.21	1884335.657	677134.9131	0.3	966
168	413.88	1884346.638	677130.7628	0.62	975.5
169	413.56	1884353.063	677129.7513	0.92	984
170	413.52	1884361.045	677127.4628	0.98	992
171	414.14	1884369.651	677131.4188	0.32	1000
172	414.44	1884371.61	677131.0764	0.08	1002.5
173	414.27	1884374.999	677130.1574	0.25	1005.5
174	414.13	1884381.383	677129.3212	0.4	1011
175	414.16	1884388.029	677131.6255	0.3	1017.5
176	414.13	1884391.929	677135.8432	0.36	1023.5
177	414.15	1884400.545	677140.2009	0.32	1032.5
178	414.19	1884406.782	677142.5097	0.19	1039
179	414.16	1884414.158	677146.0256	0.11	1047.5
180	413.99	1884424.615	677151.3905	top .23	1060
181	413.04	1884431.271	677152.9899	1.11	1066
182	412.77	1884438.251	677153.195	1.5	1078
183	413.34	1884447.411	677150.1538	0.94	1082
184	413.47	1884454.424	677145.9414	0.74	1090
185	413.67	1884462.443	677140.7847	0.52	1099
186	414.01	1884467.094	677133.3177	0.26	1008
187	414.02	1884470.746	677126.89	tor .12	1115
188	413.84	1884475.248	677118.671	0.08	1125

189	413.52	1884481.696	677110.1985	bor .22	1135
190	415.94	1884471.604	677106.3833	bkf	1132
191	417.51	1884453.021	677102.2835	xs2 end	0
192	415.94	1884441.816	677133.451	bkf ?	1092
193	416.16	1884402.882	677130.6813	bkf	1032
194	416.32	1884375.941	677142.3726	bkf	1010
195	415.97	1884495.73	677071.3414	occupy 3	0
196	415.59	1884528.719	677088.9559	bs 3	0
197	415.68	1884529.187	677092.3706	bs 3	0
198	413.33	1884482.606	677110.1518	0.49	1135.5
199	413.77	1884485.691	677106.3809	0.06	1140.5
200	413.73	1884487.161	677104.4394	0.05	1143.5
201	413.17	1884490.179	677097.7429	0.6	1150
202	413.07	1884496.998	677093.0603	0.71	1157.5
203	412.92	1884499.529	677092.9138	0.86	1160
204	413.72	1884509.291	677087.2654	0.05	1171
205	413.34	1884512.582	677085.8444	0.44	1175
206	413.53	1884519.129	677080.6394	0.22	1182
207	413.35	1884525.021	677078.7158	0.4	1189
208	413.38	1884531.341	677076.5935	0.38	1195.5
209	412.97	1884538.263	677075.8232	0.8	1202
210	412.82	1884542.067	677075.2687	0.94	1206
211	412.59	1884547.74	677074.7816	1.18	1212
212	412.68	1884555.058	677074.9654	1.08	1218
213	412.78	1884560.971	677076.0077	0.98	1224
214	413.49	1884563.941	677076.8761	bop .30	1227
215	413.21	1884571.669	677080.4572	0.55	1235.5
216	413.32	1884581.507	677084.3215	0.4	1246
217	413.38	1884590.583	677087.1477	0.36	1256
218	413.61	1884602.005	677092.2457	0.16	1269
219	413.54	1884607.455	677093.5107	0.16	1274
220	413.4	1884612.86	677094.9076	0.28	1279
221	413.51	1884614.735	677095.5257	bor .12	1281
222	413.11	1884617.831	677096.5911	max ? .52	1284.5
223	415.53	1884614.71	677103.7546	bkf	1281
224	415.52	1884582.925	677096.9327	bkf	1252
225	415.32	1884560.849	677087.6085	bkf	1227
226	415.98	1884499.592	677108.925	bkf	1152
227	415.95	1884787.177	677059.8967	occupy 4	0
228	414.99	1884801.437	677034.3729	bs4	0
229	420.98	1884613.826	676999.5985	prop cor no pipe	0
230	413.17	1884618.726	677097.1079	pool filled in 0	1285
231	413.25	1884626.469	677096.1252	0.38	1293
232	412.96	1884635.009	677093.9555	0.66	1299
233	412.89	1884642.667	677089.308	0.75	1308
234	413.37	1884647.158	677082.5841	0.26	1317
235	413.43	1884652.362	677074.7115	tor .18	1325

236	413.33	1884660.64	677069.0845	0.18	1335
237	413.29	1884667.791	677063.2147	bor .09	1344
238	413.02	1884672.193	677056.6224	0.36	1352
239	412.9	1884674.673	677051.7343	0.44	1357
240	413.06	1884677.353	677048.2512	0.32	1362
241	412.69	1884679.915	677046.0009	0.66	1365
242	411.91	1884685.102	677040.3001	max 1.44	1373
243	412.79	1884690.677	677034.7758	bop .56	1380.5
244	413.25	1884698.088	677030.9351	tor 0.04	1389
245	412.77	1884707.893	677027.4966	0.44	1399
246	413.04	1884717.748	677026.4061	0.11	1409
247	412.87	1884731.482	677023.8684	bor 0.13	1423
248	415.16	1884731.765	677035.8099	bkf	1423
249	415.09	1884692.908	677049.0293	bkf	1371
250	415.35	1884664.538	677076.3501	bkf	1335
251	415.26	1884644.229	677095.2755	bkf	1306
252	412.68	1884737.27	677023.5221	0.3	1429
253	411.99	1884746.926	677021.5246	1	1438
254	411.88	1884749.133	677021.0923	max 1.14	1440.5
255	412.3	1884757.213	677020.4141	bop .71	1448.5
256	412.44	1884769.718	677020.8921	0.55	1461
257	412.81	1884779.381	677020.8606	0.2	1471
258	412.6	1884787.414	677021.1819	0.36	1478.5
259	412.78	1884796.555	677021.9076	0.21	1488
260	412.71	1884803.304	677022.1762	0.25	1495
261	412.63	1884805.83	677020.0265	top .35	1498
262	411.86	1884813.779	677018.2653	1.13	1506
263	411.69	1884818.816	677017.2957	max 1.31	1511.5
264	411.83	1884825.454	677014.5238	1.12	1518
265	412.13	1884832.074	677007.8184	0.83	1527
266	412.08	1884837.08	677001.2471	0.85	1535
267	412.8	1884837.576	676993.9052	0.17	1542
268	414.65	1884851.336	676991.2505	bkf	1550
269	414.92	1884838.461	677012.9518	bkf	1525
270	414.9	1884804.844	677031.1926	bkf	1495
271	415.4	1884773.185	677034.1749	vp cor	0
272	414.93	1884751.049	677034.4439	vp cor	0
273	415.27	1884689.7	677027.3066	vp cor	0
274	415.37	1884665.599	677075.635	vp cor	0
275	415.03	1884803.042	677034.3673	6-Dec-10	0
276	412.26	1884835.138	677005.0245	0.81	1531.5
277	412.9	1884839.669	676996.5089	0.16	1540
278	412.86	1884843.899	676985.7876	0.19	1552.5
279	412.68	1884849.836	676970.4615	0.18	1569
280	412.75	1884858.857	676955.3755	.tor .14	1586.5
281	412.49	1884863.58	676945.4467	0.27	1597.5
282	412.38	1884868.542	676937.4416	0.37	1607

283	412.51	1884874.087	676930.9637	top .16	1615
284	411.23	1884874.445	676930.1646	1.48	1615.5
285	410.6	1884880.991	676922.6532	2.08	1626
286	410.87	1884887.07	676913.1635	1.84	1637.5
287	412.17	1884892.07	676908.254	0.52	1645
288	412.17	1884894.143	676902.9203	0.5	1650
289	412.04	1884903.512	676893.25	0.62	1664
290	411.64	1884906.234	676890.1329	1.05	1668
291	412.4	1884913.683	676881.3574	tor .30	1679
292	412.25	1884927.441	676868.6178	0.17	1697
293	412.18	1884933.544	676863.9115	0.26	1705
294	412.11	1884938.985	676866.0134	0.27	1709
295	412.18	1884945.006	676857.9613	0.19	1718
296	412.26	1884953.923	676854.368	0.16	1726
297	412.22	1884962.317	676848.5893	0.09	1736.5
298	412.14	1884971.841	676841.697	0.1	1748
299	412.05	1884980.409	676829.0931	top .1	1764
300	411.01	1884980.876	676828.3826	1.05	1764.5
301	410.36	1884983.071	676823.3934	1.75	1770
302	410.29	1884990.954	676819.1157	1.78	1777
303	410.87	1884994.568	676813.2239	1.26	1784
304	410.8	1884994.517	676813.2122	1.26	1784
305	411.56	1884996.116	676802.0566	0.46	1794
306	411.83	1884997.281	676796.0109	tor .27	1800
307	411.66	1885004.837	676778.2807	0.34	1819.5
308	411.86	1885008.592	676762.7292	0.2	1835
309	411.83	1885012.158	676749.9981	0.15	1848
310	411.74	1885016.629	676737.9558	0.17	1861
311	411.75	1885018.721	676727.8324	top .20	1870.5
312	413.95	1885014.112	676710.4429	bkf	1882
313	413.92	1885001.47	676745.9253	bkf	1849
314	413.87	1884984.189	676795.8047	bkf	1793
315	413.94	1884974.879	676816.7232	bkf	1770
316	414.81	1884957.958	676835.1172	vp cor	0
317	414.35	1884949.388	676841.1131	bkf	1732
318	415.03	1884915.801	676836.7628	xs4 onpin	0
319	415.83	1884841.714	676893.6099	xs3 on pin	0
320	414.72	1884873.012	676911.5764	bkf	1629
321	414.64	1884868.072	676956.3462	bkf	1590
322	414.82	1884854.466	676985.4048	bkf	1558
323	414.97	1884816.849	676998.2026	bkf	1517
324	411.67	1885019.567	676726.8058	top .32	1874
325	410.28	1885026.915	676710.8182	1.7	1890
326	410.7	1885032.238	676703.7469	1.28	1899
327	410.82	1885039.631	676700.3506	bop 1.12	1907
328	411.64	1885048.421	676695.8005	tor.3	1917
329	411.74	1885058.178	676691.1852	0.17	1928

330	411.68	1885069.619	676685.2771	0.18	1940
331	411.65	1885084.137	676682.0511	bor .10	1955
332	410.68	1885092.112	676677.0289	1.05	1964
333	410.23	1885101.129	676676.0799	1.44	1973
334	410.62	1885105.401	676674.9697	bop 1.05	1977
335	411.41	1885115.839	676674.1791	bor .22	1987.5
336	410.9	1885127.529	676674.3964	0.5	1999
337	411.26	1885137.482	676674.4989	0.14	2009
338	411.11	1885148.001	676674.2461	bor .22	2020
339	410.94	1885152.522	676673.0463	0.36	2024
340	410.59	1885162.054	676675.9821	0.68	2034.5
341	410.55	1885170.042	676677.0373	0.86	2034.5
342	410.18	1885173.615	676675.2675	1.15	2044.5
343	411.15	1885182.898	676671.7234	tor .19	2054
344	410.82	1885203.061	676661.1409	0.2	2077
345	410.88	1885212.609	676654.9065	0.2	2089
346	410.74	1885222.386	676650.7856	top .28	2100
347	410.44	1885226.275	676650.4203	0.59	2104
348	409.15	1885234.343	676647.1478	1.85	2112
349	408.96	1885241.14	676644.1841	2.04	2119
350	409.42	1885250.954	676646.1288	1.55	2127
351	410.35	1885260.706	676649.1394	0.64	2132
352	421.09	1885436.978	677111.7591	occupy 5	0
353	418.01	1885453.566	677084.2699	bs5	0
354	412.9	1885229.051	676638.1871	bkf	2107
355	413.01	1885164.803	676660.2568	bkf	2042.5
356	413.75	1885122.036	676660.4443	bkf	1995
357	413.71	1885094.095	676668.4613	bkf	1967
358	413.93	1885046.675	676682.2419	bkf	1920
359	413.9	1885017.138	676707.4321	bkf	1887
360	413.92	1885002.674	676738.6953	bkf	1855
361	416.49	1884899.844	676644.5537	cor on pipe	0
362	418.07	1885455.441	677086.1755	bs5	0
363	410.72	1885271.362	676655.6197	0.32	2144
364	410.65	1885277.112	676660.4817	0.25	2155
365	410.64	1885291.561	676676.1686	0.18	2176
366	410.65	1885297.458	676682.8368	bor .09	2185
367	409.74	1885301.254	676688.6729	1.05	2192
368	409.26	1885303.471	676696.828	1.5	2200
369	409.91	1885307.086	676703.6284	0.85	2207
370	410.47	1885311.008	676708.126	tor .26	2212
371	410.38	1885312.262	676716.9478	0.38	2220
372	410.36	1885315.151	676729.9766	0.42	2234.5
373	410.31	1885317.731	676743.4779	0.4	2249
374	412.84	1885282.355	676687.6687	bkf	2178
375	412.87	1885290.755	676702.3726	bkf	2203
376	412.79	1885301.375	676731.9458	bkf	2233

377	412.8	1885306.977	676756.5927	bkf	2258
378	409.56	1885320.841	676757.9617	1.18	2264
379	409.88	1885323.203	676762.5773	0.85	2268.5
380	410.53	1885326.293	676769.8005	tor .26	2276
381	410.35	1885327.164	676776.2741	0.29	2282.5
382	412.66	1885318.024	676783.3554	bkf	2285
383	410.28	1885335.121	676788.4294	0.16	2297.5
384	410.27	1885340.182	676799.8044	top .07	2310.5
385	409.03	1885340.483	676801.1408	1.11	2311.5
386	408.7	1885342.298	676804.2426	1.68	2315
387	408.54	1885345.183	676807.02	1.8	2319
388	409.37	1885353.343	676817.4658	1	2332
389	410	1885361.258	676823.0249	tor o.29	2340
390	409.78	1885373.203	676829.4264	0.38	2353
391	409.82	1885382.221	676833.0966	bor .25	2363
392	409.53	1885388.1	676832.993	pool? .50	2368.5
393	409.25	1885393.13	676835.8741	0.82	2374
394	409.56	1885395.637	676838.6174	0.54	2377.5
395	408.83	1885396.943	676838.442	er@log 1.24	2378
396	408.62	1885399.596	676838.3993	1.47	2380
397	408.17	1885403.788	676840.1343	1.93	2384
398	408.75	1885411.855	676840.8431	1.27	2392.5
399	408.56	1885422.792	676840.7281	1.41	2404
400	409.42	1885429.805	676839.4111	0.57	2408.5
401	409.82	1885440.686	676834.7011	tor .20	2421
402	409.75	1885455.849	676830.189	0.25	2437
403	409.46	1885473.056	676820.1958	bor .18	2455
404	408.93	1885480.714	676818.5777	0.7	2463
405	409.31	1885484.7	676815.6549	0.37	2458
406	408.92	1885489.107	676813.7067	0.75	2472.5
407	408.68	1885494.811	676812.8728	@log .96	2481
408	408.92	1885500.56	676809.4333	top .73	2486
409	408.33	1885508.062	676805.9928	1.3	2494
410	408.27	1885511.268	676806.272	1.4	2497.5
411	408.51	1885517.699	676807.0696	1.13	2404
412	408.81	1885522.475	676807.8897	bop .85	2508.5
413	408.84	1885546.225	676821.1249	0.82	2535
414	409.37	1885549.037	676824.0952	tor .22	2539
415	409.42	1885557.251	676830.9677	0.2	2548.5
416	409.5	1885565.126	676837.9983	0.12	2560
417	409.25	1885578.603	676854.6982	bor .27	2582
418	411.72	1885567.378	676860.6133	bkf	2577
419	411.76	1885543.845	676836.0377	bkf	2543
420	411.71	1885517.71	676823.8379	bkf	2512
421	411.62	1885492.775	676821.7857	bkf	2472
422	411.74	1885463.411	676835.5989	bkf	2442
423	412.16	1885440.595	676844.3496	bkf	2418

424	412	1885413.992	676849.5985	bkf	2394
425	412	1885386.011	676843.7057	bkf	2370
426	412.14	1885362.685	676833.4447	bkf	2345
427	412.24	1885339.136	676817.514	bkf	2320
428	413.2	1885455.472	676884.6982	prop cor on pipe	0
429	409.17	1885578.938	676854.72	toru .25	2582
430	408.4	1885585.341	676864.8749	1.08	2592.5
431	408.31	1885589.44	676866.7367	1.16	2597.5
432	408.82	1885599.497	676872.1467	0.7	2609.5
433	409.33	1885603.914	676872.5254	0.11	2612.5
434	409.1	1885616.723	676878.7283	0.36	2627.5
435	409.11	1885627.06	676887.3628	0.18	2640
436	408.71	1885643.14	676894.6194	top .37	2657
437	408.03	1885645.015	676893.72	0.87	2658
438	407.41	1885648.521	676892.9785	1.49	2661.5
439	407.5	1885658.022	676894.0689	1.38	2671
440	407.75	1885664.319	676894.6135	1.16	2677
441	407.93	1885671.756	676895.3385	1	2684
442	408.73	1885679.79	676895.6103	tor .01	2692
443	408.34	1885689.263	676889.8768	0.5	2702
444	408.47	1885703.087	676882.0321	0.3	2717.5
445	408.41	1885713.163	676876.4419	0.35	2729
446	408.51	1885725.331	676874.4912	top .10	2742
447	406.85	1885725.574	676873.9061	1.36	2742.5
448	406.68	1885731.188	676871.6985	1.54	2747.5
449	406.84	1885737.609	676869.2829	1.36	2755
450	407.26	1885744.094	676868.1457	0.96	2761
451	407.5	1885751.866	676867.4604	0.74	2769
452	408.19	1885755.428	676866.8787	tor .12	2772
453	408	1885768.438	676869.8705	0.12	2786
454	407.54	1885786.127	676873.4115	bor .35	2804
455	407.19	1885791.68	676874.4152	0.74	2809
456	407.78	1885799.273	676875.1942	0.04	2817
457	407.64	1885804.261	676874.7612	top .02	2822
458	406.54	1885804.4	676874.6675	0.55	2822.5
459	405.99	1885810.726	676876.2862	1.08	2827
460	406.83	1885815.291	676872.077	cva 0.26	2832.5
461	406	1885817.325	676871.4482	1.08	2834
462	405.85	1885818.968	676871.1379	1.28	2836
463	405.7	1885822.467	676867.8509	1.44	2840
464	405.88	1885826.628	676866.3927	1.24	2845
465	406.36	1885831.628	676859.9284	0.73	2853
466	406.45	1885839.175	676858.4436	bop .63	2860
467	406.39	1885842.374	676855.8031	0.69	2864
468	406.67	1885847.944	676849.0859	0.42	2869
469	406.74	1885848.142	676840.8556	0.38	2877
470	407	1885847.434	676828.5715	tor.11	2889

471	406.67	1885853.979	676818.0262	0.12	2901
472	406.36	1885862.994	676813.8425	0.11	2908
473	406.17	1885863.903	676812.9704	0.12	2910
474	405.78	1885873.651	676797.5262	bor .30	2928.5
475	405.47	1885879.457	676787.325	0.63	2940.5
476	405.34	1885884.804	676777.0232	0.75	2953
477	405.3	1885886.676	676766.4198	0.77	2961
478	404.98	1885894.463	676755.5122	1.12	4000
479	404.64	1885896.657	676744.438	1.36	4000
480	404.68	1885901.872	676736.4249	1.42	4000
481	404.7	1885905.779	676729.8798	1.38	4000
482	404.86	1885909.52	676722.2169	1.24	4000
483	405.06	1885918.318	676714.2072	1.06	4000
484	404.5	1885926.728	676710.7417	1.56	4000
485	404.21	1885936.472	676711.0596	1.82	4000
486	404.78	1885946.005	676708.9944	1.26	4000
487	404.19	1885963.143	676708.4445	86	4000
488	409.51	1885949.075	676724.0509	bkf	4000
489	410.81	1885909.675	676754.1351	bkf	4000
490	409.8	1885896.121	676787.9608	bkf	2950
491	410.07	1885877.577	676814.8811	bkf	2917
492	410.33	1885860.384	676850.9767	bkf	2871
493	409.78	1885838.772	676872.1921	bkf	2854
494	409.75	1885807.883	676858.6947	bkf	2932
495	409.86	1885766.094	676882.0056	bkf	2784
496	410.28	1885742.861	676881.4443	bkf	2759
497	410.41	1885720.803	676884.7211	bkf	2733
498	410.61	1885693.869	676895.4386	bkf	2705
499	410.81	1885668.457	676903.2413	bkf	2680
500	410.74	1885714.749	676908.3942	xs6	0
501	411.19	1885654.967	676903.7092	xs6	0
502	411.99	1885644.427	676919.111	xs5	0
503	411.29	1885628.621	676898.1529	bkf	2647
504	411.6	1885588.98	676876.0372	bkf	2602
505	411.64	1885567.424	676859.6334	bkf	2575

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ID	Elevation	Descript_1	Station
4	423.62	CULVERT	1000
5	422.418	2.68	1005
7	423.189	1.95	1040.5
8	423.888	1.24	1049
9	425.16	TOP	1061
10	423.995	1.07	1062.5
11	423.635	1.43	1067.5
12	424.501	BOP	1074
13	424.684	TOR	1084
15	424.376	0.32	1105
16	424.565	0.14	1112.5
17	424.559	0.14	1118
18	424.695	0.01	1120
19	424.505	0.01	1125
20	424.23	0.3	1128
21	424.039	0.5	1136
22	424.483	0.07	1145
23	424.45	0.11	1148
24	424.476	0.02	1154
25	424.352	TOP	1158.5
26	424.03	0.28	1161
27	423.84	0.48	1163
29	424.175	0.19	1170
30	424.327	0.02	1173
31	424.345	0.02	1176.5
33	424.313	0	1187
34	424.086	0.2	1190
36	424.35	0	1195
37	424.263	0	1197.5
38	424.265	TOP	1200.5
40	423.893	0.35	1207
41	423.839	0.44	1210
42	423.998	BOP	1212.5
43	424.333	TOR	1220
44	424.305	0	1223
45	424.119	0.01	1230
46	423.96	0.1	1232.5
47	424.169	BDRCK	1236.5
49	425.386	BKF	1212
50	425.396	BKF	1195
52	425.71	BKF	1171
53	425.737	BKF	1153
54	425.682	BKF	1133
55	425.623	BKF	1124
56	425.741	BKF	1109

57	425.793	BKF	1097
58	425.736	BKF	1088
59	426.101	BKF	1079
60	426.349	BKF	1069
61	425.933	BKF	1060
62	424.088	TOP	1244
64	423.934	0.05	1248
65	423.831	0.09	1253
66	423.662	0.28	1257.5
67	423.899	BOP	1263
68	423.956	TORU	1266
69	424.069	0	1277
70	423.924	0.01	1287
71	424.013	TOP	1295
72	423.756	0.1	1297
73	423.541	0.16	1302
74	423.762	0.1	1307
75	423.956	TOR	1312
76	423.853	0.01	1324
77	423.795	0.05	1336
78	423.63	0.1	1338
79	423.756	0.04	1343
80	423.791	0.04	1349.5
81	423.82	0	1353
82	423.75	0	1360
83	423.473	0	1366
84	423.483	0	1371
85	423.486	0	1375.5
86	423.389	0	1380
87	423.502	TOP	1382
88	423.082	0.15	1384.5
89	423.141	0.2	1386.5
90	423.454	TOR	1392
91	423.326	BOR	1395.5
92	423.691	LOGVANE	1396.5
93	423.384	0.5	1397
94	423.115	0.7	1399
95	423.47	BOP	1405
96	423.404	0	1407.5
97	423.265	0	1413
98	423.297	0	1418.5
99	423.148	0	1425
100	422.925	0.02	1427
101	422.897	0.02	1428
102	422.668	0.25	1430.5
103	422.633	0.3	1432
104	422.758	0.18	1435

106	422.989	0.1	1442
107	423.223	0.05	1443
108	423.359	LOGVANE	1444
109	424.336	BKF	1441
110	423.946	BKF	1430
113	424.114	BKF	1409
114	424.706	BKF	1397
115	424.429	BKF	1389
116	424.525	BKF	1377
117	424.5	BKF	1364
118	424.654	BKF	1355
119	424.698	BKF	1340
120	424.682	BKF	1327
121	424.857	BKF	1310
122	424.923	BKF	1302
123	425.136	BKF	1289.5
124	425.139	BKF	1276
125	425.175	BKF	1270
126	425.052	BKF	1259
127	425.163	BKF	1254
128	425.308	BKF	1246
130	422.133	0.7	1445
131	422.065	0.8	1447.5
132	422.57	BOP	1451.5
133	422.855	TOR	1457
134	422.766	0	1464
135	422.812	0	1467.5
136	422.579	0.04	1469
137	422.398	0.2	1472
139	422.377	0.15	1477
140	422.545	0.05	1478
141	422.662	0.02	1481
142	422.861	RW	1483.5
143	422.603	RW	1486
144	422.251	0.02	1490
145	422.099	0.04	1491
146	422.301	0	1492.5
147	422.354	0	1498
148	422.305	BORU	1503.5
149	422.781	CV	1504
150	422.709	CV	1505.5
151	421.264	0.46	1506
152	421.278	0.44	1507.5
153	421.293	0.41	1512
154	421.719	BOP	1515
155	423.09	BKF	1510
156	423.572	BKF	1500

157	423.605	BKF	1487
158	423.754	BKF	1477
159	423.961	BKF	1466.5
160	424.021	BKF	1451.5
161	424.129	BKF	1444
162	424.354	BKF	1437.5
163	424.299	BKF	1431
169	421.572	BOP	1515
170	421.765	0	1519
176	421.473	BORU/TOP	1534
177	421.292	0.26	1535.5
178	421.225	0.35	1538
179	421.142	0.43	1542
181	421.062	0.51	1547.5
182	421.414	0.14	1552
183	421.715	TOR	1555
184	421.403	BOR	1559
185	421.775	LOGVANE	1560
186	420.581	0.46	1560.5
187	419.808	1.24	1562.5
188	419.497	1.55	1564
189	421.649	LOGVANE	1565
190	420.344	0.7	1566
191	420.357	0.7	1568
192	420.786	BOP	1570
193	420.949	TOR	1573
197	421.024	0.02	1578.5
199	420.761	0.02	1584.5
202	420.859	0	1590
203	421.187	CV	1590.5
204	421.245	CV	1592.5
205	420.028	0.46	1593
207	419.807	0.67	1595
208	419.653	0.88	1596
209	419.662	0.85	1597.5
210	420.253	TORU	1600
211	420.253	0.26	1604.5
212	420.65	TOR	1612
214	420.576	0	1616
215	420.481	0.01	1618.5
216	420.26	0.1	1620
217	420.467	0.01	1623
218	420.446	0.01	1627.5
219	420.606	0	1629
220	420.945	LOGVANE	1629.5
221	419.652	0.46	1630
222	419.634	0.44	1633.5

223	419.728	0.49	1637
224	420.037	0.02	1641
225	420.254	0	1642.5
226	420.273	0.01	1645
227	420.069	0.24	1647.5
228	420.073	0.24	1648.5
229	420.283	0.04	1652.5
231	420.492	CV	1655
232	420.649	CV	1657
233	419.674	0.39	1657.5
234	419.603	0.47	1661
235	419.478	0.61	1664.5
236	419.4	0.68	1667
237	419.619	0.5	1672.5
238	419.464	0.64	1678
239	419.493	FENCE	1680.5
240	421.057	BKF	1677
241	421.164	BKF	1669.5
242	421.042	BKF	1662.5
243	421.176	BKF	1652
244	421.287	BKF	1641
245	421.399	BKF	1632
246	421.524	BKF	1622.5
247	421.606	BKF	1614
248	421.759	BKF	1603.5
249	421.919	BKF	1598
250	422.262	BKF	1585
251	422.337	BKF	1575
252	422.414	BKF	1569
253	422.835	BKF	1561.5
254	422.726	BKF	1552
255	422.732	BKF	1545
256	422.757	BKF	1538
257	422.916	BKF	1526
258	423.279	BKF	1513
259	420.093	0.01	1684.5
260	420.3	0	1687
261	420.301	0	1697.5
262	420.106	FENCE	1702
263	419.929	FENCE	1702.5
264	419.571	0.2	1707.5
265	419.806	CV	1711
266	419.946	CV	1712.5
267	418.959	0.65	1713
268	418.742	0.85	1719
269	418.833	0.82	1724
271	419.243	0.4	1730

272	419.492	0.16	1735
274	419.438	0.2	1744
276	419.459	0.16	1752.5
278	419.35	0.26	1760
279	419.464	0.13	1763
280	419.522	0.11	1768
281	419.165	0.43	1770.5
283	419.348	0.29	1773
284	419.664	LOGVANE	1774
285	418.016	1.16	1775.5
286	418.388	0.76	1778
287	418.549	0.65	1782
288	419.122	TOR	1788
290	418.986	TOP	1798
291	418.31	0.9	1803.5
292	418.29	0.91	1807.5
294	418.833	0.35	1815
295	418.893	0.3	1817.5
296	419.133	LOGVANE	1817.5
297	418.343	0.62	1818.5
298	418.25	0.71	1823
299	418.488	0.42	1827.5
300	418.777	TOP	1832
301	418.675	0.25	1838
303	418.564	0.31	1847.5
304	418.487	0.39	1852.5
305	418.475	0.34	1856.5
308	418.833	0.02	1867.5
309	418.555	0.16	1870
310	418.741	CV	1873
311	418.703	CV	1874
312	418.232	0.3	1875
313	417.841	0.66	1877.5
316	419.54	BKF	1881
317	419.578	BKF	1875
318	419.548	BKF	1863
319	419.487	BKF	1851.5
320	420.501	BKF	1832
321	420.48	BKF	1822.5
322	420.053	BKF	1815
323	419.885	BKF	1801
324	419.822	BKF	1788
325	420.338	BKF	1777
326	420.372	BKF	1766.5
327	420.38	BKF	1751.5
328	420.557	BKF	1727
329	420.366	BKF	1718

334	418.49	BOP	1885
335	418.287	0.22	1888.5
336	418.3	TOR	1892.5
338	417.603	0.86	1896.5
340	417.866	0.59	1902.5
341	418.129	0.31	1905
342	418.463	LOGVANE	1905.5
343	417.718	0.4	1906.5
345	417.492	0.6	1910
346	417.614	0.5	1913
347	417.697	0.38	1916
348	417.761	0.3	1920
349	417.773	0.34	1925
350	417.953	0.14	1927.5
351	418.003	0.06	1931.5
353	417.928	0.02	1941.5
355	417.746	RW	1944.5
356	417.572	0.35	1946.5
357	417.658	0.24	1950.5
358	417.527	0.4	1953
360	417.675	0.22	1957.5
361	417.733	0.18	1958
362	417.911	LOGVANE	1958.5
363	416.637	0.76	1960
364	416.974	0.46	1964
365	417.156	0.23	1965.5
366	417.316	0.09	1972
367	417.129	0.1	1975
368	416.986	0.26	1977
369	416.994	0.28	1982
370	417.088	0.18	1990
371	417.063	0.18	1997.5
372	417.175	0.02	2007.5
374	417.034	0.14	2013.5
375	416.971	0.2	2017.5
376	416.964	0.19	2023.5
378	416.923	0.22	2033
380	416.919	0.19	2044
381	416.881	0.04	2051.5
382	416.626	0.16	2056.5
383	416.641	0.11	2062
384	416.642	TOP	2066
385	416.384	0.36	2068
386	416.161	0.56	2072
387	416.164	0.6	2075
388	416.359	0.38	2079
389	416.383	0.37	2081.5

391	416.651	TOR	2089.5
392	416.372	BOR	2097
393	416.085	0.48	2100.5
394	415.962	0.57	2104.5
395	416.353	0.22	2107.5
396	416.486	0.08	2111
397	416.503	0.05	2118
398	416.8	CV	2119
399	416.83	CV	2120.5
400	415.751	0.62	2121
401	415.692	0.7	2123
402	416.201	BOP	2124.5
403	416.017	0.36	2129
404	415.954	0.44	2136
405	416.212	0.17	2141
406	416.264	0.01	2147
407	415.874	0.28	2151
408	415.784	0.36	2155.5
409	415.942	0.23	2158
410	416.235	0.01	2161.5
411	416.459	LOGVANE	2164.5
412	415.173	0.54	2165
413	415.253	0.44	2169
414	415.652	BOP	2172.5
415	415.491	0.21	2180
416	415.512	0.2	2184
417	415.291	0.39	2187
418	415.307	0.43	2190
419	415.4	0.37	2192.5
420	415.504	0.22	2197
421	415.528	0.25	2202
422	415.659	0.09	2207.5
423	415.365	0.4	2211
424	415.405	0.36	2217.5
425	415.307	0.44	2225.5
427	415.293	0.43	2232.5
428	415.312	0.39	2237
429	415.634	0.1	2240
430	415.909	LOGVANE	2241
431	414.896	0.5	2242
432	414.932	0.47	2244.5
433	415.15	BOP	2250
434	415.071	0.3	2257.5
435	415.033	0.32	2260.5
437	415.333	0.04	2268
439	415.416	CV	2269.5
440	416.237	BKF	2262.5

441	416.453	BKF	2253
442	416.872	BKF	2244
443	416.651	BKF	2233
444	416.777	BKF	2226.5
445	416.881	BKF	2216
446	416.989	BKF	2207
447	416.984	BKF	2194
448	417.081	BKF	2182
449	417.257	BKF	2168
450	417.413	BKF	2154.5
451	417.254	BKF	2142
452	417.586	BKF	2128
453	417.753	BKF	2119
454	417.697	BKF	2105
455	417.845	BKF	2094
456	417.967	BKF	2083
457	418.013	BKF	2071
458	418.002	BKF	2065
459	418.159	BKF	2042
460	418.174	BKF	2017
461	418.206	BKF	2006
462	418.493	BKF	1988
463	418.331	BKF	1978
464	418.193	BKF	1966
465	418.727	BKF	1957
467	418.927	BKF	1937
468	419.038	BKF	1925
469	419.117	BKF	1915
470	419.713	BKF	1898
471	419.641	BKF	1889
472	419.867	BKF	1878
473	420.711	BKF	1866
478	415.406	xvane .01	2270
479	414.813	0.35	2270.5
481	414.578	0.54	2276.5
483	415.032	0.05	2282.5
484	414.877	0.14	2289
485	414.743	0.26	2292
486	414.445	0.58	2296
487	414.428	0.59	2298.5
488	414.699	0.3	2302
489	414.877	0.14	2305
490	414.674	0.34	2310
491	415.045	logvain .02	2315
492	413.645	1.16	2315.5
493	413.597	1.21	2318.5
494	414.831	logvain .02	2320

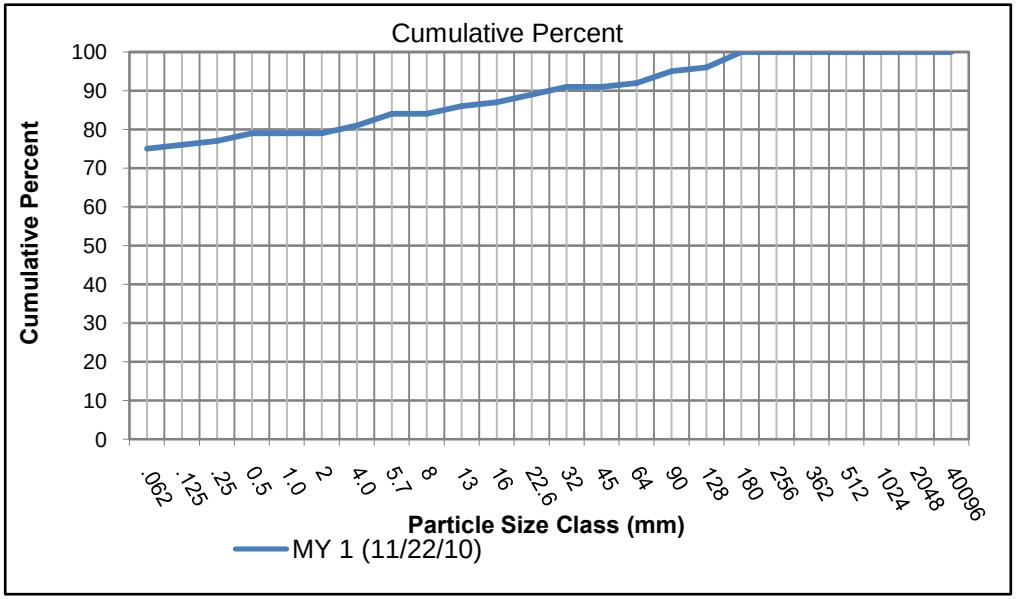
496	413.753	0.86	2322.5
497	414.426	bop .14	2327.5
498	414.328	0.26	2333
499	414.02	0.58	2338
500	414.103	0.55	2344
501	414.473	0.16	2350
502	414.583	xvain .06	2350.5
504	413.184	1.3	2352.5
505	413.171	1.3	2355
506	414.055	0.44	2359.5
507	414.336	tor .14	2362
508	414.13	0.13	2372
509	413.883	bor .08	2378.5
510	413.517	0.46	2382
511	413.566	0.4	2387.5
514	413.589	0.29	2394.5
515	413.865	logvain .02	2396
516	412.72	0.87	2397
517	412.231	1.32	2398.5
518	413.688	logvain .00	2400
519	412.965	0.56	2401
520	413.008	0.56	2403.5
521	413.267	bop .31	2406.5
522	413.277	0.31	2410.5
523	413.318	0.22	2414
524	413.226	0.34	2415.5
525	413.049	0.56	2419.5
526	412.713	0.82	2423.5
527	412.727	0.82	2427.5
528	412.653	0.96	2431
529	412.831	0.76	2433
531	413.394	0.18	2438
532	412.689	0.22	2446
533	412.53	bor .18	2450
534	412.241	0.47	2453
535	412.541	0.15	2456
536	412.71	logvain .01	2456.5
537	411.862	0.7	2457
538	411.629	0.95	2458.5
539	411.943	0.65	2463.5
540	411.981	0.61	2465.5
542	411.621	0.13	2468.5
543	411.435	0.32	2474
544	411.4	0.36	2478
546	411.533	0.24	2485.5
547	411.548	logvain .02	2486
548	410.926	0.74	2486.5

549	410.781	0.8	2488
550	410.711	0.88	2492
552	411.438	0.13	2496.5
553	411.303	bor .20	2505.5
554	411.532	logvain .02	2506.5
555	410.723	0.4	2507
558	410.393	0.72	2510.5
559	410.869	0.24	2514
562	411.619	bkf	2586
563	411.861	bkf	2575
565	411.767	bkf	2559
567	412.568	bkf	2502
568	413.466	bkf	2475.5
569	413.724	bkf	2462
570	413.876	bkf	2452
571	414.393	bkf	2441
572	414.993	bkf	2428
573	414.926	bkf	2412
574	414.955	bkf	2404
575	414.868	bkf	2389
576	415.02	bkf	2384
577	414.903	bkf	2373
578	415.253	bkf	2362.5
579	415.752	bkf	2347
580	415.723	bkf	2337.5
581	415.811	bkf	2328
582	415.874	bkf	2320
583	416.049	bkf	2305
584	416.189	bkf	2298
585	416.241	bkf	2284
586	416.335	bkf	2275
587	416.478	bkf	2260
591	411.053	0.2	2517
592	410.856	0.42	2522
593	411.221	xvain .08	2524
594	411.335	xvain .00	2528
595	410.651	0.44	2526
596	410.518	0.61	2530
597	412.337	bkf	2533
598	410.305	0.78	2538.5
599	410.347	0.72	2543
600	410.7	0.39	2547
601	411.078	xvain .02	2547.5
602	410.893	xvain .00	2549
603	411.972	bkf	2547
604	409.96	0.62	2549.5
605	409.869	0.7	2552

606	409.666	0.94	2559
607	411.986	bkf	2559.5
608	409.333	1.26	2564
609	409.748	0.82	2568
610	410.188	0.38	2573
611	410.421	tor .18	2579
612	410.04	bor .36	2588
613	410.47	logvain .00	2589
614	409.467	0.74	2590
615	409.461	0.72	2592
616	410.207	logvain .02	2593
617	408.87	1.04	2594
618	408.829	1.06	2598
619	410.813	bkf	2600
620	409.619	bop .22	2606
621	409.359	0.55	2611.5
622	409.123	0.78	2616
623	409.577	0.34	2622
624	409.899	logvain .01	2622.5
625	408.698	0.78	2623.5
626	408.735	0.74	2628.5
627	408.862	0.6	2635
628	409.243	0.24	2643
629	409.221	0.24	2647
630	409.452	logvain .01	2647.5
631	408.067	1.05	2648
632	407.982	1.15	2652
633	408.838	0.28	2658
634	408.848	0.25	2664
635	408.984	0.08	2671
636	408.591	0.45	2679
637	408.737	0.3	2687
638	408.965	xvane .04	2687.5
639	409.009	xvane .02	2688
640	408.352	0.02	2689
641	407.509	0.77	2696
644	410.372	bkf	2694
645	410.344	bkf	2667.5
646	410.689	bkf	2650

Figure 7.0 Pebble Counts - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section One-Northern UT			2010		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	75	75	75
Sand	Very Fine Sand	.125	1	1	76
	Fine Sand	.25	1	1	77
	Medium Sand	0.5	2	2	79
	Coarse Sand	1.0	0	0	79
	Very Course Sand	2	0	0	79
Gravel	Very Fine Gravel	4.0	2	2	81
	Fine Gravel	5.7	3	3	84
	Fine Gravel	8	0	0	84
	Medium Gravel	13	2	2	86
	Medium Gravel	16	1	1	87
	Coarse Gravel	22.6	2	2	89
	Coarse Gravel	32	2	2	91
	Very Course Gravel	45	0	0	91
	Very Course Gravel	64	1	1	92
Cobble	Small Cobble	90	3	3	95
	Small Cobble	128	1	1	96
	Medium Cobble	180	4	4	100
	Large Cobble	256		0	100
Boulder	Small Boulders	362		0	100
	Small Boulders	512		0	100
	Medium Boulders	1024		0	100
	Large Boulders	2048		0	100
Bedrock	Bedrock	40096		0	100
	Total		100		



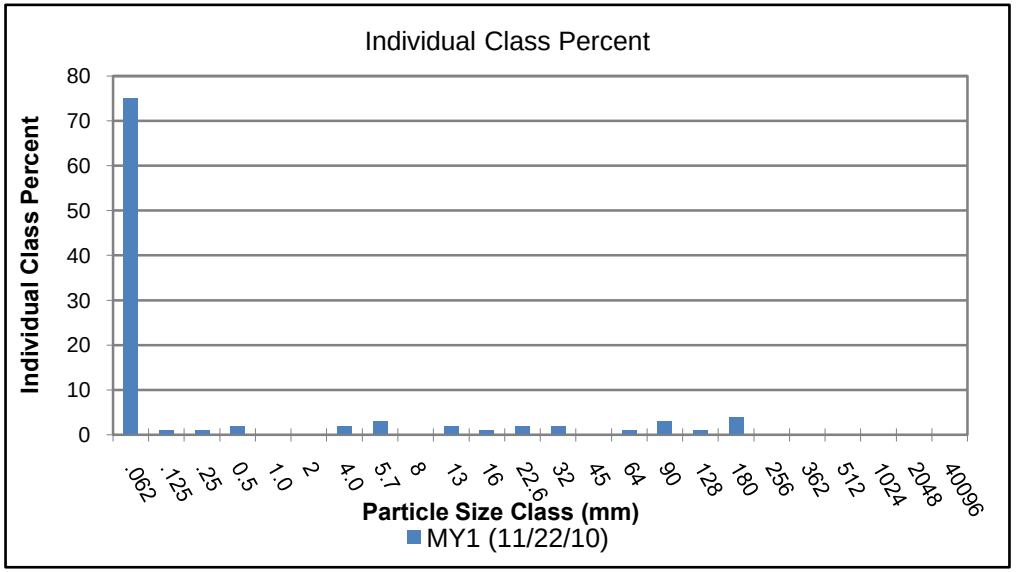
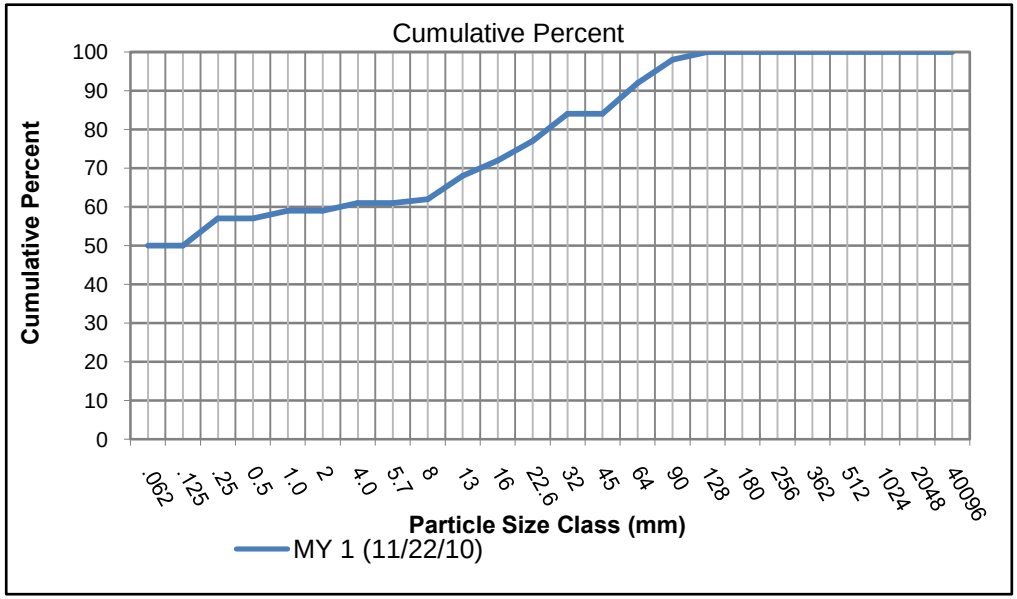


Figure 7.1 Pebble Counts - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Two-Northern UT			2010		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	50	50	50
Sand	Very Fine Sand	.125	0	0	50
	Fine Sand	.25	7	7	57
	Medium Sand	0.5	0	0	57
	Coarse Sand	1.0	2	2	59
	Very Course Sand	2	0	0	59
Gravel	Very Fine Gravel	4.0	2	2	61
	Fine Gravel	5.7	0	0	61
	Fine Gravel	8	1	1	62
	Medium Gravel	13	6	6	68
	Medium Gravel	16	4	4	72
	Coarse Gravel	22.6	5	5	77
	Coarse Gravel	32	7	7	84
	Very Course Gravel	45	0	0	84
	Very Course Gravel	64	8	8	92
Cobble	Small Cobble	90	6	6	98
	Small Cobble	128	2	2	100
	Medium Cobble	180		0	100
	Large Cobble	256		0	100
Boulder	Small Boulders	362		0	100
	Small Boulders	512		0	100
	Medium Boulders	1024		0	100
	Large Boulders	2048		0	100
Bedrock	Bedrock	40096		0	100
	Total		100		



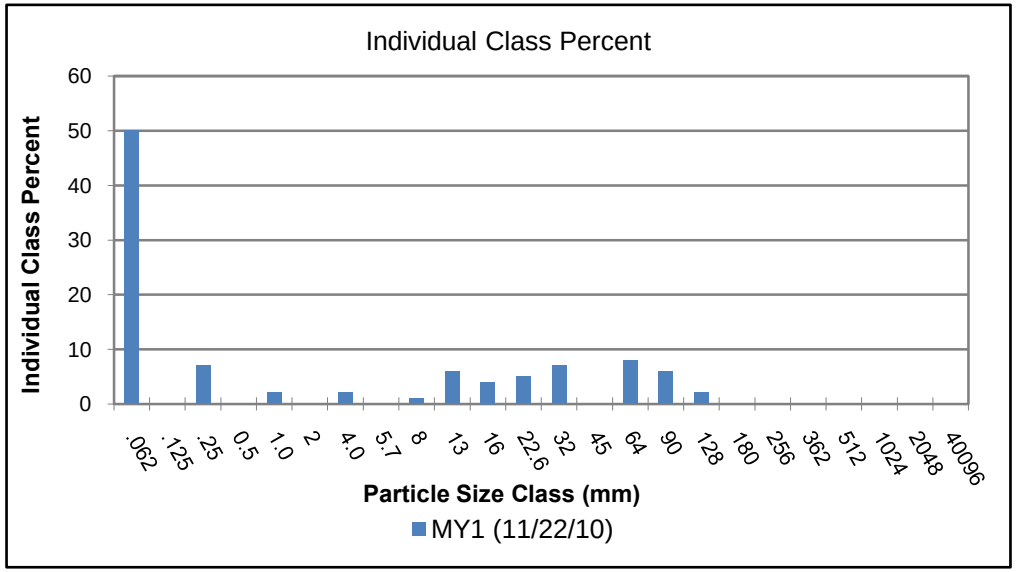
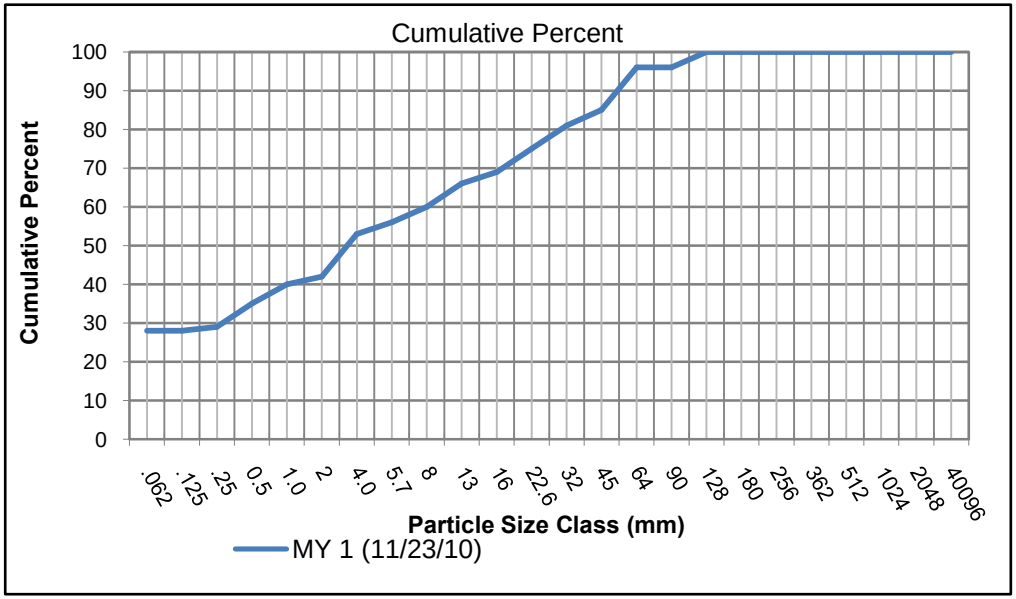


Figure 7.2 Pebble Counts - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Three-Northern UT			2010		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	28	28	28
Sand	Very Fine Sand	.125	0	0	28
	Fine Sand	.25	1	1	29
	Medium Sand	0.5	6	6	35
	Coarse Sand	1.0	5	5	40
	Very Course Sand	2	2	2	42
Gravel	Very Fine Gravel	4.0	11	11	53
	Fine Gravel	5.7	3	3	56
	Fine Gravel	8	4	4	60
	Medium Gravel	13	6	6	66
	Medium Gravel	16	3	3	69
	Coarse Gravel	22.6	6	6	75
	Coarse Gravel	32	6	6	81
	Very Course Gravel	45	4	4	85
	Very Course Gravel	64	11	11	96
Cobble	Small Cobble	90	0	0	96
	Small Cobble	128	4	4	100
	Medium Cobble	180		0	100
	Large Cobble	256		0	100
Boulder	Small Boulders	362		0	100
	Small Boulders	512		0	100
	Medium Boulders	1024		0	100
	Large Boulders	2048		0	100
Bedrock	Bedrock	40096		0	100
	Total		100		



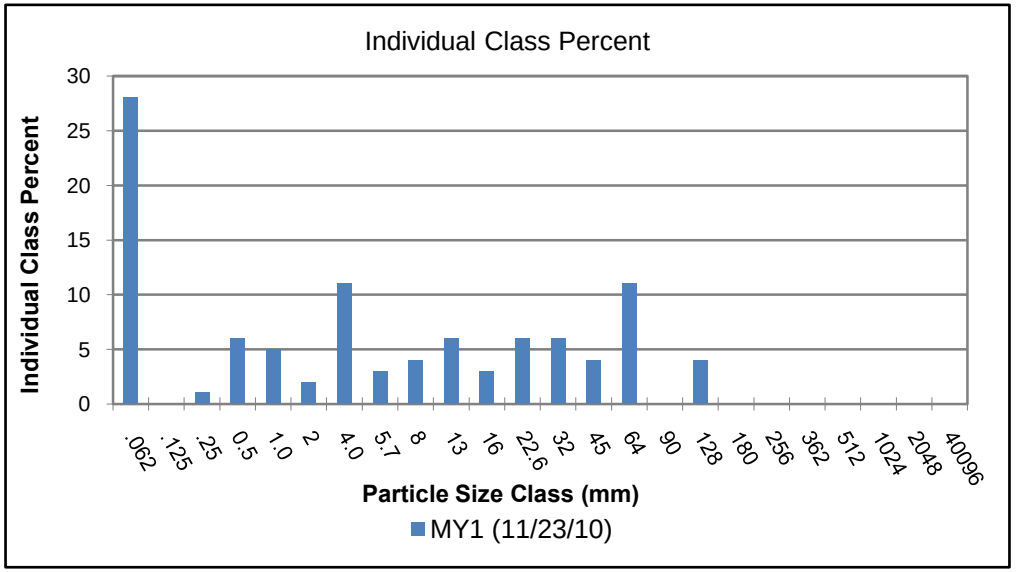
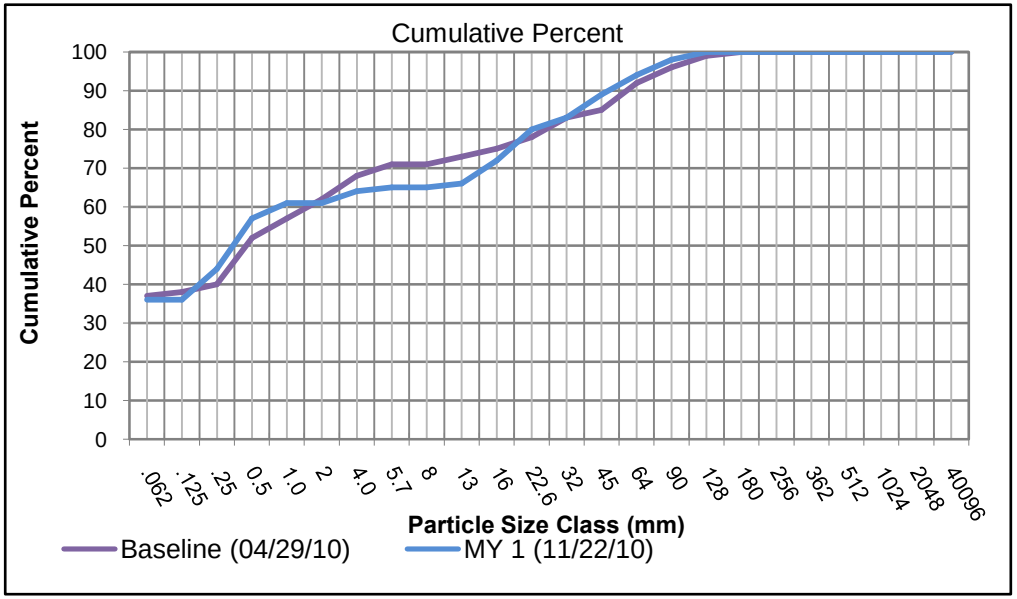


Figure 7.3 Pebble Counts - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Four-Northern UT			2010		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	36	36	36
Sand	Very Fine Sand	.125	0	0	36
	Fine Sand	.25	8	8	44
	Medium Sand	0.5	13	13	57
	Coarse Sand	1.0	4	4	61
	Very Course Sand	2	0	0	61
Gravel	Very Fine Gravel	4.0	3	3	64
	Fine Gravel	5.7	1	1	65
	Fine Gravel	8	0	0	65
	Medium Gravel	13	1	1	66
	Medium Gravel	16	6	6	72
	Coarse Gravel	22.6	8	8	80
	Coarse Gravel	32	3	3	83
	Very Course Gravel	45	6	6	89
	Very Course Gravel	64	5	5	94
Cobble	Small Cobble	90	4	4	98
	Small Cobble	128	2	2	100
	Medium Cobble	180		0	100
	Large Cobble	256		0	100
Boulder	Small Boulders	362		0	100
	Small Boulders	512		0	100
	Medium Boulders	1024		0	100
	Large Boulders	2048		0	100
Bedrock	Bedrock	40096		0	100
	Total		100		



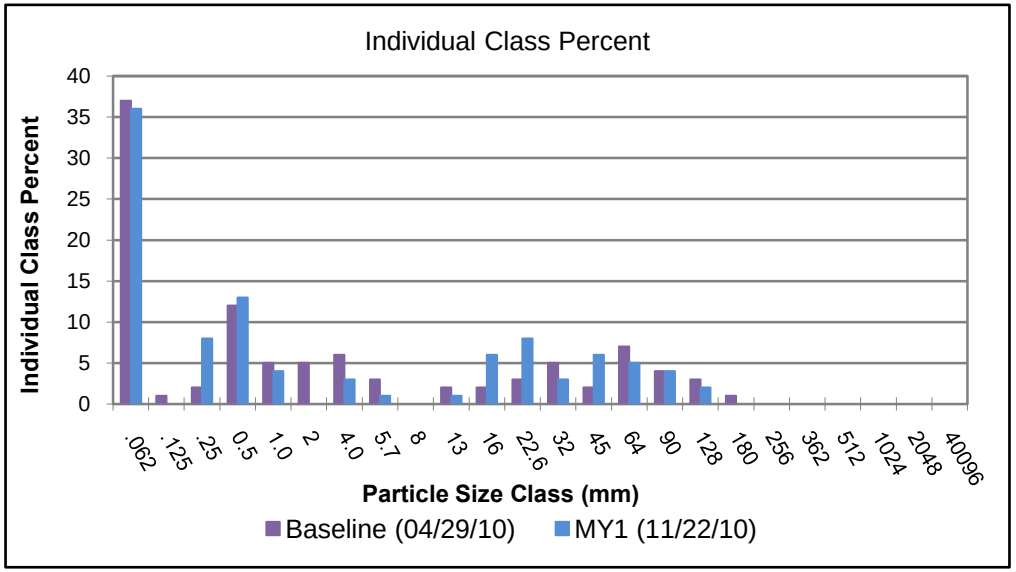
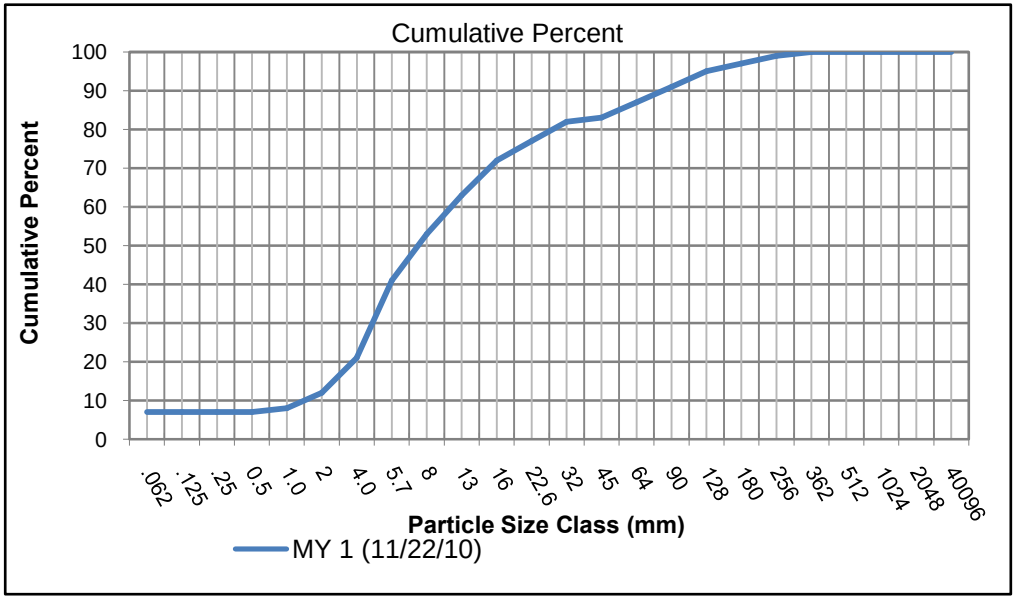


Figure 7.4 Pebble Counts - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Five-Northern UT			2010		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	7	7	7
Sand	Very Fine Sand	.125	0	0	7
	Fine Sand	.25	0	0	7
	Medium Sand	0.5	0	0	7
	Coarse Sand	1.0	1	1	8
	Very Course Sand	2	4	4	12
Gravel	Very Fine Gravel	4.0	9	9	21
	Fine Gravel	5.7	20	20	41
	Fine Gravel	8	12	12	53
	Medium Gravel	13	10	10	63
	Medium Gravel	16	9	9	72
	Coarse Gravel	22.6	5	5	77
	Coarse Gravel	32	5	5	82
	Very Course Gravel	45	1	1	83
	Very Course Gravel	64	4	4	87
Cobble	Small Cobble	90	4	4	91
	Small Cobble	128	4	4	95
	Medium Cobble	180	2	2	97
	Large Cobble	256	2	2	99
Boulder	Small Boulders	362	1	1	100
	Small Boulders	512		0	100
	Medium Boulders	1024		0	100
	Large Boulders	2048		0	100
Bedrock	Bedrock	40096		0	100
	Total		100		



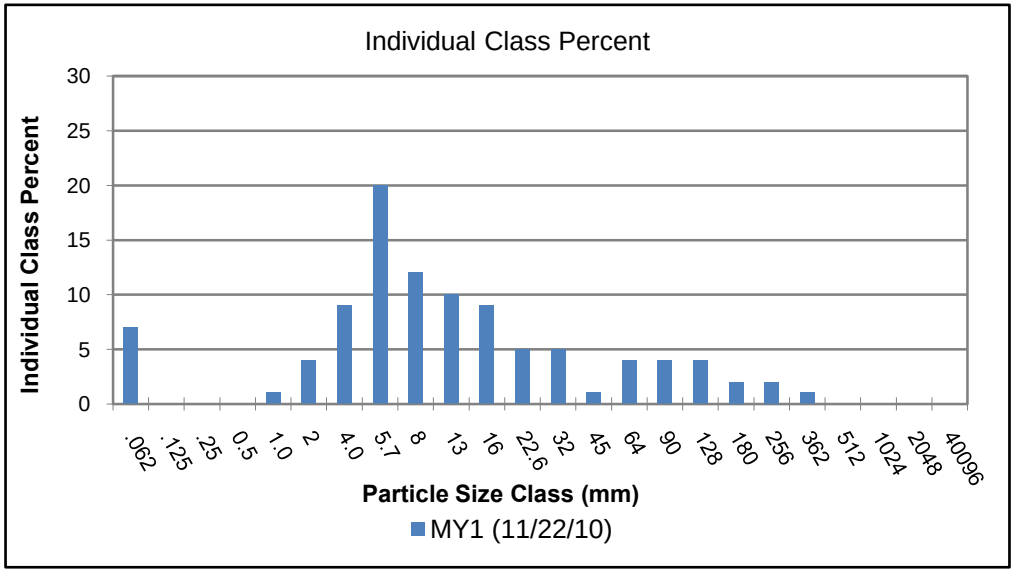
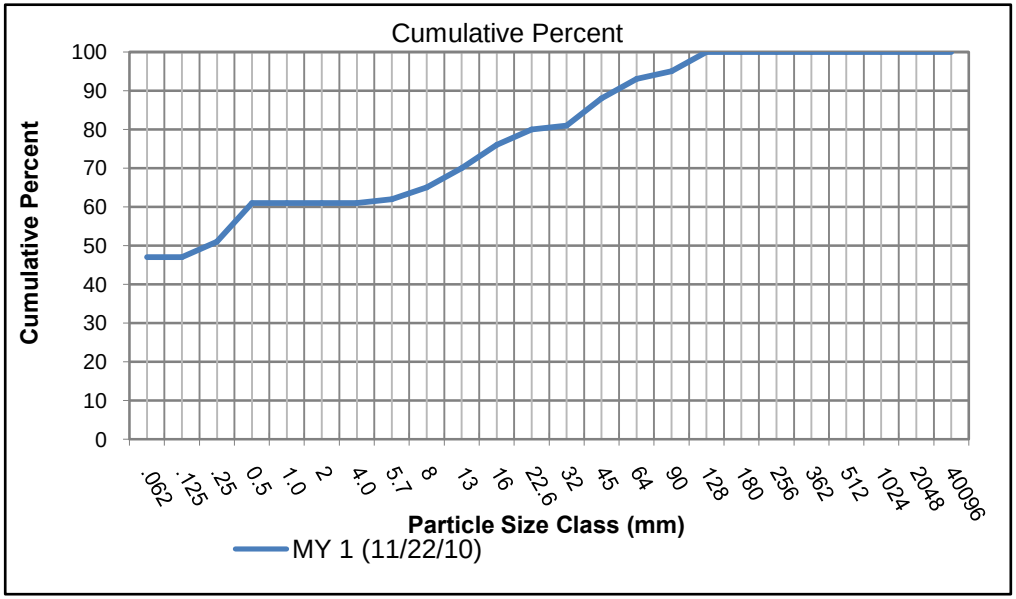


Figure 7.5 Pebble Counts - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Six-Northern UT			2010		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	47	47	47
Sand	Very Fine Sand	.125	0	0	47
	Fine Sand	.25	4	4	51
	Medium Sand	0.5	10	10	61
	Coarse Sand	1.0	0	0	61
	Very Course Sand	2	0	0	61
Gravel	Very Fine Gravel	4.0	0	0	61
	Fine Gravel	5.7	1	1	62
	Fine Gravel	8	3	3	65
	Medium Gravel	13	5	5	70
	Medium Gravel	16	6	6	76
	Coarse Gravel	22.6	4	4	80
	Coarse Gravel	32	1	1	81
	Very Course Gravel	45	7	7	88
	Very Course Gravel	64	5	5	93
Cobble	Small Cobble	90	2	2	95
	Small Cobble	128	5	5	100
	Medium Cobble	180		0	100
	Large Cobble	256		0	100
Boulder	Small Boulders	362		0	100
	Small Boulders	512		0	100
	Medium Boulders	1024		0	100
	Large Boulders	2048		0	100
Bedrock	Bedrock	40096		0	100
	Total		100		



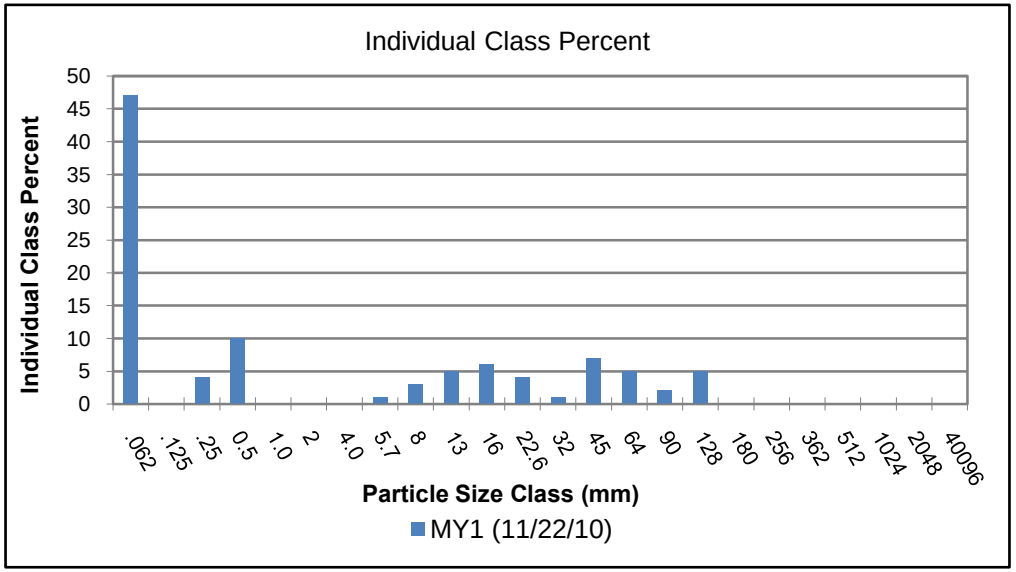
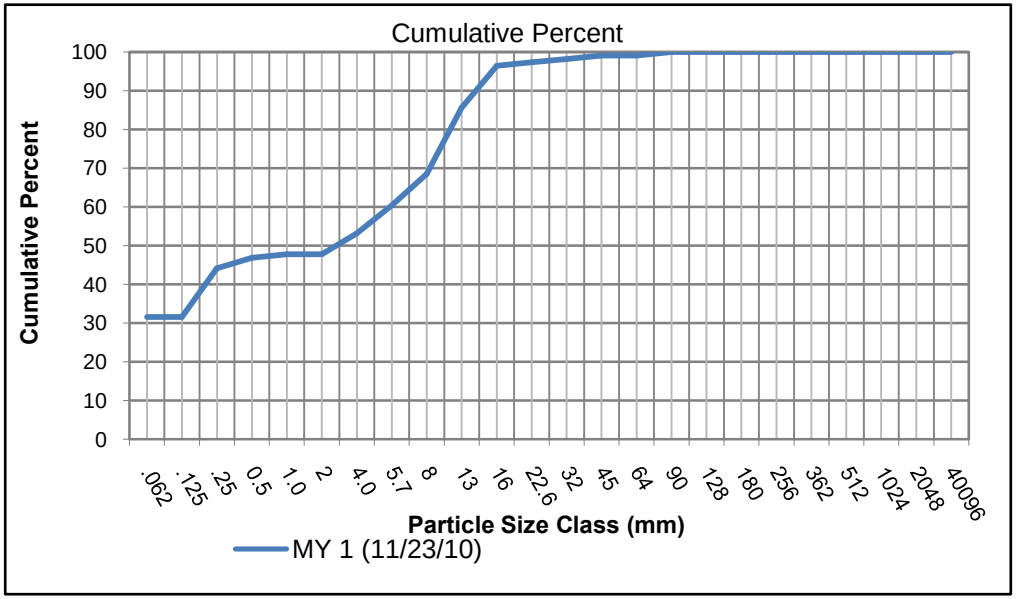


Figure 7.6 Pebble Counts - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Seven-Southern UT			2010		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	35	32	32
Sand	Very Fine Sand	.125	0	0	32
	Fine Sand	.25	14	13	44
	Medium Sand	0.5	3	3	47
	Coarse Sand	1.0	1	1	48
	Very Course Sand	2	0	0	48
Gravel	Very Fine Gravel	4.0	6	5	53
	Fine Gravel	5.7	8	7	60
	Fine Gravel	8	9	8	68
	Medium Gravel	13	19	17	86
	Medium Gravel	16	12	11	96
	Coarse Gravel	22.6	1	1	97
	Coarse Gravel	32	1	1	98
	Very Course Gravel	45	1	1	99
	Very Course Gravel	64	0	0	99
Cobble	Small Cobble	90	1	1	100
	Small Cobble	128		0	100
	Medium Cobble	180		0	100
	Large Cobble	256		0	100
Boulder	Small Boulders	362		0	100
	Small Boulders	512		0	100
	Medium Boulders	1024		0	100
	Large Boulders	2048		0	100
Bedrock	Bedrock	40096		0	100
	Total		111		



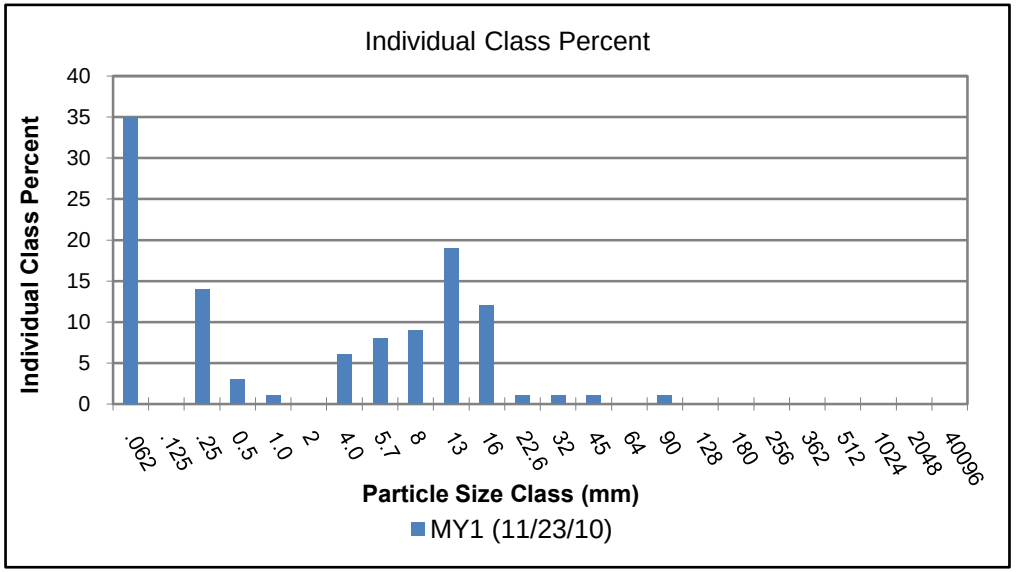
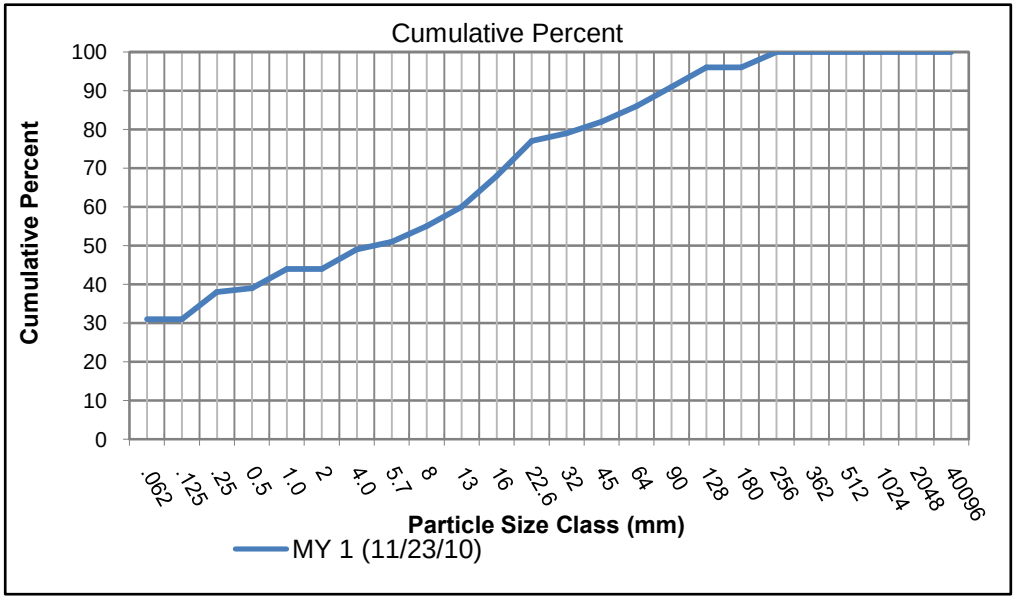


Figure 7.7 Pebble Counts - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Eight-Southern UT			2010		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	31	31	31
Sand	Very Fine Sand	.125	0	0	31
	Fine Sand	.25	7	7	38
	Medium Sand	0.5	1	1	39
	Coarse Sand	1.0	5	5	44
	Very Course Sand	2	0	0	44
Gravel	Very Fine Gravel	4.0	5	5	49
	Fine Gravel	5.7	2	2	51
	Fine Gravel	8	4	4	55
	Medium Gravel	13	5	5	60
	Medium Gravel	16	8	8	68
	Coarse Gravel	22.6	9	9	77
	Coarse Gravel	32	2	2	79
	Very Course Gravel	45	3	3	82
	Very Course Gravel	64	4	4	86
Cobble	Small Cobble	90	5	5	91
	Small Cobble	128	5	5	96
	Medium Cobble	180	0	0	96
	Large Cobble	256	4	4	100
Boulder	Small Boulders	362		0	100
	Small Boulders	512		0	100
	Medium Boulders	1024		0	100
	Large Boulders	2048		0	100
Bedrock	Bedrock	40096		0	100
	Total		100		



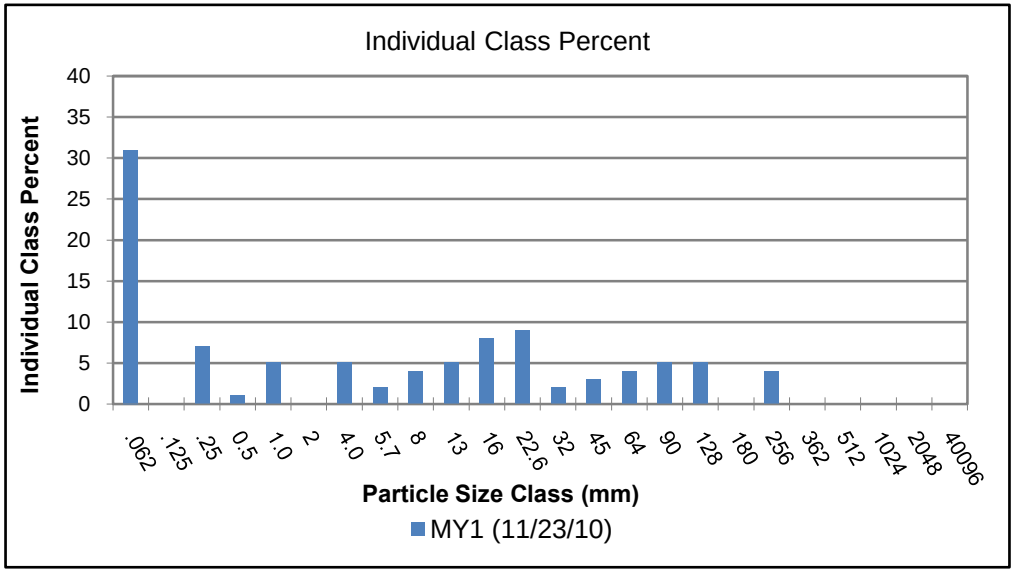
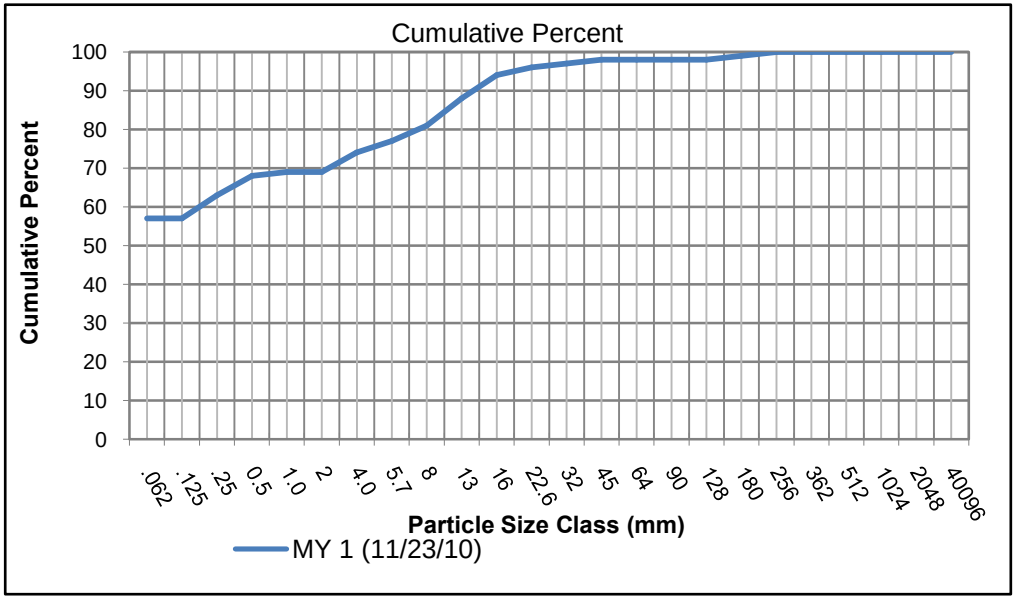


Figure 7.8 Pebble Counts - Monitoring Year One - 2010 - UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Nine-Southern UT			2010		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	57	57	57
Sand	Very Fine Sand	.125	0	0	57
	Fine Sand	.25	6	6	63
	Medium Sand	0.5	5	5	68
	Coarse Sand	1.0	1	1	69
	Very Course Sand	2	0	0	69
Gravel	Very Fine Gravel	4.0	5	5	74
	Fine Gravel	5.7	3	3	77
	Fine Gravel	8	4	4	81
	Medium Gravel	13	7	7	88
	Medium Gravel	16	6	6	94
	Coarse Gravel	22.6	2	2	96
	Coarse Gravel	32	1	1	97
	Very Course Gravel	45	1	1	98
	Very Course Gravel	64	0	0	98
Cobble	Small Cobble	90	0	0	98
	Small Cobble	128	0	0	98
	Medium Cobble	180	1	1	99
	Large Cobble	256	1	1	100
Boulder	Small Boulders	362		0	100
	Small Boulders	512		0	100
	Medium Boulders	1024		0	100
	Large Boulders	2048		0	100
Bedrock	Bedrock	40096		0	100
	Total		100		



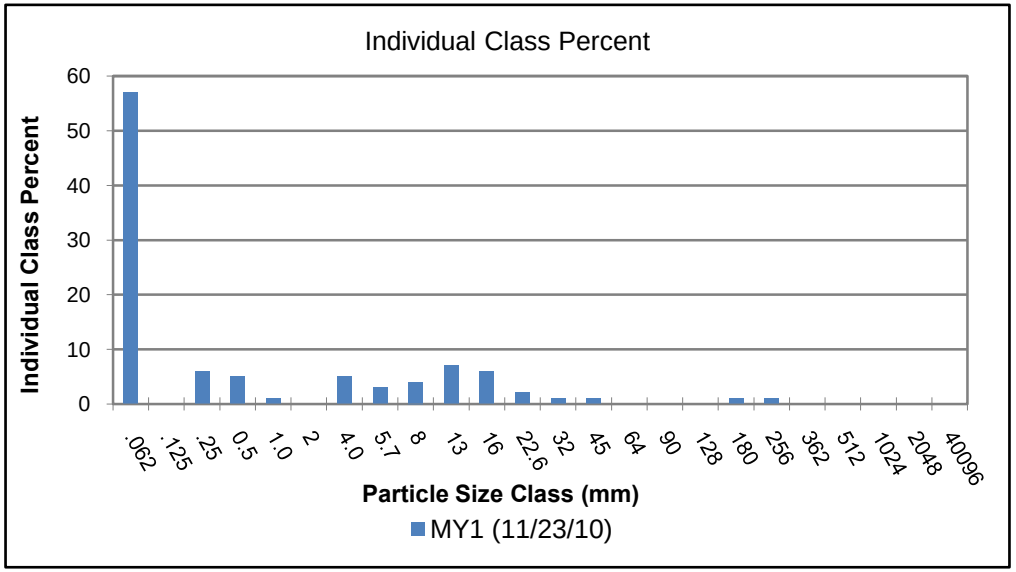


Table 10.0 Baseline Stream Data Summary
UT to Bear Creek (NCEEP# 92347) - Northern UT (2,975 feet)

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)	NA				--	15.2	--	--	--	--	--	20.2	--	--	--	--	--	19.0	--	18.3	19.0	18.7	20.3	0.9	4
Floodprone Width (ft)					--	40.0	--	--	--	--	--	140.0	--	--	--	--	--	100.0	--	100.0	130.0	100.0	220.0	60.0	4
Bankfull Mean Depth (ft)	NA				--	1.4	--	--	--	--	--	1.4	--	--	--	--	--	1.4	--	1.2	1.4	1.4	1.5	0.1	4
[1]Bankfull Max Depth (ft)	NA				--	1.7	--	--	--	--	--	1.9	--	--	--	--	--	1.9	--	1.9	2.1	2.2	2.4	0.2	4
Bankfull Cross Sectional Area (ft^2)	NA				--	20.8	--	--	--	--	--	28.2	--	--	--	--	--	25.8	--	23.0	25.7	25.2	29.5	2.9	4
Width/Depth Ratio	NA				--	11.0	--	--	--	--	--	14.5	--	--	--	--	--	14.0	--	13.0	14.1	13.9	15.6	1.1	4
Entrenchment Ratio	NA				--	2.6	--	--	--	--	--	6.9	--	--	--	--	--	5.3	--	4.9	6.9	5.4	11.6	3.2	4
[1]Bank Height Ratio	NA				--	1.4	--	--	--	--	--	1.0	--	--	--	--	--	1.0	--	1.0	1.0	1.0	1.0	0.0	4
Profile																									
Riffle Length (ft)					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	13.9	33.8	35.7	67.0	12.0	21
Riffle Slope (ft/ft)					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.002	0.008	0.006	0.024	0.006	21
Pool Length (ft)					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	28.7	58.2	58.7	112.8	18.9	23
Pool Max depth (ft)					--	2.0	--	--	--	--	--	2.7	--	--	--	--	--	2.7	--	1.8	2.6	2.6	3.7	0.5	23
Pool Spacing (ft)					25.5	--	--	127.0	--	--	25.0	--	--	104.0	--	--	22.8		114.0	42.6	131.1	103.2	309.1	75.8	22
Pattern																									
Channel Beltwidth (ft)					41.0	--	--	116.0	--	--	20.0	--	--	77.0	--	--	38.0	--	114.0	28.9	62.5	61.4	112.3	19.4	20
Radius of Curvature (ft)					21.0	--	--	75.0	--	--	10.2	--	--	13.3	--	--	38.0	--	76.0	31.6	57.5	53.6	98.2	17.5	22
Rc:Bankfull width (ft/ft)					1.4	--	--	4.9	--	--	0.5	--	--	0.7	--	--	2.0	--	4.0	1.6	2.9	2.7	5.0	0.9	22
Meander Wavelength (ft)					125.0	--	--	250.0	--	--	94.0	--	--	100.0	--	--	95.0	--	228.0	166.0	227.1	225.8	310.3	34.6	21
Meander Width Ratio					2.7	--	--	7.7	--	--	1.0	--	--	3.8	--	--	2.0	--	6.0	1.5	3.2	3.1	5.7	1.0	20
Transport parameters																									
Reach Shear Stress (competency) lb/f^2					0.53												0.22			0.28					
Max part size (mm) mobilized at bankfull					145												50			80					
Stream Power (transport capacity) W/m^2					3.8												1.15			1.23					
Additional Reach Parameters																									
Rosgen Classification	NA				Degraded E4/F4						C4						C4			C4					
Mean Bankfull Velocity (fps)	NA				4.8						6.2						3.5			3.0					
Bankfull Discharge (cfs)	NA				100						173.7						100			77.0					
Valley length (ft)					2697						--														
Channel Thalweg length (ft)					2832						--						3132			2975					
Sinuosity (ft)					1.05						1.12						1.13			1.10					
Water Surface Slope (Channel) (ft/ft)	NA				0.0062						0.0077						0.0028			--					
BF slope (ft/ft)	NA				--						--						--			0.003					
[3]Bankfull Floodplain Area (acres)					--						--						--			8.19					
[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

* Mean, not median, provided for design numbers.

Table 10.1 Baseline Stream Data Summary
UT to Bear Creek (NCEEP# 92347) - Southern UT (1,700 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)					--	5.0	--	--	--	--	--	20.2	--	--	--	--	--	8.5	--	7.9	10.7	10.7	13.5	NA	2
Floodprone Width (ft)					--	14.3	--	--	--	--	--	140.0	--	--	--	--	--	50.0	--	50.0	75.0	75.0	100.0	NA	2
Bankfull Mean Depth (ft)					--	1.1	--	--	--	--	--	1.4	--	--	--	--	--	0.7	--	0.6	0.6	0.6	0.7	NA	2
[1]Bankfull Max Depth (ft)					--	1.3	--	--	--	--	--	1.9	--	--	--	--	--	1.1	--	1.2	1.3	1.3	1.4	NA	2
Bankfull Cross Sectional Area (ft^2)					--	5.2	--	--	--	--	--	28.2	--	--	--	--	--	6.0	--	5.3	6.5	6.5	7.8	NA	2
Width/Depth Ratio					--	4.7	--	--	--	--	--	14.5	--	--	--	--	--	12.0	--	12.0	17.7	17.7	23.3	NA	2
Entrenchment Ratio					--	2.9	--	--	--	--	--	6.9	--	--	--	--	--	5.9	--	3.7	8.1	8.1	12.6	NA	2
[1]Bank Height Ratio					--	1.4	--	--	--	--	--	1.0	--	--	--	--	--	1.0	--	1.0	1.0	1.0	1.0	NA	2
Profile																									
Riffle Length (ft)					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	9.0	20.9	17.6	40.2	8.9	13
Riffle Slope (ft/ft)					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	0.004	0.021	0.019	0.046	0.011	13
Pool Length (ft)					--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.7	30.9	29.5	53.0	12.8	30
Pool Max depth (ft)					--	1.7	--	--	--	--	--	2.7	--	--	--	--	--	1.4	--	0.5	1.7	1.7	3.0	0.5	30
Pool Spacing (ft)					6.8	--	--	21.5	--	--	25.0	--	--	104.0	--	--	10.2		51.0	15.9	49.1	41.8	169.3	34.3	29
Pattern																									
Channel Beltwidth (ft)					25.0	--	--	36.0	--	--	20.0	--	--	77.0	--	--	34.0	--	51.0	16.1	31.1	28.4	96.7	16.0	26
Radius of Curvature (ft)					5.0	--	--	30.0	--	--	10.2	--	--	13.3	--	--	17.0	--	34.0	15.4	24.7	23.8	35.6	5.5	28
Rc:Bankfull width (ft/ft)					1.0	--	--	6.1	--	--	0.5	--	--	0.7	--	--	2.0	--	4.0	1.4	2.3	2.2	3.3	0.5	28
Meander Wavelength (ft)					40.0	--	--	53.0	--	--	94.0	--	--	100.0	--	--	42.5	--	102.0	58.2	99.5	98.9	176.5	22.2	27
Meander Width Ratio					5.0	--	--	7.3	--	--	1.0	--	--	3.8	--	--	4.0	--	6.0	1.5	2.9	2.6	9.0	1.5	26
Transport parameters																									
Reach Shear Stress (competency) lb/f^2					0.76												0.161		0.39						
Max part size (mm) mobilized at bankfull					185												36		100						
Stream Power (transport capacity) W/m^2					4.75												0.94		2.07						
Additional Reach Parameters																									
Rosgen Classification					Degraded E4/F4						C4						C4		C4						
Mean Bankfull Velocity (fps)					4.2						6.2						3.9		3.6						
Bankfull Discharge (cfs)					22						173.7						23.4		23.4						
Valley length (ft)					1542						--														
Channel Thalweg length (ft)					1635						--						1.745		1,700						
Sinuosity (ft)					1.06						1.12						1.14		1.10						
Water Surface Slope (Channel) (ft/ft)					0.0145						0.0077						0.0041		--						
BF slope (ft/ft)					--						--						--		0.01						
[3]Bankfull Floodplain Area (acres)					--						--						--		3.33						
[4]% of Reach with Eroding Banks					90						--														
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

* Mean, not median, provided for design numbers.

Table 11.0 Monitoring Data - Dimensional Morphology Summary (Dimensional Parameters – Cross Sections)

UT to Bear Creek (NCEEP# 92347) - Northern UT (2,975 feet) & Southern UT (1,700 feet)

	Cross Section 1 (Riffle)							Cross Section 2 (Riffle)							Cross Section 3 (Pool)							Cross Section 4 (Riffle)							Cross Section 5 (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+	Base	MY1	MY2	MY3	MY4	MY5	MY+
Record elevation (datum) used	100	100						100	100						100	100						100	100						100	100					
Bankfull Width (ft)	18.5	18.4						18.3	18.6						20.0	21.0						20.3	19.1						22.9	22.2					
Floodprone Width (ft)	100.0	100.0						100.0	100.0						100.0	100.0						100.0	100.0						220.0	220.0					
Bankfull Mean Depth (ft)	1.4	1.4						1.3	1.3						2.2	2.1						1.5	1.5						1.5	1.6					
Bankfull Max Depth (ft)	2.2	2.2						2.1	2.0						3.9	3.8						2.4	2.3						3.8	3.8					
Bankfull Cross Sectional Area (ft^2)	26.3	25.8						24.0	23.9						44.2	44.8						29.5	28.0						33.3	34.9					
Bankfull Width/Depth Ratio	13.0	13.2						13.9	14.4						9.1	9.9						14.0	13.1						15.7	14.1					
Bankfull Entrenchment Ratio	5.4	5.4						5.5	5.4						5.0	4.8						4.9	5.2						9.6	9.9					
Bankfull Bank Height Ratio	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)	75.3	76.9						96.9	96.5						119.5	115.9						58.3	59.5						66.5	59.5					
d50 (mm)		0.04							0.06							3.45						0.44	0.37							7.42					
	Cross Section 6 (Riffle)							**Cross Section 7 (Riffle)**							**Cross Section 8 (Riffle)**							**Cross Section 9 (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+	Base	MY1	MY2	MY3	MY4	MY5	MY+
Record elevation (datum) used	100	100						100	100						100	100						100	100												
Bankfull Width (ft)	18.9	19.1						7.9	12.2						13.5	9.2						18.5	21.0												
Floodprone Width (ft)	220.0	220.0						100.0	100.0						50.0	50.0						50.0	50.0												
Bankfull Mean Depth (ft)	1.2	1.1						0.7	0.5						0.6	0.8						1.1	1.1												
Bankfull Max Depth (ft)	1.9	1.9						1.2	1.5						1.4	1.4						2.7	2.9												
Bankfull Cross Sectional Area (ft^2)	23.0	21.4						5.3	6.0						7.8	7.0						20.7	22.9												
Bankfull Width/Depth Ratio	15.6	17.0						12.0	24.9						23.3	12.0						16.6	19.3												
Bankfull Entrenchment Ratio	11.6	11.6						12.6	8.2						3.7	5.5						2.7	2.4												
Bankfull Bank Height Ratio	1.0	1.0						1.0	1.0						1.0	1.0						1.0	1.0												
Cross Sectional Area between end pins (ft^2)	55.9	56.5						31.3	28.3						54.0	55.4						123.1	119.1												
d50 (mm)		0.22							2.83							4.85							0.05												

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."

Table 11.1 Monitoring Data - Stream Reach Data Summary
UT to Bear Creek (NCEEP# 92347) - Northern UT (2,975 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)	18.3	19.0	18.7	20.3	0.9	4	18.4	18.8	18.8	19.1	0.3	4																								
Floodprone Width (ft)	100.0	130.0	100.0	220.0	60.0	4	100.0	130.0	100.0	220.0	60.0	4																								
Bankfull Mean Depth (ft)	1.2	1.4	1.4	1.5	0.1	4	1.1	1.3	1.3	1.5	0.1	4																								
[1]Bankfull Max Depth (ft)	1.9	2.1	2.2	2.4	0.2	4	1.9	2.1	2.1	2.3	0.2	4																								
Bankfull Cross Sectional Area (ft^2)	23.0	25.7	25.2	29.5	2.9	4	21.4	24.8	24.9	28.0	2.8	4																								
Width/Depth Ratio	13.0	14.1	13.9	15.6	1.1	4	13.1	14.4	13.8	17.0	1.8	4																								
Entrenchment Ratio	4.9	6.9	5.4	11.6	3.2	4	5.2	6.9	5.4	11.6	3.1	4																								
[1]Bank Height Ratio	1.0	1.0	1.0	1.0	0.0	4	1.0	1.0	1.0	1.0	0.0	4																								
Profile																																				
Riffle Length (ft)	13.9	33.8	35.7	67.0	12.0	21	10	30.3	30	54.5	12.1	21																								
Riffle Slope (ft/ft)	0.002	0.008	0.006	0.024	0.006	21	0.006	0.013	0.009	0.040	0.006	21																								
Pool Length (ft)	28.7	58.2	58.7	112.8	18.9	23	22	35.1	32.5	80	15.5	31																								
Pool Max depth (ft)	1.8	2.6	2.6	3.7	0.5	23	2.3	3.3	3.3	4.1	0.5	31																								
Pool Spacing (ft)	42.6	131.1	103.2	309.1	75.8	22	52	92.3	85.5	172	41.7	30																								
Pattern																																				
Channel Beltwidth (ft)	28.9	62.5	61.4	112	19.4	20																														
Radius of Curvature (ft)	31.6	57.5	53.6	98.2	17.5	22																														
Rc:Bankfull width (ft/ft)	1.6	2.9	2.7	4.96	0.88	22																														
Meander Wavelength (ft)	166	227	226	310	34.6	21																														
Meander Width Ratio	1.46	3.16	3.1	5.67	0.98	20																														
Additional Reach Parameters																																				
Rosgen Classification	C4						C4																													
Channel Thalweg length (ft)	2975						3041																													
Sinuosity (ft)	1.1						1.13																													
Water Surface Slope (Channel) (ft/ft)	--						0.003																													
BF slope (ft/ft)	0.003						0.003																													
[3]Ri% / Ru% / P% / G% / S%	29	14	56	1	0		21	16	37	9	0																									
[3]SC% / Sa% / G% / C% / B% / Be%																																				
[3]d16 / d35 / d50 / d84 / d95 /																																				
[2]% of Reach with Eroding Banks	3						2																													
Channel Stability or Habitat Metric	--						--																													
Biological or Other	--						--																													

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

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

Table 11.2 Monitoring Data - Stream Reach Data Summary
UT to Bear Creek (NCEEP# 92347) - Southern UT (1,700 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)	7.9	10.7	10.7	13.5	--	2	9.2	10.7	10.7	12.2	--	2																								
Floodprone Width (ft)	50.0	75.0	75.0	100.0	--	2	50.0	75.0	75.0	100.0	--	2																								
Bankfull Mean Depth (ft)	0.6	0.6	0.6	0.7	--	2	0.5	0.6	0.6	0.8	--	2																								
[1]Bankfull Max Depth (ft)	1.2	1.3	1.3	1.4	--	2	1.4	1.4	1.4	1.5	--	2																								
Bankfull Cross Sectional Area (ft^2)	5.3	6.5	6.5	7.8	--	2	6.0	6.5	6.5	7.0	--	2																								
Width/Depth Ratio	12.0	17.7	17.7	23.3	--	2	12.0	18.4	18.4	24.9	--	2																								
Entrenchment Ratio	3.7	8.1	8.1	12.6	--	2	5.5	6.8	6.8	8.2	--	2																								
[1]Bank Height Ratio	1.0	1.0	1.0	1.0	--	2	1.0	1.0	1.0	1.0	--	2																								
Profile																																				
Riffle Length (ft)	9.0	20.9	17.6	40.2	8.9	13	3.5	10.67	10	24	4.4	27																								
Riffle Slope (ft/ft)	0.004	0.021	0.019	0.046	0.011	13	0.010	0.033	0.037	0.078	0.014	27																								
Pool Length (ft)	7.7	30.9	29.5	53.0	12.8	30	7.0	14.7	14.5	25.0	6.9	48																								
Pool Max depth (ft)	0.5	1.7	1.7	3.0	0.5	30	1.4	1.9	1.9	2.9	0.4	47																								
Pool Spacing (ft)	15.9	49.1	41.8	169.3	34.3	29	9.5	33.71	32	112	18.12	47																								
Pattern																																				
Channel Beltwidth (ft)	16.1	31.1	28.4	96.7	16.0	26																														
Radius of Curvature (ft)	15.4	24.7	23.8	35.6	5.5	28																														
Rc:Bankfull width (ft/ft)	1.4	2.3	2.2	3.3	0.5	28																														
Meander Wavelength (ft)	58.2	99.5	98.9	176.5	22.2	27																														
Meander Width Ratio	1.5	2.9	2.6	9.0	1.5	26																														

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	C4						C4																													
Channel Thalweg length (ft)	1700						1741																													
Sinuosity (ft)	1.10						1.13																													
Water Surface Slope (Channel) (ft/ft)	--						0.01																													
BF slope (ft/ft)	0.01						0.01																													
[3]Ri% / Ru% / P% / G% / S%	16	12	55	0	0		17	16	42	6	0																									
[3]SC% / Sa% / G% / C% / B% / Be%																																				
[3]d16 / d35 / d50 / d84 / d95 /																																				
[2]% of Reach with Eroding Banks	1						0																													
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

Appendix E. Hydrologic Data

Table 12.0 Verification of Bankfull Events
Figure 8.0-8.1 Groundwater Gauge and Precipitation Data
Table 13.0 Wetland Hydrology Criteria Attainment

Table 12.0. Bankfull Verification UT to Bear Creek (NCEEP# 92347)			
Date of Data Collection	Date of Occurrence	Method	Photo # (if available)
24-25 March 2010	November 11, 2009 (2.34”), December 2, 2009 (1.73”) and February 5, 2010 (1.94”).	Crest gauge evaluation, presence of wrack and drift lines, evaluation of NC CRONOS data	1 (below)
24-Nov-10	May 17, 2010 (1.52"), May 23, 2010 (1.6"), June 15, 2010 (1.25"), July 9, 2010 (1.25"), September 26, 2010 (1.28"), and September 30, 2010 (2.87")	Crest gauge evaluation, presence of wrack and drift lines, evaluation of NC CRONOS data	2 (below)

Photo 1. Evidence of bankfull events, Northern UT to Bear Creek (3/24/2010)

Photo 2. Evidence of bankfull events, Northern UT to Bear Creek (11/24/2010)

Figure 8.0 UT to Bear Creek (EEP #92347)-2010
Monitoring Gauge 9BEA457

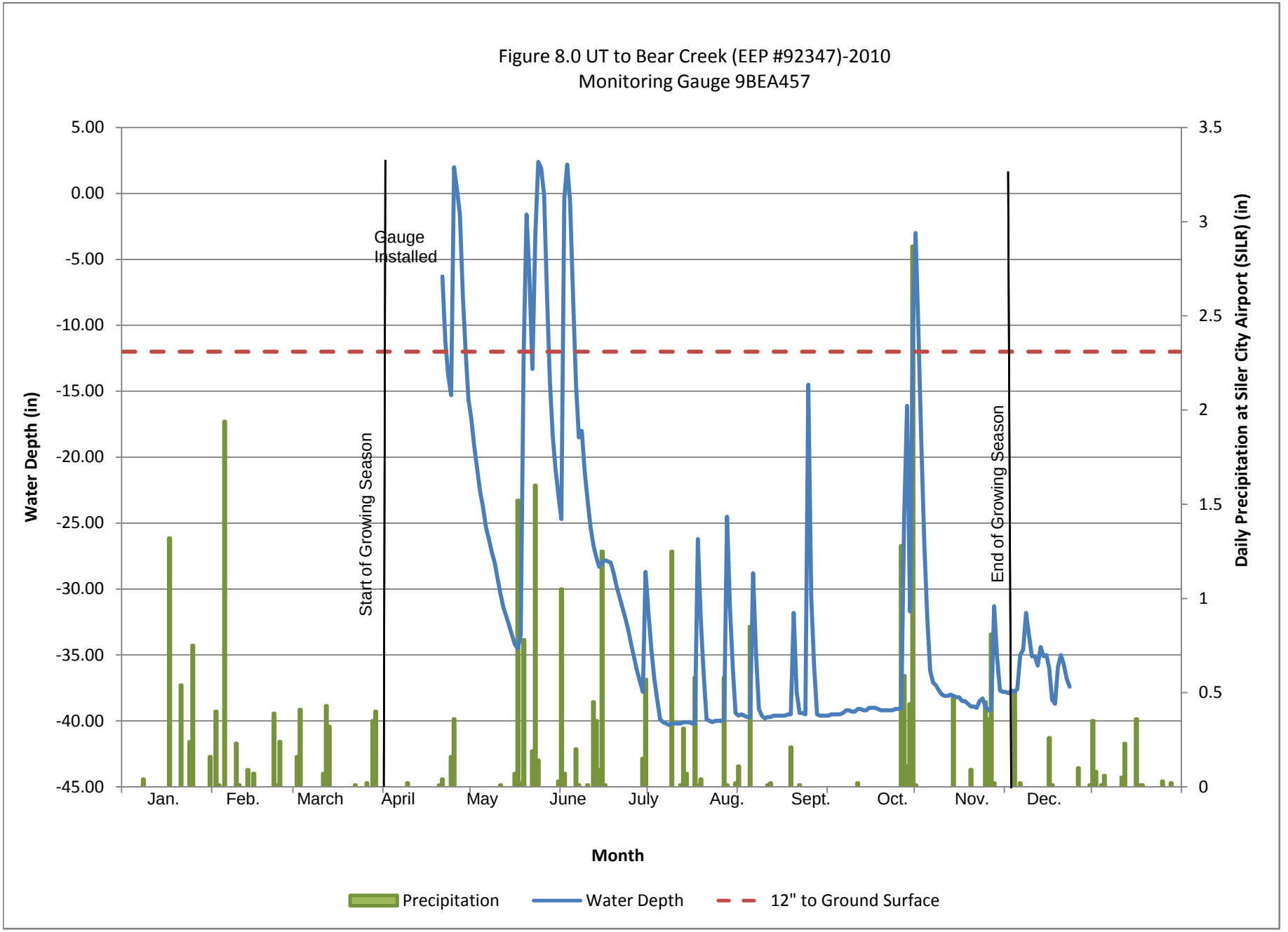
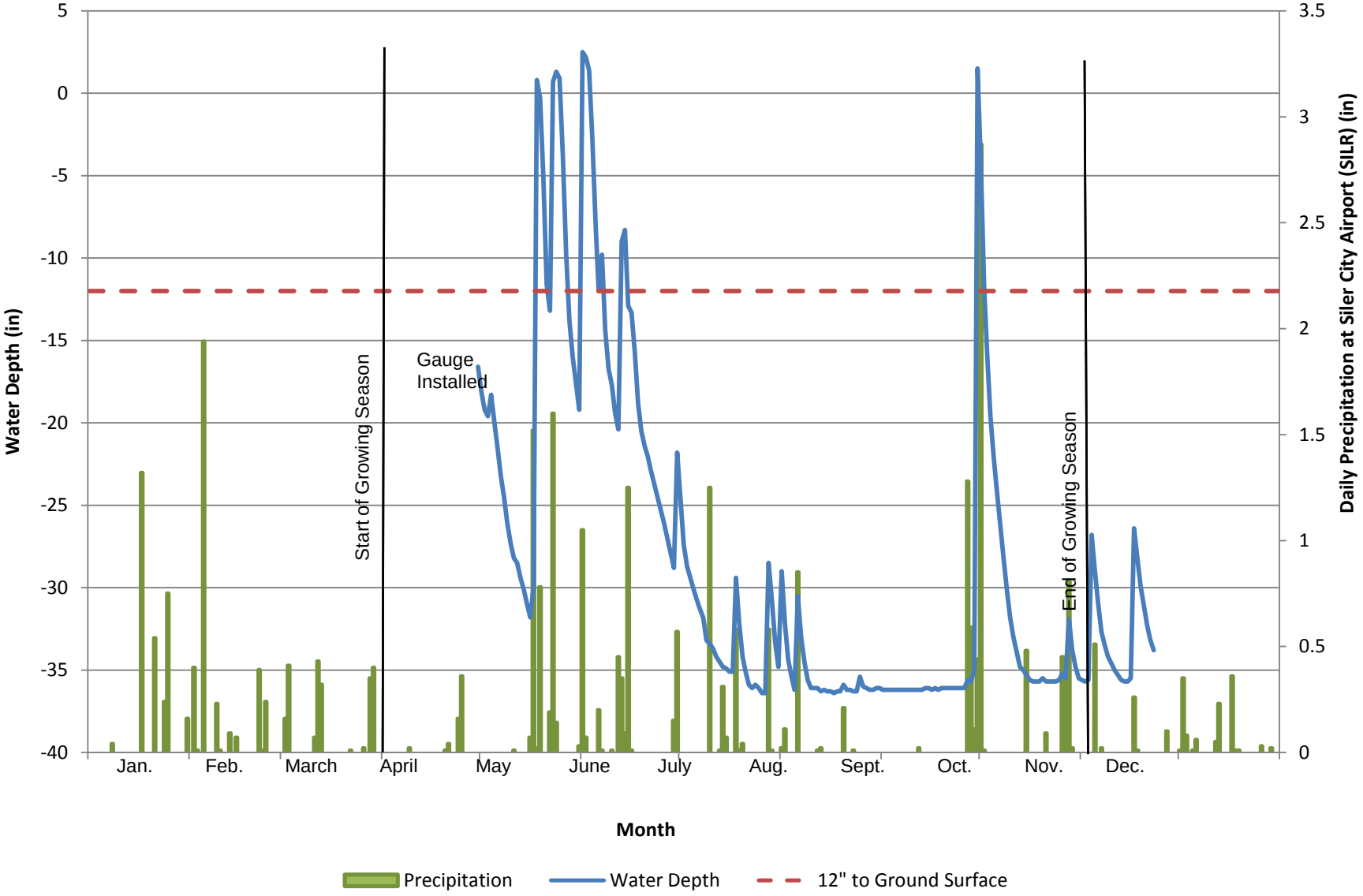


Figure 8.1. UT to Bear Creek (EEP #92347)-2010
Monitoring Gauge 138BDBD7



Gauge 9BEA457				
Date	Time	Depth	Unit	12" to Ground Surface
4/21/2010	15:27	-6.30	in	-12
4/22/2010	15:27	-11.20	in	-12
4/23/2010	15:27	-13.80	in	-12
4/24/2010	15:27	-15.30	in	-12
4/25/2010	15:27	2.00	in	-12
4/26/2010	15:27	0.30	in	-12
4/27/2010	15:27	-1.60	in	-12
4/28/2010	15:27	-7.70	in	-12
4/29/2010	14:30	-11.80	in	-12
4/30/2010	14:30	-15.60	in	-12
5/1/2010	0:00	-17.10	in	-12
5/2/2010	0:00	-19.20	in	-12
5/3/2010	0:00	-20.90	in	-12
5/4/2010	0:00	-22.60	in	-12
5/5/2010	0:00	-23.80	in	-12
5/6/2010	0:00	-25.30	in	-12
5/7/2010	0:00	-26.20	in	-12
5/8/2010	0:00	-27.20	in	-12
5/9/2010	0:00	-28.00	in	-12
5/10/2010	0:00	-29.20	in	-12
5/11/2010	0:00	-30.40	in	-12
5/12/2010	0:00	-31.40	in	-12
5/13/2010	0:00	-32.10	in	-12
5/14/2010	0:00	-32.80	in	-12
5/15/2010	0:00	-33.50	in	-12
5/16/2010	0:00	-34.20	in	-12
5/17/2010	0:00	-34.50	in	-12
5/18/2010	0:00	-33.50	in	-12
5/19/2010	0:00	-12.20	in	-12
5/20/2010	0:00	-1.60	in	-12
5/21/2010	0:00	-6.40	in	-12
5/22/2010	0:00	-13.30	in	-12
5/23/2010	0:00	-3.20	in	-12
5/24/2010	0:00	2.40	in	-12
5/25/2010	0:00	1.90	in	-12
5/26/2010	0:00	-0.10	in	-12
5/27/2010	0:00	-7.70	in	-12
5/28/2010	0:00	-14.30	in	-12
5/29/2010	0:00	-18.50	in	-12
5/30/2010	0:00	-20.90	in	-12
5/31/2010	0:00	-22.90	in	-12
6/1/2010	0:00	-24.70	in	-12
6/2/2010	0:00	-0.40	in	-12
6/3/2010	0:00	2.20	in	-12
6/4/2010	0:00	-0.70	in	-12

6/5/2010	0:00	-7.80	in	-12
6/6/2010	0:00	-14.40	in	-12
6/7/2010	0:00	-18.50	in	-12
6/8/2010	0:00	-18.00	in	-12
6/9/2010	0:00	-21.10	in	-12
6/10/2010	0:00	-23.30	in	-12
6/11/2010	0:00	-25.30	in	-12
6/12/2010	0:00	-26.70	in	-12
6/13/2010	0:00	-27.60	in	-12
6/14/2010	0:00	-28.30	in	-12
6/15/2010	0:00	-28.00	in	-12
6/16/2010	0:00	-27.80	in	-12
6/17/2010	0:00	-27.90	in	-12
6/18/2010	0:00	-28.00	in	-12
6/19/2010	0:00	-28.80	in	-12
6/20/2010	0:00	-29.80	in	-12
6/21/2010	0:00	-30.60	in	-12
6/22/2010	0:00	-31.40	in	-12
6/23/2010	0:00	-32.20	in	-12
6/24/2010	0:00	-33.10	in	-12
6/25/2010	0:00	-34.20	in	-12
6/26/2010	0:00	-35.20	in	-12
6/27/2010	0:00	-36.20	in	-12
6/28/2010	0:00	-37.00	in	-12
6/29/2010	0:00	-37.80	in	-12
6/30/2010	0:00	-28.70	in	-12
7/1/2010	0:00	-31.80	in	-12
7/2/2010	0:00	-34.6	in	-12
7/3/2010	0:00	-36.8	in	-12
7/4/2010	0:00	-38.4	in	-12
7/5/2010	0:00	-39.9	in	-12
7/6/2010	0:00	-40.1	in	-12
7/7/2010	0:00	-40.2	in	-12
7/8/2010	0:00	-40.3	in	-12
7/9/2010	0:00	-40.2	in	-12
7/10/2010	0:00	-40.2	in	-12
7/11/2010	0:00	-40.2	in	-12
7/12/2010	0:00	-40.2	in	-12
7/13/2010	0:00	-40.1	in	-12
7/14/2010	0:00	-40.1	in	-12
7/15/2010	0:00	-40.1	in	-12
7/16/2010	0:00	-40.2	in	-12
7/17/2010	0:00	-40.2	in	-12
7/18/2010	0:00	-26.2	in	-12
7/19/2010	0:00	-32.3	in	-12
7/20/2010	0:00	-36.5	in	-12
7/21/2010	0:00	-39.9	in	-12

7/22/2010	0:00	-40	in	-12
7/23/2010	0:00	-40.1	in	-12
7/24/2010	0:00	-40	in	-12
7/25/2010	0:00	-40	in	-12
7/26/2010	0:00	-40	in	-12
7/27/2010	0:00	-39.9	in	-12
7/28/2010	0:00	-24.5	in	-12
7/29/2010	0:00	-31.4	in	-12
7/30/2010	0:00	-36.1	in	-12
7/31/2010	0:00	-39.4	in	-12
8/1/2010	0:00	-39.6	in	-12
8/2/2010	0:00	-39.5	in	-12
8/3/2010	0:00	-39.6	in	-12
8/4/2010	0:00	-39.7	in	-12
8/5/2010	0:00	-39.7	in	-12
8/6/2010	0:00	-28.8	in	-12
8/7/2010	0:00	-34.9	in	-12
8/8/2010	0:00	-39.1	in	-12
8/9/2010	0:00	-39.6	in	-12
8/10/2010	0:00	-39.8	in	-12
8/11/2010	0:00	-39.7	in	-12
8/12/2010	0:00	-39.7	in	-12
8/13/2010	0:00	-39.6	in	-12
8/14/2010	0:00	-39.6	in	-12
8/15/2010	0:00	-39.6	in	-12
8/16/2010	0:00	-39.6	in	-12
8/17/2010	0:00	-39.6	in	-12
8/18/2010	0:00	-39.5	in	-12
8/19/2010	0:00	-39.5	in	-12
8/20/2010	0:00	-31.8	in	-12
8/21/2010	0:00	-37.8	in	-12
8/22/2010	0:00	-39.4	in	-12
8/23/2010	0:00	-39.4	in	-12
8/24/2010	0:00	-39.5	in	-12
8/25/2010	0:00	-14.5	in	-12
8/26/2010	0:00	-30.6	in	-12
8/27/2010	0:00	-35.9	in	-12
8/28/2010	0:00	-39.5	in	-12
8/29/2010	0:00	-39.6	in	-12
8/30/2010	0:00	-39.6	in	-12
8/31/2010	0:00	-39.6	in	-12
9/1/2010	0:00	-39.6	in	-12
9/2/2010	0:00	-39.5	in	-12
9/3/2010	0:00	-39.5	in	-12
9/4/2010	0:00	-39.5	in	-12
9/5/2010	0:00	-39.5	in	-12
9/6/2010	0:00	-39.4	in	-12

9/7/2010	0:00	-39.2	in	-12
9/8/2010	0:00	-39.2	in	-12
9/9/2010	0:00	-39.3	in	-12
9/10/2010	0:00	-39.3	in	-12
9/11/2010	0:00	-39.1	in	-12
9/12/2010	0:00	-39.1	in	-12
9/13/2010	0:00	-39.2	in	-12
9/14/2010	0:00	-39.2	in	-12
9/15/2010	0:00	-39	in	-12
9/16/2010	0:00	-39	in	-12
9/17/2010	0:00	-39	in	-12
9/18/2010	0:00	-39.1	in	-12
9/19/2010	0:00	-39.2	in	-12
9/20/2010	0:00	-39.2	in	-12
9/21/2010	0:00	-39.2	in	-12
9/22/2010	0:00	-39.2	in	-12
9/23/2010	0:00	-39.2	in	-12
9/24/2010	0:00	-39.1	in	-12
9/25/2010	0:00	-39.1	in	-12
9/26/2010	0:00	-39	in	-12
9/27/2010	0:00	-24.6	in	-12
9/28/2010	0:00	-16.1	in	-12
9/29/2010	0:00	-31.7	in	-12
9/30/2010	0:00	-10	in	-12
10/1/2010	0:00	-3	in	-12
10/2/2010	0:00	-10.7	in	-12
10/3/2010	0:00	-19.3	in	-12
10/4/2010	0:00	-26.7	in	-12
10/5/2010	0:00	-32.2	in	-12
10/6/2010	0:00	-36.2	in	-12
10/7/2010	0:00	-37.1	in	-12
10/8/2010	0:00	-37.3	in	-12
10/9/2010	0:00	-37.7	in	-12
10/10/2010	0:00	-38	in	-12
10/11/2010	0:00	-38.1	in	-12
10/12/2010	0:00	-38.1	in	-12
10/13/2010	0:00	-38	in	-12
10/14/2010	0:00	-38.1	in	-12
10/15/2010	0:00	-38.2	in	-12
10/16/2010	0:00	-38.2	in	-12
10/17/2010	0:00	-38.5	in	-12
10/18/2010	0:00	-38.5	in	-12
10/19/2010	0:00	-38.7	in	-12
10/20/2010	0:00	-38.9	in	-12
10/21/2010	0:00	-38.9	in	-12
10/22/2010	0:00	-39	in	-12
10/23/2010	0:00	-38.5	in	-12

10/24/2010	0:00	-38.3	in	-12
10/25/2010	0:00	-38.9	in	-12
10/26/2010	0:00	-39.2	in	-12
10/27/2010	0:00	-39.1	in	-12
10/28/2010	0:00	-31.3	in	-12
10/29/2010	0:00	-35.2	in	-12
10/30/2010	0:00	-37.7	in	-12
10/31/2010	0:00	-37.8	in	-12
11/1/2010	0:00	-37.8	in	-12
11/2/2010	0:00	-37.9	in	-12
11/3/2010	0:00	-37.7	in	-12
11/4/2010	0:00	-37.8	in	-12
11/5/2010	0:00	-37.6	in	-12
11/6/2010	0:00	-35	in	-12
11/7/2010	0:00	-34.6	in	-12
11/8/2010	0:00	-31.8	in	-12
11/9/2010	0:00	-33.5	in	-12
11/10/2010	0:00	-35.1	in	-12
11/11/2010	0:00	-35.1	in	-12
11/12/2010	0:00	-35.8	in	-12
11/13/2010	0:00	-34.4	in	-12
11/14/2010	0:00	-35.1	in	-12
11/15/2010	0:00	-35	in	-12
11/16/2010	0:00	-36	in	-12
11/17/2010	0:00	-38.4	in	-12
11/18/2010	0:00	-38.7	in	-12
11/19/2010	0:00	-35.9	in	-12
11/20/2010	0:00	-35	in	-12
11/21/2010	0:00	-35.7	in	-12
11/22/2010	0:00	-36.8	in	-12
11/23/2010	0:00	-37.4	in	-12

Gauge 138BDBD7				
Date	Time	Depth	Unit	12" to Ground Surface
4/30/2010	15:00	-16.6	in	-12
5/1/2010	15:00	-18.1	in	-12
5/2/2010	15:00	-19.2	in	-12
5/3/2010	15:00	-19.6	in	-12
5/4/2010	15:00	-18.3	in	-12
5/5/2010	15:00	-20	in	-12
5/6/2010	15:00	-21.6	in	-12
5/7/2010	15:00	-23.3	in	-12
5/8/2010	15:00	-24.5	in	-12
5/9/2010	15:00	-26.1	in	-12
5/10/2010	15:00	-27.3	in	-12
5/11/2010	15:00	-28.2	in	-12
5/12/2010	15:00	-28.5	in	-12
5/13/2010	15:00	-29.4	in	-12
5/14/2010	15:00	-30.1	in	-12
5/15/2010	15:00	-31	in	-12
5/16/2010	15:00	-31.8	in	-12
5/17/2010	15:00	-29.9	in	-12
5/18/2010	15:00	0.8	in	-12
5/19/2010	15:00	-0.3	in	-12
5/20/2010	15:00	-5.2	in	-12
5/21/2010	15:00	-11.6	in	-12
5/22/2010	15:00	-13.2	in	-12
5/23/2010	15:00	0.7	in	-12
5/24/2010	15:00	1.3	in	-12
5/25/2010	15:00	0.9	in	-12
5/26/2010	15:00	-3.8	in	-12
5/27/2010	15:00	-9.7	in	-12
5/28/2010	15:00	-13.8	in	-12
5/29/2010	15:00	-16	in	-12
5/30/2010	15:00	-17.6	in	-12
5/31/2010	15:00	-19.2	in	-12
6/1/2010	15:00	2.5	in	-12
6/2/2010	15:00	2.2	in	-12
6/3/2010	15:00	1.4	in	-12
6/4/2010	15:00	-2.8	in	-12
6/5/2010	15:00	-8	in	-12
6/6/2010	15:00	-12	in	-12
6/7/2010	15:00	-9.8	in	-12
6/8/2010	15:00	-14.4	in	-12
6/9/2010	15:00	-16.7	in	-12
6/10/2010	15:00	-17.7	in	-12
6/11/2010	15:00	-19.4	in	-12
6/12/2010	15:00	-20.4	in	-12
6/13/2010	15:00	-9	in	-12

6/14/2010	15:00	-8.3	in	-12
6/15/2010	15:00	-12.9	in	-12
6/16/2010	15:00	-13.3	in	-12
6/17/2010	15:00	-15.7	in	-12
6/18/2010	15:00	-18.8	in	-12
6/19/2010	15:00	-20.5	in	-12
6/20/2010	15:00	-21.4	in	-12
6/21/2010	15:00	-22	in	-12
6/22/2010	15:00	-22.9	in	-12
6/23/2010	15:00	-23.7	in	-12
6/24/2010	15:00	-24.5	in	-12
6/25/2010	15:00	-25.3	in	-12
6/26/2010	15:00	-26.1	in	-12
6/27/2010	15:00	-27	in	-12
6/28/2010	15:00	-27.9	in	-12
6/29/2010	15:00	-28.8	in	-12
6/30/2010	15:00	-21.8	in	-12
7/2/2010	15:00	-27.4	in	-12
7/3/2010	15:00	-28.7	in	-12
7/4/2010	15:00	-29.4	in	-12
7/5/2010	15:00	-30.1	in	-12
7/6/2010	15:00	-30.7	in	-12
7/7/2010	15:00	-31.3	in	-12
7/8/2010	15:00	-31.8	in	-12
7/9/2010	15:00	-33.2	in	-12
7/10/2010	15:00	-33.4	in	-12
7/11/2010	15:00	-33.7	in	-12
7/12/2010	15:00	-34.2	in	-12
7/13/2010	15:00	-34.5	in	-12
7/14/2010	15:00	-34.8	in	-12
7/15/2010	15:00	-34.9	in	-12
7/16/2010	15:00	-35.1	in	-12
7/17/2010	15:00	-35.1	in	-12
7/18/2010	15:00	-29.4	in	-12
7/19/2010	15:00	-32.2	in	-12
7/20/2010	15:00	-34.2	in	-12
7/21/2010	15:00	-35.1	in	-12
7/22/2010	15:00	-35.9	in	-12
7/23/2010	15:00	-36.1	in	-12
7/24/2010	15:00	-35.9	in	-12
7/25/2010	15:00	-36.1	in	-12
7/26/2010	15:00	-36.4	in	-12
7/27/2010	15:00	-36.4	in	-12
7/28/2010	15:00	-28.5	in	-12
7/29/2010	15:00	-30.7	in	-12
7/30/2010	15:00	-33.3	in	-12
7/31/2010	15:00	-34.8	in	-12

8/1/2010	15:00	-29	in	-12
8/2/2010	15:00	-32.2	in	-12
8/3/2010	15:00	-34.4	in	-12
8/4/2010	15:00	-35.4	in	-12
8/5/2010	15:00	-36.2	in	-12
8/6/2010	15:00	-30.5	in	-12
8/7/2010	15:00	-33	in	-12
8/8/2010	15:00	-34.5	in	-12
8/9/2010	15:00	-35.6	in	-12
8/10/2010	15:00	-36.1	in	-12
8/11/2010	15:00	-36.1	in	-12
8/12/2010	15:00	-36.1	in	-12
8/13/2010	15:00	-36.3	in	-12
8/14/2010	15:00	-36.2	in	-12
8/15/2010	15:00	-36.3	in	-12
8/16/2010	15:00	-36.3	in	-12
8/17/2010	15:00	-36.4	in	-12
8/18/2010	15:00	-36.3	in	-12
8/19/2010	15:00	-36.3	in	-12
8/20/2010	15:00	-35.9	in	-12
8/21/2010	15:00	-36.2	in	-12
8/22/2010	15:00	-36.2	in	-12
8/23/2010	15:00	-36.3	in	-12
8/24/2010	15:00	-36.3	in	-12
8/25/2010	15:00	-35.4	in	-12
8/26/2010	15:00	-36	in	-12
8/27/2010	15:00	-36.1	in	-12
8/28/2010	15:00	-36.2	in	-12
8/29/2010	15:00	-36.2	in	-12
8/30/2010	15:00	-36.1	in	-12
8/31/2010	15:00	-36.1	in	-12
9/1/2010	15:00	-36.2	in	-12
9/2/2010	15:00	-36.2	in	-12
9/3/2010	15:00	-36.2	in	-12
9/4/2010	15:00	-36.2	in	-12
9/5/2010	15:00	-36.2	in	-12
9/6/2010	15:00	-36.2	in	-12
9/7/2010	15:00	-36.2	in	-12
9/8/2010	15:00	-36.2	in	-12
9/9/2010	15:00	-36.2	in	-12
9/10/2010	15:00	-36.2	in	-12
9/11/2010	15:00	-36.2	in	-12
9/12/2010	15:00	-36.2	in	-12
9/13/2010	15:00	-36.2	in	-12
9/14/2010	15:00	-36.1	in	-12
9/15/2010	15:00	-36.1	in	-12
9/16/2010	15:00	-36.2	in	-12

9/17/2010	15:00	-36.1	in	-12
9/18/2010	15:00	-36.2	in	-12
9/19/2010	15:00	-36.1	in	-12
9/20/2010	15:00	-36.1	in	-12
9/21/2010	15:00	-36.1	in	-12
9/22/2010	15:00	-36.1	in	-12
9/23/2010	15:00	-36.1	in	-12
9/24/2010	15:00	-36.1	in	-12
9/25/2010	15:00	-36.1	in	-12
9/26/2010	15:00	-36.1	in	-12
9/27/2010	15:00	-35.6	in	-12
9/28/2010	15:00	-35.7	in	-12
9/29/2010	15:00	-35	in	-12
9/30/2010	15:00	1.5	in	-12
10/1/2010	15:00	-4.3	in	-12
10/2/2010	15:00	-11.7	in	-12
10/3/2010	15:00	-15.8	in	-12
10/4/2010	15:00	-19.6	in	-12
10/5/2010	15:00	-22.1	in	-12
10/6/2010	15:00	-24.2	in	-12
10/7/2010	15:00	-26.2	in	-12
10/8/2010	15:00	-28.2	in	-12
10/9/2010	15:00	-30.1	in	-12
10/10/2010	15:00	-31.8	in	-12
10/11/2010	15:00	-33	in	-12
10/12/2010	15:00	-33.9	in	-12
10/13/2010	15:00	-34.8	in	-12
10/14/2010	15:00	-35	in	-12
10/15/2010	15:00	-35.3	in	-12
10/16/2010	15:00	-35.6	in	-12
10/17/2010	15:00	-35.7	in	-12
10/18/2010	15:00	-35.7	in	-12
10/19/2010	15:00	-35.7	in	-12
10/20/2010	15:00	-35.5	in	-12
10/21/2010	15:00	-35.7	in	-12
10/22/2010	15:00	-35.7	in	-12
10/23/2010	15:00	-35.7	in	-12
10/24/2010	15:00	-35.7	in	-12
10/25/2010	15:00	-35.6	in	-12
10/26/2010	15:00	-35.2	in	-12
10/27/2010	15:00	-35.5	in	-12
10/28/2010	15:00	-31.9	in	-12
10/29/2010		-33.8	in	-12
10/30/2010	15:00	-34.8	in	-12
10/31/2010	15:00	-35.5	in	-12
11/1/2010	15:00	-35.6	in	-12
11/2/2010	15:00	-35.7	in	-12

11/3/2010	15:00	-35.6	in	-12
11/4/2010	15:00	-26.8	in	-12
11/5/2010	15:00	-29	in	-12
11/6/2010	15:00	-31	in	-12
11/7/2010	15:00	-32.7	in	-12
11/8/2010	15:00	-33.5	in	-12
11/9/2010	15:00	-34.2	in	-12
11/10/2010	15:00	-34.6	in	-12
11/11/2010	15:00	-35	in	-12
11/12/2010	15:00	-35.3	in	-12
11/13/2010	15:00	-35.6	in	-12
11/14/2010	15:00	-35.7	in	-12
11/15/2010	15:00	-35.7	in	-12
11/16/2010	15:00	-35.5	in	-12
11/17/2010	15:00	-26.4	in	-12
11/18/2010	15:00	-28.2	in	-12
11/19/2010	15:00	-29.9	in	-12
11/20/2010	15:00	-31.1	in	-12
11/21/2010	15:00	-32.3	in	-12
11/22/2010	15:00	-33.2	in	-12
11/23/2010	15:00	-33.8	in	-12

Rain Gauge Location: Siler City Airport (SILR)

Date	Inches of Precipitation
1/1/2010	0
1/2/2010	0
1/3/2010	0
1/4/2010	0
1/5/2010	0
1/6/2010	0
1/7/2010	0
1/8/2010	0.04
1/9/2010	0
1/10/2010	0
1/11/2010	0
1/12/2010	0
1/13/2010	0
1/14/2010	0
1/15/2010	0
1/16/2010	0
1/17/2010	1.32
1/18/2010	0
1/19/2010	0
1/20/2010	0
1/21/2010	0.54
1/22/2010	0
1/23/2010	0
1/24/2010	0.24
1/25/2010	0.75
1/26/2010	0
1/27/2010	0
1/28/2010	0
1/29/2010	0
1/30/2010	0
1/31/2010	0.16
2/1/2010	0
2/2/2010	0.4
2/3/2010	0.01
2/4/2010	0
2/5/2010	1.94
2/6/2010	0
2/7/2010	0
2/8/2010	0
2/9/2010	0.23
2/10/2010	0.01
2/11/2010	0
2/12/2010	0
2/13/2010	0.09
2/14/2010	0

2/15/2010	0.07
2/16/2010	0
2/17/2010	0
2/18/2010	0
2/19/2010	0
2/20/2010	0
2/21/2010	0
2/22/2010	0.39
2/23/2010	0.01
2/24/2010	0.24
2/25/2010	0
2/26/2010	0
2/27/2010	0
2/28/2010	0
3/1/2010	0
3/2/2010	0.16
3/3/2010	0.41
3/4/2010	0
3/5/2010	0
3/6/2010	0
3/7/2010	0
3/8/2010	0
3/9/2010	0
3/10/2010	0
3/11/2010	0.07
3/12/2010	0.43
3/13/2010	0.32
3/14/2010	0
3/15/2010	0
3/16/2010	0
3/17/2010	0
3/18/2010	0
3/19/2010	0
3/20/2010	0
3/21/2010	0
3/22/2010	0.01
3/23/2010	0
3/24/2010	0
3/25/2010	0
3/26/2010	0.02
3/27/2010	0
3/28/2010	0.35
3/29/2010	0.4
3/30/2010	0
3/31/2010	0
4/1/2010	0
4/2/2010	0

4/3/2010	0
4/4/2010	0
4/5/2010	0
4/6/2010	0
4/7/2010	0
4/8/2010	0
4/9/2010	0.02
4/10/2010	0
4/11/2010	0
4/12/2010	0
4/13/2010	0
4/14/2010	0
4/15/2010	0
4/16/2010	0
4/17/2010	0
4/18/2010	0
4/19/2010	0
4/20/2010	0.01
4/21/2010	0.04
4/22/2010	0
4/23/2010	0
4/24/2010	0.16
4/25/2010	0.36
4/26/2010	0
4/27/2010	0
4/28/2010	0
4/29/2010	0
4/30/2010	0
5/1/2010	0
5/2/2010	0
5/3/2010	0
5/4/2010	0
5/5/2010	0
5/6/2010	0
5/7/2010	0
5/8/2010	0
5/9/2010	0
5/10/2010	0
5/11/2010	0.01
5/12/2010	0
5/13/2010	0
5/14/2010	0
5/15/2010	0
5/16/2010	0.07
5/17/2010	1.52
5/18/2010	0.02
5/19/2010	0.78

5/20/2010	0
5/21/2010	0
5/22/2010	0.19
5/23/2010	1.6
5/24/2010	0.14
5/25/2010	0
5/26/2010	0
5/27/2010	0
5/28/2010	0
5/29/2010	0
5/30/2010	0
5/31/2010	0.03
6/1/2010	1.05
6/2/2010	0.07
6/3/2010	0
6/4/2010	0
6/5/2010	0
6/6/2010	0.2
6/7/2010	0.01
6/8/2010	0
6/9/2010	0
6/10/2010	0.01
6/11/2010	0
6/12/2010	0.45
6/13/2010	0.35
6/14/2010	0.09
6/15/2010	1.25
6/16/2010	0.01
6/17/2010	0
6/18/2010	0
6/19/2010	0
6/20/2010	0
6/21/2010	0
6/22/2010	0
6/23/2010	0
6/24/2010	0
6/25/2010	0
6/26/2010	0
6/27/2010	0
6/28/2010	0
6/29/2010	0.15
6/30/2010	0.57
7/1/2010	0
7/2/2010	0
7/3/2010	0
7/4/2010	0
7/5/2010	0

7/6/2010	0
7/7/2010	0
7/8/2010	0
7/9/2010	1.25
7/10/2010	0
7/11/2010	0
7/12/2010	0.01
7/13/2010	0.31
7/14/2010	0.07
7/15/2010	0
7/16/2010	0
7/17/2010	0.58
7/18/2010	0.01
7/19/2010	0.04
7/20/2010	0
7/21/2010	0
7/22/2010	0
7/23/2010	0
7/24/2010	0
7/25/2010	0
7/26/2010	0
7/27/2010	0.58
7/28/2010	0.01
7/29/2010	0
7/30/2010	0
7/31/2010	0.02
8/1/2010	0.11
8/2/2010	0
8/3/2010	0
8/4/2010	0
8/5/2010	0.85
8/6/2010	0
8/7/2010	0
8/8/2010	0
8/9/2010	0
8/10/2010	0
8/11/2010	0.01
8/12/2010	0.02
8/13/2010	0
8/14/2010	0
8/15/2010	0
8/16/2010	0
8/17/2010	0
8/18/2010	0
8/19/2010	0.21
8/20/2010	0
8/21/2010	0

8/22/2010	0.01
8/23/2010	0
8/24/2010	0
8/25/2010	0
8/26/2010	0
8/27/2010	0
8/28/2010	0
8/29/2010	0
8/30/2010	0
8/31/2010	0
9/1/2010	0
9/2/2010	0
9/3/2010	0
9/4/2010	0
9/5/2010	0
9/6/2010	0
9/7/2010	0
9/8/2010	0
9/9/2010	0
9/10/2010	0
9/11/2010	0.02
9/12/2010	0
9/13/2010	0
9/14/2010	0
9/15/2010	0
9/16/2010	0
9/17/2010	0
9/18/2010	0
9/19/2010	0
9/20/2010	0
9/21/2010	0
9/22/2010	0
9/23/2010	0
9/24/2010	0
9/25/2010	0
9/26/2010	1.28
9/27/2010	0.59
9/28/2010	0.11
9/29/2010	0.44
9/30/2010	2.87
10/1/2010	0.01
10/2/2010	0
10/3/2010	0
10/4/2010	0
10/5/2010	0
10/6/2010	0
10/7/2010	0

10/8/2010	0
10/9/2010	0
10/10/2010	0
10/11/2010	0
10/12/2010	0
10/13/2010	0
10/14/2010	0.48
10/15/2010	0
10/16/2010	0
10/17/2010	0
10/18/2010	0
10/19/2010	0
10/20/2010	0.09
10/21/2010	0
10/22/2010	0
10/23/2010	0
10/24/2010	0
10/25/2010	0.45
10/26/2010	0.36
10/27/2010	0.81
10/28/2010	0.02
10/29/2010	0
10/30/2010	0
10/31/2010	0
11/1/2010	0
11/2/2010	0
11/3/2010	0
11/4/2010	0.51
11/5/2010	0
11/6/2010	0.02
11/7/2010	0
11/8/2010	0
11/9/2010	0
11/10/2010	0
11/11/2010	0
11/12/2010	0
11/13/2010	0
11/14/2010	0
11/15/2010	0
11/16/2010	0.26
11/17/2010	0.01
11/18/2010	0
11/19/2010	0
11/20/2010	0
11/21/2010	0
11/22/2010	0
11/23/2010	0

11/24/2010	0
11/25/2010	0
11/26/2010	0.1
11/27/2010	0
11/28/2010	0
11/29/2010	0
11/30/2010	0.01
12/1/2010	0.35
12/2/2010	0.08
12/3/2010	0
12/4/2010	0.01
12/5/2010	0.06
12/6/2010	0
12/7/2010	0
12/8/2010	0
12/9/2010	0
12/10/2010	0
12/11/2010	0.05
12/12/2010	0.23
12/13/2010	0
12/14/2010	0
12/15/2010	0
12/16/2010	0.36
12/17/2010	0.01
12/18/2010	0.01
12/19/2010	0
12/20/2010	0
12/21/2010	0
12/22/2010	0
12/23/2010	0
12/24/2010	0
12/25/2010	0.03
12/26/2010	0
12/27/2010	0
12/28/2010	0.02

Table 13.0. Wetland Gauge Attainment Data UT to Bear Creek (NCEEP# 92347)					
	Success Criteria Achieved/Max Consecutive Days during Growing Season (Percentage)				
Gauge	Year 1 (2010)	Year 2 (2011)	Year 3 (2012)	Year 4 (2013)	Year 5 (2014)
9BEA457	No/21 days (9.72%)				
138BDBD7	No/20 days (9.26%)				