UT BEAR CREEK (Weaver/McLeod) Stream Restoration Site
EEP #92347 - Chatham County - Cape Fear HUC# 03030003-070050

MY-5 (2014) ANNUAL MONITORING REPORT (Final)

NC Department of Environment & Natural Resources
Ecosystem Enhancement Program (NCDENR-EEP)

DENR Contract # D08042S **SCO-ID # 07-07130-01**

Data Collected: Jan-Oct 2014 **Final Report: 12 Mar 2015**

NC-DENR Ecosystem Enhancement Program
1652 Mail Service Center,
Raleigh, NC 27699-1652

EEP Project Manager: Kristie Corson

Robert J. Goldstein & Associates, Inc.
1221 Corporation Parkway, suite 100
Raleigh NC 27610 --- 919-872-1174
Project Manager: Gerald Pottern
GPottern@RJGAcarolina.com

Table of Contents

1.0 Project Summary

1.1 Goals & Objectives

The UT Bear Creek (Weaver/McLeod) #92347 Stream Restoration Project is in southwestern Chatham County NC, south of NC-902 and east of Bonlee-Carbonton Rd (Figure 1). The project includes 4,561 feet of Priority-I and Priority-II restoration of two unnamed tributaries of Bear Creek, 0.39 acre of wetland enhancement, 16.91 acres of riparian buffer restoration, and 9.36 additional acres of riparian buffer preservation at lower ends of the two tributaries and along the adjacent main channel of Bear Creek (Appendix A: Tables 1 to 4). The project goals as stated in the Restoration Plan (Ko & Associates, 2007) 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.

1.2 Success Criteria

Stream Morphology Criteria: To achieve success in dimensional stability, the restored channels should maintain a fairly stable cross-sectional area and bankfull floodplain access over the course of the monitoring period. Minor dimensional changes are natural and expected, and may indicate that the design was successful and appropriate for the site's hydrologic and sediment regime. Moderate decreases in the width-to-depth ratio or cross-sectional area, as well as floodplain or bank deposition, will indicate functional performance.

While some geomorphic adjustments will occur, the relative lengths and distribution of bedform features should be appropriate for the C-type design stream for both tributaries, and maintained over the monitoring period. Pools should be lower in grade and deeper, while riffles steeper and shallower in keeping with design ratios. Pattern features should show little adjustment over the standard five-year monitoring period.

Riffles and pools should maintain or achieve their target particle size distributions, which is gravel throughout the restoration except in bedrock areas. As the monitoring period progresses, riffles and pools should exhibit coarser and finer sediment types, respectively. The net effect should result in effective sediment transport without significant net aggradation or erosion.

Vegetation Criteria: Seeding with annual grasses and immediate planting of native trees and shrubs was completed on April 16, 2009, within a week after completion of channel re-construction and grading along the tributaries. Vegetation data were collected annually near the end of each growing season from seven CVS monitoring plots (each 10 meters square) along the north tributary and five along the south tributary following the EEP/CVS vegetation monitoring protocol (Lee *et al* 2006). Visual assessment of vegetation within the remainder of the planted areas and preserved areas was used to identify problem areas beyond the CVS plots.

Vegetation success for stream and wetland mitigation credits are based on the corresponding applicable USACE Mitigation Guidelines for restoring streams and wetlands. USACE requires an average density of 320 native woody stems/acre at the end of MY-3, 288 stems/acre at the end of MY-4, and 260 stems/acre at the end of MY-5 (USACE 2003). Vegetation success for NCDENR riparian buffer mitigation credits are based on 15A NCAC 02B .0295 *Mitigation Program Requirements for Protection and Maintenance of Riparian Buffers* (Temporary Rule, October 2014). The required vegetation density for riparian buffer mitigation credit is 260 stems/acre at the completion of monitoring, including planted and volunteer native trees and shrubs. The 2014 consolidated buffer rule revises the woody density requirements that were in effect when the project was built (Cape Fear/Randleman Buffer Rule), which required 320 stems/acre and did not count volunteer species for meeting success criteria.

Photos taken at each monitoring plot should indicate adequate growth of the riparian vegetation. Beyond the CVS plots, areas of low woody stem density (native trees and shrubs) and areas with invasive exotic weeds were identified and located according to EEP monitoring thresholds for invasive species.

Stream & Wetland Hydrology Criteria: A PVC crest gage was installed on the lower portion of the northern tributary. A minimum of two bankfull events in two different monitoring years must be documented within the five-year monitoring period to meet the stream hydrology success criterion. Two RDS Ecotone groundwater recording gages were installed in the wetland along the northern tributary. Wetland hydrologic success requires that saturated soil conditions occur within 12 inches of the ground surface for at least 12.5 percent of the growing season during a typical or normal year (USACE 1987). The average growing season in Chatham County is 216 days, based on 28 F minimum air temperature and a frequency of 5 in 10 years (NRCS 2006). Hydrologic success for the enhanced wetland requires that the soils be saturated for at least 27 days during the growing season.

1.3 Project Setting & Pre-Restoration Conditions

The project is located on private farmland in southwestern Chatham County in the Bear Creek community, on the southeast side of NC-902 across the road from Chatham Central High School. It is in the Carolina Slate Belt region of the Piedmont province, in Cape Fear River HUC 03030003-070050 (NC-DWQ sub-basin 03-06-12). Bear Creek flows into Rocky River, which in turn flows into Deep River south of Pittsboro NC. The two restored stream reaches extend from the NC-902 right-of-way downstream (southeastward) to their respective confluences with Bear Creek. The northern tributary was approximately 2,900 feet long and the southern tributary

was approximately 1,700 feet long prior to restoration. Both streams were incised and eroding, with active cattle pasture extended to the creek banks and few remaining trees along the banks. An additional 7,800 feet of protected riparian easement along the north (left) bank of Bear Creek extends from Bonlee-Carbonton Rd (SR 1139) downstream to a point approximately 700 feet northeast of the northern tributary confluence. Most of this reach had existing forest along the creek bank, but the buffer was narrow in many areas due to pasture encroachment, and required reforestation. The project was constructed and planted during early 2009 and the first year of post-construction monitoring (MY-1) was 2010.

1.4 Project Components & Mitigation Assets

The UT Bear Creek (Weaver/McLeod) #92347 Stream Restoration Project includes 2,918 feet of Priority-I and Priority-II stream restoration on the Northern UT, and 1,643 feet of Priority-I and Priority-II stream restoration on the Southern UT (Table 1.1-1.2). A 50-ft wide right-of-way for farm vehicle and livestock crossing on each tributary is excluded, although the actual crossing widths (fence to fence) are 20 feet or less. The applicable mitigation ratio for these restored streams is 1:1, except for a 20-ft wide powerline crossing on the southern tributary, counted at 2:1 because larger trees in this right-of-way will need to be cut periodically. The total stream mitigation value is thus 2918 + 1643 – (20 x 0.5) = 4551 stream mitigation units.

A riparian wetland along the right bank of the northern tributary was enhanced by planting native trees and shrubs in the non-forested portion, which had been grazed and trampled by cattle and had sparse woody vegetation. This 0.39 acre of wetland enhancement area provides 0.20 wetland mitigation units, at 2:1 mitigation ratio.

The project also includes 16.91 acres of riparian buffer restoration planting (13.75 acres along the two tributaries plus 3.16 acres along Bear Creek) and 9.36 acres of forested buffer preservation along Bear Creek and the lower ends of the two tributaries. At 1:1 mitigation ratio for restoration and 10:1 mitigation ratio for preservation, these 26.27 acres of restored and preserved buffers provides a total 777,361 riparian buffer mitigation units.

1.5 Project Design Approach

Prior to restoration the two tributaries were unstable and partially straightened E4-type channels transitioning to G4-type channels (Rosgen Level II classification) running through cattle pasture. The eroding and slumping banks with sparse woody vegetation resulted in degraded water quality and habitat quality, poor nutrient and sediment retention, and loss of bedform diversity. The wetland area in the pasture adjacent to the Northern UT was dominated by *Juncus effusus* and *Carex* spp., with little woody vegetation (Ko & Associates, 2007).

Both tributaries were designed as C4-type channels with moderately low width-to-depth ratios and both include sections of Priority I restoration (reconnect bankfull discharge to the historic floodplain) and Priority II restoration (construct a floodplain bench at the bankfull elevation, lower than the historic floodplain elevation). The upstream portion of each reach begins as a

Priority II restoration and becomes a Priority I restoration as the channel falls through the valley. Primary activities that took place during channel restoration included: 1) placement of permanent fencing along the easement boundary; 2) channel and floodplain bench excavation; 3) installation of channel plugs; 4) backfilling of some of the abandoned channel; and 5) installation of in-stream structures. By reconstructing a natural meandering pattern on each tributary, the restoration work increased the length of the Northern UT from 2,832 feet to 2,918 feet, and increased the length of the Southern UT from 1,605 feet to 1,643 feet.

The non-wooded portion of the riparian wetland was enhanced (0.39 acre) and riparian buffers were restored (16.91 acres) by planting with 15 species of native trees and shrubs, and herbicide treatment to suppress invasive exotic weeds. Areas with existing native woody stem density (forest canopy or sapling/scrub) were preserved as-is. The total protected land area within the project conservation easement (excluding stream channels) is approximately 26.7 acres, of which 14.2 acres is along the two tributaries and 12.5 acres is along Bear Creek.

1.6 Current Conditions & Performance Summary

1.6.1 Vegetation Condition

CVS vegetation monitoring plot data were collected in October 2014. The average density for all plots is 11 planted native trees and shrubs per 100 m^2 plot, or 449 stems per acre (Table 7). Seven trees per plot is the minimum number to meet the stream/wetland mitigation criterion of 260 stems per acre. Ten of the 12 plots had sufficient planted tree and shrub density to meet this criterion. Plot 1 had 6 trees and Plot 9 had 4 trees, and were thus below the wetland/stream success criteria. All of the 11 plots applicable for riparian buffer credit had sufficient planted plus volunteer native tree and shrub density to meet the current (Oct 2014) riparian buffer mitigation criteria. Plots 5 is within the enhanced wetland and is therefore excluded from riparian buffer credit determination. Native volunteer tree seedlings (mostly green ash, sycamore, elm and sweetgum) are abundant in all plots, and the total density of native trees and shrubs (planted plus volunteers) in non-wetland buffer plots ranges from 1,012 to 3,076 stems per acre.

Chinese privet, the only non-native woody plant recorded in the CVS plots, was present in plots 2, 3, and 4, where it comprised 4 to 11% of total woody stems in those plots. Privet patches in the restored buffers along the two tributaries (approximately 16.5 acres), were treated with herbicide in January 2015 and will be re-treated in spring 2015. No invasive treatment was conducted along the main stem of Bear Creek, where most of the privet is beneath a tall hardwood canopy and poses little threat to trees. A few patches of Ailanthus were also noted along the Bear Creek buffer.

Stunted tree growth is evident in several CVS plots and areas outside of the plots, especially in the upper segments along both tributaries where soil is dense and clayey. Outside of the CVS plots, most of the problem areas previously mapped as "low planted stem density" in 2011-2012 were removed from "problem areas" on the CCPV maps (Figures 2.0 to 2.8) due to abundant colonization by volunteer native trees and supplementary planting conducted in November 2013

(1500 trees/11.8 acres = 127 added trees/ac). In 2014 many of those areas are continuing to fill in with volunteer native trees. One area along the Northern UT (0.15 acre) and another area along Bear Creek (0.29 acre) are currently mapped as "low woody stem density" on the latest CCPV figures.

Trees in the riparian forest near Bear Creek south of the Northern UT and near both cattle crossings have fallen on the easement fence and broken the wires and connectors, as reported in 2013. There are currently no livestock held on the adjacent pastures, and no livestock damage was observed, but fence repair should be completed prior to releasing any livestock in the adjacent pasture. Landowner Oscar Guarin reported to RJG&A in 2013 that the site is being used only for growing hay for sale, and he has no plans to graze livestock on-site.

1.6.2 Stream Channel Condition

RJG&A and MMI staff collected cross-sectional and longitudinal stream survey data using a Trimble survey-grade GPS unit during October 12-14, 2014. The Southern UT was completely dry, and the Northern UT was at base-flow condition during the survey. Terrestrial vegetation has invaded much of the Southern UT channel and some areas within the Northern UT channel. Overall the project appears to have met its morphological goals, and its profile parameters closely mirror the design criteria. The Southern UT has no channel instability problem areas.

The four segments of stream-bank erosion along the Northern UT noted in the 2010 to 2012 reports are stabilizing as the density of non-woody and woody plants on these banks continues to increase. Two of these segments near stations 34+50 and 37+00 have mostly weak-rooted annual vegetation and are still identified as problem areas (total 80 lin.ft), although neither appears to have eroded further during the past two years. The other two segments near stations 20+80 and 23+00 now have dense growths of Juncus and other sturdy plants that appear adequate to halt further erosion, and were removed from the "problem area" list and mapping in 2012-2013. No new area of erosion was noted in 2013. One rock vane structure near station 36+60 on the Northern UT appears to have collapsed. This presumably occurred during the project's first year, but the loose rocks were not recognized as a collapsed structure until this year. All other rock and log structures on both streams appear to be stable and performing as intended.

The 2014 survey of Cross Section #3 (Northern UT) appears to have widened substantially relative to previous years (Figure 5.3) but this is apparently due to error in satellite signals or the GPS recording device. Note that the right end pin appears to have moved over 15 feet. The pin ; clearly did not move, and field observations and photos at this cross-section showed no apparent erosion. The error became apparent only when the data were plotted.

Three small beaver dams were noted along the lower portion of the Northern UT, apparently constructed during the past year. EEP is actively managing this situation by setting beaver traps and removing the dams.

1.6.3 Stream & Wetland Hydrology

A PVC crest gage is installed along the Northern UT near station 32+50, with the bottom of the gage (inside of pipe) 1.5 ft below bankfull. The gage was inspected and maintained in April and October 2014. Cork granules on the rod inside the gage revealed peak stages at bankfull or higher had occurred prior to both the April and October 2014 visits. Matted grass and wrack lines beyond the streams banks were evident during both inspections. Precipitation records at the Siler City Airport (SILR gage, 10 miles NW of the project site) and NCCH-04 gage (4 miles NE of the project site) during 2014 indicate multiple storms of 2 inches or more that likely caused bankfull flow events. Hydrologic data from the on-site wells and NCCH-04 rain gage are summarized in Appendix E.

The hydrologic success criteria for restored wetlands requires that soils be saturated within 12 inches of the surface for at least 12.5% of the growing season (27 consecutive days in Chatham County, April through October). Data downloaded from the two RDS Ecotone groundwater gages in the wetland along the Northern UT showed the water table depth within the upper 12 inches continuously at both gages for periods of 41 and 63 days respectively, well beyond the 27 days required to meet the hydrologic success criteria.

2.0 Monitoring Methods

Monitoring and reporting methods follow the current EEP-provided templates and guidelines (Lee *et al* 2008; NC-EEP 2012). Photographs were taken with an Olympus digital camera. A Trimble Geo XT handheld mapping-grade GPS unit was used to collect cross section endpoints, vegetation plot corners, stream photo points, and problem area locations. All problem areas identified in the fall 2012 and spring 2013 versions of the CCPV map were re-evaluated in October 2013.

2.1 Stream Survey Methods

Longitudinal stationing along each UT was assigned in ArcMap using the as-built centerline data collected in May 2009, beginning with 10+00 at the upper end of each restored stream. Nine permanent cross sections (six along the Northern UT and three along the Southern UT) were selected and staked during April 2010. Geomorphology data for monitoring year 3 were collected during September to October 2012 using a South Total Station for the longitudinal profiles and a Nikon automatic level for the cross sections. Data collection methods employed were a combination of those specified in the project Mitigation Plan and standard regulatory guidance and procedures documents including the USACE *Stream Mitigation Guidelines*, US Forest Service's *Stream Channel Reference Sites*, and *Applied River Morphology* (USACE, 2003; Harrelson et al., 1994; Rosgen, 1996). Photographs facing downstream were taken at each cross section. Stream bed particle distribution was assessed using the Wolman pebble count method.

2.2 Vegetation Sampling Methods

Twelve representative vegetation survey plots (seven along the Northern UT and five along the Southern UT) were selected and installed in April 2010. The four corners of each 10 x 10 meter plot are marked with metal conduit pipe, and the side closest to the stream was designated as the x-axis.. Vegetation data for monitoring year 4 were collected between October 17 and October 29, 2013. Level 1 (planted woody stems) and Level 2 (volunteer woody stems) data collection was performed in all plots, following the most recent CVS-EEP protocol (Lee *et al* 2008). Each planted woody stem location within a plot was recorded (x and y coordinates), along with stem height, diameter at breast height of live stems greater than 137 cm tall, species name, and qualitative vigor rating. Planted stems were marked with survey flagging to facilitate relocation next year and to distinguish them from volunteer trees. Planted and volunteer woody species were identified using Radford et al. (1968) and Weakley (2010). A photo of each vegetation plot was taken, usually from the 0,0 corner unless dense vegetation made it necessary to photograph froma different corner.

2.3 Hydrology Methods

Wetlands: Daily groundwater level data were collected from two Remote Data Systems automated groundwater monitoring gages installed in the enhanced riparian wetland adjacent to the Northern UT in April 2010 in accordance with USACE guidance (USACE 2000). These gage data were plotted against precipitation data from the Siler City Airport ECONet station (SILR), located 10 miles northwest of the monitored wetland. In 2014 the available data at the SILR gage were incomplete, and Station NCCH-04 located 4 miles northeast of the project site was used instead. Wetland gage and precipitation data and graphs are provided in Appendix E of this monitoring report.

Streams: One PVC crest gage was installed in 2010 at Station 3280 along the Northern UT to verify the on-site occurrence of bankfull events. The bottom of the gage is approximately 0.4 ft above the thalweg and 1.5 ft below bankfull (right bank). The crest gage was evaluated during the spring and fall data collection visits, and the site was assessed for evidence of bankfull events. Dates of potential bankfull events were inferred using precipitation data from the Siler City Airport ECONet station (SILR), Station NCCH-04, and/or the Tick Creek stream gage near Mt. Vernon Springs (USGS# 02102800), located 3.5 miles north of the crest gage. Data are provided in Appendix E.

3.0 References

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

Ko & Associates, Consulting Engineers (2007). *UT to Bear Creek Stream Restoration Project—Restoration Plan*. NCEEP, Raleigh, NC.

Ko & Associates Consulting Engineers (2009). *As-Built Plans, UT to Bear Creek Stream Restoration.* NCEEP, Raleigh, NC.

Lee, Michael T., Peet, Robert K., Roberts, Steven D., Wentworth, Thomas R. (2008). *CVS-EEP Protocol for Recording Vegetation version 4.2, October 2008*. Retrieved September 2011, from: http://cvs.bio.unc.edu/methods.htm

NRCS (2006). Natural Resources Conservation Service. *Soil Survey of Chatham County, North Carolina.* Retrieved from: http://soils.usda.gov/survey/printed_surveys/

NC-DENR Ecosystem Enhancement Program. (2012*). NC-EEP Monitoring Report Template and Guidance version 1.5, June 2012*. http://portal.ncdenr.org/web/eep/dbb-resources

Radford, A.E., H.E. Ahles, and C.R. Bell (1968). *Manual of the Vascular Flora of the Carolinas*. University of North Carolina Press. Chapel Hill, NC.

Robert J. Goldstein & Associates, Inc. (2010). *Baseline Monitoring Document and As-built Baseline Report UT to Bear Creek(#92347)*. August 2010.

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

Rosgen, D.L. (1997). "A Geomorphological Approach to Restoration of Incised Rivers. In *Proceedings of the Conference on Management of Landscapes Disturbed by Channel Incision*, ed. S.Y. Wang, E.J. Langendoen, F.B. Shields, Jr. University of Mississippi Press, Oxford, MS.

US Army Corps of Engineers (2003) *Stream Mitigation Guidelines*. USACOE, USEPA, NCWRC, and NCDENR-DWQ.

Weakley, Alan (2010). *Flora of the Carolinas, Virginia, Georgia, and Surrounding Areas*. Website: http://www.herbarium.unc.edu/flora.htm.

Final Assets Table : UT Bear Creek (Weaver McLeod) #92347 – Closeout Mar 2015						
Restoration Segment/ Reach	Pre – Construction (acre / lin.ft)	Mitigation Approach	Watershed Acreage	As-Built (lf/ac.)	Mitigation Ratio	Mitigation Units (SMU/WMU)
STREAM						
Northern UT	2832 ft	R	2.36	2918	1:1	2,918*
Southern UT	1605 ft	R	0.34	1643	1:1	1,633*
WETLAND						
N-Trib wetland	0.49 ac	E		0.39	2:1	0.20
*50-foot ford crossing excised from each tributary asset; 50% credit for 20-foot wide utility crossing on Southern UT.						

Riparian Buffer Mitigation Unit Component Summation			
Buffer Restoration (0-200 feet) *This is a grandfathered buffer project.	Mitigation Ratio	Buffer (square feet)	Buffer Mitigation Units (square feet)
Buffer Restoration on North Tributary (30'-200')	1:1	422,619	422,619
Buffer Restoration on South Tributary (30'-200')	1:1	176,374	176,374
Buffer Restoration along Bear Creek (30'-200')	1:1	137,574	137,574
Buffer Preservation (0-100 feet)			
Rural Subject Streams with 0-100 foot Buffer from TOB	10:1	407,939	40,794
NOTES: 1) Conservation easement along Bear Creek is only on left bank. 2) No buffer credit calculated on segments where buffer is less than 30' wide.	Total	1,144,506 square feet	777,361 buffer mitigation units

MITIGATION UNIT TOTALS

Stream Mitigation Units (SMU)	Riparian Wetland Units	Non-riparian Wetland Units	Total Wetland (WMU)	Riparian Buffer	Nutrient Offset
4,551	0.20	0	0.20	777,361	0

Directions to the Site:
From US-64 just west of Pittsboro, take NC-902 West (southwest) for 15 miles toward Bear Creek. Cross US-421 and then Old US-421 and a railroad track. Access to the Northern UT is via a gravel road on your left, 0.3 mile past Old 421, across from Chatham Central High School. Access to the Southern UT is via another gravel road 0.8 mile farther west along NC-902, also on your left. The property owner keeps the gates locked at both access roads.

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.

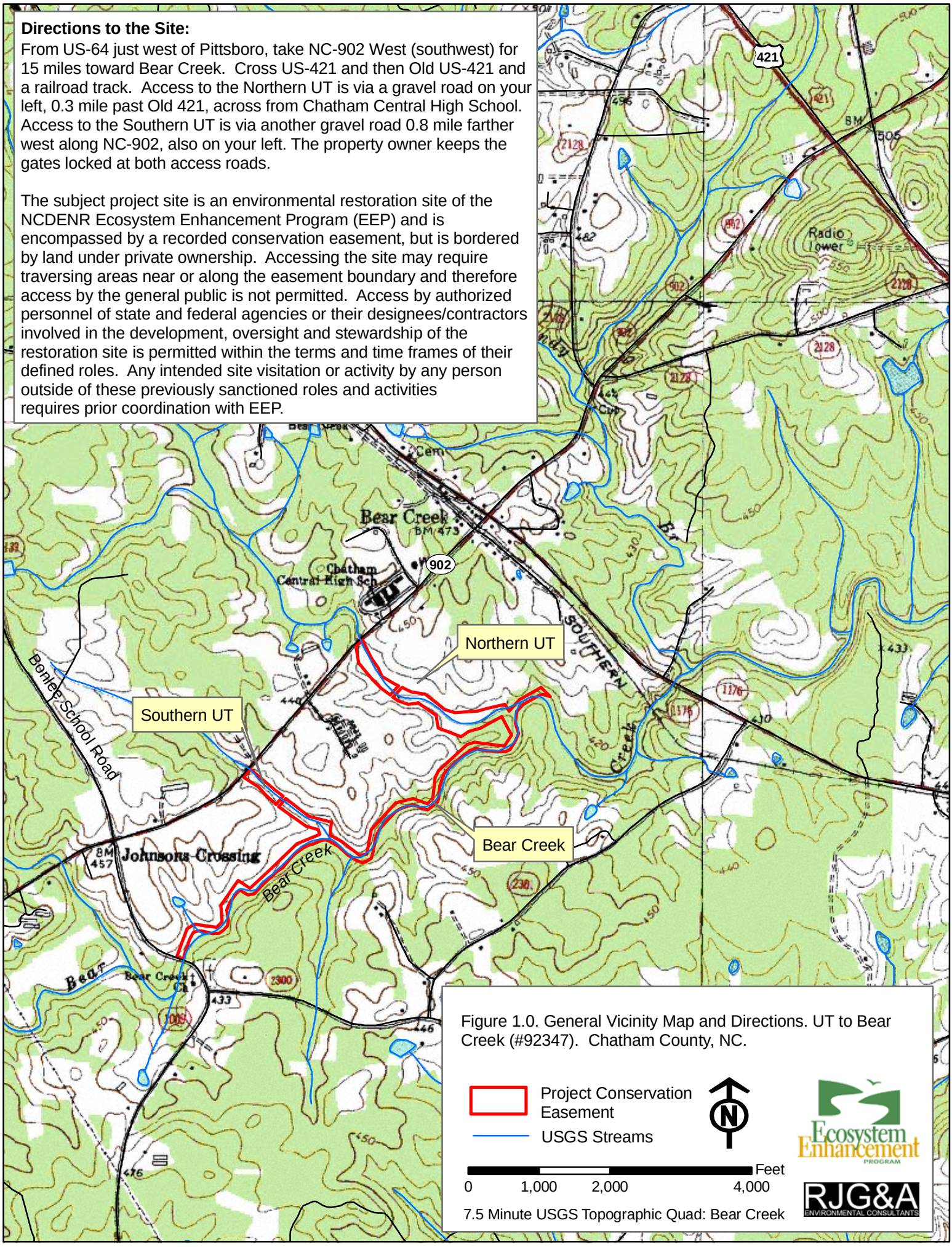


Figure 1.0. General Vicinity Map and Directions. UT to Bear Creek (#92347). Chatham County, NC.

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

APPENDIX A.

PROJECT BACKGROUND TABLES

Table 1.1-1.2	Project Restoration Components
Table 2	Project Activity and Reporting History
Table 3	Project Contacts Table
Table 4	Project Attributes Table

Table 1.1. Project Components & Mitigation Credits UT Bear Creek (Weaver/McLeod) Stream Restoration - Project #92347							
Project Component or Reach ID	**Existing Feet / Acres**	**Restor Level & Approach**	**Restored Feet / Acres**	**Stationing**	**Mitigation Ratio**	**Ratio Multplier**	**Mitigation Units**
BUFFER Northern UT to Bear Creek	9.702 acre	Rest	9.702 acre	--	1:1	1	422619
BUFFER Southern UT to Bear Creek	4.049 acre	Rest	4.049 acre	--	1:1	1	176374
BUFFER Bear Creek Main Stem	3.158 acre	Rest	3.158 acre	--	1:1	1	137574
BUFFER Bear Creek Main Stem	9.365 acre	Pres	9.365 acre	--	10:1	1	40794
STREAM Northern UT to Bear Creek (w/ 50-ft vehicle crossing)	2832 feet	PI	543 ft	10+07-15+50	1:1	1	543
		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	1675 ft	23+00-39+75	1:1	1	1,675
			2918 ft	Restored Channel Length			
STREAM Southern UT to Bear Creek (w/ 20-ft powerline crossing and 50-ft vehicle crossing)	1605 feet	PI	398 ft	10+07-14+05	1:1	1	398
		PI	20 ft	14+05-14+25	2:1	0.5	10
		PI	242 ft	14+25-16+67	1:1	1	242
		PI	633 ft	17+17-23+50	1:1	1	633
		PII	350 ft.	23+50-27+00	1:1	1	350
			1643 ft	Restored Channel Length			
RIPARIAN WETLAND along Northern UT	0.39 acre	E	0.39 ac.	--	2:1	0.5	0.20

NOTE: Sta 10+00 in 2009 As-Built Plan Survey by Contractor begins at NC-902 culvert outlet on each tributary. Project easement begins at ROW fence, at Sta 10+07 on each tributary.

Table 1.2. Restoration Component Summation UT Bear Creek (Weaver/McLeod) Stream Restoration - Project #92347							
Restoration	Stream	Riparian		Non-Ripar	Upland	Buffer	
Level	(lin.ft)	Wetland (acre)		(acre)	(acre)	(acre)	BMP
		Riverine	Non-Riverine				
Restoration	4,561					16.91	
Enhancement		0.39					
Enhancement I							
Enhancement II							
Creation							
Preservation						9.36	
HQ Preservation							
Totals (Feet/Acres)	**4,561**	**0.39**		**0**	**0**	**26.27**	**0**
MU Totals	**4,551**	**0.20**		**0**	**0**	**777,361**	**0**

Table 2. Project Activity and Reporting History UT Bear Creek (Weaver/McLeod) Stream Restoration - Project #92347		
Elapsed Time Since Grading Complete: 5 yrs 10 months		
Elapsed Time Since Planting Complete: 5 yrs 10 months		
Number of Reporting Years[1]: 5		
Activity or Deliverable	**Data Collection Complete**	**Completion or Delivery**
Restoration Plan	2007	Jul-07
Final Design – Construction Plans	2007	Jan-08
Stream Construction & As-Built Survey		Apr-09
Planting stream banks, wetland and buffer restoration (bare root and potted)		Apr-09
Year 0 (As-Built) Baseline Report	Apr-10	Aug-10
Year 1 Monitoring Report	Nov-10	Dec-10
Year 2 Monitoring Report	Aug-Sep-11	Sep-11
Year 3 Monitoring Report	Sep-Oct-12	Dec-12
Year 4 Monitoring Report	Oct-Dec-13	Jan-14
Year 4 Supplemental Planting		Nov-13
Year 5 Monitoring Report	Oct-14	Feb-15
Invasives Treatment in Restored Buffers		Jan-15
Final Closeout Report	Feb-15	Mar-15
Invasives Treatment (Planned)		Apr-15

Table 3. Project Contacts Table UT Bear Creek (Weaver/McLeod) 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 & Invasive Weed Treatment 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
Supplemental Planting (2014) Contractor	Carolina Silvics, Inc. 908 Indian Trail Rd, Edenton, NC 27932 Mary Margaret McKinney
Nursery Stock Suppliers	Arborgen 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 Gerald Pottern, (919) 872-1174

Table 4. Project Attribute Table: UT Bear Creek Weaver-McLeod (NCEEP #92347)

Project County	Chatham			
Physiographic Region	Piedmont			
Ecoregion	Carolina Slate Belt			
Project River Basin	Cape Fear (Deep River below Randleman dam)			
USGS HUC for Project (14 digit)	03030003 070050			
NCDWQ Sub-basin for Project	03-06-12 (Deep River)			
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 Cr	Southern UT to Bear Cr	Northern UT Wetland
Drainage area	25.0 sq mi	2.36 sq mi	0.34 sq mi	NA
Stream order	4th	2nd	1st	NA
Restored Stream length (ft) or Wetland (ac)	--	2,918	1,643	0.39 acres
Perennial or Intermittent	Perennial	Perennial	Intermittent	NA
Watershed type (Rural, Urban, Developing)	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 (includes water)	15.48	11.75	4.65	NA
Vegetated acreage (not planted) in easement	8.92	0.45	0.00	NA
Planted acreage (as restoration) in easement	3.16	10.09	4.05	0.39
Rosgen classification of pre-existing channel	NA	E4/F4	E4/F4	NA
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

	Bear Creek	Northern UT to Bear Cr	Southern UT to Bear Cr	Northern UT Wetland
Cowardin classification	R3UBH	R3UBH	R3UBH	PSS1B
Trout waters designation	No	No	No	No
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 2.0-2.8	Current Conditions Plan View (CCPV)
Table 5	Visual Stream Stability Assessment Table
Table 6	Vegetation Condition Assessment Table
e-Table	Stream & Vegetation Problem Inventory Table
e-Photos	Stream & Vegetation Problem Area Photos
Figure 3.1-3.9	Stream Station Photo-Points
Figure 4.1-4.6	Vegetation Monitoring Plot Photos

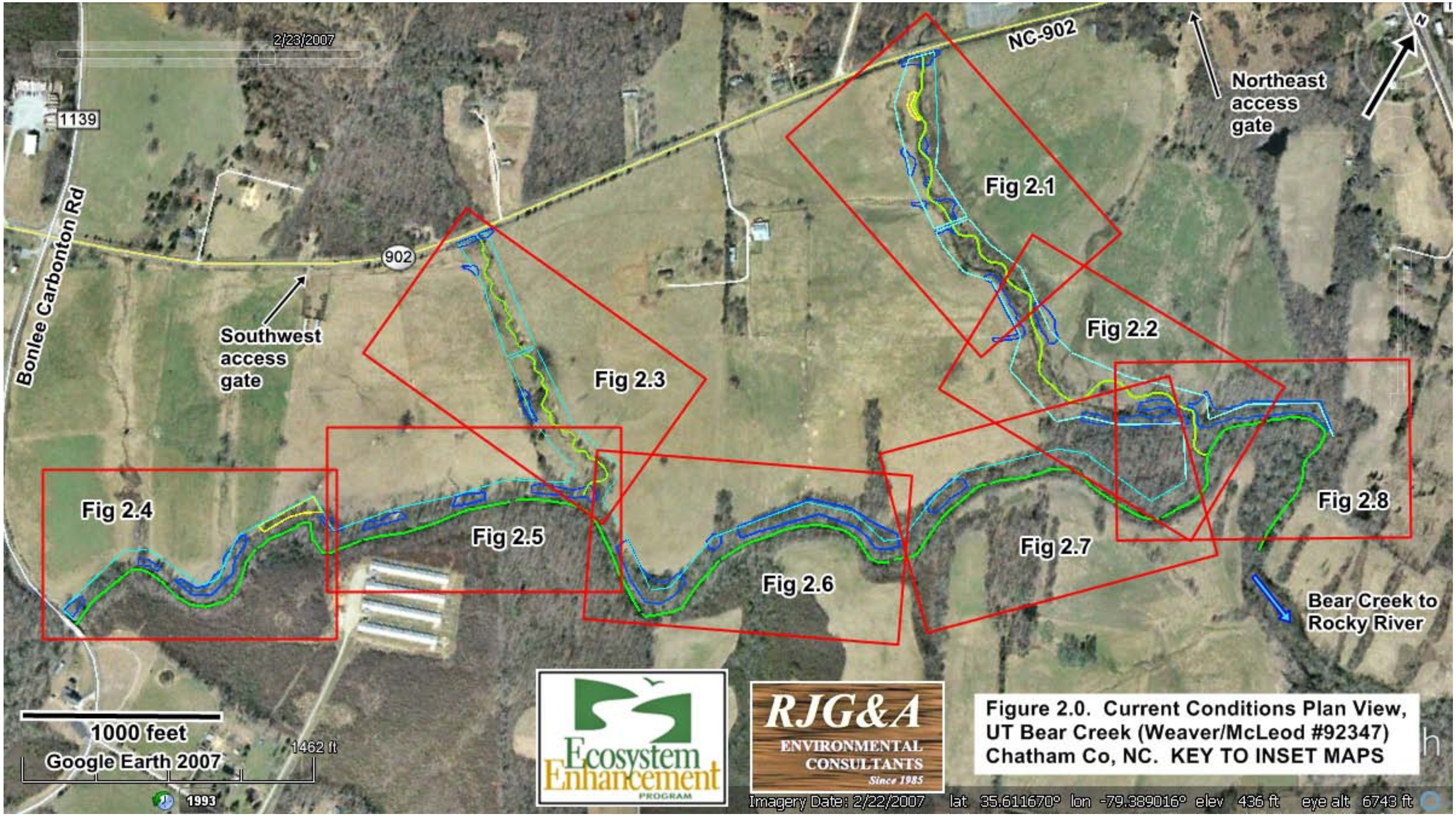
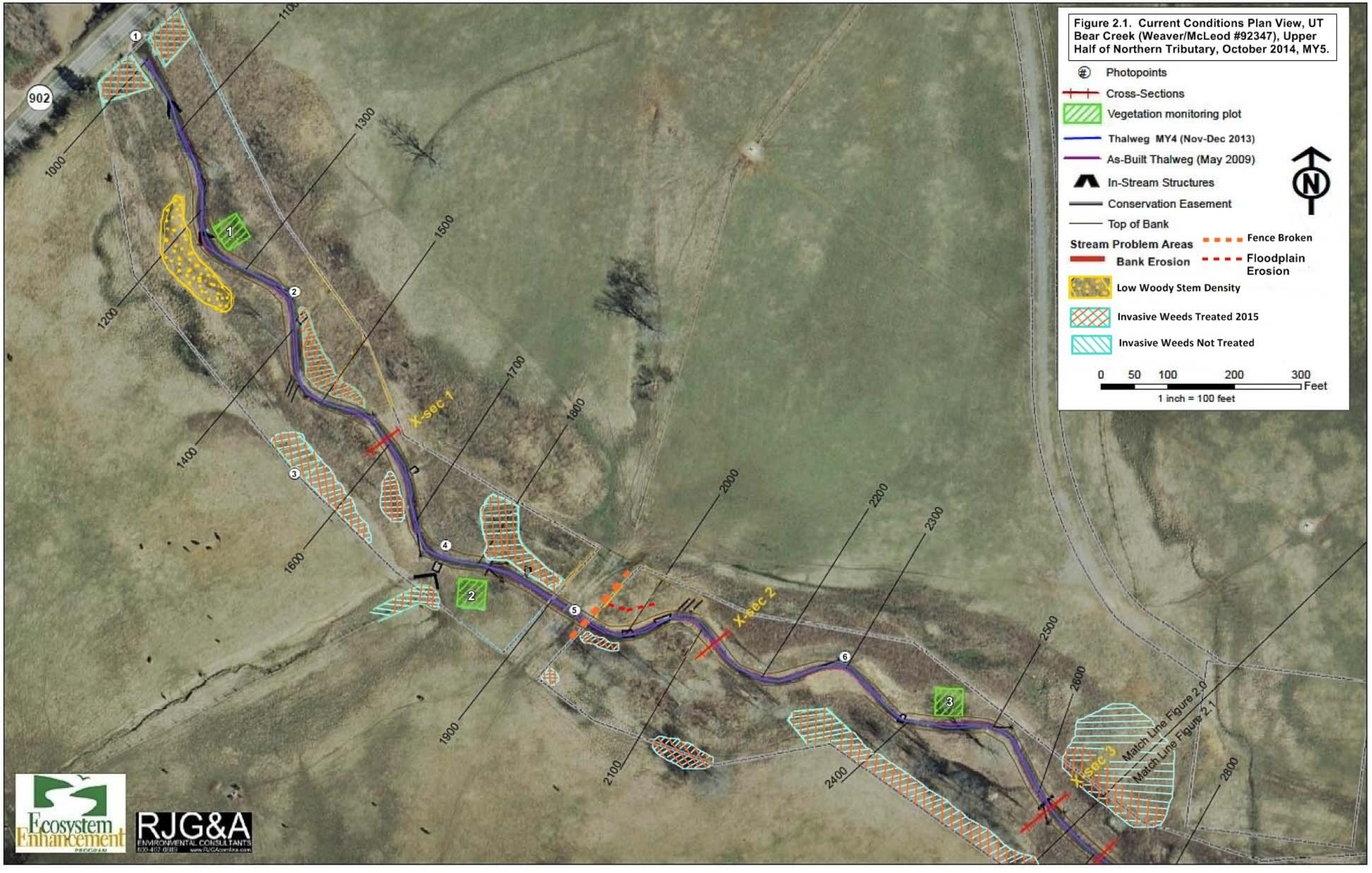
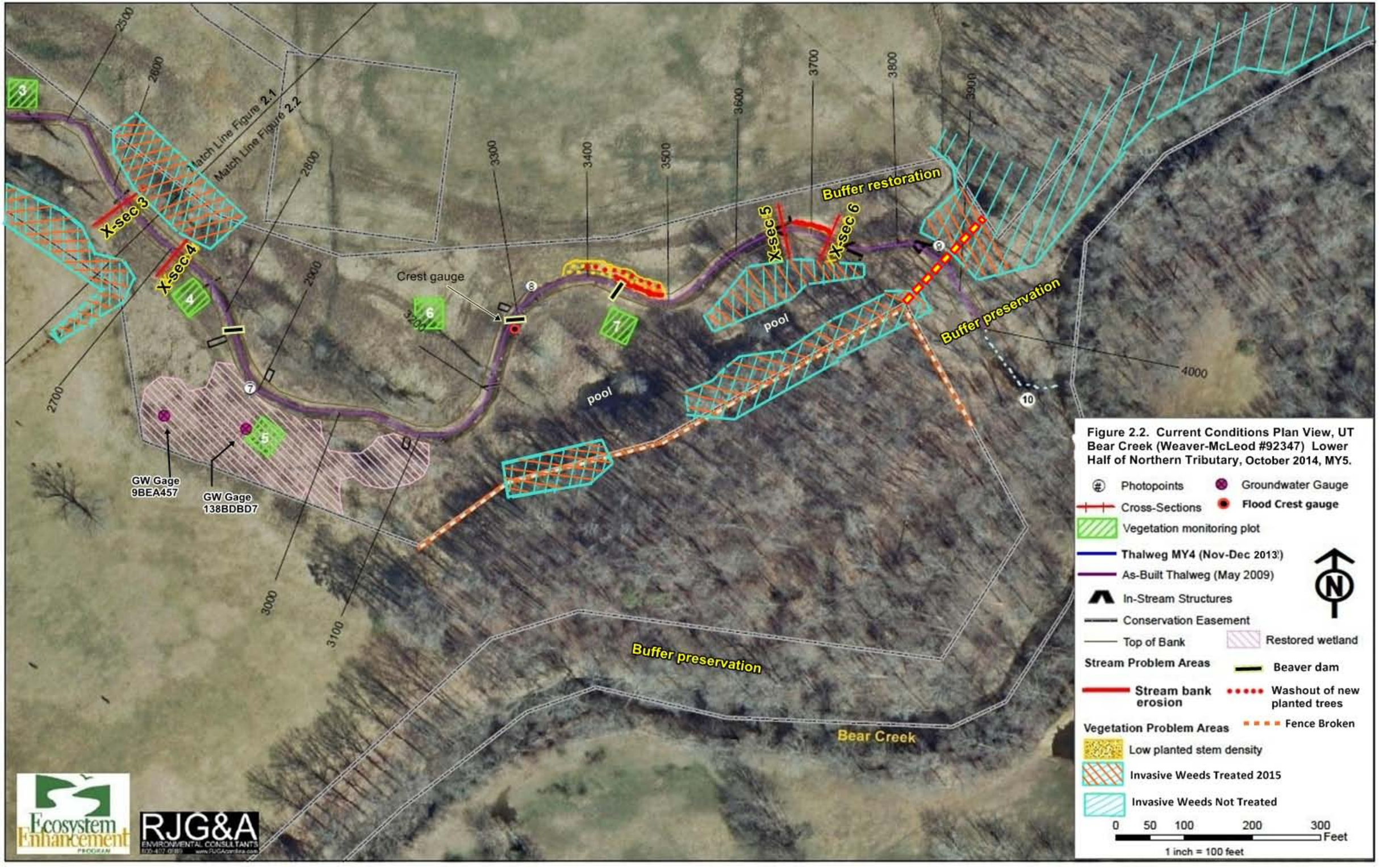


Figure 2.0. Current Conditions Plan View, UT Bear Creek (Weaver/McLeod #92347) Chatham Co, NC. KEY TO INSET MAPS


902
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2800
X-sec 1
X-sec 2
X-sec 3
Match Line Figure 2.0
Match Line Figure 2.1
Figure 2.1. Current Conditions Plan View, UT Bear Creek (Weaver/McLeod #92347), Upper Half of Northern Tributary, October 2014, MY5.
Photopoints
Cross-Sections
Vegetation monitoring plot
Thalweg MY4 (Nov-Dec 2013)
As-Built Thalweg (May 2009)
In-Stream Structures
Conservation Easement
Top of Bank
Stream Problem Areas
Fence Broken
Bank Erosion
Floodplain Erosion
Low Woody Stem Density
Invasive Weeds Treated 2015
Invasive Weeds Not Treated
N
0 50 100 200 300
Feet
1 inch = 100 feet
Ecosystem Enhancement
RJG&A
ENVIRONMENTAL CONSULTANTS


Match Line Figure 2.1
Match Line Figure 2.2
X-sec 3
X-sec 4
X-sec 5
X-sec 6
Crest gauge
Buffer restoration
Buffer preservation
Buffer preservation
pool
pool
GW Gage 9BEA457
GW Gage 138BDBD7
Bear Creek
2500
2600
2700
2800
2900
3000
3100
3200
3300
3400
3500
3600
3700
3800
3900
4000
Figure 2.2. Current Conditions Plan View, UT Bear Creek (Weaver-McLeod #92347) Lower Half of Northern Tributary, October 2014, MY5.
Photopoints
Groundwater Gauge
Cross-Sections
Flood Crest gauge
Vegetation monitoring plot
Thalweg MY4 (Nov-Dec 2013)
As-Built Thalweg (May 2009)
In-Stream Structures
Conservation Easement
Top of Bank
Restored wetland
Stream Problem Areas
Beaver dam
Stream bank erosion
Washout of new planted trees
Vegetation Problem Areas
Fence Broken
Low planted stem density
Invasive Weeds Treated 2015
Invasive Weeds Not Treated
0 50 100 200 300 Feet
1 inch = 100 feet
Ecosystem Enhancement Program
RJG&A
ENVIRONMENTAL CONSULTANTS


902
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
8
9
10
11
12
X-sec 7
X-sec 8
X-sec 9
Buffer restoration
Buffer preservation
Bear Creek
Figure 2.3. Current Conditions Plan View, UT Bear Creek (Weaver-McLeod #92347) Southern Tributary, October 2014, MY5.
Photopoints
Cross-Sections
Vegetation monitoring plot
Thalweg MY4 (Nov 2013)
As-Built Thalweg (May 2009)
In-Stream Structures
Conservation Easement
Top of Bank
Broken Fence
Vegetation Problem Areas
Low woody stem density
Invasive Weeds Treated 2015
Invasive Weeds Not Treated
0 40 80 160 240 Feet
1 inch = 100 feet
N
Ecosystem Enhancement PROGRAM
RJG&A ENVIRONMENTAL CONSULTANTS 800-407-0889 www.RJGAcarolina.com

Figure 2.4. Current Conditions Plan View, UT Bear Creek (Weaver/McLeod #92347), Bear Creek Main Stem, Segment 1, October 2014, MY-5.

Photo Points
Cross-Sections
Vegetation monitoring plot
Thalweg MY5 (Oct 2014)
As-Built Thalweg (May 2009)
In-Stream Structures
Conservation Easement
Top of Bank

Stream Problem Areas
Bank Erosion
Floodplain Erosion
Trees on fence

Vegetation Problem Areas
Low woody stem density
Invasive weeds (Not Treated)

300 feet

Google Earth 2007

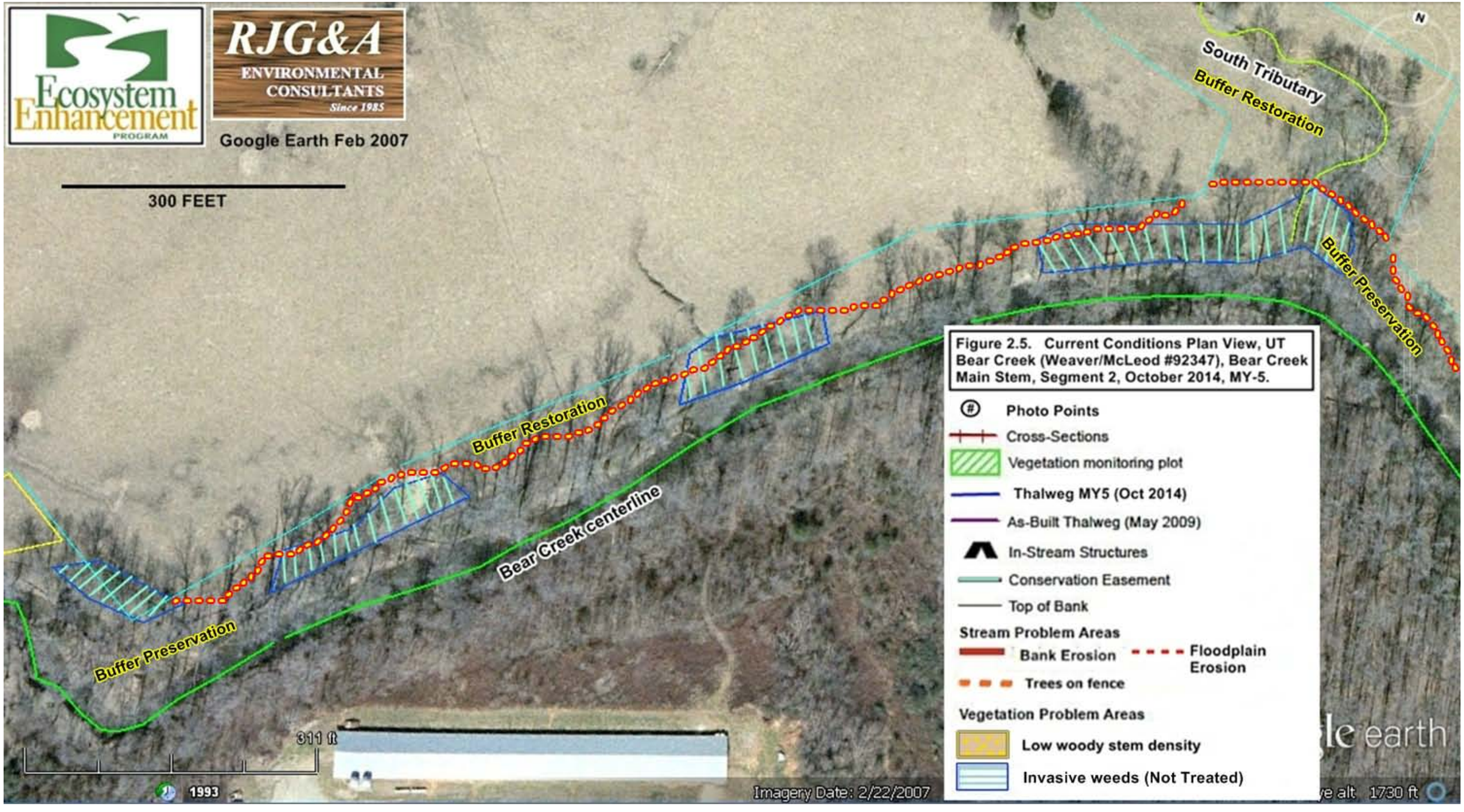
N

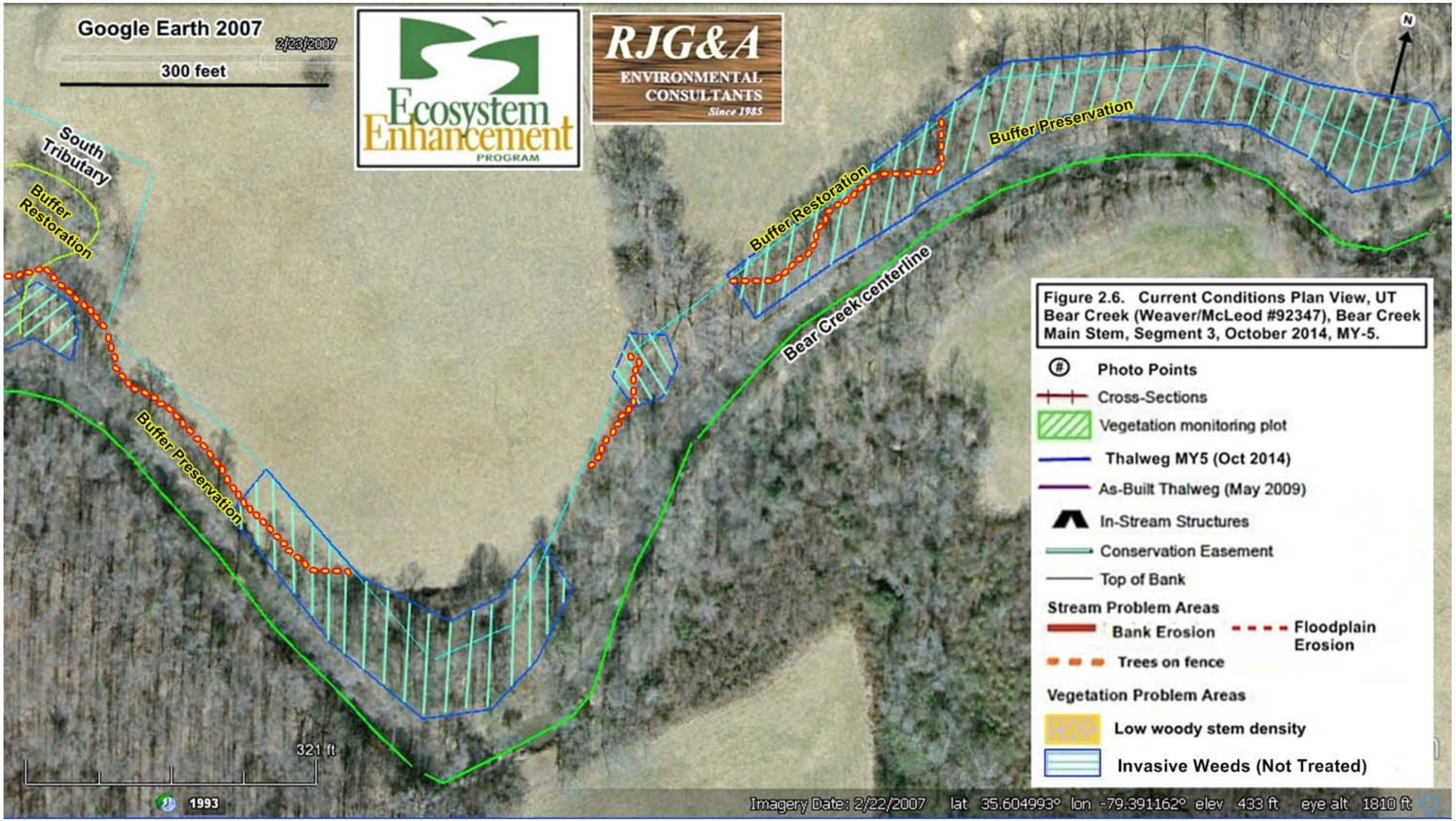
Buffer restoration
Buffer preservation
Buffer restoration
Buffer preservation
Bear Creek centerline
Bonlee Carbonton Rd
305 ft
1993

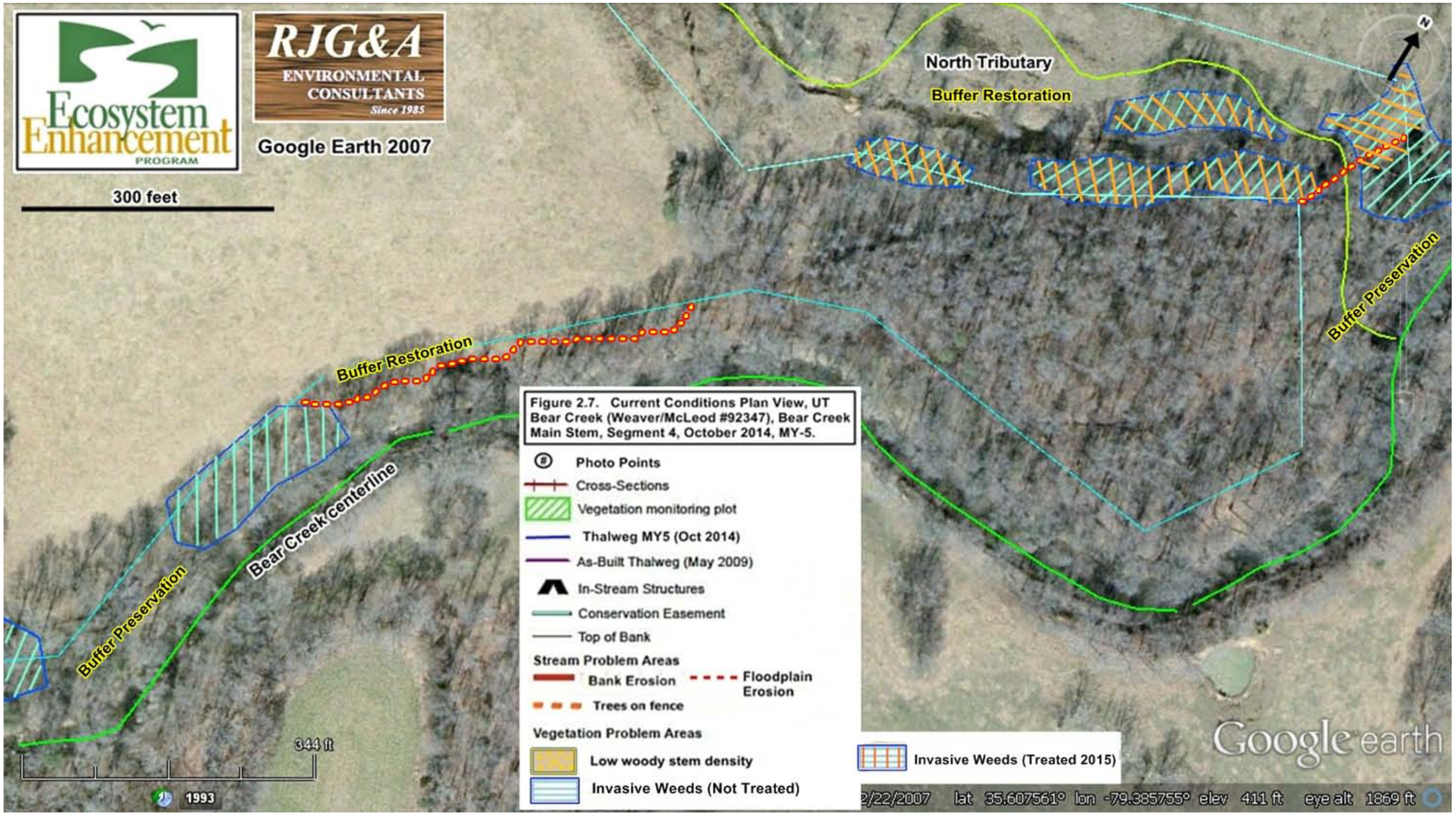
RJG&A ENVIRONMENTAL CONSULTANTS Since 1985

Ecosystem Enhancement PROGRAM

Imagery Date: 2/22/2007 lat 35.601074° lon -79.397986° elev 425 ft eye alt 1729 ft


Ecosystem Enhancement PROGRAM
RJG&A
ENVIRONMENTAL CONSULTANTS
Since 1985
Google Earth Feb 2007
300 FEET
N
South Tributary
Buffer Restoration
Buffer Preservation
Buffer Restoration
Bear Creek centerline
Buffer Preservation
311 ft
1993
Imagery Date: 2/22/2007
1730 ft
Figure 2.5. Current Conditions Plan View, UT Bear Creek (Weaver/McLeod #92347), Bear Creek Main Stem, Segment 2, October 2014, MY-5.
Photo Points
Cross-Sections
Vegetation monitoring plot
Thalweg MY5 (Oct 2014)
As-Built Thalweg (May 2009)
In-Stream Structures
Conservation Easement
Top of Bank
Stream Problem Areas
Bank Erosion
Floodplain Erosion
Trees on fence
Vegetation Problem Areas
Low woody stem density
Invasive weeds (Not Treated)


Google Earth 2007
2/23/2007
300 feet
Ecosystem Enhancement PROGRAM
RJG&A
ENVIRONMENTAL CONSULTANTS
Since 1985
N
South Tributary
Buffer Restoration
Buffer Preservation
Buffer Restoration
Bear Creek centerline
Buffer Preservation
321 ft
1993
Figure 2.6. Current Conditions Plan View, UT Bear Creek (Weaver/McLeod #92347), Bear Creek Main Stem, Segment 3, October 2014, MY-5.
Photo Points
Cross-Sections
Vegetation monitoring plot
Thalweg MY5 (Oct 2014)
As-Built Thalweg (May 2009)
In-Stream Structures
Conservation Easement
Top of Bank
Stream Problem Areas
Bank Erosion
Floodplain Erosion
Trees on fence
Vegetation Problem Areas
Low woody stem density
Invasive Weeds (Not Treated)
Imagery Date: 2/22/2007 lat 35.604993° lon -79.391162° elev 433 ft eye alt 1810 ft


Ecosystem Enhancement PROGRAM
RJG&A ENVIRONMENTAL CONSULTANTS Since 1985
Google Earth 2007
300 feet
North Tributary
Buffer Restoration
Buffer Preservation
Buffer Restoration
Bear Creek centerline
Buffer Preservation
344 ft
1993
Figure 2.7. Current Conditions Plan View, UT Bear Creek (Weaver/McLeod #92347), Bear Creek Main Stem, Segment 4, October 2014, MY-5.
Photo Points
Cross-Sections
Vegetation monitoring plot
Thalweg MY5 (Oct 2014)
As-Built Thalweg (May 2009)
In-Stream Structures
Conservation Easement
Top of Bank
Stream Problem Areas
Bank Erosion
Floodplain Erosion
Trees on fence
Vegetation Problem Areas
Low woody stem density
Invasive Weeds (Not Treated)
Invasive Weeds (Treated 2015)
Google earth
2/22/2007 lat 35.607561° lon -79.385755° elev 411 ft eye alt 1869 ft

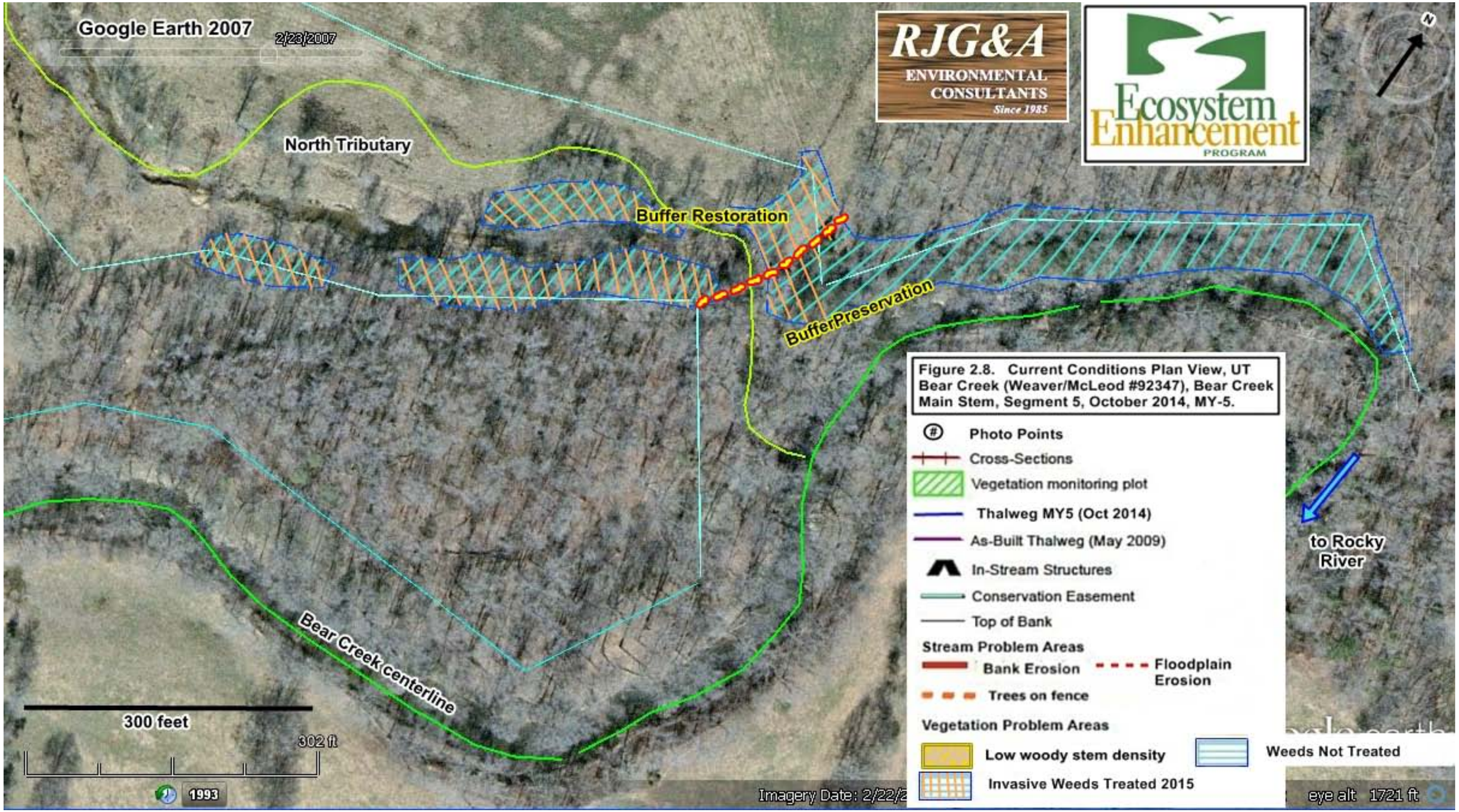

Google Earth 2007
2/23/2007
RJG&A
ENVIRONMENTAL CONSULTANTS
Since 1985
Ecosystem Enhancement
PROGRAM
N
North Tributary
Buffer Restoration
BufferPreservation
Bear Creek centerline
300 feet
302 ft
1993
Imagery Date: 2/22/2
eye alt 1721 ft
to Rocky River
Figure 2.8. Current Conditions Plan View, UT Bear Creek (Weaver/McLeod #92347), Bear Creek Main Stem, Segment 5, October 2014, MY-5.
Photo Points
Cross-Sections
Vegetation monitoring plot
Thalweg MY5 (Oct 2014)
As-Built Thalweg (May 2009)
In-Stream Structures
Conservation Easement
Top of Bank
Stream Problem Areas
Bank Erosion
Floodplain Erosion
Trees on fence
Vegetation Problem Areas
Low woody stem density
Weeds Not Treated
Invasive Weeds Treated 2015

Table 5.1 Visual Stream Morphology Stability Assessment
Reach ID Northern UT Assessed Length = 2,918 feet

Major Channel Category	Channel Sub-Category	Metric	Number Stable Performing as Intended	Total Number in As-built	Number of Unstable Segments	Amount of Unstable Footage	% Stable, Performing as Intended
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition	1. Texture/Substrate - Riffle maintains coarser substrate	23	25			92%
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.5)	29	31			94%
		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 due to active scour and erosion.			2	150	95%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are stabilized by roots and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	2	150	95%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	21	22			95%
	2. Grade Control	Grade control structures exhibiting maintenance of grade across the sill.	10	10			100%
	2a. Piping	Structures lacking any substantial flow underneath or around sills or arms.	10	10			100%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance exhibit describing bank influenced by vane arms)	21	22			95%
	4. Habitat	Pool forming structures maintaining Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.5 Rootwads/logs providing some cover at low flow.	20	22			91%

Table 5.2 Visual Stream Morphology Stability Assessment
Reach ID Southern UT Assessed Length = 1,643 feet

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
1. Bed	1. **Vertical Stability** (Riffle and Run units)	1. Aggradation - Bar formation/growth sufficient to significantly deflect flow laterally (not to include point bars)			0	0	100%
		2. Degradation - Evidence of downcutting			0	0	100%
	2. Riffle Condition	1. Texture/Substrate - Riffle maintains coarser substrate	24	27			89%
	3. Meander Pool Condition	1. Depth Sufficient (Max Pool Depth : Mean Bankfull Depth ≥ 1.5)	44	48			92%
		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 due to active scour and erosion.			0	0	100%
	2. Undercut	Banks undercut/overhanging to the extent that mass wasting appears likely. Does NOT include undercuts that are stabilized by roots and are providing habitat.			0	0	100%
	3. Mass Wasting	Bank slumping, calving, or collapse			0	0	100%
				Totals	0	0	100%
3. Engineered Structures	**1. Overall Integrity**	Structures physically intact with no dislodged boulders or logs.	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 or around sills or arms.	28	28			100%
	3. Bank Protection	Bank erosion within the structures extent of influence does not exceed 15%. (See guidance exhibit describing bank influenced by vane arms)	32	32			100%
	4. Habitat	Pool forming structures maintaining Max Pool Depth : Mean Bankfull Depth ratio ≥ 1.5 Rootwads/logs providing some cover at low flow.	32	32			100%

Table 6 Vegetation Condition Assessment. UT Bear Creek (Weaver/McLeod) EEP# 92347- 2014 (MY-5)

Planted Acreage[1] **17.3**

Vegetation Category	Definitions	Mapping Threshold	CCPV Depiction	Number of Polygons	Combined Acreage	% of Planted Acreage
1. Bare Areas	Very limited cover of both woody and herbaceous material.	0.1 acre	Pattern and Color	0	0.00	0.0%
2. Low Stem Density Areas	Woody stem densities clearly below target levels based on MY3, 4, or 5 stem count criteria.	0.1 acre	Gold stipple	2	0.44	2.5%
			Total	2	0.44	2.5%
3. Areas of Poor Growth Rates or Vigor	Areas with woody stems of a size class that are obviously small given the monitoring year.	0.25 acre	Pattern and Color	0	0.00	0.0%
			Cumulative Total	2	0.44	2.5%

Easement Acreage[2] **32.0**

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).	1000 SF	Blue hatched	15	3.70	11.6%
				0		
5. Easement Encroachment Areas[3]	Areas or points (if too small to render as polygons at map scale).	none	Pattern and Color	15	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

Problem Areas Inventory Tables: UT Bear Creek (Weaver/McLeod) #92347 - MY5 (2014)

Stream Problem Areas - Northern UT

Problem	North UT Station	Suspected Cause	Photo #
Bank erosion, LB	3435-3490 LB	Coir and live stakes washed out in 2010-11; poor root density on bank.	**1, 2**
Bank erosion, LB	3680-3705 LB	Coir and live stakes washed out in 2010-11; poor root density on bank.	**3, 4**

Stream Problem Areas - Southern UT

Problem	South UT Station	Suspected Cause	Photo #
None on Southern UT			

Vegetation & Easement Problem Areas - Northern UT

Problem	North UT Station	Suspected Cause	Photo #
Ligustrum sinense invading upper reach along NC-902 (RB+LB)	1000-1100 RB 1000-1170 LB	*Ligustrum* abundant in roadside scrub along NC-902	**5**
Low woody stem density and/or poor vigor (RB)	1180-1310 RB	Soil dense/clayey, poor root growth	**6**
Low woody stem density and/or poor vigor (LB)	1350-1550 LB	Soil dense/clayey, poor root growth	
Ligustrum sinense 4 small patches (.02 to .06 acr each) in middle reach	1450 RB, 1750 RB, 1800 LB, 2300 RB	Stump/root sprouts and seedlings from *Ligustrum* outside easement fence	
Low woody stem density and/or poor vigor (LB)	1820-1900 LB	Soil dense/clayey, Fescue dominant	**7**
Broken fence wires at cattle crossing	1930 LB	Tree fallen on fence	**9**
Low woody stem density and/or poor vigor (LB)	1950-2100 LB	Soil dense/clayey, poor root growth	**8**
Low woody stem density and/or poor vigor (RB)	2020-2150 RB	Soil dense/clayey, poor root growth	
Broken fence wires (RB) in forest near Bear Creek confluence	3100-4000 RB	Large trees fallen on fence in Bear Creek riparian buffer	

Vegetation & Easement Problem Areas - Southern UT

Problem	South UT Station	Suspected Cause	Photo #
Ligustrum sinense invading upper reach along NC-902 (RB+LB)	1000-1050 RB-LB	*Ligustrum* abundant in roadside scrub along NC-902	
Low woody stem density and poor vigor (LB)	1160-1340 LB	Soil dense/clayey, Fescue dominant	**10**
Broken fence wires (RB + LB)	1750 LB, 1900 RB	Trees fallen on fence	**11**
Low woody stem density, poor vigor (LB)	2300-2550 LB	Soil dense/clayey, Fescue dominant	**12**

NOTE: Low Woody Stem Density areas along both tributaries were replanted in Nov 2013. These areas currently have adequate seedlings to meet density requirements, but were retained in the Problem Area Table for now due to uncertainty about the potential survival rates of the new trees. Most of the replanted problem areas have dense clayey soils that may depress survival and growth.

Stream Problem Area Photos - UT Bear Creek (Weaver/McLeod) #92347 - MY5(2014)

1. N-sta-3450.LB Erosion.Oct 2014. Thin veg cover, no woody.

2. N-sta-3450.LB Erosion.Oct 2014. Thin veg cover, no woody.

3. N-sta-3700.LB Erosion.Oct 2014. Thin veg cover, no woody.

4. N-sta-3700.LB Erosion.Apr 2014. Thin veg cover, no woody.

(South Tributary Has No Stream Problem Areas)

Vegetation & Easement Problem Photos - UT Bear Creek (Weaver/McLeod) #92347 - MY5 (2014)

5. N-sta-1000.LB. Apr.2014. Ligustrum invading from roadside

6. N-sta-1200.RB. Face Dnstr. Oct.2014. Low woody density

7. N-sta-1900.LB. Face Upstr. Apr.2014. Fescue + Low woody

8. N-sta-1980.LB. Face Dnstr. Oct.2014. Low woody density

Vegetation & Easement Problem Photos - UT Bear Creek (Weaver/McLeod) #92347 - MY4 (2013)

9. N-sta-1930.LB. Oct.2014. Fence collapse at cattle crossing

10. S-sta-1280.LB. Face Upstr. Oct.2014. Fescue + Low woody

11. S-sta-1750.LB. Apr.2014. Tree fallen on fence

12. S-sta-2400.LB. Face Dnstr. Apr.2014. Fescue + Low woody

Figure 3.1 Stream Photo-Point Stations - UT Bear Creek Project #92347- MY5 (2014) - North Trib

Photo-Point 1: Northern UT facing Downstream from NC 902 (Sta. 10+00)

PhotoPoint-1: 3/25/2010

PhotoPoint-1: 10/14/2014

Photo-Point 2: Northern UT facing Downstream (Sta. 13+60)

PhotoPoint-2: 3/24/2010

PhotoPoint-2: 10/12/2014

Figure 3.2 Stream Photo-Point Stations - UT Bear Creek Project #92347- MY5 (2014) - North Trib

Photo-Point 3: Northern UT facing Upstream from easement fence corner (Sta. 15+30)

PhotoPoint-3: 3/24/2010

PhotoPoint-3: 10/12/2014

Photo-Point 4: Northern UT facing South across stream toward floodplain swale outlet (Sta. 17+55)

PhotoPoint-4: 3/24/2010

PhotoPoint-4: 10/12/2014

Figure 3.3 Stream Photo-Point Stations - UT Bear Creek Project #92347- MY5 (2014) - North Trib

Photo-Point 5: Northern UT facing Downstream at Cattle Crossing (Sta. 19+30)

PhotoPoint-5: 3/24/2010

PhotoPoint-5: 10/12/2014

Photo-Point 6: Northern UT facing Upstream (Sta. 22+95)

PhotoPoint-6: 3/24/2010

PhotoPoint-6: 10/13/2014

Figure 3.4 Stream Photo-Point Stations - UT Bear Creek Project #92347- MY5 (2014) - North Trib

Photo-Point 7: Northern UT facing Downstream (Sta. 28+95)

PhotoPoint-7: 3/24/2010

PhotoPoint-7: 10/13/2014

Photo-Point 8: Northern UT facing Upstream (Sta. 33+30)

PhotoPoint-8: 3/24/2010

PhotoPoint-8: 10/13/2014

Figure 3.5 Stream Photo-Point Stations - UT Bear Creek Project #92347- MY5 (2014) - North Trib

Photo-Point 9: Northern UT facing Upstream (Sta. 38+50)

PhotoPoint-9: 3/24/2010

PhotoPoint-9: 10/13/2014

Photo-Point 10: Northern UT facing Upstream just above Bear Creek confluence (Sta. 39+75)

PhotoPoint-10: 3/24/2010

PhotoPoint-10: 10/13/2014

Figure 3.6 Stream Photo-Point Stations - UT Bear Creek Project #92347- MY5 (2014) - South Trib

Photo-Point 11: Southern UT facing Downstream from NC 902 (Sta. 10+00)

PhotoPoint-11: 3/25/2010

PhotoPoint-11: 10/14/2014

Photo-Point 12: Southern UT facing Downstream (Sta. 12+10)

PhotoPoint-12: 3/25/2010

PhotoPoint-12: 10/14/2014

Figure 3.7 Stream Photo-Point Stations - UT Bear Creek Project #92347- MY5 (2014) - South Trib

Photo-Point 13: Southern UT facing Upstream (Sta. 14+45)

PhotoPoint-13: 3/25/2010

PhotoPoint-13: 10/14/2014

Photo-Point 14: Southern UT facing Downstream (Sta. 16+90)

PhotoPoint-14: 3/25/2010

PhotoPoint-14: 10/14/2014

Figure 3.8 Stream Photo-Point Stations - UT Bear Creek Project #92347- MY5 (2014) - South Trib

Photo-Point 15: Southern UT facing Downstream (Sta. 20+80)

PhotoPoint-15: 3/25/2010

PhotoPoint-15: 10/12/2014

Photo-Point 16: Southern UT facing Downstream (Sta. 24+20)

PhotoPoint-16: 3/25/2010

PhotoPoint-16: 10/12/2014

Figure 3.9 Stream Photo-Point Stations - UT Bear Creek Project #92347- MY5 (2014) - South Trib

Photo-Point 17: Southern UT facing Upstream from easement fence corner (Sta. 24+25)

PhotoPoint-17: 3/25/2010

PhotoPoint-17: 10/12/2014

Photo-Point 18: Southern UT facing Upstream from Bear Creek confluence (Sta. 27+00)

PhotoPoint-18: 3/25/2010

PhotoPoint-18: 10/12/2014

Figure 4.1 Vegetation Monitoring Plot Photos - UT Bear Creek Stream Restoration - MY5 (2014) - Project #92347

VegPlot 1 (Northern UT Sta. 12+20)

VegPlot-1: 4/14/2010

VegPlot-1: 10/12/2014

VegPlot 2 (Northern UT Sta. 18+15)

VegPlot-2: 4/14/2010

VegPlot-2: 10/12/2014

Figure 4.2 Vegetation Monitoring Plot Photos - UT Bear Creek Stream Restoration - MY5 (2014) - Project #92347

VegPlot 3 (Northern UT Sta. 24+35)

VegPlot-3: 4/14/2010

VegPlot-3: 10/13/2014

VegPlot 4 (Northern UT Sta. 27+75)

VegPlot-4: 4/14/2010

VegPlot-4: 10/13/2014

Figure 4.3 Vegetation Monitoring Plot Photos - UT Bear Creek Stream Restoration - MY5 (2014) - Project #92347

VegPlot 5 (Northern UT Sta. 29+50)

VegPlot-5: 4/14/2010

VegPlot-5: 10/13/2014

VegPlot 6 (Northern UT Sta. 31+10)

VegPlot-6: 4/14/2010

VegPlot-6: 10/13/2014

Figure 4.4 Vegetation Monitoring Plot Photos - UT Bear Creek Stream Restoration - MY5 (2014) - Project #92347

VegPlot 7 (Northern UT Sta. 33+75)

VegPlot-7: 4/14/2010

VegPlot-7: 10/13/2014

VegPlot 8 (Southern UT Sta. 12+00)

VegPlot-8: 4/15/2010

VegPlot-8: 10/12/2014

Figure 4.5 Vegetation Monitoring Plot Photos - UT Bear Creek Stream Restoration - MY5 (2014) - Project #92347

VegPlot 9 (Southern UT Sta. 14+45)

VegPlot-9: 4/15/2010

VegPlot-9: 10/12/2014

VegPlot 10 (Southern UT Sta. 19+35)

VegPlot-10: 4/15/2010

VegPlot-10: 10/12/2014

Figure 4.6 Vegetation Monitoring Plot Photos - UT Bear Creek Stream Restoration - MY5 (2014) - Project #92347

VegPlot 11 (Southern UT Sta. 23+25)

VegPlot-11: 4/15/2010

VegPlot-11: 10/12/2014

VegPlot 12 (Southern UT Sta. 24+55)

VegPlot-12: 4/15/2010

VegPlot-12: 10/12/2014

APPENDIX C.

VEGETATION PLOT MONITORING DATA

Table 7	Vegetation Plot Success Summary
Table 8	CVS Stem Counts Total and Planted by Plot
e-Table	Raw CVS vegetation data sheets

Table 7. Vegetation Plot Mitigation Success Summary
UT Bear Creek (Weaver/McLeod) # 92347 MY- 5 (Oct 2014)

Plot #	Riparian Buffer Stems[1]	Stream/ Wetland Stems[2]	Live Stakes	Invasives	Volunteer[3]	Total[4]	Unknown Growth Form
0001	64	6	1	0	58	65	0
0002	48	7	0	3	41	48	0
0003	52	12	0	6	40	52	0
0004	47	9	0	2	38	47	0
0005	na	31	0	0	116	147	0
0006	37	10	0	0	27	37	0
0007	25	8	0	0	17	25	0
0008	34	9	0	0	25	34	0
0009	53	4	0	0	49	53	0
0010	51	9	0	0	42	51	0
0011	43	13	0	0	30	43	0
0012	76	15	0	0	61	76	0

Wetland/Stream Vegetation Totals (per acre)

Plot #	Stream/ Wetland Stems[2]	Volunteers[3]	Total[4]	Success Criteria Met?
0001	243	2347	2590	No, close
0002	284	1658	1942	Yes, close
0003	486	1618	2104	Yes
0004	364	1538	1902	Yes
0005	1255	3804	5059	Yes
0006	405	1092	1497	Yes
0007	324	688	1012	Yes
0008	364	1012	1376	Yes
0009	162	1983	2145	No
0010	364	1700	2064	Yes
0011	526	1214	1740	Yes
0012	607	2469	3076	Yes
Project Avg	**449**	**1760**	**2209**	**Yes**

Riparian Buffer Vegetation Totals

Plot #	Riparian Buffer Stems[1]	Success Criteria Met?
0001	2590	Yes
0002	1942	Yes
0003	2104	Yes
0004	1902	Yes
wetland **0005**	na	na
0006	1497	Yes
0007	1012	Yes
0008	1376	Yes
0009	2145	Yes
0010	2064	Yes
0011	1740	Yes
0012	3076	Yes
Project Avg	**2209**	Yes

Stem Class Categories

[1]Buffer Stems	Native planted and volunteer hardwood trees and shrubs.
[2]Stream/ Wetland	Native planted hardwood trees and shrubs excluding live stakes.
[3]Volunteers	Non-planted (volunteer) native trees and shrubs.
[4]Total	Planted + volunteer native trees, native shrubs, and live stakes.

Color Code for Density Success Criteria

Exceeds crierion by 10% or more	**286 +**
Exceeds criterion by less than 10%	**260-285**
Fails to meet crierion by less than 10%	**234-259**
Fails to meet crierion by more than 10%	**< 234**

Table 8. CVS Stem Counts Total & Planted by Plot and Species.
UT to Bear Creek (Weaver/McLeod) EEP # 92347 MY- 5 (Oct 2014)

			Current Plot Data (MY5 2014)																								
			E92347-01-0001			E92347-01-0002			E92347-01-0003			E92347-01-0004			E92347-01-0005			E92347-01-0006			E92347-01-0007			E92347-01-0008		
Scientific Name	Common Name	Growth Form	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Acer rubrum	red maple	Tree															2									
Aesculus sylvatica	painted buckeye	Shrub																								
Alnus serrulata	hazel alder	Shrub																								
Baccharis halimifolia	eastern baccharis	Shrub			21			6			3			4												
Betula nigra	river birch	Tree	1	1	1	2	2	2	2	2	2	1	1	1	1	1	1				2	2	2	3	3	3
Celtis laevigata	sugarberry	Tree				1	1	1	1	1	1	1	1	1				1	1	1				1	1	1
Cephalanthus occidentalis	common buttonbush	Shrub													10	10	10									
Cornus amomum	silky dogwood	Shrub																								
Diospyros virginiana	common persimmon	Tree							1	1	1							1	1	1				1	1	1
Fraxinus pennsylvanica	green ash	Tree			25	2	2	29	3	3	36	1	1	34	18	18	39	2	2	20	1	1	1	2	2	23
Gleditsia triacanthos	honeylocust	Tree						2																		
Juglans nigra	black walnut	Tree															3									
Liquidambar styraciflua	sweetgum	Tree			3												43			3			10			
Nyssa sylvatica	blackgum	Tree							1	1	1	1	1	1												
Pinus taeda	loblolly pine	Tree																					2			
Platanus occidentalis	American sycamore	Tree	1	1	1				1	1	1	2	2	2	2	2	2	6	6	6	2	2	2			
Quercus	oak	Tree										1	1	1												
Quercus falcata	southern red oak	Tree																								
Quercus lyrata	overcup oak	Tree	1	1	1	1	1	1				1	1	1												
Quercus michauxii	swamp chestnut oak	Tree	1	1	1				2	2	2	1	1	1							1	1	1	1	1	1
Quercus nigra	water oak	Tree																								
Quercus phellos	willow oak	Tree							1	1	1										2	2	2			
Quercus velutina	black oak	Tree	1	1	1																					
Rubus argutus	sawtooth blackberry	Shrub																								
Salix nigra	black willow	Tree/Shr	1	2	7						2			1												
Symphoricarpos orbiculatus	coralberry	Shrub			3			6			2						3			3						
Ulmus	elm	Tree																								
Ulmus alata	winged elm	Tree															4			3				1	1	1
Ulmus americana	American elm	Tree				1	1	1									18						5			4
Native Tree/Shrub Stem count			6	7	64	7	7	48	12	12	52	9	9	47	31	31	125	10	10	37	8	8	25	9	9	34
Plot size (ares)			1.00			1.00			1.00			1.00			1.00			1.00			1.00			1.00		
Plot size (ACRES)			0.0247			0.0247			0.0247			0.0247			0.0247			0.0247			0.0247			0.0247		
Species count			6	6	10	5	5	8	8	8	11	8	8	10	4	4	10	4	4	7	5	5	8	6	6	7
Stems per ACRE			243	283	2590	283	283	1942	486	486	2104	364	364	1902	1255	1255	5059	405	405	1497	324	324	1012	364	364	1376

Color Codes for Density Success (stems/acre)

Exceeds requirements by 10%	286 +
Exceeds requirements, but by less than 10%	260-285
Fails to meet requirements, by less than 10%	234-259
Fails to meet requirements by more than 10%	< 234

Stream/Wetland success: use PnoLS column (planted trees + shrubs)

Riparian Buffer success: use T column (total native trees + shrubs)

volunteer native species

Table 8, continued. CVS Stem Counts Total & Planted by Plot and Species.

UT to Bear Creek (Weaver/McLeod) EEP # 92347 MY- 5 (Oct 2014)

	Current Plot Data (MY5 2014)												Annual Means, Total All Plots																	
Scientific Name	E92347-01-0009			E92347-01-0010			E92347-01-0011			E92347-01-0012			MY5 (2014)			MY4 (2013)			MY3 (2012)			MY2 (2011)			MY1 (2010)			MY0 (2010)		
	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T	PnoLS	P-all	T
Ace rub															2			3			7			1			2			4
Aes syl										1	1	1	1	1	1	1	1	1	1	1	1	1	1	1				1	1	1
Aln ser				1	1	1	2	2	2				3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Bac hal			2			3			4						43			38			38			18			15			2
Bet nig	3	3	3	1	1	1	2	2	2	1	1	1	19	19	19	17	17	17	17	17	17	17	17	17	20	20	20	21	21	22
Cel lae													5	5	5	4	4	4	5	5	5	5	5	6	2	2	2	3	3	3
Cep occ													10	10	10	11	11	11	11	11	11	11	11	11	12	12	12	12	12	12
Cor amo																											1			
Dio virg							1	1	1	1	1	1	5	5	5	5	5	5	6	6	6	6	6	7						
Fra pen	1	1	32	3	3	35			15	8	8	48	41	41	337	39	39	388	41	41	388	41	41	506	40	40	194	35	35	341
Gle tria															2			2			1			8	2	2	2	3	3	5
Jugl nig															3			3						1						
Liq sty			8												67			74			35			5			5			4
Nys syl													2	2	2	2	2	2	2	2	2	2	2	2	4	4	4	5	5	5
Pin tae															2			2												
Plat occ				2	2	2	2	2	2	1	1	1	19	19	19	16	16	16	16	16	16	16	16	16	15	15	15	16	16	16
Quercus													1	1	1													2	2	2
Que fal																						1	1	1	1	1	1	1	1	1
Que lyr													3	3	3	2	2	2	1	1	1	1	1	1						
Quer mic				2	2	2	1	1	1	1	1	1	10	10	10	9	9	9	10	10	10	9	9	9	8	8	8	5	5	5
Quer nig																														1
Que phe							5	5	5	2	2	2	10	10	10	10	10	10	10	10	10	10	10	11	9	9	9	9	9	9
Que vel													1	1	1	1	1	1				2	2	2						
Rub arg																											16			16
Sali nig													1	2	10	1	2	9	1	2	7	1	2	6	1	2	2			17
Sym orb			4						8			17			46			44			39			35	1	1	21	1	1	51
Ulmus																								19			11			7
Ulm ala													1	1	8	1	1	9	1	1	21			9	4	4	4	4	4	4
Ulm ame			4			7			3			4	1	1	46			46			38									14
# stems	4	4	53	9	9	51	13	13	43	15	15	76	133	134	655	122	123	699	125	126	656	126	127	695	122	123	347	121	121	545
ares	1			1			1			1			12			12.00			12.00			12.00			12.00			12.00		
acres	0.02			0.02			0.02			0.02			0.30			0.2965			0.2965			0.2965			0.2965			0.2965		
# spp	2	2	6	5	5	7	6	6	10	7	7	9	17	17	24	15	15	23	14	14	20	15	15	23	14	14	20	15	15	23
stems/ac	162	162	2145	364	364	2064	526	526	1740	607	607	3076	449	452	2209	411	415	2357	422	425	2212	425	428	2344	411	415	1170	408	408	1838

Color Codes for Density Success (stems/acre)

Exceeds requirements by 10%	286 +
Exceeds requirements, but by less than 10%	260-285
Fails to meet requirements, by less than 10%	234-259
Fails to meet requirements by more than 10%	< 234

Stream/Wetland success: use PnoLS column (planted trees + shrubs)

Riparian Buffer success: use T column (total native trees + shrubs)

volunteer native species

Vegetation Monitoring Data (VMD) Datasheet — **Please fill in any missing data and correct any errors.**

Plot E92347-01-0001

VMD Year (1-5): 5 Date: 12/OCT/14 - / /

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) 1883879 Datum: NAD83/W 2004

Longitude or UTM-E: 677625 UTM Zone: nc

Coordinate Accuracy (m): X-Axis bearing (deg): 150

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:	Role:
Pottern	
Mogensen	

Date last planted:

New planting date m/yy? 11 2013

☐ Check box if plot was not sampled, specify reason below

Notes:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Last Year's Data Height 1cm*	Last Year's Data DBH 1 cm	Notes*	THIS YEAR'S DATA Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
987	Betula nigra	a	R	0.1	0.2	142.0	0.3	☑	120	–	☐	2		
988	Platanus occidentalis	c	R	6.9	4.1	280.0	1.6	☐	380	2.5	☐	4		
989	Quercus velutina	f	R	8.3	0.4	23.0		☐	18	–	☐	1		
1280	Salix nigra	g	R	9.5	7.0	240.0	1.5	☐	300	2.5	☐	4		
1281	Salix nigra	b	L	0.1	1.5	300.0	2.7	☐	350	4.5	☐	4		
384	Quercus michauxii	c	R	3.0	3.8	151.0	0.6	☑	177	1.4	☐	3		
385	Quercus lyrata	d	R	4.4	6.4	205.0	1.0	☐	260	1.8	☐	4		

 # 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)	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
none								

***Notes by ID:** 987-at 0,0 corner
1384-yr2: | yr4: fungus

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)
Bacch halim		___		3	7	___	4	5	2		
Salix nigr		___			2	___	1	1	1		
Ligu styrac		___		1	1	___	1				
Frax pen		___		8	10	___	5	1	1		
Symphoric		___		3		___					
		___				___					
		___				___					

**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. 2.3.1

Vegetation Monitoring Data (VMD) Datasheet — **Please fill in any missing data and correct any errors.**

Plot E92347-01-0002

VMD Year (1-5):	5
Date:	12 / OCT / 14 - / /
Taxonomic Standard:	
Taxonomic Standard DATE:	
Latitude or UTM-N: (dec.deg. or m)	1884205
Datum:	NAD83/WGS84
Longitude or UTM-E:	677197
UTM Zone:	ne
Coordinate Accuracy (m):	
X-Axis bearing (deg):	275
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:	Role:
Pottern	
Mogensen	

Date last planted:
New planting date m/yy? 11 / 2013
☐ Check box if plot was not sampled, specify reason below
Notes:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Last Year's Data Height 1cm*	Last Year's Data DBH 1 cm	Notes*	THIS YEAR'S DATA Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
996	Betula nigra	e	R	9.9	0.1	68.0		☐	68		☐	2		
998	Fraxinus pennsylvanica	c	R	2.0	4.6	*Missing*		☐	68		☐	2		
1001	Fraxinus pennsylvanica	a	R	1.0	9.5	98.0		☐	121		☐	2		
1297	Celtis laevigata	d	R	2.5	0.1	65.0		☐	64		☐	2		
1444	Quercus lyrata	b		1.8	4.3	67.0		☐	77		☐	2		

 # 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)	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
Ulmus amer (1)	P							2013 Replant
Betula nigra (1)	P							2013 Replant

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 penn		___		5	7	___	8	6	1		
Gleditsia triac		___				___		2			
Bacc halim		___		2	1	___	2	1			
Ligus sine		___		3		___					
Symp orb		___		4	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. 2.3.1

Vegetation Monitoring Data (VMD) Datasheet **Please fill in any missing data and correct any errors.**

Plot E92347-01-0003

VMD Year (1-5): 5 Date: 12/ OCT/ 14 - / /

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) 1884743 Datum: NAD83/WGS84

Longitude or UTM-E: 677040 UTM Zone: nc

Coordinate Accuracy (m): X-Axis bearing (deg): 100

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: Pottern, Mogensen Role:

Date last planted: New planting date m/yy? 11 / 2013 ☐ Check box if plot was not sampled, specify reason below

Notes:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Last Year's Data Height 1cm*	Last Year's Data DBH 1 cm	Notes*	THIS YEAR'S DATA Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1007	Fraxinus pennsylvanica	b	R	1.1	1.1	*Missing*		☐	50		X	2		
1008	Quercus phellos	c	R	2.9	1.4	90.0		☐	88		☐	3		
1009	Quercus michauxii	g	R	5.5	0.2	197.0	0.8	☑	230	1.8	☐	4		
1010	Betula nigra	k	R	9.5	0.6	126.0	*DBH?*	☑	240	1.0	☐	4		
1011	Quercus michauxii	h	R	6.6	2.5	*Missing*		☐	49		☐	2		
1012	~~Nyssa sylvatica~~ DIOSP	a	R	0.4	3.1	49.0		☐	72		☐	2		
1013	Betula nigra	e	R	3.9	4.1	104.0	*DBH?*	☐	96		☐	2		
1014	Fraxinus pennsylvanica	j	R	8.7	4.2	119.0	*DBH?*	☐	140	0.7	☐	3		
1015	Fraxinus pennsylvanica	i	R	8.0	5.4	107.0	*DBH?*	☑	105		☐	3		
1016	Celtis laevigata	f	R	5.2	7.0	*Missing*		☑	38		☐	1		
1019	Diospyros virginiana	d	R	3.2	8.7	41.0		☑	36		☐	2		

 # 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)	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
Platanus (1)								2013 Replant

***Notes by ID:**
1009-fungus
☐ 1010-leader died
☐ 1015-top died
☐ 1016-broken
☐ 1019-top died

*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. 2.3.1

Plot (continued): E92347-01-0003

ID	Species	map char	source	X (m)	Y (m)	Last Year's Data ddh (mm)	Last Year's Data Height (cm)	Last Year's Data DBH (cm)	Notes*	THIS YEAR'S DATA ddh (mm)	THIS YEAR'S DATA Height (cm)	THIS YEAR'S DATA DBH (cm)	THIS YEAR'S DATA Re-sprout	THIS YEAR'S DATA Vigor*	THIS YEAR'S DATA Damage*	THIS YEAR'S DATA 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)
Ligus sine		___		5	1	___					
Frax penn		___		20	9	___	2	2			
Symp orbi		___		2		___					
Bacc hali		___		1	1	___	1				
Salix nig		___			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.

Vegetation Monitoring Data (VMD) Datasheet — **Please fill in any missing data and correct any errors.**

Plot E92347-01-0004

VMD Year (1-5): 5 Date: 12/ OCT/ 2014 - / /

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) 1884972 Datum: NAD83/W

Longitude or UTM-E: 676808 UTM Zone: nc

Coordinate Accuracy (m): X-Axis bearing (deg): 310

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: Pottern, Mogensen — Role:

Date last planted: New planting date m/yy? 11 / 2013 ☐ Check box if plot was not sampled, specify reason below

Notes:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Last Year's Data: Height 1cm*	Last Year's Data: DBH 1 cm	Notes*	THIS YEAR'S DATA: Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1025	Fraxinus pennsylvanica	e	R	8.5	0.0	260.0	1.3	☐	350	2.1	☐	4		
1026	Celtis laevigata	d	R	7.4	3.0	143.0	0.2	☐	175	0.3	☐	3		
1027	Quercus michauxii	b	R	4.2	2.5	176.0	0.8	☑	225	1.7	☐	4		
1028	Nyssa sylvatica	a	R	1.0	3.6	85.0		☐	115		☐	3		
1029	Platanus occidentalis	f	R	9.8	3.6	270.0	2.1	☐	320	3.1	☐	4		
1030	Betula nigra	c	R	7.2	5.8	220.0	1.2	☐	300	2.5	☐	4		

 # stems: 6 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)	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
Quercus sp. (2)	P							2013 Replant
Platanus (2)	P							2013 Replant
Quer lyrata	U	5	9	75		3		original ?

***Notes by ID:** 1027-fungus

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 penn		—		15	8	—	8	2			
Bacc halim		—		2	2	—					
Salix nig		—				—	1				
Ligus sine		—		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. 2.3.1

Vegetation Monitoring Data (VMD) Datasheet — **Please fill in any missing data and correct any errors.**

Plot E92347-01-0005

VMD Year (1-5): 5 Date: 12 / OCT / 2014 - / /

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) 1885064 Datum: NAD83/W

Longitude or UTM-E: 676653 UTM Zone: nc

Coordinate Accuracy (m): X-Axis bearing (deg): 295

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: Pottern, Mogensen — Role:

Date last planted:

New planting date m/yy? 11 2013

☐ Check box if plot was not sampled, specify reason below

Notes:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Last Year's Data Height 1cm*	Last Year's Data DBH 1 cm	Notes*	THIS YEAR'S DATA Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1037	Fraxinus pennsylvanica	d	R	1.9	1.5	230.0	0.9	☐	290	1.0	☐	2		
1038	Cephalanthus occidentalis	f	R	2.2	1.0	82 ~~8.2~~		☐	70		☐	1		
1039	Fraxinus pennsylvanica	j	R	3.2	0.4	225.0	0.8	☐	240	0.9	☐	3		
1040	Fraxinus pennsylvanica	n	R	4.6	0.9	300.0	1.8	☐	450	2.5	☐	4		
1041	Fraxinus pennsylvanica	p	R	5.5	1.0	300.0	3.2	☐	500	4.3	☐	4		
1042	Fraxinus pennsylvanica	w	R	7.9	1.1	300.0	3.3	☐	450	4.4	☐	4		
1043	Platanus occidentalis	D	R	9.5	0.1	300.0	4.1	☐	500	5.2	☐	4		
1044	Fraxinus pennsylvanica	F	R	9.8	0.4	300.0	3.4	☐	450	4.8	☐	4		
1045	Fraxinus pennsylvanica	z	R	8.2	2.5	300.0	2.7	☐	450	3.2	☐	4		
1046	Cephalanthus occidentalis	u	R	6.9	2.2	135.0	DBH?	☐	160	0.5	☐	4		
1048	Cephalanthus occidentalis	o	R	5.1	2.5	88.0		☐	—		☐	M		
1049	Cephalanthus occidentalis	k	R	3.5	3.8	120.0	DBH?	☐	146	0.3	☐	4		
1050	Cephalanthus occidentalis	g	R	2.9	3.7	135.0	DBH?	☐	148	0.3	☐	4		
1051	Cephalanthus occidentalis	s	R	6.1	4.0	110.0	DBH?	☐	153	0.3	☐	4		
1052	Cephalanthus occidentalis	x	R	7.8	4.0	148.0	0.4	☐	175	0.6	☐	4		
1053	Platanus occidentalis	B	R	9.0	4.2	300.0	3.0	☐	500	4.3	☐	4		
1054	Fraxinus pennsylvanica	C	R	9.0	5.3	300.0	2.7	☐	450	4.0	☐	4		
1055	Cephalanthus occidentalis	r	R	5.9	4.6	155.0	0.3	☐	165	0.4	☐	4		
1056	Fraxinus pennsylvanica	l	R	6.0	5.1	300.0	2.8	☐	500	4.1	☐	4		
1057	Fraxinus pennsylvanica	a	R	0.3	5.6	300.0	2.7	☐	420	3.4	☐	4		
1058	Fraxinus pennsylvanica	c	R	1.9	5.2	290.0	1.5	☐	380	2.0	☐	3		
1059	Fraxinus pennsylvanica	h	R	3.1	5.4	280.0	1.9	☐	350	2.7	☐	3		
1060	Cephalanthus occidentalis	A	R	8.5	6.2	130.0	DBH?	☐	180	0.3	☐	4		
1061	Cephalanthus occidentalis	y	R	8.0	6.6	151.0	0.4	☐	200	0.5	☐	4		
1062	Cephalanthus occidentalis	m	R	4.2	6.9	140.0	0.3	☐	155	0.3	☐	4		
1063	Fraxinus pennsylvanica	i	R	3.0	6.6	300.0	2.8	☐	480	3.6	☐	4		
1065	Fraxinus pennsylvanica	c	R	1.7	7.5	300.0	2.4	☐	480	3.2	☐	4		
1067	Fraxinus pennsylvanica	v	R	7.2	8.5	300.0	3.5	☐	400	3.8	☐	4		
1068	Fraxinus pennsylvanica	E	R	9.5	7.3	300.0	2.3	☐	460	3.3	☐	4		
1071	Fraxinus pennsylvanica	l	R	3.6	8.2	300.0	2.0	☐	320	2.6	☐	3		
1072	Fraxinus pennsylvanica	q	R	5.4	9.6	290.0	1.9	☐	350	2.8	☐	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): E92347-01-0005

ID	Species	map char	source	X (m)	Y (m)	Last Year's Data ddh (mm)	Last Year's Data Height (cm)	Last Year's Data DBH (cm)	Notes*	THIS YEAR'S DATA ddh (mm)	THIS YEAR'S DATA Height (cm)	THIS YEAR'S DATA DBH (cm)	THIS YEAR'S DATA Re-sprout	THIS YEAR'S DATA Vigor*	THIS YEAR'S DATA Damage*	THIS YEAR'S DATA Notes
1073	Betula nigra	(b)	R	1.3	1.7		290.0	1.8 ☐		450	3.6	☐		4		

 # stems: 32

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)	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
Platanus (1)	P							2013 Replant

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)
Liquid styra		___			15	___	10	8	4	6	
Frax penn		___			12	___	5	2	2		
Ulm alata		___			2	___	1	1			
Ulm amer		___			11	___	5	2			
Acer rubrum		___			2	___					
Juglans nig		___			2	___	1				
Symph orbi		___			3	___					

**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.

Vegetation Monitoring Data (VMD) Datasheet **Please fill in any missing data and correct any errors.**

Plot E92347-01-0006

VMD Year (1-5): 5 Date: 12 / OCT / 2014 - / /

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) 1885215 Datum: NAD83/W

Longitude or UTM-E: 676777 UTM Zone: nc

Coordinate Accuracy (m): X-Axis bearing (deg): 90

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: Potter Mogensen Role:

Date last planted:

New planting date m/yy? 11 / 2013

☐ Check box if plot was not sampled, specify reason below

Notes:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Last Year's Data Height 1cm*	Last Year's Data DBH 1 cm	Notes*	THIS YEAR'S DATA Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1078	Platanus occidentalis	a	R	0.4	0.4	64.0		☐	74		☐	2		
1079	Platanus occidentalis	d	R	3.4	0.3	117.0	DBH?	☐	137	0.2	☐	3		
1080	Diospyros virginiana	f	R	6.4	0.4	141.0	0.4	☐	180	0.7	☐	3		
1081	Platanus occidentalis	i	R	9.4	0.4	270.0	1.5	☐	290	1.5	☐	3		
1082	Celtis laevigata	h	R	8.7	3.5	27.0		☐	48		☐	1		
1083	Platanus occidentalis	e	R	5.6	3.5	99.0		☐	135		☐	3		
1085	Platanus occidentalis	j	R	9.5	6.6	210.0	1.0	☐	235	1.5	☐	3		
1086	Fraxinus pennsylvanica	g	R	7.1	9.2	256.0	1.6	☐	260	2.2	☐	3		
1088	Fraxinus pennsylvanica	b	R	0.6	9.6	86.0		☐	88		☐	2		
1090	Platanus occidentalis	c	R	3.1	6.0	134.0	DBH?	☑	165	0.5	☐	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)	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
none								

***Notes by ID:** 1090-resprout

*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. 2.3.1

Plot (continued): E92347-01-0006

ID	Species	map char	source	X (m)	Y (m)	Last Year's Data ddh (mm)	Last Year's Data Height (cm)	Last Year's Data DBH (cm)	Notes*	THIS YEAR'S DATA ddh (mm)	THIS YEAR'S DATA Height (cm)	THIS YEAR'S DATA DBH (cm)	THIS YEAR'S DATA Re-sprout	THIS YEAR'S DATA Vigor*	THIS YEAR'S DATA Damage*	THIS YEAR'S DATA 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 penn		___		10	4	___	1	3			
Liquid styra		___		2	1	___					
Ulmus alata		___		2	1	___					
Symph orbi		___		2	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.

Vegetation Monitoring Data (VMD) Datasheet — **Please fill in any missing data and correct any errors.**

Plot E92347-01-0007

VMD Year (1-5): 5 Date: 12 / OCT / 2014 - / /

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) 1885476 Datum: NAD83/W

Longitude or UTM-E: 676785 UTM Zone: ne

Coordinate Accuracy (m): X-Axis bearing (deg): 290

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:	Role:
Pottern	
Mogensen	

Date last planted:

New planting date m/yy? 11 / 2013

☐ Check box if plot was not sampled, specify reason below

Notes:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Last Year's Data Height 1cm*	Last Year's Data DBH 1 cm	Notes*	THIS YEAR'S DATA Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1094	Platanus occidentalis	ⓐ	R	0.9	1.0	118.0	DBH?	☐	135		☐	2		
1095	Betula nigra	ⓒ	R	4.4	0.9	100.0		☐	104		☐	2		
1096	Betula nigra	ⓑ	R	1.6	4.6	172.0	0.4	☐	220	1.0	☐	4		
1097	Quercus phellos	ⓖ	R	9.2	6.9	62.0		☐	74		☐	3		
1098	Quercus phellos	ⓓ	R	3.0	8.4	185.0	0.5	☐	190	1.0	☐	4		
1298	Quercus michauxii	ⓕ	R	6.6	4.0	123.0	DBH?	☐	133		☐	3		
1299	Fraxinus pennsylvanica	ⓒ	R	2.7	0.9	103.0	DBH?	☐	120		☐	2		

 # 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)	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
Platanus (1)	P							2013 Replant

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)
Pinus taeda		—			1	—		1			
Liquid styra		—		6	3	—	1				
Ulmus amer		—		3	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. 2.3.1

Vegetation Monitoring Data (VMD) Datasheet — **Please fill in any missing data and correct any errors.**

Plot E92347-01-0008

VMD Year (1-5): 5 Date: 12 / OCT / 14 - / /

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) 1882340 Datum: NAD83/W

Longitude or UTM-E: 675887 UTM Zone: nc

Coordinate Accuracy (m): X-Axis bearing (deg): 130

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:	Role:
Pottern	
Mogensen	

Date last planted:

New planting date m/yy? 11 / 2013

☐ Check box if plot was not sampled, specify reason below

Notes:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Last Year's Data Height 1cm*	Last Year's Data DBH 1 cm	Notes*	THIS YEAR'S DATA Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1103	Betula nigra	g	R	9.3	0.2	93.0		☐	280	0.5	☐	4		
1104	Betula nigra	i	R	9.9	9.0	300.0	2.7	☐	450	5.0	☐	4		
1105	Betula nigra	a	R	1.4	9.6	400.0	3.5	☐	500+	8.0	☐	4		
1107	Fraxinus pennsylvanica	d	R	4.7	2.0	215.0	0.6	☐	400	2.6	☐	4		
388	Diospyros virginiana	e	R	5.5	7.5	135.0	*DBH?*	☐	180	0.5	☐	4		
389	Celtis laevigata	f	R	7.0	2.0	240.0	0.5	☐	350	2.0	☐	4		
564	Fraxinus pennsylvanica	h	R	9.9	2.5	300.0	1.8	☐	400	2.8	☐	4		
565	Quercus michauxii	c	R	2.8	1.0	260.0	1.0	☐	280	2.0	☐	4		
566	Ulmus alata	b	R	2.0	2.5	220.0	0.4	☐	350	2.0	☐	4		

 # stems: 9

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)	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
none								

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 penn		___			10	___	4	5	2		
Ulmus amer		___			2	___	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. 2.3.1

Vegetation Monitoring Data (VMD) Datasheet — **Please fill in any missing data and correct any errors.**

Plot E92347-01-0009

VMD Year (1-5): 5 Date: 12 / OCT / 2014 - / /

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) 1882512 Datum: NAD83/W

Longitude or UTM-E: 675739 UTM Zone: nc

Coordinate Accuracy (m): X-Axis bearing (deg): 325

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:	Role:
Pottern	
Mogensen	

Date last planted:

New planting date m/yy? 11 / 2013

☐ Check box if plot was not sampled, specify reason below

Notes:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Last Year's Data Height 1cm*	Last Year's Data DBH 1 cm	Notes*	THIS YEAR'S DATA Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1112	Betula nigra	a	R	1.7	3.9	180.0	0.4	☐	450	3.0	☐	4		
1113	Betula nigra	d	R	5.7	6.1	300.0	2.0	☐	550+	4.5	☐	4		
1114	Fraxinus pennsylvanica	c	R	4.0	8.5	160.0	0.4	☐	250	2.0	☐	4		
1115	Betula nigra	b	R	2.0	8.5	300.0	1.8	☐	500+	4.0	☐	4		

 # stems: 4

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)	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
none								

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 penn		—		10	15	—	4	2			
Liquid styra		—		5	2	—	1				
Ulmus amer		—		2	2	—					
Symphor orbi		—		3	1	—					
Bacc halim		—		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.

Vegetation Monitoring Data (VMD) Datasheet **Please fill in any missing data and correct any errors.**

Plot E92347-01-0010

VMD Year (1-5): 5 Date: 12 / OCT / 2014 - / /

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) 1882875 Datum: NAD83/W

Longitude or UTM-E: 675481 UTM Zone: ne

Coordinate Accuracy (m): X-Axis bearing (deg): 290

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: Pottern, Mogensen Role:

Date last planted:

New planting date m/yy? 11 / 2013

☐ Check box if plot was not sampled, specify reason below

Notes:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Last Year's Data Height 1cm*	Last Year's Data DBH 1 cm	Notes*	THIS YEAR'S DATA Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1119	Platanus occidentalis	h	R	9.4	1.7	400.0	9.0	☐	700+	13.	☐	4		
1120	Fraxinus pennsylvanica	c	R	5.9	1.7	265.0	1.2	☐	350	2.8	☐	4		
1121	Fraxinus pennsylvanica	c	R	3.0	1.8	300.0	2.3	☑	400	3.8	☐	4		
1122	Fraxinus pennsylvanica	f	R	6.2	3.6	245.0	1.5	☐	440	3.5	☐	4		
1124	Platanus occidentalis	b	R	2.6	4.8	300.0	3.5	☐	550	6.0	☐	4		
1125	Quercus michauxii	d	R	3.9	6.8	205.0	0.6	☐	290	2.0	☐	4		
1126	Quercus michauxii	g	R	8.0	6.7	245.0	1.7	☐	260	2.9	☐	4		
1127	Alnus serrulata	a	R	1.1	8.2	156.0	0.4	☐	205	0.7	☐	4		
1128	Betula nigra	i	R	9.5	9.5	300.0	3.5	☐	550	5.0	☐	4		

 # stems: 9

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)	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
none								

***Notes by ID:** 1121-resprout

*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): E92347-01-0010

ID	Species	map char	source	X (m)	Y (m)	Last Year's Data: ddh (mm)	Height (cm)	DBH (cm)	Notes*	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)
Frax penn		___			15	___	9	4	4		
Ulm amer		___			5	___	2				
Bacc halim		___			2	___		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.

Vegetation Monitoring Data (VMD) Datasheet **Please fill in any missing data and correct any errors.**

Plot E92347-01-0011

VMD Year (1-5): 5 Date: 12 / OCT / 2014 - / /

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) 1883130 Datum: NAD83/W

Longitude or UTM-E: 675287 UTM Zone: nc

Coordinate Accuracy (m): X-Axis bearing (deg): 315

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:	Role:
Pottern	
Mogensen	

Date last planted:
New planting date m/yy? 11 / 2013
☐ Check box if plot was not sampled, specify reason below
Notes:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Last Year's Data Height 1cm*	Last Year's Data DBH 1 cm	Notes*	THIS YEAR'S DATA Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1138	Quercus phellos	ⓑ	R	0.6	0.4	70.0		☐	124		☐	3		
1139	Betula nigra	ⓔ	R	2.9	0.4	400.0	4.7	☐	550	7.0	☐	4		
1140	Alnus serrulata	ⓗ	R	5.6	0.7	75.0		☐	102		☐	3		
1141	Platanus occidentalis	ⓚ	R	9.0	0.3	132.0	*DBH?*	☐	170	0.5	☐	2		
1142	Quercus phellos	ⓒ	R	2.5	1.8	96.0		☐	150	0.3	☐	3		
1143	Alnus serrulata	ⓙ	R	6.8	5.1	98.0		☐	110		☐	2		
1144	Quercus phellos	ⓛ	R	9.1	6.5	57.0		☐	56		☐	2		
1145	Platanus occidentalis	ⓘ	R	6.6	7.6	55.0		☑	66		☐	1		
1146	Quercus phellos	ⓕ	R	4.3	6.3	97.0		☐	105		☐	2		
1147	Quercus phellos	ⓖ	R	4.4	9.4	210.0	0.6	☐	240	1.3	☐	4		
1315	Quercus michauxii	ⓐ	R	0.1	2.8	115.0	*DBH?*	☑	160	0.5	☐	3		
390	Diospyros virginiana	ⓓ	R	2.5	4.4	162.0	0.6	☐	192	0.8	☐	3		

 # stems: 12

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)	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
Betula nig (2)	P							2013 replant
Lirio (1)	P							2013 replant

***Notes by ID:** 1145-top dead
1315-yr1: | yr4: fungus

*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. 2.3.1

Plot (continued): E92347-01-0011

ID	Species	map char	source	X (m)	Y (m)	Last Year's Data: ddh (mm)	Height (cm)	DBH (cm)	Notes*	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)
Frax penn		___		10	3	___	2				
Symph orbi		___		6	2	___					
Bacc halim		___		2	1	___	1				
Ulmus amer		___		1	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.

Vegetation Monitoring Data (VMD) Datasheet **Please fill in any missing data and correct any errors.**

Plot E92347-01-0012

VMD Year (1-5): 5 Date: 12/ OCT/ 2014 - / /

Taxonomic Standard:

Taxonomic Standard DATE:

Latitude or UTM-N: (dec.deg. or m) 1883256 Datum: NAD83/W

Longitude or UTM-E: 675306 UTM Zone: nc

Coordinate Accuracy (m): X-Axis bearing (deg): 100

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:	Role:
Pottern	
Mogensen	

Date last planted:
New planting date m/yy? 11 / 2013
☐ Check box if plot was not sampled, specify reason below
Notes:

ID	Species Name	Map char	Source*	X 0.1m	Y 0.1m	Last Year's Data Height 1cm*	Last Year's Data DBH 1 cm	Notes*	THIS YEAR'S DATA Height 1cm*	DBH 1 cm	Re-sprout	Vigor*	Damage*	Notes
1148	Betula nigra	a	R	0.3	0.2	300.0	2.8	☐	370	4.0	☐	4		
1149	Aesculus sylvatica	m	R	9.7	0.7	52.0		☐	63		☐	2		
1150	Platanus occidentalis	i	R	4.5	2.1	400.0	6.5	☐	500	7.5	☐	4		
1151	Fraxinus pennsylvanica	o	R	9.8	3.9	300.0	2.2	☐	420	3.0	☐	4		
1152	Quercus phellos	n	R	9.6	4.8	150.0	0.3	☐	130		☐	2		
1153	Diospyros virginiana	j	R	6.0	5.1	300.0	2.5	☐	360	3.5	☐	4		
1154	Fraxinus pennsylvanica	c	R	1.0	5.3	300.0	2.1	☐	300	2.4	☐	3		
1155	Fraxinus pennsylvanica	b	R	0.6	2.1	250.0	1.6	☐	240	1.8	☐	2		
1316	Quercus michauxii	d	R	1.4	2.3	190.0	0.7	☑	235	1.5	☐	3		
1317	Fraxinus pennsylvanica	e	R	2.5	1.3	300.0	2.9	☐	400	4.5	☐	4		
1318	Fraxinus pennsylvanica	g	R	4.0	1.0	225.0	1.0	☐	290	1.5	☐	3		
1319	Fraxinus pennsylvanica	l	R	9.0	0.5	300.0	2.5	☐	480	3.5	☐	4		
1320	Fraxinus pennsylvanica	f	R	3.5	3.6	300.0	1.7	☐	360	3.0	☐	4		
1321	Fraxinus pennsylvanica	h	R	4.0	8.0	172.0	0.8	☐	190	0.8	☐	2		
429	Quercus phellos	k	R	8.0	8.0	210.0	1.0	☐	230	1.8	☐	4		

 # stems: 15

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)	Height 1 cm*	DBH 1 cm	Vigor*	Damage*	Notes
none								

***Notes by ID:** 1316-yr1: | yr4: fungud

*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): E92347-01-0012

ID	Species	map char	source	X (m)	Y (m)	Last Year's Data ddh (mm)	Last Year's Data Height (cm)	Last Year's Data DBH (cm)	Notes*	THIS YEAR'S DATA ddh (mm)	THIS YEAR'S DATA Height (cm)	THIS YEAR'S DATA DBH (cm)	THIS YEAR'S DATA Re-sprout	THIS YEAR'S DATA Vigor*	THIS YEAR'S DATA Damage*	THIS YEAR'S DATA 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 penn		___		15	10	___	10	5			
Symph orbi		___		12	5	___					
Ulm amer		___		2	2	___					
		___				___					
		___				___					
		___				___					
		___				___					

**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.

APPENDIX D.

STREAM MORPHOLOGY SURVEY DATA

Figures 5.1-5.9	Cross sections with Annual Overlays
e-Tables	Raw cross-section survey data spreadsheets
Figures 6.1-6.5	Longitudinal Profiles with Annual Overlays
e-Tables	Raw longitudinal profile survey spreadsheet
Figures 7.1-7.9	Pebble Count Plots with Annual Overlays
e-Tables	Raw pebble count data spreadsheets
Table 9.1-9.2	Baseline Stream Geomorph Data Summary
Table 10.1-10.2	Cross-Section Geomorph Monitoring Data
Table 11.1-11.2	Stream Reach Geomorph Monitoring Data

Figure 5.1 Cross-Sectional Profile, Annual Overlays
UT To Bear Creek #92347 -- North UT, X-Section 1
October 2014 -- Monitoring Year 5 of 5

Project Name	**UT to Bear Creek**
EEP Project Number	**92347**
Cross-Section ID	**XS-1, Riffle**
Survey Date	**10/2014**
SUMMARY DATA	
Bankfull Elevation (ft)	99.059
Bankfull Cross-Sectional Area (ft^2)	28.41
Bankfull Width (ft)	19.68
Flood Prone Area Elevation (ft)	101.34
Flood Prone Width (ft)	100.00
Bankfull Mean Depth (ft)	1.20
Bankfull Max Depth (ft)	2.28
W/D Ratio	16.40
Entrenchment Ratio	5.08
Bank Height Ratio	1.00

XS-1: Upstream

XS-1: Downstream

Station	Elevation	Notes
0	100	TLP
0.098184	99.926	xs1
2.657853	99.364	xs1
6.304221	99.079	xs1
9.58803	98.994	xs1
11.66851	99.059	TLB
13.07918	98.604	xs1
14.76397	98.158	xs1
16.14907	97.725	xs1
17.33207	96.949	xs1
19.01847	96.782	THW
20.12636	97.025	xs1
22.57006	96.999	xs1
24.47235	97.088	xs1
26.49411	97.861	xs1
28.80368	98.491	xs1
31.34478	99.072	TRB
34.11155	99.021	xs1
38.15216	99.083	xs1
43.57093	98.78	xs1
48.54698	98.862	xs1
52.99463	99.095	xs1
59.35023	99.775	xs1
59.79457	99.862	TRP

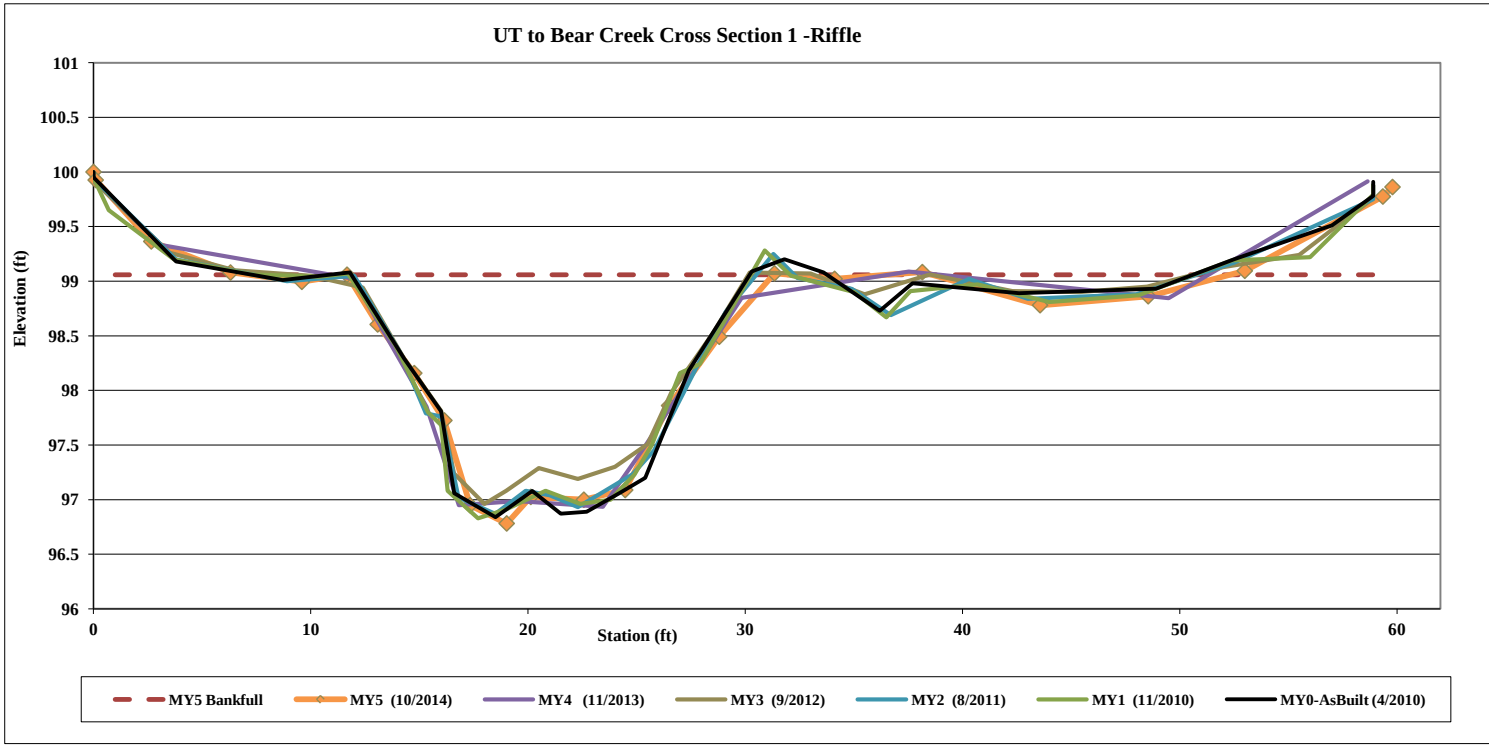


Figure 5.2 Cross-Sectional Profile, Annual Overlays
UT To Bear Creek #92347 -- North UT, X-Section 2
October 2014 -- Monitoring Year 5 of 5

Project Name	**UT to Bear Creek**
EEP Project Number	**92347**
Cross-Section ID	**XS-2, Riffle**
Survey Date	**10/2014**
SUMMARY DATA	
Bankfull Elevation (ft)	98.742
Bankfull Cross-Sectional Area (ft^2)	27.30
Bankfull Width (ft)	19.01
Flood Prone Area Elevation (ft)	100.87
Flood Prone Width (ft)	100.00
Bankfull Mean Depth (ft)	1.10
Bankfull Max Depth (ft)	2.13
W/D Ratio	17.28
Entrenchment Ratio	5.26
Bank Height Ratio	1.00

XS-2: Upstream

XS-2: Downstream

Station	Elevation	Notes
0	100	TLP
1.112177	99.793	xs2
3.577644	99.059	xs2
6.00985	98.87	xs2
9.14942	98.533	xs2
12.30476	98.422	xs2
14.74403	98.797	xs2
16.46664	98.886	TLB
19.15883	98.001	xs2
21.17308	97.415	xs2
22.96447	96.693	xs2
25.03518	96.705	xs2
26.85092	96.843	xs2
28.42445	96.674	LEW
29.14413	96.61	THW
30.40948	96.734	REW
31.79529	97.47	xs2
33.44765	98.122	xs2
34.62777	98.505	xs2
35.47845	98.742	TRB
38.80278	98.649	xs2
41.78421	98.665	xs2
45.2623	98.8	xs2
48.99139	98.957	xs2
51.49384	100	xs2
53.73905	100.518	xs2
53.89351	100.611	TRP

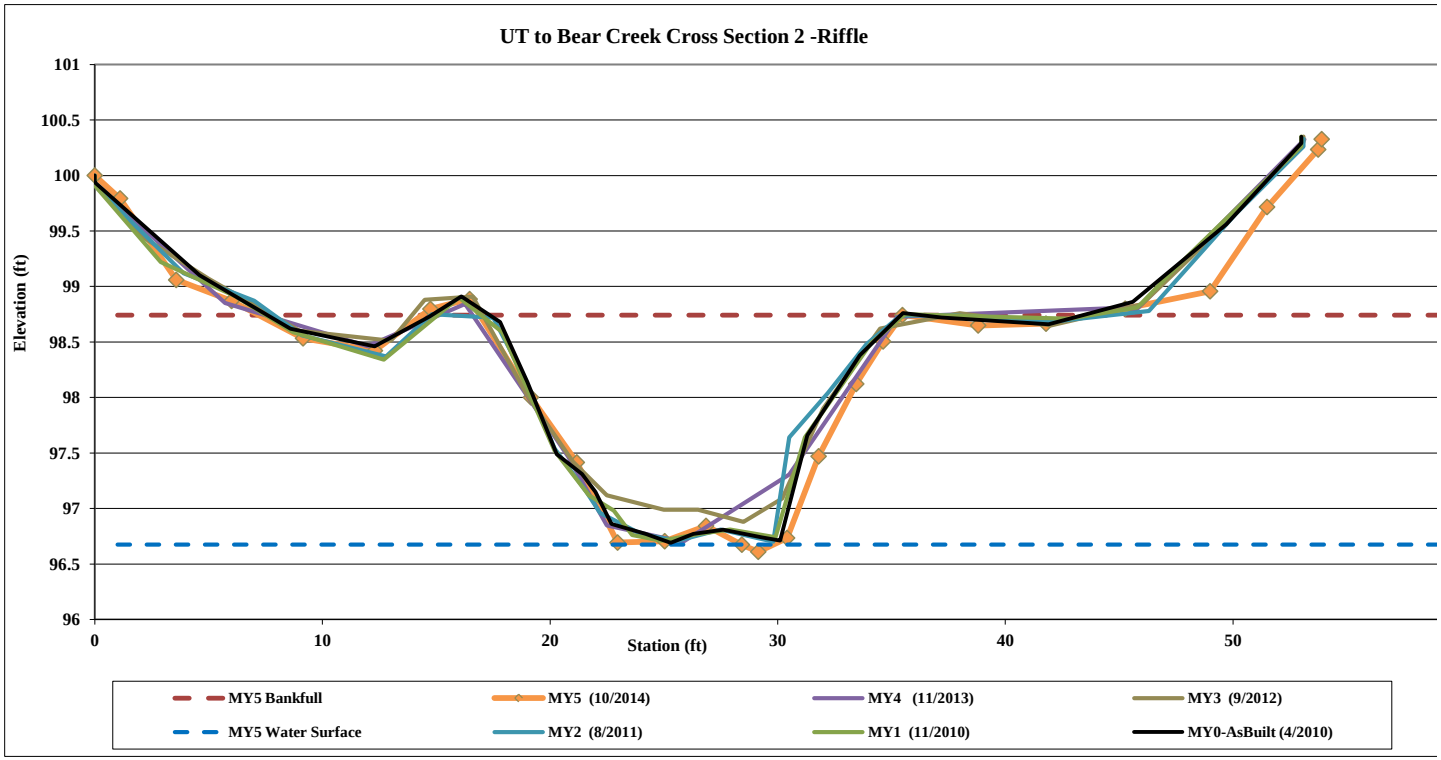


Figure 5.2 Cross-Sectional Profile, Annual Overlays
UT To Bear Creek #92347 -- North UT, X-Section 2
October 2014 -- Monitoring Year 5 of 5

Project Name	**UT to Bear Creek**
EEP Project Number	**92347**
Cross-Section ID	**XS-3, Pool**
Survey Date	**10/2014**
SUMMARY DATA	
Bankfull Elevation (ft)	99.092
Bankfull Cross-Sectional Area (ft^2)	69.33
Bankfull Width (ft)	32.65
Flood Prone Area Elevation (ft)	102.91
Flood Prone Width (ft)	100.00
Bankfull Mean Depth (ft)	2.07
Bankfull Max Depth (ft)	3.82
W/D Ratio	15.79
Entrenchment Ratio	3.06
Bank Height Ratio	1.00

XS-3: Upstream

XS-3: Downstream

Station	Elevation	Notes
0	100	TLP
0.511614	99.921	xs3
3.621774	99.718	xs3
7.206665	99.432	xs3
10.68857	99.256	xs3
13.92559	99.322	xs3
17.72072	99.129	xs3
21.22175	99.092	TLB
23.07738	98.687	xs3
25.14379	98.092	xs3
26.35088	97.874	xs3
29.05895	95.307	xs3
32.32429	95.693	xs3
34.20952	95.711	xs3
40.69263	96.98	LEW
43.50363	95.27	THW
46.82378	96.985	REW
48.00121	98.464	xs3
49.91989	98.08	xs3
51.53884	98.385	xs3
53.87076	99.268	TRB
57.96939	99.026	xs3
59.55006	99.473	xs3
64.2998	100.166	xs3
67.80907	99.473	xs3
71.20841	99.584	xs3
73.66076	99.323	xs3
78.19128	99.319	xs3
82.63866	99.342	xs3
87.49163	99.574	xs3
90.78888	99.807	xs3
95.41767	100.121	xs3
97.75144	100.314	TRP

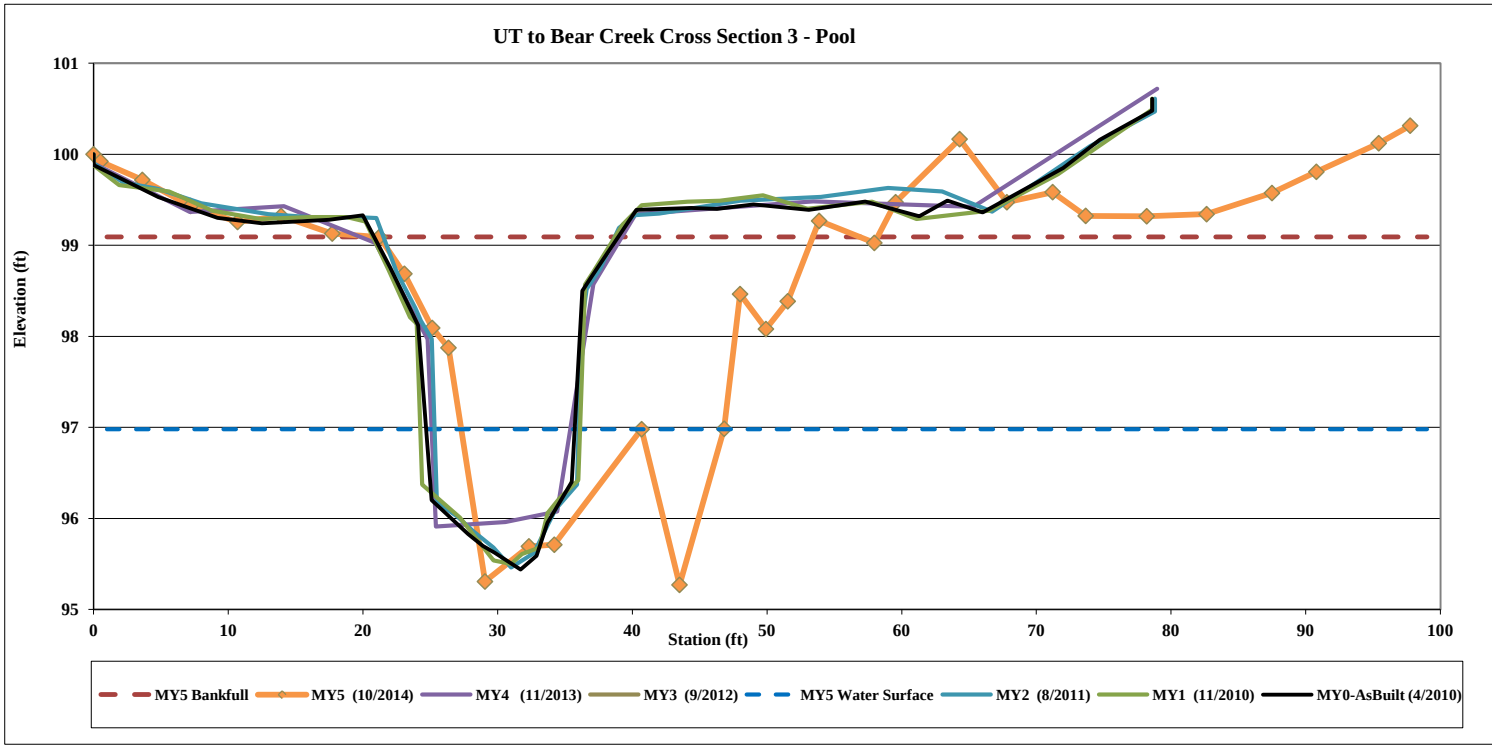


Figure 5.4 Cross-Sectional Profile, Annual Overlays
UT To Bear Creek #92347 -- North UT, X-Section 4
October 2014 -- Monitoring Year 5 of 5

Project Name	**UT to Bear Creek**
EEP Project Number	**92347**
Cross-Section ID	**XS-4, Riffle**
Survey Date	**10/2014**
SUMMARY DATA	
Bankfull Elevation (ft)	99.58
Bankfull Cross-Sectional Area (ft^2)	31.56
Bankfull Width (ft)	19.11
Flood Prone Area Elevation (ft)	102.14
Flood Prone Width (ft)	100.00
Bankfull Mean Depth (ft)	1.40
Bankfull Max Depth (ft)	2.56
W/D Ratio	13.65
Entrenchment Ratio	5.23
Bank Height Ratio	1.00

XS-4: Upstream

XS-4: Downstream

Station	Elevation	Notes
0	100	TLP
0.120702	99.941	xs4
3.98396	99.819	xs4
7.962553	99.764	xs4
11.91178	99.672	xs4
17.40503	99.382	xs4
21.83852	99.456	xs4
24.39545	99.604	xs4
24.42141	99.575	TLB
26.05283	99.125	xs4
27.40357	98.435	xs4
28.71085	97.461	xs4
30.51115	97.284	xs4
32.19335	97.359	xs4
34.50123	97.318	xs4
36.75463	97.011	THW
38.49187	97.724	xs4
40.42607	98.543	xs4
43.53123	99.579	TRB
46.3644	99.726	xs4
50.36903	99.567	xs4
55.19645	99.523	xs4
60.00867	99.671	xs4
65.09303	99.891	xs4
69.4021	100.096	xs4
69.94178	100.188	TRP

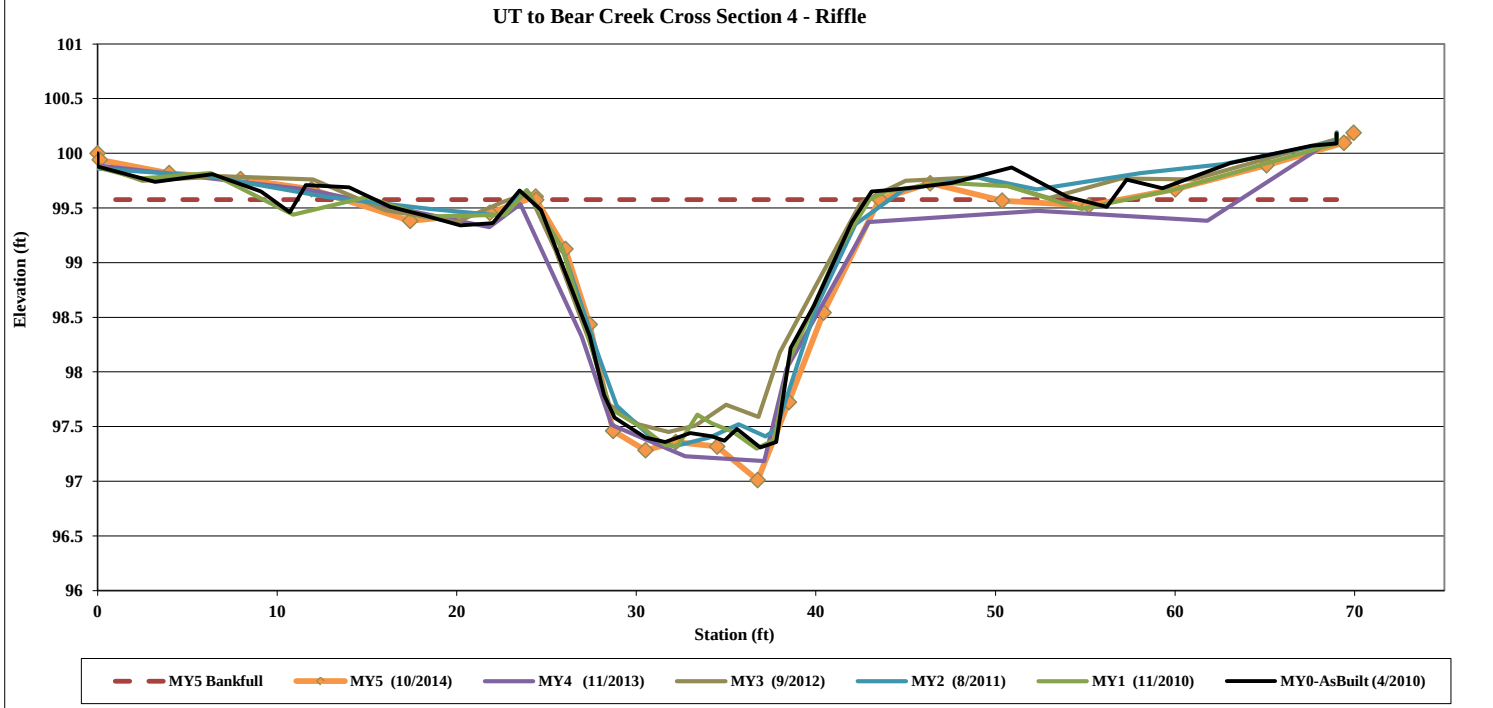


Figure 5.5 Cross-Sectional Profile, Annual Overlays
UT To Bear Creek #92347 -- North UT, X-Section 5
October 2014 -- Monitoring Year 5 of 5

Project Name	**UT to Bear Creek**
EEP Project Number	**92347**
Cross-Section ID	**XS-5, Pool**
Survey Date	**10/2014**
SUMMARY DATA	
Bankfull Elevation (ft)	98.76
Bankfull Cross-Sectional Area (ft^2)	28.22
Bankfull Width (ft)	22.78
Flood Prone Area Elevation (ft)	101.87
Flood Prone Width (ft)	220.00
Bankfull Mean Depth (ft)	1.59
Bankfull Max Depth (ft)	3.11
W/D Ratio	14.36
Entrenchment Ratio	9.66
Bank Height Ratio	1.01

XS-5: Upstream

XS-5: Downstream

Station	Elevation	Notes
0	100	TLP
0.224956	99.851	xs5
3.001569	99.485	xs5
6.841786	99.633	xs5
10.27243	99.384	xs5
14.63481	99.301	xs5
17.52656	98.894	xs5
21.9549	99.577	TLB
28.97589	98.453	xs5
29.60311	98.179	xs5
31.4311	97.818	xs5
31.81105	96.539	LEW
32.93686	95.92	xs5
34.47022	95.908	xs5
35.35359	95.655	THW
37.19389	95.706	xs5
38.72757	96.046	xs5
40.15621	96.652	REW
40.33431	97.992	xs5
42.55694	98.3	xs5
44.7392	98.764	TRB
47.68318	99.049	xs5
51.10227	99.451	xs5
55.56444	99.348	xs5
61.21451	99.666	xs5
62.47256	100.026	TRP

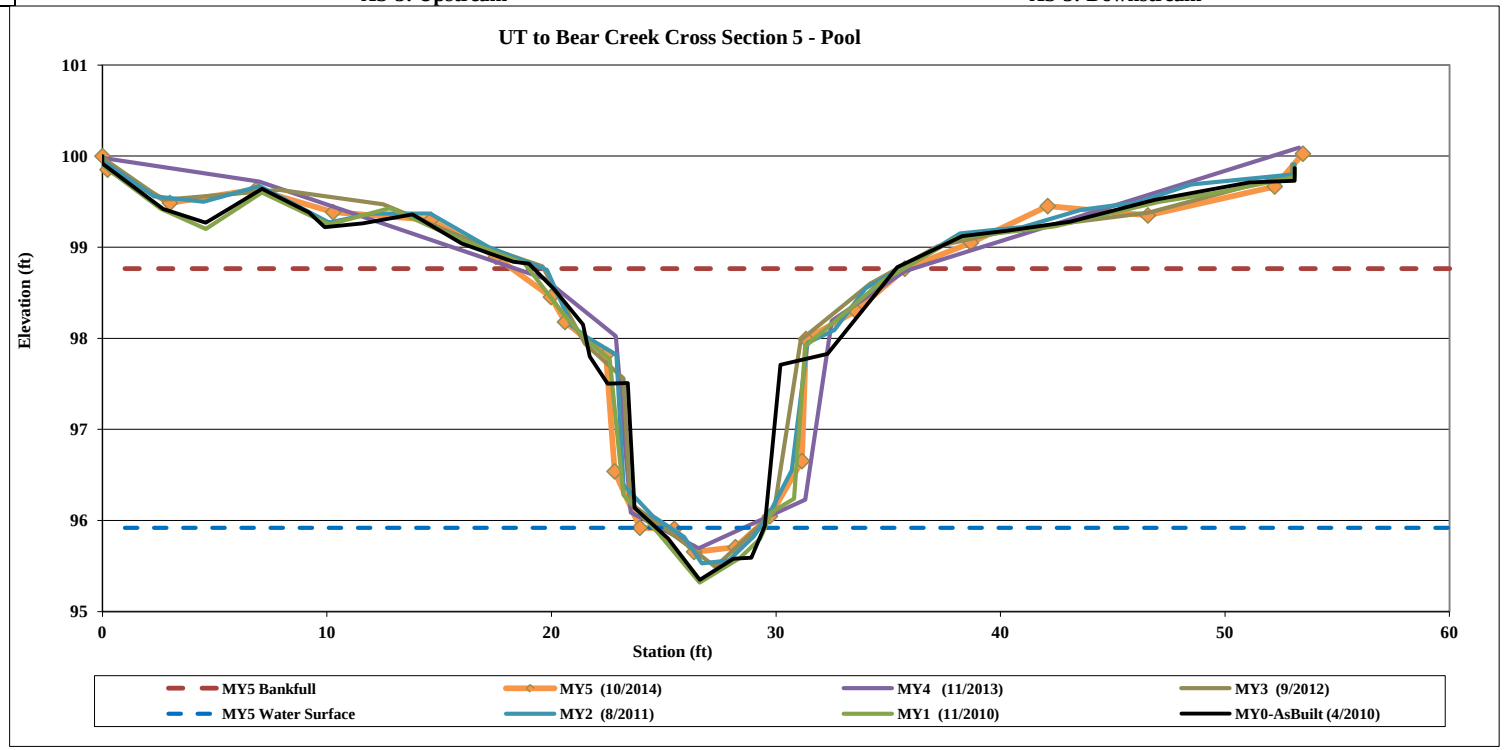


Figure 5.6 Cross-Sectional Profile, Annual Overlays
UT To Bear Creek #92347 -- North UT, X-Section 6
October 2014 -- Monitoring Year 5 of 5

Project Name	**UT to Bear Creek**
EEP Project Number	**92347**
Cross-Section ID	**XS-6, Riffle**
Survey Date	**10/2014**
SUMMARY DATA	
Bankfull Elevation (ft)	99.58
Bankfull Cross-Sectional Area (ft^2)	23.89
Bankfull Width (ft)	20.58
Flood Prone Area Elevation (ft)	101.48
Flood Prone Width (ft)	220.00
Bankfull Mean Depth (ft)	1.11
Bankfull Max Depth (ft)	1.89
W/D Ratio	18.47
Entrenchment Ratio	10.69
Bank Height Ratio	1.00

XS-6: Upstream

XS-6: Downstream

Station	Elevation	Notes
0	100	TLP
0.204137	99.735	xs6
3.534615	99.901	xs6
8.619881	99.532	xs6
14.09818	99.732	xs6
18.98867	99.709	xs6
21.50625	99.583	TLB
22.92686	99.103	xs6
24.92313	98.26	xs6
26.7479	97.997	xs6
29.09064	97.688	THW
30.79628	97.539	xs6
32.535	98.011	xs6
34.3177	98.23	xs6
36.38962	97.961	xs6
37.60524	98.703	xs6
39.3995	99.336	xs6
42.0855	99.928	TRB
44.07399	99.975	xs6
47.01909	99.832	xs6
50.5357	99.862	xs6
53.24369	100.081	xs6
56.82921	100.105	xs6
60.82981	100.177	xs6
61.30704	100.505	TRP

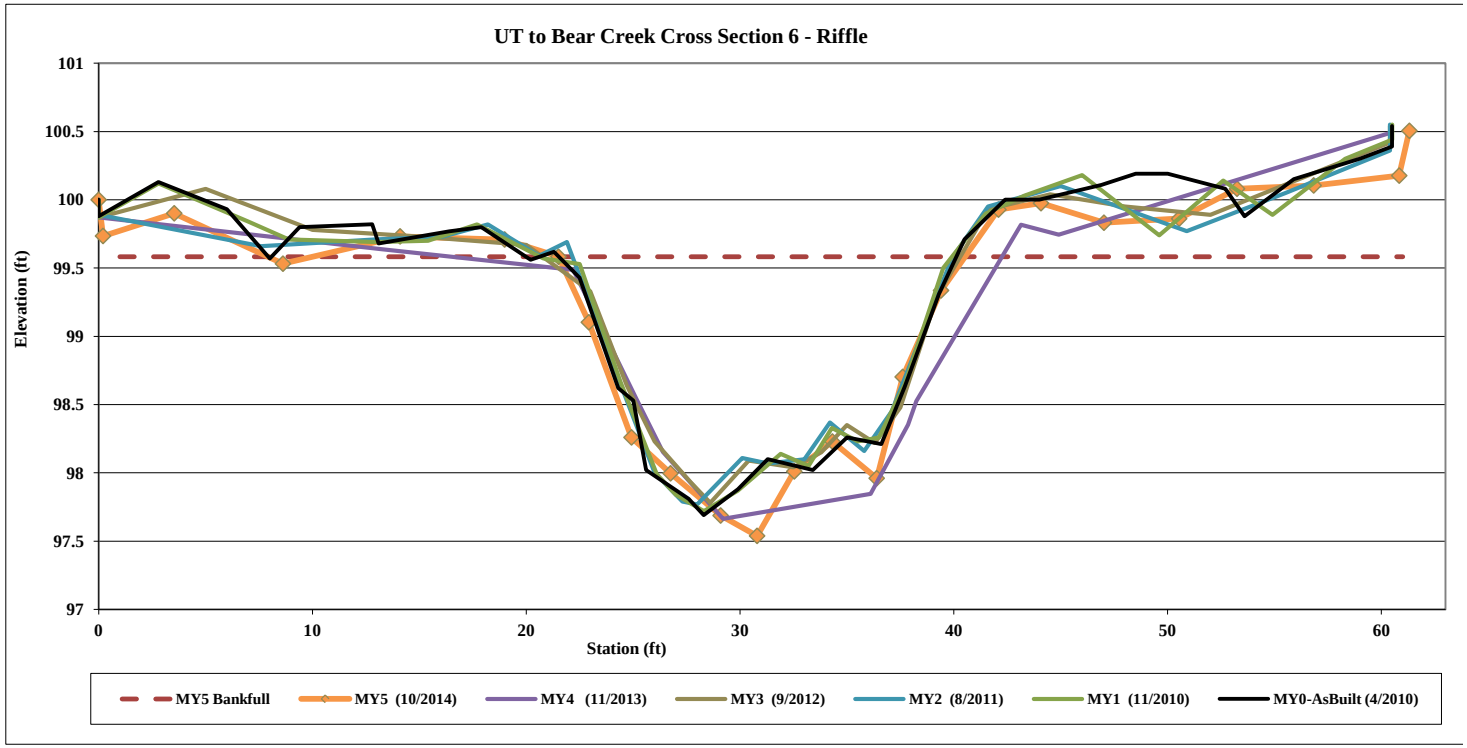


Figure 5.7 Cross-Sectional Profile, Annual Overlays
UT To Bear Creek #92347 -- South UT, X-Section 7
October 2014 -- Monitoring Year 5 of 5

Project Name	**UT to Bear Creek**
EEP Project Number	**92347**
Cross-Section ID	**XS-7, Riffle**
Survey Date	**10/2014**
SUMMARY DATA	
Bankfull Elevation (ft)	99.98
Bankfull Cross-Sectional Area (ft^2)	8.86
Bankfull Width (ft)	8.76
Flood Prone Area Elevation (ft)	101.45
Flood Prone Width (ft)	100.00
Bankfull Mean Depth (ft)	0.60
Bankfull Max Depth (ft)	1.46
W/D Ratio	14.59
Entrenchment Ratio	11.42
Bank Height Ratio	1.00

Station	Elevation	Notes
0	100	TLP
3.459568	99.767	xs7
8.757771	99.863	xs7
13.72562	99.992	xs7
15.77241	99.851	xs7
17.69981	99.987	TLB
18.01555	99.981	xs7
19.60782	99.601	xs7
20.50274	98.858	xs7
22.06846	98.517	THW
23.23372	98.637	xs7
24.22362	99.44	xs7
26.45595	100.051	TRB
30.61279	99.8	xs7
35.88389	99.874	xs7
41.11629	100.176	xs7
45.69429	100.372	xs7
46.25628	100.604	TRP

XS-7: Upstream

XS-7: Downstream

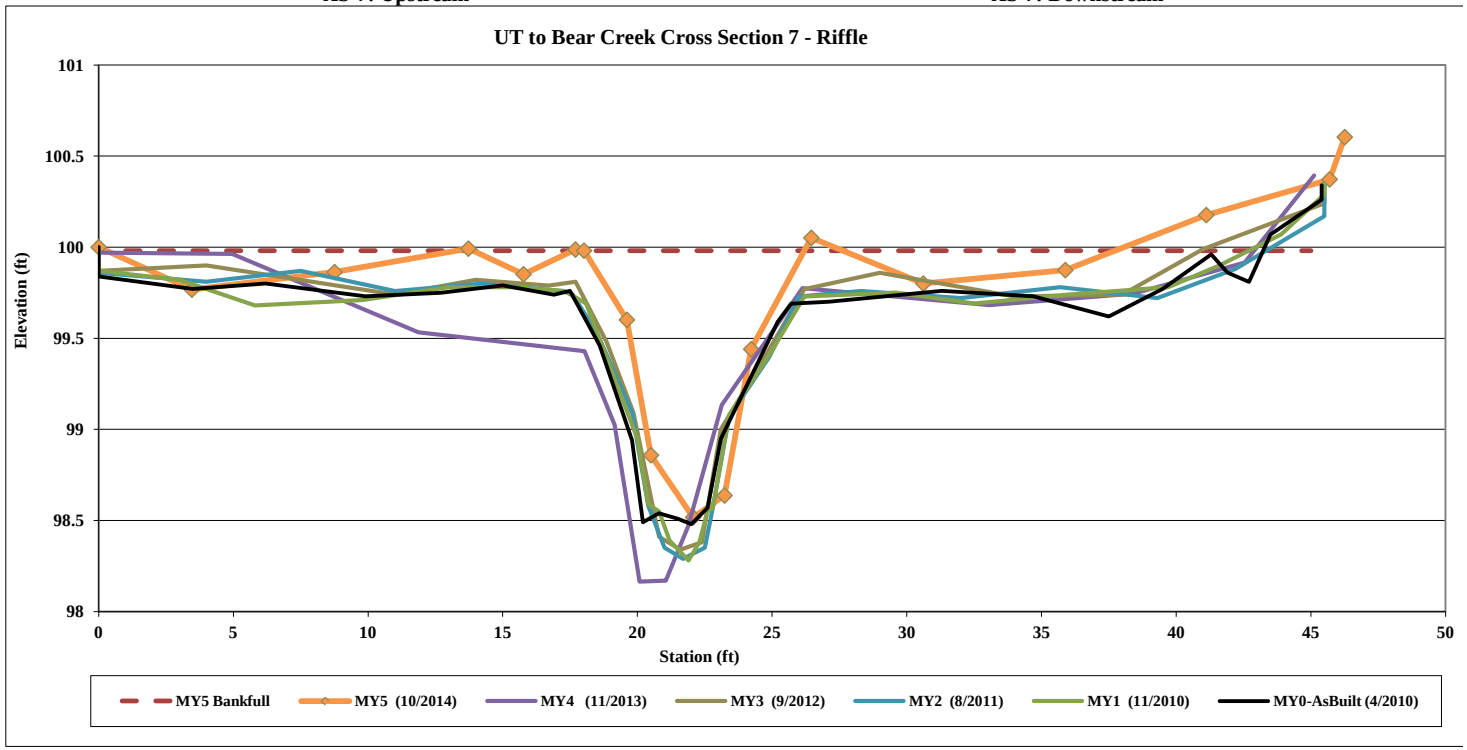


Figure 5.8 Cross-Sectional Profile, Annual Overlays
UT To Bear Creek #92347 -- South UT, X-Section 8
October 2014 -- Monitoring Year 5 of 5

Project Name	**UT to Bear Creek**
EEP Project Number	**92347**
Cross-Section ID	**XS-8, Riffle**
Survey Date	**10/2014**
SUMMARY DATA	
Bankfull Elevation (ft)	98.37
Bankfull Cross-Sectional Area (ft^2)	9.79
Bankfull Width (ft)	9.78
Flood Prone Area Elevation (ft)	99.89
Flood Prone Width (ft)	50.00
Bankfull Mean Depth (ft)	0.80
Bankfull Max Depth (ft)	1.52
W/D Ratio	12.23
Entrenchment Ratio	5.11
Bank Height Ratio	1.00

XS-8: Upstream

XS-8: Downstream

Station	Elevation	Notes
0	100	TLP
0.128035	99.894	xs8
3.662896	99.407	xs8
9.325825	98.678	xs8
11.92401	98.437	xs8
13.13361	98.535	TLB
14.21519	98.2	xs8
15.35394	97.488	xs8
15.91264	96.718	xs8
17.3252	96.85	THW
18.59896	97.383	xs8
19.81524	97.383	xs8
22.91479	98.371	TRB
25.16498	98.504	xs8
28.70061	98.461	xs8
32.34343	98.833	xs8
35.45704	99.135	xs8
39.39655	98.849	xs8
43.11129	98.853	xs8
43.59202	99.228	TRP

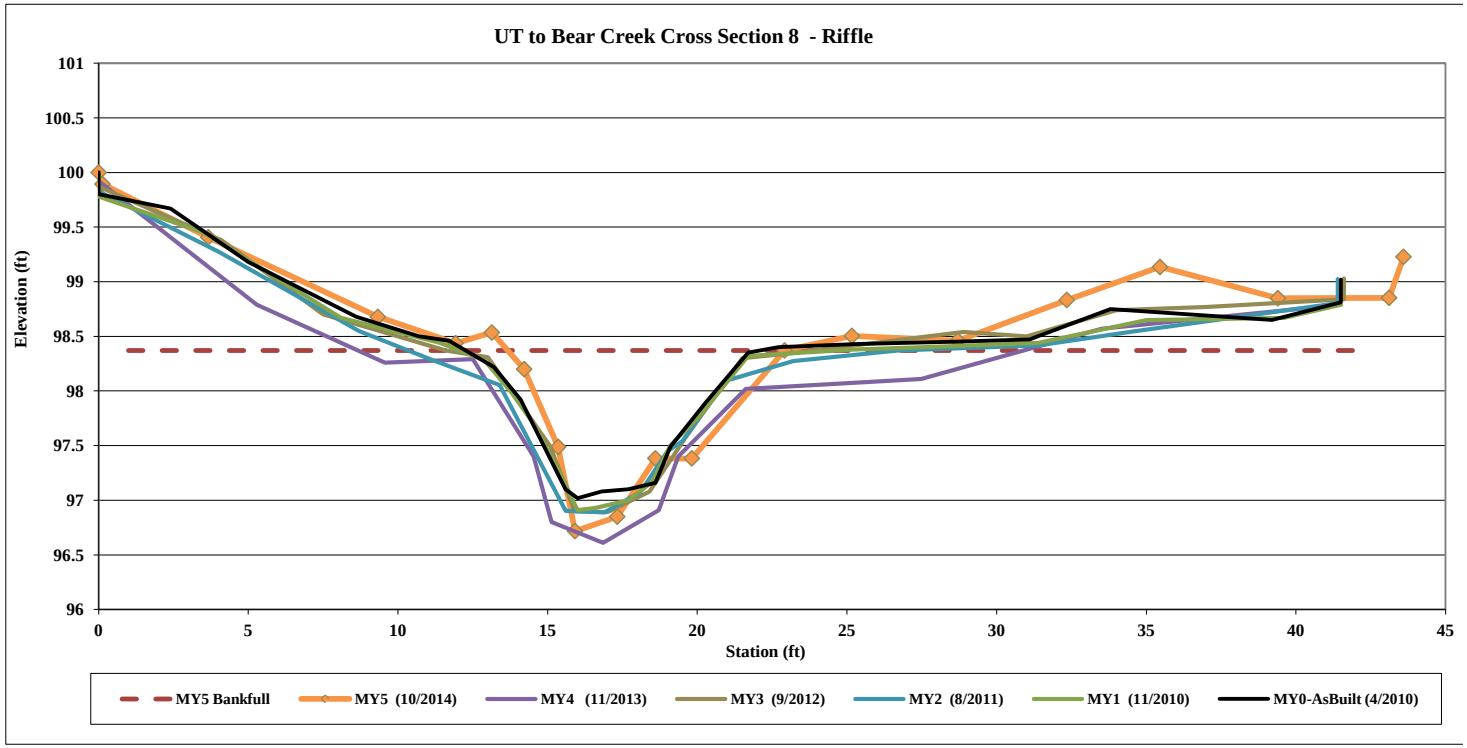


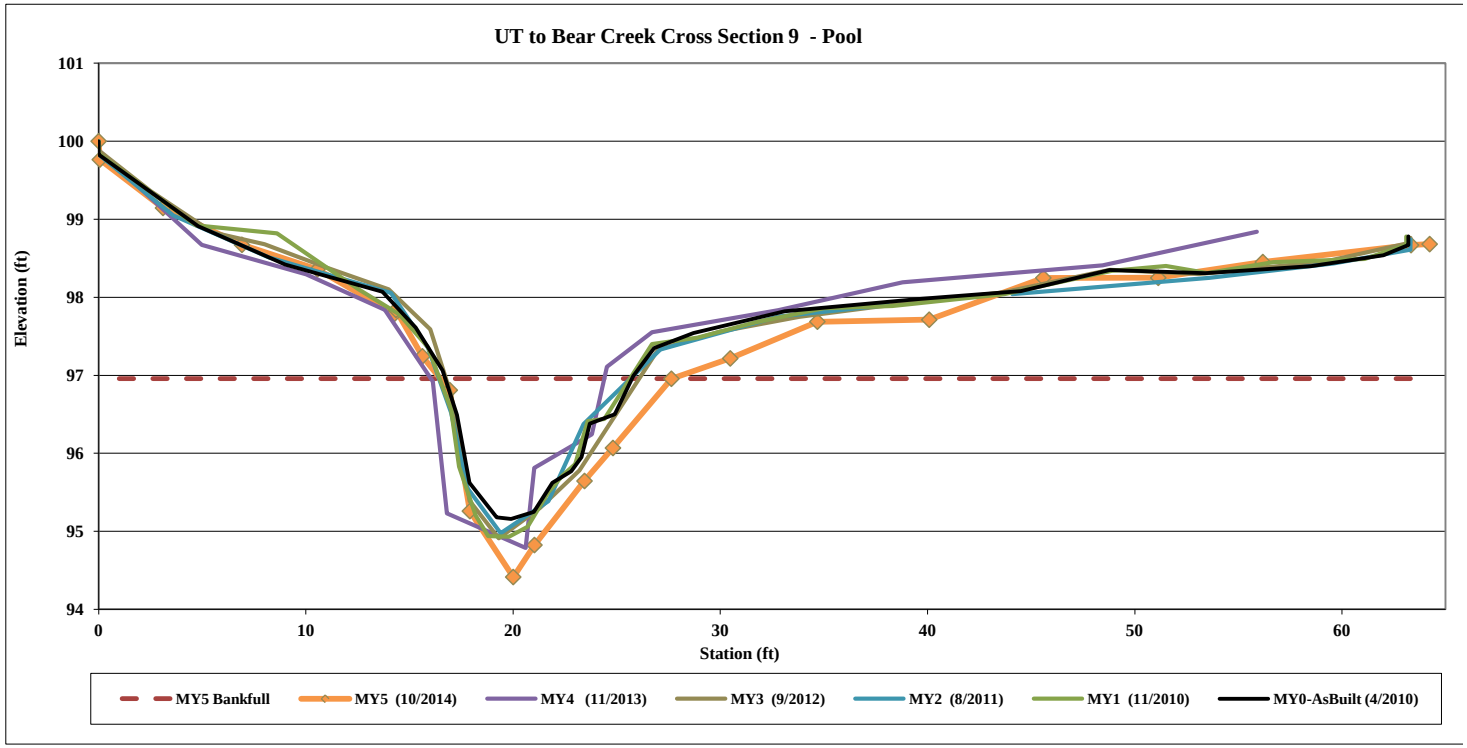
Figure 5.9 Cross-Sectional Profile, Annual Overlays
UT To Bear Creek #92347 -- South UT, X-Section 9
October 2014 -- Monitoring Year 5 of 5

Project Name	**UT to Bear Creek**
EEP Project Number	**92347**
Cross-Section ID	**XS-9, Pool**
Survey Date	**10/2014**
SUMMARY DATA	
Bankfull Elevation (ft)	96.96
Bankfull Cross-Sectional Area (ft^2)	14.72
Bankfull Width (ft)	20.41
Flood Prone Area Elevation (ft)	99.50
Flood Prone Width (ft)	50.00
Bankfull Mean Depth (ft)	1.10
Bankfull Max Depth (ft)	2.54
W/D Ratio	18.56
Entrenchment Ratio	2.45
Bank Height Ratio	1.01

XS-9: Upstream

XS-9: Downstream

Station	Elevation	Notes
0	100	TLP
0.055154	99.764	xs9
3.105749	99.145	xs9
6.915404	98.672	xs9
10.56022	98.357	xs9
14.27278	97.787	TLB
14.34719	97.838	xs9
15.62273	97.243	xs9
16.944	96.809	xs9
17.91338	95.259	xs9
20.00575	94.414	THW
21.02958	94.824	xs9
23.44619	95.645	xs9
24.81852	96.068	xs9
27.63857	96.955	xs9
30.47945	97.216	xs9
34.6845	97.687	TRB
40.08001	97.712	xs9
45.58668	98.248	xs9
51.13345	98.249	xs9
56.17883	98.451	xs9
63.33146	98.668	xs9
64.22993	98.681	TRP



Appendix D -- eTable
Cross-Sectional Profile Survey Data: 2010-2014
UT Bear Creek (Weaver/McLeod) #92347 -- XSEC-1

MY0-AsBuilt (4/2010)			MY1 (11/2010)			MY2 (8/2011)			MY3 (9/2012)			MY4 (11/2013)			MY5 (10/2014) - XSEC-1			
Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Rel.Elev
0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	416.97	TLP	100.00
0.00	99.95	BLP	0.00	99.95	BLP	0.00	99.94	BLP	0.00	99.92	BLP	0.00	99.92	BLP	0.10	416.90	BLP	99.93
3.80	99.18		0.70	99.65		3.80	99.20		3.50	99.26		3.11	99.33		2.66	416.34		99.36
8.70	99.01		3.70	99.20		8.90	99.00		6.50	99.10		11.96	99.02	TLB	6.30	416.05		99.08
11.80	99.08	TLB	7.30	99.06		12.00	99.05		10.00	99.05		15.32	97.85		9.59	415.97		98.99
14.30	98.29		10.40	99.04		14.10	98.35		12.40	98.94		16.81	96.95		11.67	416.03	TLB	99.06
16.00	97.81		11.70	99.07	TLB	15.30	97.79		14.30	98.29		19.50	96.99		13.08	415.58		98.60
16.60	97.06		13.90	98.41		16.00	97.76		16.00	97.81		23.45	96.94		14.76	415.13		98.16
18.50	96.84	THW	15.40	97.80		16.80	97.02		16.60	97.24		25.38	97.49		16.15	414.70		97.73
20.20	97.08		16.00	97.68		18.50	96.87		18.00	96.96		29.83	98.85	TRB	17.33	413.92		96.95
21.50	96.87		16.30	97.08		19.90	97.08		19.00	97.08		37.52	99.09		19.02	413.76	THW	96.78
22.70	96.89		17.70	96.83		21.00	97.04		20.50	97.29		49.48	98.85		20.13	414.00		97.03
24.20	97.06		19.00	96.91		22.30	96.93		22.30	97.19		58.65	99.92	TRP	22.57	413.97		97.00
25.40	97.20		20.80	97.08		24.80	97.23		24.00	97.30					24.47	414.06		97.09
27.40	98.18		22.40	96.96		25.80	97.45		25.50	97.51					26.49	414.83		97.86
30.30	99.09		23.80	97.00		27.80	98.23		26.60	97.98					28.80	415.46		98.49
31.80	99.20	TRB	24.90	97.23		29.10	98.72		28.50	98.52					31.34	416.05	TRB	99.07
33.60	99.08		25.70	97.50		31.30	99.25		30.20	99.08					34.11	415.99		99.02
36.20	98.73		27.00	98.16		32.40	99.03		33.00	99.07					38.15	416.06		99.08
37.70	98.98		27.90	98.24		34.90	98.93		35.50	98.88					43.57	415.75		98.78
42.60	98.89		30.90	99.28		36.70	98.69		38.50	99.06					48.55	415.84		98.86
48.90	98.93		32.10	99.05	BKF	40.30	99.02		42.30	98.91					52.99	416.07		99.10
52.50	99.20		35.00	98.90		43.00	98.84		45.40	98.90					59.35	416.75	BRP	99.78
57.00	99.51		36.50	98.67		48.00	98.88		48.50	98.95					59.79	416.84	TRP	99.86
58.90	99.78	BRP	37.60	98.91		52.50	99.17		52.00	99.13								
58.90	99.91	TRP	40.70	98.97		58.90	99.75	BRP	55.50	99.24								
			44.00	98.81		58.90	99.88	TRP	58.90	99.76	BRP							
			48.10	98.87					58.90	99.88	TRP							
			52.40	99.19														
			56.00	99.22														
			58.90	99.79	BRP													
			58.90	99.88	TRP													

Appendix D -- eTable
Cross-Sectional Profile Survey Data: 2010-2014
UT Bear Creek (Weaver/McLeod) #92347 -- XSEC-2

MY0-AsBuilt (4/2010)			MY1 (11/2010)			MY2 (8/2011)			MY3 (9/2012)			MY4 (11/2013)			MY5 (10/2014) -- XSEC-2			
Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Rel.Elev
0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	415.77	TLP	100.00
0.00	99.94	BLP	0.00	99.91	BLP	0.00	99.91	BLP	0.00	99.92	BLP	0.00	99.92	BLP	1.11	415.57		99.79
4.60	99.10		2.90	99.22		3.90	99.12		2.00	99.46		5.73	98.85		3.58	414.83		99.06
8.60	98.62		6.20	98.91		7.00	98.87		5.00	99.07		11.98	98.46		6.01	414.64		98.87
12.30	98.46		8.70	98.59		9.10	98.56		9.00	98.60		16.26	98.84		9.15	414.31		98.53
14.70	98.73		12.70	98.34		12.80	98.37		13.00	98.51		20.79	97.47	TLB	12.30	414.19		98.42
16.10	98.91	TLB	16.00	98.90	TLB	14.80	98.75	TLB	14.50	98.88		22.50	96.85		14.74	414.57		98.80
17.80	98.68		17.90	98.59		17.50	98.72		16.60	98.91		25.83	96.70		16.47	414.66	TLB	98.89
19.00	98.14		20.20	97.52		18.90	98.17		19.00	98.02		30.50	97.31	TRB	19.16	413.77		98.00
20.30	97.49		21.70	97.12		20.20	97.54		21.00	97.42		35.26	98.73		21.17	413.19		97.42
21.40	97.31		22.80	96.98		21.60	97.15		22.50	97.12		45.48	98.81		22.96	412.47		96.69
22.00	97.15	rock	23.60	96.76		22.20	96.96		25.00	96.99		45.63	98.77		25.04	412.48		96.71
22.70	96.86		24.90	96.71		24.00	96.77		26.50	96.99		53.13	100.33	TRP	26.85	412.62		96.84
24.20	96.77		26.50	96.77		25.60	96.71		28.50	96.88					28.42	412.45	LEW	96.67
25.30	96.69	THW	27.90	96.81		27.50	96.81		30.20	97.09					29.14	412.38	THW	96.61
26.30	96.77		29.90	96.74		29.80	96.70		32.00	97.90					30.41	412.51	REW	96.73
27.60	96.81		31.20	97.64		30.50	97.64		34.50	98.62					31.80	413.24		97.47
29.30	96.74		34.10	98.49		32.20	98.04		38.00	98.76					33.45	413.89		98.12
30.10	96.71		35.60	98.75	TRB	33.90	98.48		42.00	98.65					34.63	414.28		98.51
31.30	97.66		38.90	98.73		35.40	98.74		46.00	98.84					35.48	414.51	TRB	98.74
33.60	98.38		42.80	98.71		37.80	98.74		49.00	99.43					38.80	414.42		98.65
35.50	98.76	TRB	45.80	98.81		42.00	98.68		53.10	100.30	BRP				41.78	414.44		98.67
37.20	98.72		47.60	99.19		46.30	98.78		53.10	100.35	TRP				45.26	414.57		98.80
41.90	98.66		50.70	99.81		50.10	99.65								48.99	414.73		98.96
45.60	98.86		53.00	100.26	BRP	53.10	100.26	BRP							51.49	415.49		99.72
49.70	99.56		53.00	100.35	TRP	53.10	100.33	TRP							53.74	416.01		100.23
53.00	100.29	BRP													53.89	416.10	TRP	100.33
53.00	100.35	TRP																

Appendix D -- eTable
Cross-Sectional Profile Survey Data: 2010-2014
UT Bear Creek (Weaver/McLeod) #92347 -- XSEC-3

MY0-AsBuilt (4/2010)			MY1 (11/2010)			MY2 (8/2011)			MY3 (9/2012)			MY4 (11/2013)			MY5 (10/2014) -- XSEC-3			
Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Rel.Elev
0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	413.86	TLP	100.00
0.00	99.88	BLP	0.00	99.88	BLP	0.00	99.90	BLP	0.00	99.90	BLP	0.00	99.90	BLP	0.51	413.78		99.92
4.80	99.53		1.90	99.66		2.20	99.69		6.90	99.53		7.16	99.37		3.62	413.58		99.72
9.20	99.30		5.60	99.59		4.80	99.62		10.70	99.30		14.13	99.43		7.21	413.29		99.43
12.50	99.24		8.80	99.38		8.00	99.46		15.40	99.34		20.92	99.03	TLB	10.69	413.12		99.26
17.50	99.28		12.40	99.29		13.00	99.34		18.90	99.33		24.79	97.97		13.93	413.18		99.32
20.00	99.33	TLB	16.10	99.31		17.00	99.30		20.80	99.36		25.43	95.91		17.72	412.99		99.13
22.00	98.76		18.80	99.31		19.40	99.31		22.20	98.76		30.58	95.96		21.22	412.95	TLB	99.09
24.10	98.12		20.20	99.26	TLB	21.00	99.30		24.60	98.11		34.43	96.08		23.08	412.55		98.69
25.10	96.20		21.90	98.73		22.50	98.71		25.10	96.18		37.11	98.57		25.14	411.95		98.09
27.80	95.83		23.50	98.21		23.90	98.31		28.10	95.60		40.25	99.34	TRB	26.35	411.74		97.87
28.90	95.70		24.00	98.14		24.30	98.17		30.00	95.40		53.43	99.48		29.06	409.17		95.31
29.80	95.62		24.40	96.37		25.10	97.97		32.50	95.56		65.31	99.42		32.32	409.56		95.69
31.70	95.44	THW	27.20	96.01		25.50	96.18		34.20	95.96		78.96	100.72	TRP	34.21	409.57		95.71
32.90	95.59		29.70	95.54		27.00	96.02		36.20	96.39					40.69	410.84	LEW	96.98
33.70	95.95		31.00	95.50		28.20	95.86		36.80	98.58					43.50	409.13	THW	95.27
35.50	96.40		31.80	95.61		29.70	95.68		39.50	99.34					46.82	410.85	REW	96.99
36.30	98.50		33.10	95.68		31.00	95.46		41.80	99.42					48.00	412.33		98.46
37.00	98.66		33.70	96.06		32.70	95.62		47.90	99.48					49.92	411.94		98.08
40.30	99.39	TRB	34.60	96.22		34.30	96.10		53.70	99.50					51.54	412.25		98.39
44.40	99.41		36.00	96.42		35.90	96.37		58.20	99.56					53.87	413.13	TRB	99.27
46.30	99.40		36.50	98.57		36.20	98.09		61.80	99.39					57.97	412.89		99.03
49.00	99.45		37.10	98.71		36.60	98.52		70.70	99.72					59.55	413.34		99.47
53.10	99.39		39.30	99.23		37.60	98.74		78.80	100.48	BRP				64.30	414.03		100.17
57.30	99.48		40.70	99.44	TRB	39.00	99.19		78.80	100.60	TRP				67.81	413.34		99.47
61.30	99.32		44.10	99.48		40.20	99.33								71.21	413.45		99.58
63.40	99.49		46.50	99.49		42.00	99.35								73.66	413.19		99.32
66.00	99.36		49.70	99.55		48.00	99.49								78.19	413.18		99.32
72.00	99.85		53.00	99.40		54.00	99.53								82.64	413.20		99.34
74.70	100.16		57.80	99.48		59.00	99.63								87.49	413.44		99.57
78.60	100.48	BRP	61.10	99.29		63.00	99.59								90.79	413.67		99.81
78.60	100.61	TRP	66.50	99.38		66.70	99.37								95.42	413.98		100.12
			71.60	99.78		70.00	99.69								97.75	414.18	TRP	100.31
			78.60	100.49	BRP	74.00	100.09											
			78.60	100.61	TRP	78.80	100.47	BRP										
						78.80	100.61	TRP										

Appendix D -- eTable
Cross-Sectional Profile Survey Data: 2010-2014
UT Bear Creek (Weaver/McLeod) #92347 -- XSEC-4

MY0-AsBuilt (4/2010)			MY1 (11/2010)			MY2 (8/2011)			MY3 (9/2012)			MY4 (11/2013)			MY5 (10/2014) -- XSEC-4			
Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Rel.elev
0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	413.34	TLP	100.00
0.00	99.88	BLP	0.00	99.87	BLP	0.00	99.86	BLP	0.00	99.89	BLP	0.00	99.89	BLP	0.12	413.28	BLP	99.94
3.20	99.74		2.40	99.77		6.20	99.79		2.50	99.75		11.73	99.67		3.98	413.16		99.82
6.40	99.81		6.30	99.82		12.80	99.60		7.00	99.79		21.81	99.32		7.96	413.11		99.76
9.10	99.65		10.90	99.44		18.50	99.49		12.00	99.76		23.54	99.53	TLB	11.91	413.02		99.67
10.70	99.46		15.00	99.60		22.50	99.43		16.00	99.48		26.96	98.32		17.41	412.73		99.38
11.60	99.71		18.30	99.42		23.90	99.66	TLB	20.00	99.37		28.62	97.52		21.84	412.80		99.46
14.00	99.69		22.70	99.44		25.90	99.12		22.50	99.55		32.72	97.23		24.40	412.95		99.60
16.30	99.51		23.90	99.66		27.90	98.15		24.00	99.64		37.13	97.18		24.42	412.92	TLB	99.58
18.20	99.43		25.90	99.12		28.90	97.69		25.50	99.11		38.37	98.03		26.05	412.47		99.13
20.20	99.34		28.50	97.67		30.90	97.39		27.40	98.28		42.93	99.37	TRB	27.40	411.78		98.44
22.00	99.36		30.50	97.47		32.10	97.32		28.50	97.70		52.35	99.47		28.71	410.80		97.46
23.50	99.66	TLB	31.60	97.33		34.10	97.40		30.10	97.52		61.80	99.38		30.51	410.63		97.28
24.70	99.48		32.30	97.32		35.70	97.52		31.80	97.45		68.63	100.11	TRP	32.19	410.70		97.36
27.40	98.33		33.40	97.61		37.20	97.41		33.30	97.51					34.50	410.66		97.32
28.20	97.79		34.20	97.53		37.80	97.48		35.00	97.70					36.75	410.35	THW	97.01
28.80	97.58		35.40	97.45		40.00	98.58		36.80	97.59					38.49	411.07		97.72
30.50	97.40		36.70	97.30		42.20	99.35	TRB	38.00	98.18					40.43	411.89		98.54
31.60	97.36		37.70	97.38		44.90	99.67		40.00	98.79					43.53	412.92	TRB	99.58
33.00	97.44		38.50	98.10		49.00	99.78		42.50	99.55					46.36	413.07		99.73
34.20	97.41		39.80	98.57		52.30	99.67		45.00	99.75					50.37	412.91		99.57
34.90	97.37		41.20	99.10		58.10	99.82		49.00	99.78					55.20	412.87		99.52
35.60	97.48		43.00	99.58	TRB	62.70	99.90		53.00	99.59					60.01	413.01		99.67
36.90	97.31	THW	43.90	99.65		69.00	100.11	BRP	57.00	99.77					65.09	413.23		99.89
37.80	97.36		47.00	99.73		69.00	100.19	TRP	61.00	99.76					69.40	413.44		100.10
38.60	98.22		50.70	99.70					69.00	100.13	BRP				69.94	413.53	TRP	100.19
39.90	98.61		54.80	99.49					69.00	100.19	TRP							
42.00	99.37		60.00	99.67														
43.80	99.66		69.00	100.09	BRP													
45.60	99.69	TRB	69.00	100.18	TRP													
47.60	99.73																	
50.90	99.87																	
54.00	99.60																	
56.20	99.51																	
59.30	99.68																	
63.10	99.91																	
67.60	100.07																	
69.00	100.18	TRP																

Appendix D -- eTable
Cross-Sectional Profile Survey Data: 2010-2014
UT Bear Creek (Weaver/McLeod) #92347 -- XSEC-5

MY0-AsBuilt (4/2010)			MY1 (11/2010)			MY2 (8/2011)			MY3 (9/2012)			MY4 (11/2013)			MY5 (10/2014) -- XSEC-5			
Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Rel.Elev
0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	410.87	TLP	100.00
0.00	99.92	BLP	0.00	99.90	BLP	0.00	99.95	BLP	0.00	99.98	BLP	0.00	99.98	BLP	0.22	410.72	BLP	99.85
2.70	99.42		2.60	99.42		2.30	99.56		2.70	99.52		6.98	99.72		3.00	410.36		99.49
4.60	99.27		4.60	99.20		4.50	99.50		7.90	99.63		19.66	98.66	TLB	6.84	410.50		99.63
5.70	99.43		7.10	99.60		7.00	99.67		12.50	99.47		22.86	98.02		10.27	410.26		99.38
7.10	99.64		10.10	99.25		10.10	99.27		17.10	99.00		23.53	96.09		14.63	410.17		99.30
9.20	99.38		12.80	99.43		12.00	99.37		19.60	98.79		26.55	95.70		17.53	409.77		98.89
9.90	99.22		15.60	99.12		14.60	99.37		21.50	97.94		31.31	96.23		19.98	409.32	TLB	98.45
11.60	99.26		18.80	98.82	TLB	17.20	99.00		23.20	97.56		32.49	98.19		20.60	409.05		98.18
13.80	99.36		20.50	98.28		19.80	98.75		23.50	96.19		35.74	98.74	TRB	22.43	408.69		97.82
16.00	99.04		21.50	97.99		20.90	98.14		26.10	95.72		53.29	100.09	TRP	22.81	407.41		96.54
18.30	98.84		22.60	97.77		21.60	98.01		27.30	95.49					23.94	406.79	LEW	95.92
19.00	98.82	TLB	23.00	96.79		22.90	97.82		29.90	96.09					25.47	406.78		95.91
20.10	98.54		23.20	96.28		23.20	96.39		31.10	97.98					26.35	406.53		95.66
21.40	98.15		24.80	95.85		24.50	96.05		34.20	98.60					28.19	406.58	THW	95.71
21.70	97.80		26.60	95.32		25.90	95.82		37.20	99.01					29.73	406.92		96.05
22.50	97.50		28.40	95.59		26.70	95.53		40.50	99.19					31.16	407.52		96.65
23.40	97.51		29.30	95.80		27.90	95.56		46.60	99.38					31.33	408.86	REW	97.99
23.70	96.14		29.80	96.09		29.00	95.82		53.00	99.80	BRP				33.56	409.17		98.30
25.20	95.80		30.80	96.24		29.60	96.03		53.00	99.91	TRP				35.74	409.64		98.76
26.60	95.35	THW	31.30	97.91		30.70	96.55								38.68	409.92	TRB	99.05
28.10	95.58		34.70	98.62		31.40	97.95								42.10	410.32		99.45
28.90	95.59		38.00	99.10		32.60	98.09								46.56	410.22		99.35
29.50	95.94		42.40	99.23		34.00	98.55								52.21	410.54		99.67
30.20	97.71		47.10	99.50		36.00	98.82								53.47	410.90	TRP	100.03
32.30	97.83		49.70	99.60		38.20	99.15											
35.40	98.78		53.10	99.77	BRP	41.00	99.22											
38.30	99.12	TRB	53.10	99.87	TRP	43.60	99.41											
40.30	99.18					46.10	99.49											
43.10	99.28					48.50	99.69											
46.90	99.52					53.10	99.80	BRP										
51.10	99.71					53.10	99.91	TRP										
53.10	99.73	BRP																
53.10	99.87	TRP																

Appendix D -- eTable
Cross-Sectional Profile Survey Data: 2010-2014
UT Bear Creek (Weaver/McLeod) #92347 -- XSEC-6

MY0-AsBuilt (4/2010)			MY1 (11/2010)			MY2 (8/2011)			MY3 (9/2012)			MY4 (11/2013)			MY5 (10/2014) -- XSEC-6			
Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Rel.Elev
0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	409.73	TLP	100.00
0.00	99.88	BLP	0.00	99.87	BLP	0.00	99.89	BLP	0.00	99.87	BLP	0.00	99.87	BLP	0.20	409.47	BLP	99.74
2.80	100.13		2.80	100.12		7.60	99.66		5.00	100.08		13.17	99.64		3.53	409.63		99.90
6.00	99.93		7.00	99.84		12.90	99.71		10.00	99.78		22.20	99.49	TLB	8.62	409.26		99.53
8.00	99.57		8.90	99.71		16.10	99.73		15.00	99.73		25.17	98.54		14.10	409.46		99.73
9.40	99.80		13.00	99.69		18.20	99.82		20.00	99.67		26.39	98.15		18.99	409.44		99.71
12.80	99.82		15.40	99.70		20.60	99.59		23.00	99.33		29.20	97.66		21.51	409.32	TLB	99.58
13.10	99.68		17.70	99.82		21.90	99.69		24.70	98.64		36.11	97.85		22.93	408.84		99.10
16.40	99.77		20.80	99.57	TLB	24.50	98.61		26.00	98.23		37.85	98.35		24.92	407.99		98.26
17.90	99.80		22.50	99.53		26.00	98.00		27.70	97.93		38.24	98.53	TRB	26.75	407.73		98.00
20.20	99.56		24.40	98.67		27.30	97.79		28.60	97.78		43.14	99.82		29.09	407.42	THW	97.69
21.30	99.62	TLB	26.10	97.99		28.00	97.77		30.40	98.09		44.91	99.75		30.80	407.27		97.54
22.50	99.43		27.00	97.84		30.10	98.11		32.50	98.04		60.46	100.49	TRP	32.54	407.74		98.01
24.30	98.62		28.30	97.72		31.30	98.07		33.80	98.15					34.32	407.96		98.23
25.00	98.53		29.90	97.87		33.00	98.10		35.00	98.35					36.39	407.69		97.96
25.60	98.02		31.90	98.14		34.20	98.37		36.30	98.22					37.61	408.44		98.70
27.60	97.81		33.20	98.05		35.80	98.16		37.50	98.48					39.40	409.07		99.34
28.30	97.69		34.30	98.33		37.10	98.45		39.20	99.29					42.09	409.66	TRB	99.93
29.90	97.88		35.50	98.23		39.90	99.57		41.60	99.93					44.07	409.71		99.98
31.30	98.10		36.50	98.26		41.60	99.95		44.50	100.04					47.02	409.56		99.83
33.40	98.02	THW	37.70	98.65		45.00	100.10		48.00	99.95					50.54	409.59		99.86
35.00	98.26		39.50	99.50		50.90	99.77		52.00	99.89					53.24	409.81		100.08
36.60	98.21		41.50	99.90		55.50	100.05		60.40	100.42	BRP				56.83	409.84		100.11
37.70	98.63		43.30	100.03	TRB	60.40	100.36	BRP	60.40	100.54	TRP				60.83	409.91	BRP	100.18
39.30	99.31		46.00	100.18		60.40	100.55	TRP							61.31	410.24	TRP	100.51
40.50	99.71		49.60	99.74														
42.40	100.00	TRB	52.60	100.14														
46.90	100.11		54.90	99.89														
48.50	100.19		58.30	100.30														
52.70	100.08		60.50	100.44	BRP													
53.60	99.88		60.50	100.55	TRP													
55.90	100.15																	
59.00	100.30																	
60.50	100.39	BRP																
60.50	100.54	TRP																

Appendix D -- eTable
Cross-Sectional Profile Survey Data: 2010-2014
UT Bear Creek (Weaver/McLeod) #92347 -- XSEC-7

MY0-AsBuilt (4/2010)			MY1 (11/2010)			MY2 (8/2011)			MY3 (9/2012)			MY4 (11/2013)			MY5 (10/2014) -- XSEC-7			
Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Rel.Elev
0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	422.41	TLP	100.00
0.00	99.84	BLP	0.00	99.87	BLP	0.00	99.86	BLP	0.00	99.87	BLP	0.00	99.97	BLP	3.46	422.18		99.77
3.50	99.77		3.00	99.82		4.00	99.81		4.00	99.90		4.96	99.96		8.76	422.28		99.86
6.20	99.80		5.80	99.68		7.50	99.87		11.00	99.74		11.87	99.53		13.73	422.40		99.99
9.90	99.73		9.80	99.71		11.00	99.76		14.00	99.82		18.03	99.43	TLB	15.77	422.26		99.85
12.70	99.75		13.00	99.78		14.20	99.80		16.70	99.79		19.15	99.03		17.70	422.40		99.99
15.00	99.79		15.40	99.78	TLB	17.20	99.76		17.70	99.81		20.08	98.16		18.02	422.39	TLB	99.98
16.90	99.74		17.30	99.76		17.60	99.74		18.85	99.48		21.05	98.17		19.61	422.01		99.60
17.50	99.76	TLB	18.10	99.69		18.50	99.53		19.85	99.09		21.88	98.47		20.50	421.27		98.86
18.60	99.46		20.00	98.95		19.80	99.09		20.80	98.41		23.13	99.13		22.07	420.93	THW	98.52
19.80	98.94		20.40	98.59		20.40	98.58		21.60	98.34		26.13	99.78	TRB	23.23	421.05		98.64
20.20	98.49		20.80	98.55		21.00	98.35		22.40	98.38		33.06	99.68		24.22	421.85		99.44
20.80	98.54		21.20	98.39		21.70	98.29		23.10	99.00		38.43	99.75		26.46	422.46	TRB	100.05
21.50	98.51		21.90	98.28		22.50	98.35		24.70	99.39		42.54	99.92		30.61	422.21		99.80
22.00	98.48	THW	22.30	98.38		22.80	98.57		26.20	99.77		45.12	100.39	TRP	35.88	422.29		99.87
22.60	98.57		22.60	98.55		23.40	99.07		29.00	99.86					41.12	422.59		100.18
23.10	98.95		22.80	98.57		24.90	99.40		34.00	99.73					45.69	422.78		100.37
25.20	99.59		23.40	99.08		26.00	99.73		38.00	99.74					46.26	423.02	TRP	100.60
25.70	99.69	TRB	24.90	99.41		28.30	99.76		41.00	99.99								
27.10	99.70		26.20	99.73		32.00	99.72		45.50	100.24	BRP							
31.30	99.76		29.60	99.75		35.70	99.78		45.50	100.35	TRP							
34.70	99.73		32.50	99.69		39.30	99.72											
37.50	99.62		36.00	99.74		42.20	99.88											
39.50	99.77		39.70	99.78		45.50	100.17	BRP										
41.30	99.96		41.60	99.90		45.50	100.35	TRP										
41.90	99.86		43.90	100.07														
42.70	99.81		45.50	100.29	BRP													
43.50	100.07		45.50	100.35	TRP													
45.40	100.26	BRP																
45.40	100.34	TRP																

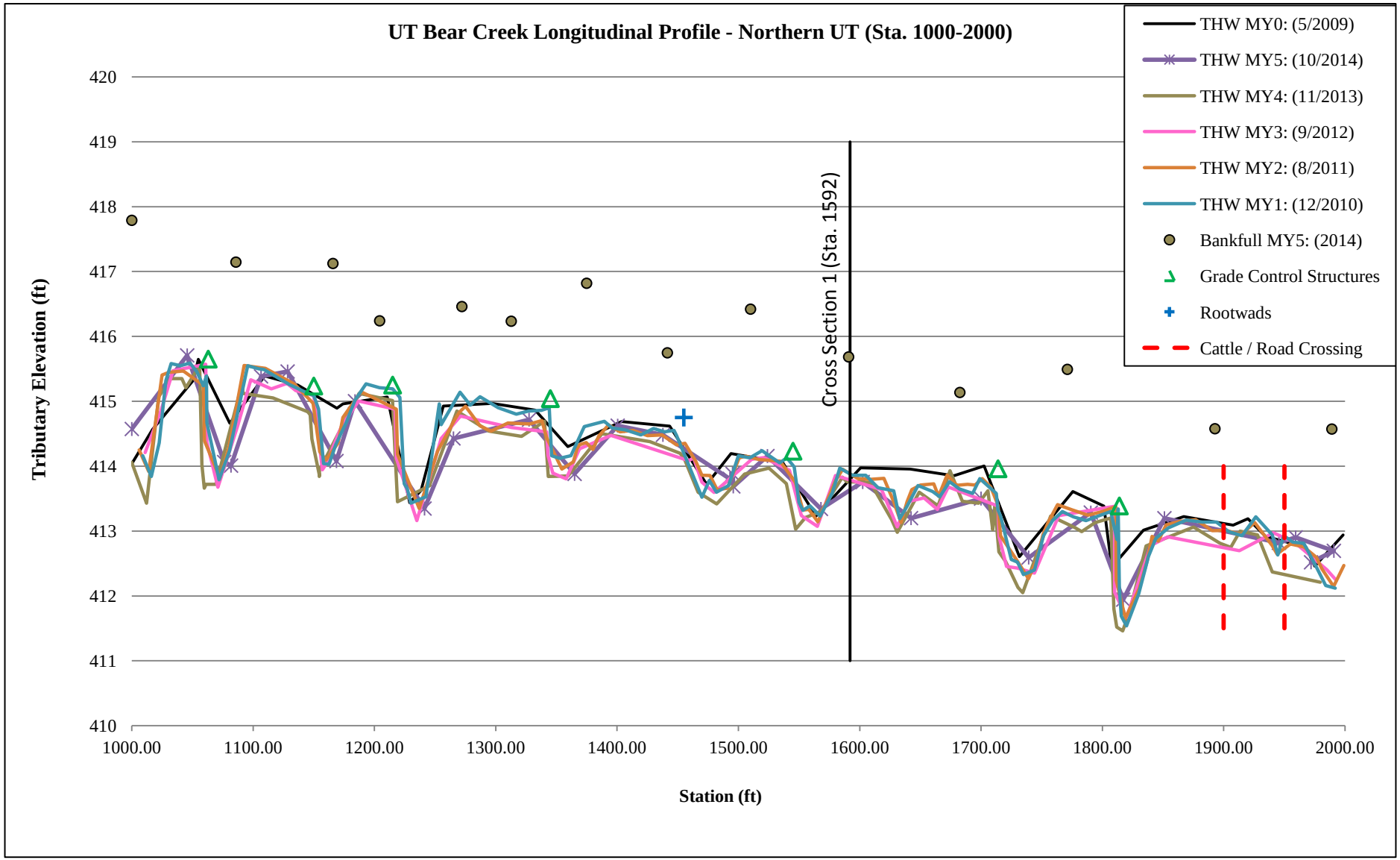
Appendix D -- eTable
Cross-Sectional Profile Survey Data: 2010-2014
UT Bear Creek (Weaver/McLeod) #92347 -- XSEC-8

MY0-AsBuilt (4/2010)			MY1 (11/2010)			MY2 (8/2011)			MY3 (9/2012)			MY4 (11/2013)			MY5 (10/2014) -- XSEC-8			
Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Rel.Elev
0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	413.94	TLP	100.00
0.00	99.80	BLP	0.00	99.78	BLP	0.00	99.83	BLP	0.00	99.87	BLP	0.00	99.92	BLP	0.13	413.83	BLP	99.89
2.40	99.67		3.50	99.45		4.00	99.28		4.10	99.38		5.29	98.79		3.66	413.35		99.41
5.00	99.18		8.10	98.67		8.70	98.55		7.50	98.70		9.56	98.26		9.33	412.62		98.68
8.60	98.68		11.40	98.44		11.10	98.29		11.60	98.37		12.50	98.29	TLB	11.92	412.38		98.44
10.70	98.50		12.90	98.28		13.40	98.06		13.00	98.31		14.53	97.40		13.13	412.47	TLB	98.54
11.70	98.46	TLB	13.80	97.98		15.60	96.90		15.10	97.49		15.13	96.80		14.22	412.14		98.20
13.20	98.22		14.50	97.71		16.90	96.89		15.90	96.90		16.85	96.61		15.35	411.43		97.49
14.10	97.92		14.90	97.51		18.10	97.07		17.00	96.89		18.71	96.91		15.91	410.66		96.72
14.90	97.48		15.50	97.20		19.00	97.45		18.40	97.08		19.36	97.40		17.33	410.79	THW	96.85
15.60	97.10		16.00	96.91		19.50	97.54		19.60	97.57		21.62	98.02	TRB	18.60	411.32		97.38
16.00	97.02	TWG	16.60	96.93		20.90	98.09		21.50	98.30		27.48	98.11		19.82	411.32		97.38
16.80	97.08		17.70	97.00		23.20	98.27		23.00	98.34		33.51	98.57		22.91	412.31	TRB	98.37
17.70	97.10		18.50	97.17		26.70	98.37		28.90	98.54		41.48	98.79		25.16	412.44		98.50
18.60	97.16		19.10	97.50		31.40	98.42		31.00	98.50					28.70	412.40		98.46
19.10	97.49		20.10	97.78		34.60	98.55		34.00	98.74					32.34	412.77		98.83
20.30	97.90		21.70	98.32		41.40	98.81	BRP	37.00	98.77					35.46	413.07		99.14
21.70	98.35		25.20	98.38		41.40	99.02	TRP	41.60	98.84	BRP				39.40	412.79		98.85
22.70	98.40	TRB	28.70	98.41	TRB				41.60	99.03	TRP				43.11	412.79	BRP	98.85
25.40	98.43		31.40	98.44											43.59	413.17	TRP	99.23
28.60	98.45		35.00	98.65														
31.10	98.47		39.60	98.67														
33.80	98.75		41.50	98.79	BRP													
36.50	98.70		41.50	99.01	TRP													
39.20	98.65																	
41.50	98.81	BRP																
41.50	99.02	TRP																

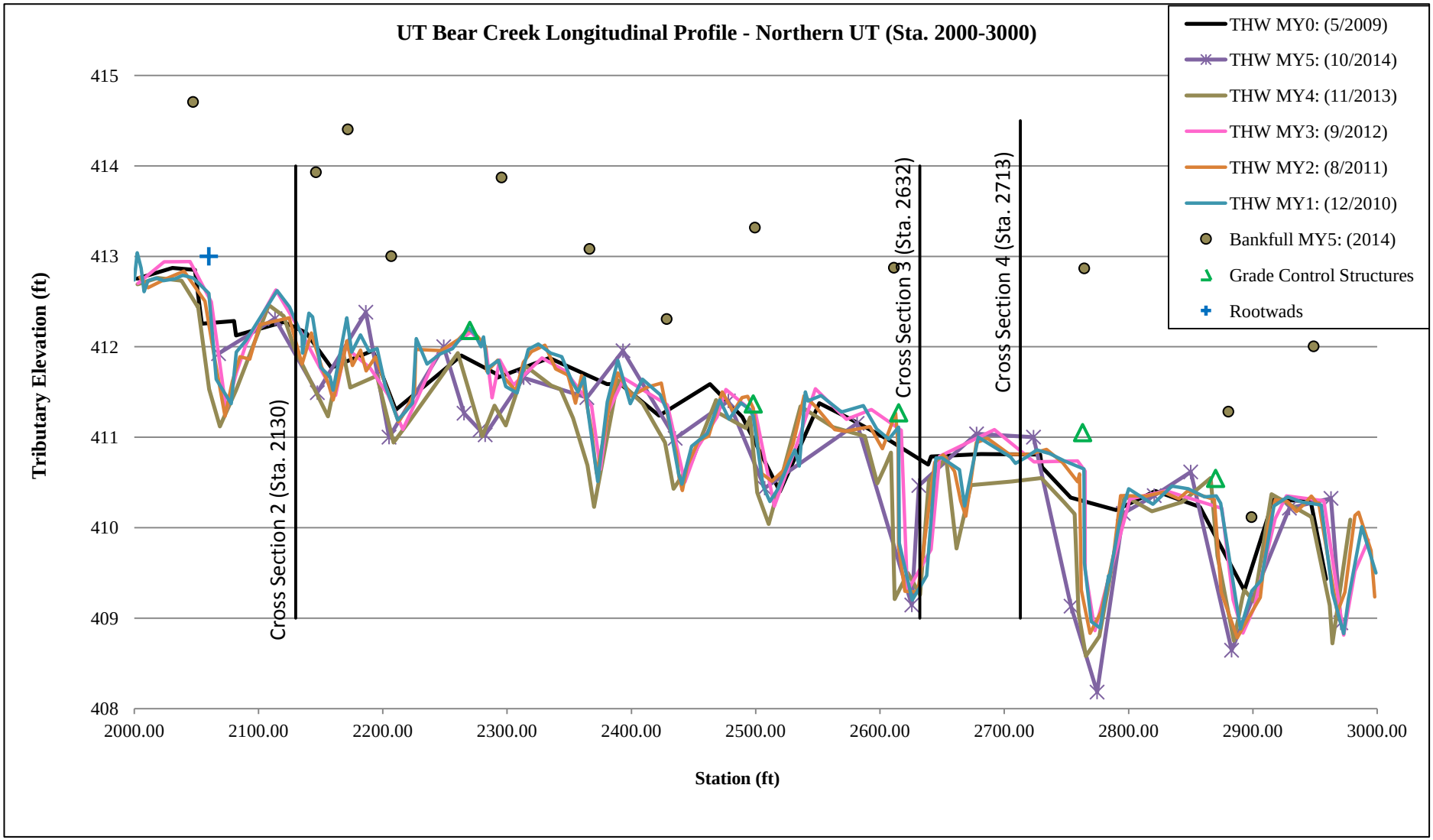
Appendix D -- eTable
Cross-Sectional Profile Survey Data: 2010-2014
UT Bear Creek (Weaver/McLeod) #92347 -- XSEC-9

MY0-AsBuilt (4/2010)			MY1 (11/2010)			MY2 (8/2011)			MY3 (9/2012)			MY4 (11/2013)			MY5 (10/2014) -- XSEC-9			
Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Station	Elevation	Notes	Rel.Elev
0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	100.00	TLP	0.00	414.26	TLP	100.00
0.00	99.83	BLP	0.00	99.84	BLP	0.00	99.83	BLP	0.00	99.88	BLP	0.00	99.88	BLP	0.06	414.02	BLP	99.76
4.80	98.91		4.70	98.92		3.60	99.05		2.50	99.36		4.97	98.67		3.11	413.41		99.15
9.00	98.42		8.60	98.82		8.20	98.51		5.50	98.83		10.01	98.30		6.92	412.93		98.67
13.70	98.07	TLB	12.50	98.11		14.10	98.06		8.00	98.68		13.81	97.84	TLB	10.56	412.62		98.36
15.30	97.61		14.50	97.78		15.90	97.35		11.00	98.38		16.12	96.92		14.27	412.05	TLB	97.79
16.60	97.06		15.90	97.36		17.00	96.52		14.00	98.10		16.80	95.23		14.35	412.10		97.84
17.30	96.49		17.00	96.56		17.80	95.55		16.00	97.59		20.61	94.79		15.62	411.50		97.24
17.90	95.62		17.40	95.83		19.40	94.98	THW	17.00	96.75		21.02	95.81		16.94	411.07		96.81
19.20	95.18	TWG	18.20	95.20		21.70	95.38		17.90	95.39		23.80	96.24		17.91	409.52		95.26
19.90	95.16		18.80	94.94		23.40	96.37		19.30	94.91		24.52	97.11	TRB	20.01	408.67	THW	94.41
21.00	95.25		19.80	94.93		27.10	97.33		21.30	95.30		26.71	97.55		21.03	409.08		94.82
21.90	95.62		20.70	95.06		32.80	97.75		23.20	95.78		32.81	97.84		23.45	409.91		95.65
22.80	95.77		21.70	95.50		38.10	97.90		27.00	97.33		38.79	98.19		24.82	410.33		96.07
23.30	95.95		22.40	95.72		44.10	98.04		30.00	97.56		48.44	98.41		27.64	411.22		96.96
23.70	96.38		23.00	95.86		53.60	98.25		33.80	97.75		55.89	98.84		30.48	411.48		97.22
24.90	96.50		23.60	96.41		59.60	98.43		37.60	97.88					34.68	411.95	TRB	97.69
25.80	96.99		24.40	96.44		63.30	98.61	BRP	43.60	98.06					40.08	411.97		97.71
26.80	97.35		26.70	97.40		63.30	98.74	TRP	48.80	98.35					45.59	412.51		98.25
28.70	97.54		28.90	97.48					53.10	98.30					51.13	412.51		98.25
33.10	97.82	TRB	31.70	97.68					59.20	98.46					56.18	412.71		98.45
39.70	97.98		35.00	97.86	TRB				63.30	98.70	BRP				63.33	412.93		98.67
44.50	98.08		38.30	97.89					63.30	98.76	TRP				64.23	412.94	TRP	98.68
48.80	98.35		43.70	98.04														
53.40	98.31		48.90	98.34														
58.50	98.40		51.50	98.40														
62.00	98.54		53.50	98.31														
63.20	98.67	BRP	56.70	98.45														
63.20	98.78	TRP	61.10	98.49														
			63.10	98.67	BRP													
			63.10	98.78	TRP													

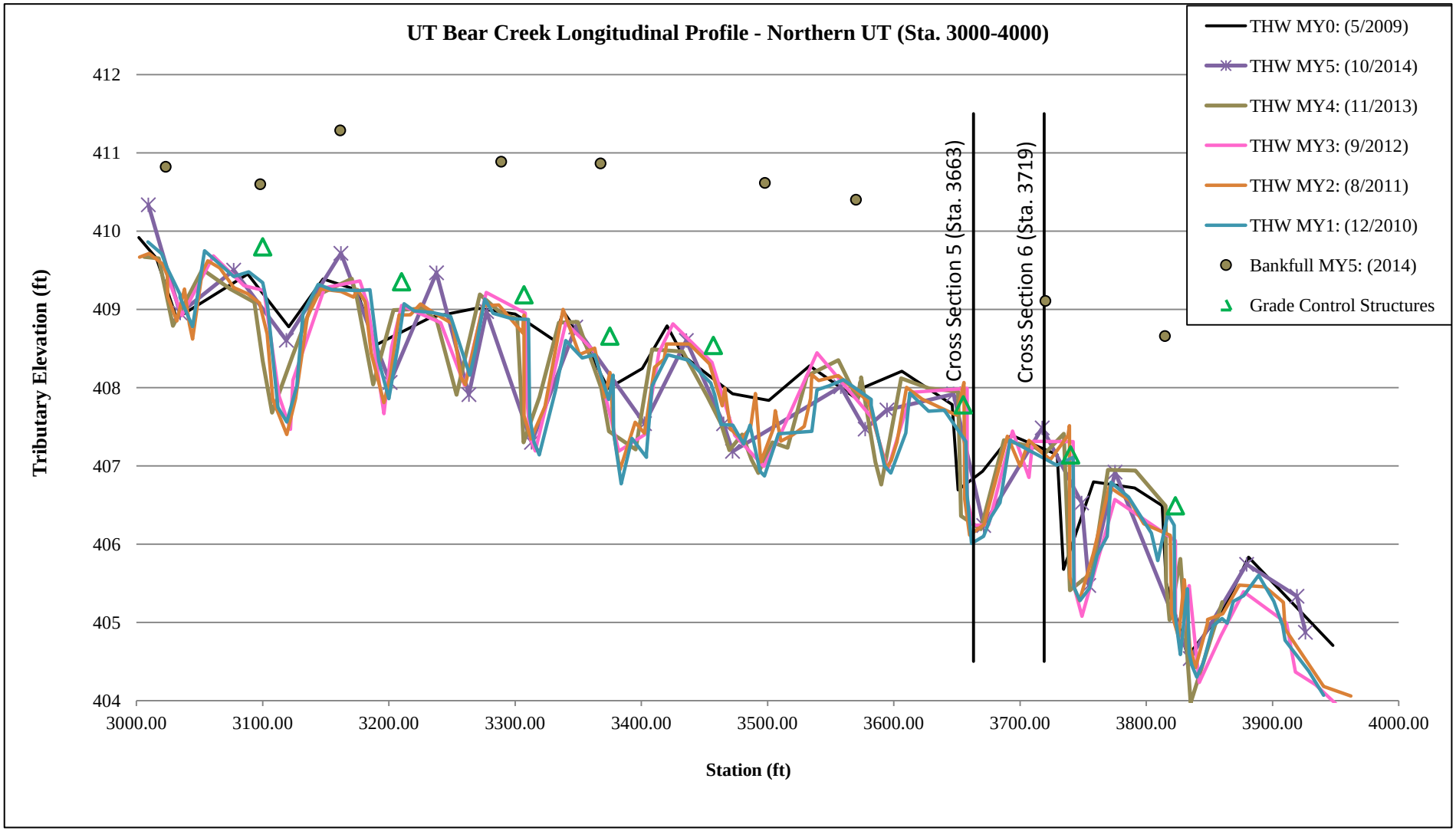
Appendix D
Figure 6.1 Longitudinal Profile & Annual Overlays
UT Bear Creek #92347 -- Northern UT, Sta 1000 to 2000
October 2014 -- Monitoring Year 5 of 5



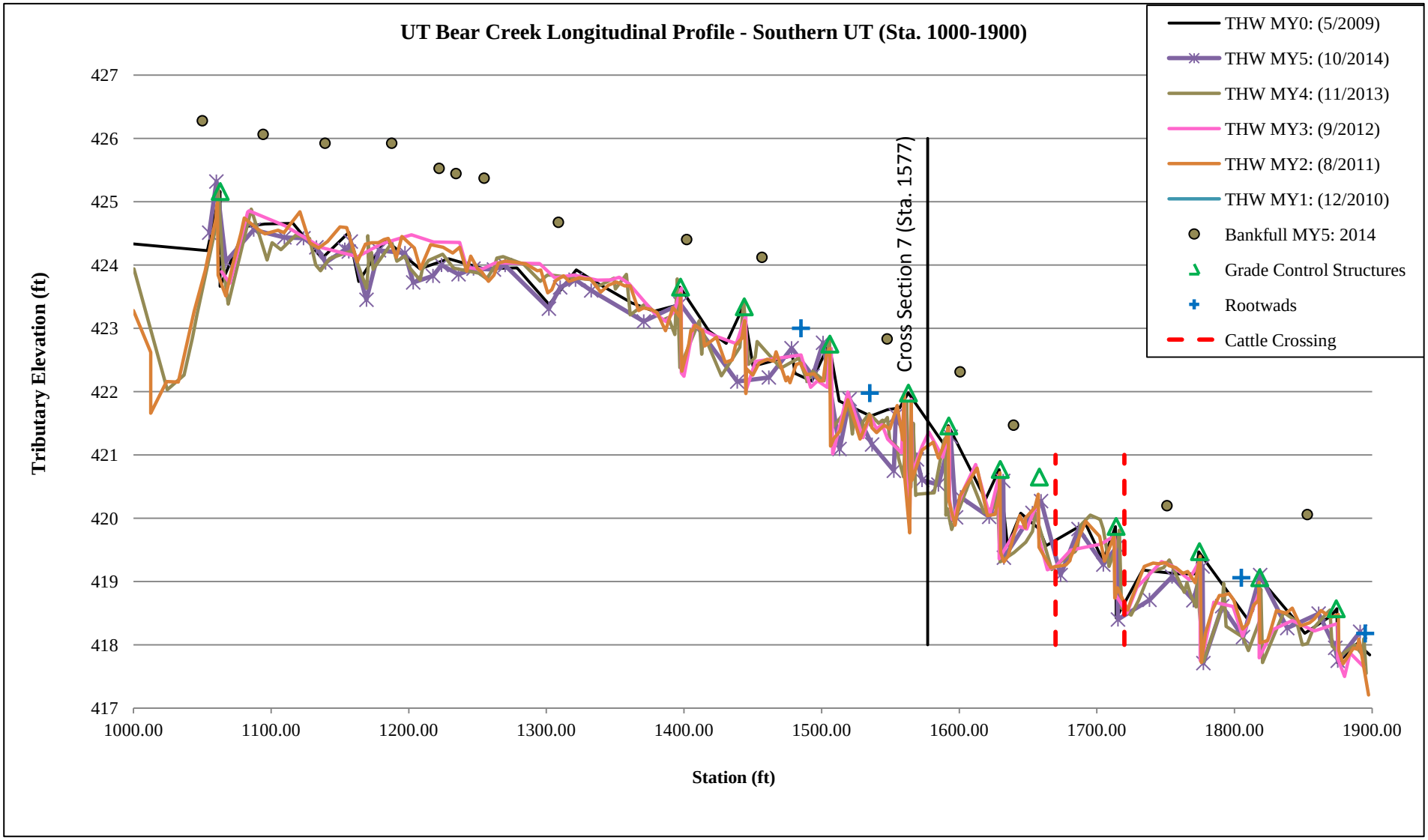
Appendix D
Figure 6.2 Longitudinal Profile & Annual Overlays
UT Bear Creek #92347 -- Northern UT, Sta 2000 to 3000
October 2014 -- Monitoring Year 5 of 5



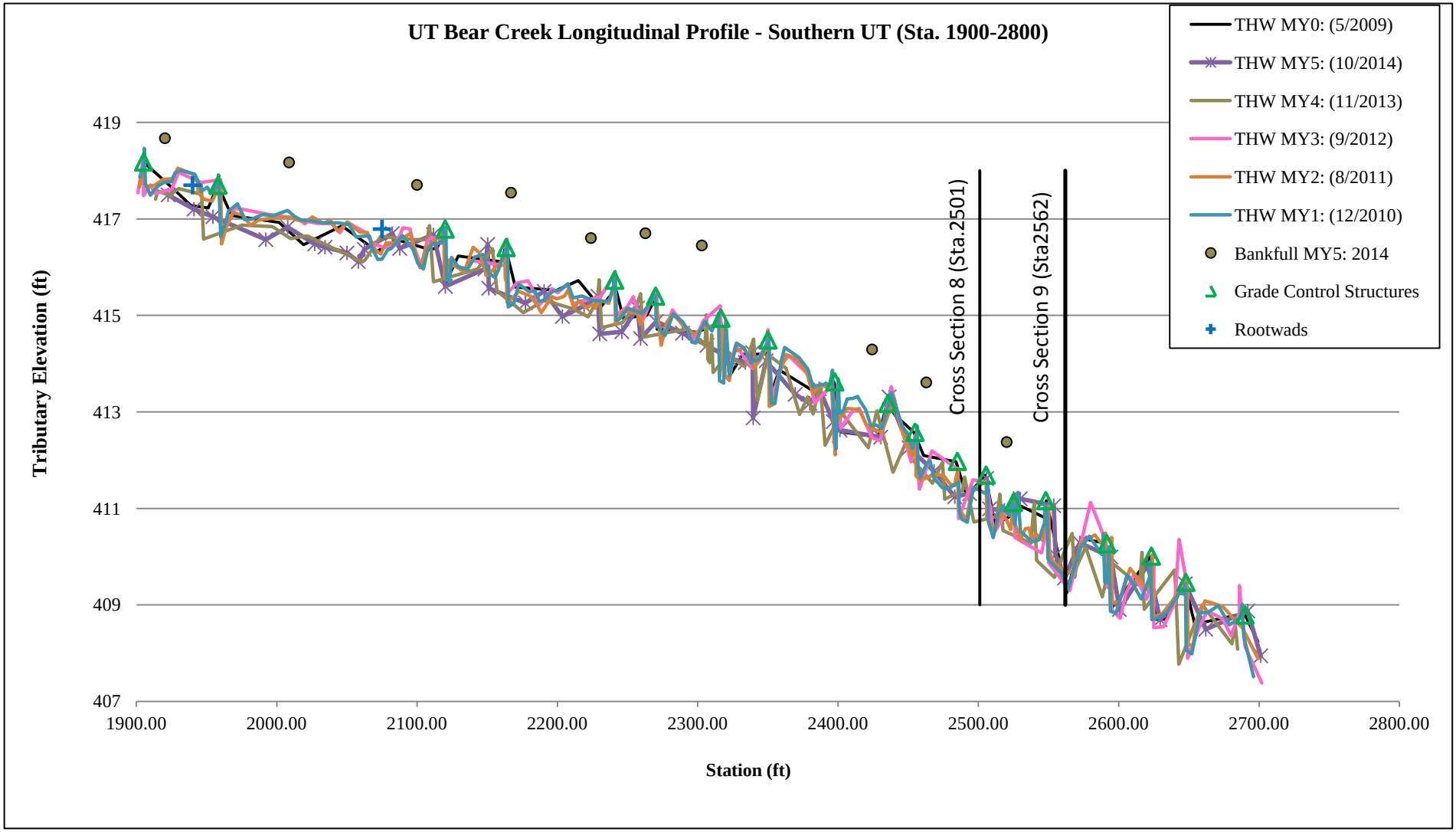
Appendix D
Figure 6.3 Longitudinal Profile & Annual Overlays
UT Bear Creek #92347 -- Northern UT, Sta 3000 to 4000
October 2014 -- Monitoring Year 5 of 5



Appendix D
Figure 6.4 Longitudinal Profile & Annual Overlays
UT Bear Creek #92347 -- Southern UT, Sta 1000 to 1900
October 2014 -- Monitoring Year 5 of 5



Appendix D
Figure 6.5 Longitudinal Profile & Annual Overlays
UT Bear Creek #92347 -- Southern UT, Sta 1900 to 2800
October 2014 -- Monitoring Year 5 of 5



Appendix D -- eTable
Longitudinal Profile Survey Data: 2009-2014, Northern UT
UT Bear Creek (Weaver/McLeod) #92347

THW MYO: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
1000.00	414.04	1009.00	414.16	1006.00	414.25	1011.00	414.21	1000.02	414.06	1000.00	414.57
1017.12	414.57	1016.00	413.84	1014.00	413.92	1024.00	414.85	1012.25	413.43	1045.66	415.71
1050.74	415.32	1022.50	414.36	1025.00	415.41	1034.00	415.47	1022.28	415.07	1076.14	414.06
1054.73	415.65	1028.00	415.32	1030.50	415.45	1059.00	415.56	1032.25	415.35	1081.78	414.01
1080.79	414.66	1032.50	415.58	1042.50	415.47	1061.00	415.57	1041.34	415.35	1106.54	415.38
1109.58	415.39	1040.00	415.55	1059.00	415.25	1062.00	414.37	1044.51	415.21	1128.44	415.46
1136.87	415.25	1048.00	415.59	1060.00	414.39	1071.00	413.67	1055.32	415.53	1168.70	414.08
1168.98	414.89	1053.50	415.46	1072.50	413.82	1087.00	414.61	1055.95	415.47	1184.00	415.00
1173.95	414.96	1059.00	415.24	1080.00	414.28	1098.00	415.33	1057.76	414.02	1241.29	413.35
1210.50	415.07	1061.50	415.39	1092.50	415.55	1115.00	415.19	1059.75	413.66	1265.13	414.43
1229.06	413.44	1062.00	414.67	1110.00	415.51	1128.00	415.27	1061.14	413.72	1327.44	414.72
1238.57	413.63	1072.00	413.79	1134.00	415.27	1135.00	415.17	1069.36	413.72	1364.98	413.88
1256.73	414.93	1080.50	414.24	1149.50	414.97	1150.00	415.09	1091.08	415.28	1400.50	414.62
1297.01	414.97	1095.50	415.55	1155.00	414.22	1157.00	413.95	1091.60	415.12	1437.78	414.48
1332.46	414.87	1104.50	415.50	1160.00	414.09	1160.00	414.03	1116.33	415.05	1493.00	413.80
1359.46	414.30	1109.00	415.49	1170.00	414.36	1173.00	414.62	1145.09	414.84	1495.18	413.88
1403.74	414.69	1129.50	415.26	1174.00	414.75	1187.00	415.00	1146.97	414.79	1495.77	413.69
1443.43	414.62	1142.00	415.15	1189.00	415.15	1217.00	414.88	1148.48	414.42	1523.93	414.16
1473.80	413.72	1150.00	415.09	1218.00	414.88	1218.00	414.12	1154.51	413.87	1568.03	413.34
1493.82	414.19	1154.00	414.88	1219.00	414.18	1235.00	413.16	1154.53	413.84	1602.44	413.76
1536.55	414.06	1158.00	414.04	1237.00	413.35	1255.00	414.43	1154.64	413.94	1642.30	413.20
1563.92	413.23	1162.50	414.03	1252.00	414.23	1271.00	414.77	1187.36	415.12	1700.00	413.50
1600.72	413.98	1168.00	414.33	1266.50	414.73	1313.00	414.60	1214.83	415.01	1739.25	412.59
1641.48	413.96	1177.00	414.68	1270.00	414.83	1342.00	414.53	1218.99	413.45	1790.47	413.29
1677.54	413.85	1184.00	415.02	1275.00	414.92	1343.00	414.16	1245.73	413.70	1817.20	411.94
1702.43	414.01	1193.00	415.27	1287.00	414.62	1347.00	413.89	1245.85	413.72	1851.14	413.20
1731.65	412.61	1204.00	415.21	1296.00	414.54	1358.00	413.81	1268.05	414.85	1945.54	412.82
1775.68	413.61	1215.00	415.19	1310.00	414.67	1369.00	414.27	1294.35	414.54	1959.31	412.90
1801.29	413.39	1221.00	415.06	1328.00	414.65	1395.00	414.47	1321.25	414.46	1990.82	412.70
1807.80	412.44	1224.50	413.73	1338.00	414.70	1459.00	414.08	1340.08	414.69	1972.00	412.52
1833.96	413.01	1227.00	413.65	1342.00	414.44	1463.00	414.13	1343.24	413.84	2067.86	411.92
1867.16	413.22	1230.00	413.43	1354.50	413.96	1470.00	413.75	1359.63	413.85	2113.25	412.31
1907.71	413.09	1242.50	413.53	1364.00	414.07	1480.00	413.59	1387.54	414.50	2147.31	411.49
1920.06	413.19	1253.50	414.96	1367.00	414.27	1511.00	414.11	1427.10	414.38	2186.33	412.38
1934.63	412.92	1255.00	414.64	1369.00	414.33	1521.00	414.13	1451.93	414.20	2205.00	411.00
1967.96	412.75	1270.50	415.14	1374.50	414.36	1542.00	413.94	1455.80	414.10	2249.02	412.00
1975.14	412.46	1279.00	414.94	1380.00	414.26	1552.00	413.24	1466.78	413.60	2265.32	411.27

Water Surf MY5 (2014)	
Station	Elevation
1000.00	415.91
1394.25	414.53
1485.59	414.83
1645.43	415.39
1966.07	414.16
2060.29	413.92
2113.51	413.93
2200.68	413.67
2543.58	412.26
2660.63	412.86
2720.53	413.22
2906.90	412.23
2985.66	412.16
3110.73	411.82
3166.79	411.11
3239.25	411.28
3375.69	410.73
3472.91	410.42
3570.07	410.17
3653.58	409.84
3723.30	409.32
3826.89	409.36
3898.86	409.16
3997.60	408.97
4105.10	408.94
4162.66	408.65
4260.78	408.02
4364.35	407.42
4446.31	406.95
4509.58	405.34
4682.97	405.17

Bankfull MY5: (2014)	
Station	Elevation
1000.00	417.79
1085.82	417.15
1165.79	417.12
1204.29	416.24
1272.08	416.46
1312.76	416.23
1374.89	416.82
1441.45	415.75
1510.01	416.42
1590.85	415.68
1682.55	415.14
1771.15	415.49
1892.78	414.58
1989.15	414.57
2047.29	414.71
2075.71	415.15
2146.16	413.93
2171.76	414.40
2206.76	413.00
2295.52	413.87
2366.23	413.08
2428.35	412.31
2499.32	413.32
2611.16	412.87
2764.30	412.87
2880.27	411.28
2898.89	410.12
2948.84	412.01
3023.16	410.82
3098.06	410.60
3161.40	411.29
3288.92	410.89
3367.63	410.87
3497.81	410.62
3569.96	410.40
3720.03	409.11
3814.71	408.66

THW MYO: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
1998.42	412.94	1287.00	415.07	1385.00	414.47	1565.00	413.07	1482.17	413.42	2278.07	411.08
2002.19	412.75	1302.00	414.90	1393.00	414.63	1580.00	413.86	1505.06	413.88	2282.33	411.03
2030.79	412.87	1317.00	414.80	1402.50	414.53	1618.00	413.64	1525.11	413.97	2313.29	411.66
2048.85	412.85	1327.00	414.85	1413.00	414.55	1631.00	413.06	1539.56	413.73	2364.16	411.44
2054.30	412.26	1337.50	414.86	1425.00	414.47	1640.00	413.45	1547.18	413.03	2393.23	411.96
2080.41	412.29	1344.00	414.90	1437.00	414.48	1653.00	413.51	1555.33	413.21	2435.19	410.99
2081.97	412.12	1346.00	414.16	1449.00	414.33	1664.00	413.33	1567.95	413.30	2478.00	411.40
2120.28	412.28	1352.50	414.12	1456.00	414.35	1673.00	413.68	1585.78	413.83	2507.22	410.44
2138.37	412.16	1362.00	414.16	1465.00	414.07	1714.00	413.38	1589.34	413.76	2581.56	411.15
2158.71	411.77	1373.00	414.61	1470.00	413.86	1715.00	412.91	1608.80	413.75	2625.59	409.15
2191.80	411.96	1389.50	414.69	1476.50	413.86	1721.00	412.45	1626.19	413.18	2631.23	410.47
2210.39	411.30	1396.00	414.59	1482.50	413.63	1730.00	412.43	1630.97	412.98	2677.70	411.04
2263.15	411.90	1407.00	414.56	1491.00	413.66	1744.00	412.35	1649.08	413.60	2723.52	411.00
2291.58	411.70	1419.50	414.48	1500.50	414.13	1764.00	413.24	1664.63	413.39	2753.71	409.13
2292.41	411.66	1430.00	414.58	1506.00	414.15	1810.00	413.38	1674.49	413.93	2774.64	408.18
2333.93	411.88	1439.00	414.53	1517.00	414.10	1810.00	412.06	1684.69	413.46	2795.70	410.16
2380.34	411.59	1447.00	414.55	1534.50	414.08	1820.00	411.67	1698.03	413.43	2820.62	410.35
2391.03	411.59	1449.00	414.47	1547.00	413.75	1840.00	412.78	1705.72	413.62	2849.97	410.62
2422.28	411.24	1470.00	413.52	1553.00	413.32	1854.00	412.91	1709.67	413.02	2882.84	408.65
2463.32	411.59	1476.00	413.78	1558.00	413.33	1913.00	412.70	1711.42	413.39	2929.40	410.22
2489.12	411.23	1482.00	413.60	1565.50	413.14	1941.00	412.97	1714.62	412.68	2962.84	410.32
2519.51	410.40	1492.00	413.70	1574.50	413.53	1959.00	412.82	1720.15	412.53	2970.74	408.95
2551.14	411.38	1500.00	414.16	1580.00	413.77	1985.00	412.40	1730.39	412.13	3009.40	410.34
2577.37	411.19	1509.50	414.13	1586.00	413.95	1993.00	412.24	1734.37	412.05	3034.62	408.95
2606.58	410.97	1519.50	414.24	1598.50	413.81	2003.00	412.70	1757.47	413.23	3077.01	409.50
2638.79	410.70	1534.00	414.05	1609.00	413.80	2024.00	412.94	1777.70	413.05	3118.76	408.61
2641.02	410.79	1540.00	414.13	1620.00	413.81	2045.00	412.94	1782.94	412.99	3161.96	409.72
2681.29	410.81	1546.00	413.99	1628.00	413.45	2062.00	412.50	1794.09	413.13	3200.89	408.07
2728.93	410.81	1550.00	413.44	1634.00	413.13	2074.00	411.30	1806.91	413.20	3237.72	409.47
2730.29	410.67	1553.00	413.32	1639.00	413.45	2082.00	411.71	1809.54	411.80	3263.39	407.91
2753.45	410.33	1559.00	413.39	1643.00	413.64	2090.00	412.03	1811.89	411.52	3277.37	408.97
2790.04	410.20	1567.50	413.23	1650.00	413.71	2114.00	412.63	1816.81	411.46	3313.00	407.30
2821.57	410.41	1577.50	413.59	1661.00	413.73	2135.00	412.14	1822.59	411.77	3348.00	408.77
2857.26	410.23	1583.50	413.97	1665.00	413.54	2152.00	411.70	1836.08	412.77	3402.45	407.54
2893.22	409.31	1594.00	413.86	1672.00	413.86	2162.00	411.46	1875.17	413.06	3435.59	408.60
2916.62	410.31	1605.00	413.86	1680.00	413.70	2170.00	412.00	1896.96	412.81	3465.09	407.54
2946.49	410.30	1615.00	413.67	1689.00	413.72	2190.00	411.76	1905.79	412.75	3472.20	407.19
2958.89	409.43	1628.00	413.62	1695.00	413.71	2204.00	411.47	1913.60	413.00	3557.98	408.01
3001.88	409.92	1633.00	413.19	1701.00	413.81	2216.00	411.09	1927.85	412.94	3577.28	407.47
3015.78	409.65	1639.00	413.38	1708.00	413.68	2227.00	411.40	1939.96	412.37	3594.56	407.71
3031.71	408.89	1648.00	413.70	1714.00	413.40	2243.00	411.89	1979.52	412.21	3647.30	407.92

Water Surf MY5 (2014)	
Station	Elevation

Bankfull MY5: (2014)	
Station	Elevation

THW MYO: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
3088.23	409.45	1660.00	413.61	1716.00	412.93	2271.00	412.16	2002.69	412.69	3671.16	406.24
3120.59	408.78	1666.00	413.53	1728.00	412.59	2283.00	411.98	2018.95	412.76	3717.52	407.49
3147.77	409.39	1674.00	413.76	1739.00	412.27	2288.00	411.44	2038.00	412.73	3748.73	406.53
3174.21	409.25	1682.00	413.65	1746.00	412.56	2294.00	411.85	2051.20	412.44	3754.37	405.47
3189.15	408.54	1693.00	413.58	1751.00	412.95	2305.00	411.58	2051.16	412.46	3775.19	406.92
3233.30	408.90	1699.00	413.81	1755.50	413.14	2328.00	411.88	2060.25	411.53	3834.79	404.54
3269.66	409.02	1712.50	413.58	1763.00	413.41	2347.00	411.73	2068.99	411.12	3879.43	405.74
3300.05	408.94	1714.00	413.33	1775.00	413.33	2368.00	411.34	2081.83	411.52	3919.32	405.33
3330.98	408.60	1716.00	413.23	1788.00	413.24	2375.00	410.65	2108.19	412.46	3926.01	404.87
3338.21	408.97	1725.00	412.56	1800.00	413.30	2381.00	411.27	2120.25	412.34		
3353.72	408.61	1730.00	412.52	1811.00	413.38	2394.00	411.65	2128.90	411.98		
3373.60	407.99	1735.00	412.33	1811.50	412.24	2429.00	411.36	2155.90	411.23		
3400.74	408.24	1744.00	412.40	1819.00	411.66	2443.00	410.50	2167.42	411.98		
3420.39	408.79	1751.50	412.93	1830.50	412.12	2453.00	410.88	2173.71	411.55		
3433.03	408.41	1759.00	413.16	1837.00	412.55	2469.00	411.23	2195.29	411.68		
3472.25	407.92	1767.00	413.30	1841.00	412.92	2476.00	411.53	2208.62	410.94		
3501.07	407.84	1776.00	413.22	1846.00	412.85	2500.00	411.25	2220.94	411.17		
3533.21	408.28	1786.50	413.16	1852.50	413.09	2515.00	410.24	2242.35	411.58		
3571.37	407.85	1798.00	413.24	1864.00	413.15	2531.00	410.83	2260.29	411.93		
3574.27	407.99	1807.00	413.30	1877.00	413.18	2548.00	411.53	2269.52	411.50		
3606.40	408.21	1812.00	412.87	1890.50	413.01	2573.00	411.20	2280.00	411.01		
3646.13	407.78	1813.00	413.34	1902.00	413.01	2593.00	411.31	2289.86	411.35		
3650.80	406.69	1814.00	412.11	1914.50	412.94	2617.00	411.07	2298.94	411.13		
3670.30	406.93	1815.50	411.69	1925.50	413.13	2622.00	409.30	2314.76	411.79		
3693.10	407.39	1820.00	411.54	1940.00	412.78	2641.00	409.76	2335.49	411.57		
3729.40	407.14	1830.00	412.03	1944.00	412.65	2648.00	410.79	2343.09	411.53		
3734.50	405.68	1838.00	412.61	1955.00	412.80	2692.00	411.08	2352.94	411.21		
3758.09	406.80	1844.00	412.89	1966.00	412.76	2724.00	410.73	2364.64	410.69		
3790.81	406.72	1854.50	413.05	1976.50	412.59	2759.00	410.74	2369.88	410.23		
3812.63	406.49	1869.00	413.17	1981.00	412.42	2765.00	410.62	2389.06	411.63		
3815.75	405.51	1882.50	413.14	1990.50	412.15	2765.00	409.53	2409.07	411.37		
3832.86	404.57	1894.00	413.14	1999.00	412.47	2773.00	408.86	2426.97	410.94		
3860.59	405.15	1904.00	412.99	2004.50	412.77	2780.00	409.24	2433.91	410.43		
3880.90	405.83	1915.00	412.93	2011.00	412.65	2801.00	410.32	2448.56	410.73		
3947.91	404.70	1926.50	413.22	2024.50	412.75	2830.00	410.41	2468.23	411.41		
		1940.00	412.94	2040.00	412.84	2875.00	410.21	2468.66	411.28		
		1944.50	412.63	2057.00	412.50	2884.00	409.20	2492.10	411.10		
		1949.50	412.93	2064.00	411.93	2892.00	408.84	2495.44	411.22		
		1957.00	412.83	2073.00	411.23	2901.00	409.11	2501.21	410.39		
		1966.00	412.81	2079.00	411.62	2918.00	410.10	2510.53	410.04		
		1975.50	412.48	2085.00	411.89	2927.00	410.35	2520.46	410.54		

Water Surf MY5 (2014)	
Station	Elevation

Bankfull MY5: (2014)	
Station	Elevation

THW MYO: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		1984.00	412.16	2093.00	411.86	2957.00	410.30	2536.12	411.34		
		1992.00	412.12	2101.00	412.24	2973.00	408.81	2562.18	411.11		
		2000.00	412.74	2124.50	412.32	2982.00	409.52	2587.76	411.01		
		2002.50	413.04	2135.00	411.81	2993.00	409.87	2597.85	410.49		
		2005.50	412.87	2142.50	412.15	3025.00	409.40	2604.47	410.69		
		2008.00	412.61	2150.50	411.78	3036.00	408.92	2608.84	410.83		
		2011.00	412.73	2156.50	411.58	3061.00	409.68	2611.82	409.21		
		2017.50	412.76	2160.00	411.41	3085.00	409.30	2622.45	409.50		
		2023.50	412.73	2167.00	411.79	3101.00	409.24	2632.32	409.26		
		2032.50	412.75	2171.00	412.07	3113.00	407.89	2639.40	410.52		
		2039.00	412.79	2175.50	411.79	3122.00	407.47	2653.05	410.78		
		2047.50	412.76	2182.00	411.96	3124.00	408.09	2661.58	409.77		
		2060.00	412.59	2186.50	411.73	3149.00	409.27	2673.24	410.47		
		2066.00	411.64	2194.00	411.89	3177.00	409.36	2706.15	410.51		
		2078.00	411.37	2197.00	411.78	3183.00	409.07	2729.93	410.55		
		2082.00	411.94	2212.50	411.17	3196.00	407.67	2748.20	410.28		
		2090.00	412.07	2219.00	411.30	3202.00	408.52	2756.55	410.15		
		2099.00	412.27	2225.50	411.50	3210.00	409.05	2759.68	409.06		
		2115.00	412.62	2226.50	411.97	3241.00	408.83	2765.73	408.58		
		2125.00	412.44	2247.00	411.96	3260.00	408.03	2776.40	408.80		
		2135.00	412.12	2261.00	412.08	3277.00	409.21	2796.70	410.35		
		2135.50	411.93	2268.00	412.18	3308.00	408.95	2818.71	410.18		
		2140.50	412.37	2272.00	412.17	3309.00	407.91	2842.61	410.28		
		2143.50	412.33	2277.00	412.10	3312.00	407.34	2842.68	410.28		
		2150.00	411.77	2282.50	412.00	3316.00	407.19	2865.91	410.55		
		2157.50	411.67	2283.50	411.73	3340.00	408.82	2871.45	409.69		
		2160.00	411.52	2286.00	411.76	3363.00	408.46	2884.69	408.75		
		2171.00	412.32	2292.50	411.85	3382.00	407.19	2891.55	409.23		
		2175.00	411.94	2298.00	411.65	3403.00	407.40	2893.13	409.31		
		2182.00	412.13	2307.00	411.51	3414.00	408.45	2901.06	409.18		
		2189.00	411.95	2313.00	411.83	3425.00	408.81	2915.03	410.37		
		2195.50	411.98	2319.50	411.95	3456.00	408.32	2947.03	410.12		
		2202.00	411.57	2330.50	412.02	3474.00	407.39	2961.72	409.14		
		2206.00	411.42	2339.00	411.75	3497.00	406.99	2963.99	408.72		
		2212.00	411.19	2349.00	411.69	3510.00	407.40	2978.44	410.09		
		2218.00	411.28	2355.00	411.38	3539.00	408.44	3006.20	409.67		
		2224.00	411.38	2360.00	411.68	3583.00	407.61	3017.67	409.65		
		2227.00	412.09	2368.00	411.07	3595.00	406.95	3028.80	408.79		
		2235.50	411.81	2372.00	410.60	3614.00	407.94	3052.14	409.51		
		2246.00	411.92	2378.00	411.02	3658.00	407.99	3074.39	409.26		
		2256.00	411.98	2382.00	411.33	3658.00	406.57	3093.51	409.09		

Water Surf MY5 (2014)	
Station	Elevation

Bankfull MY5: (2014)	
Station	Elevation

THW MYO: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)		Water Surf MY5 (2014)		Bankfull MY5: (2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		2269.00	412.21	2389.00	411.71	3663.00	406.24	3100.11	408.34						
		2274.00	412.14	2400.00	411.46	3675.00	406.25	3107.47	407.68						
		2279.00	412.00	2413.00	411.56	3694.00	407.44	3123.77	408.41						
		2281.00	412.11	2424.00	411.60	3707.00	406.85	3141.56	409.17						
		2284.50	411.71	2432.00	411.04	3710.00	407.31	3170.60	409.39						
		2285.00	411.77	2436.00	410.84	3742.00	407.31	3174.69	409.14						
		2293.00	411.85	2438.50	410.55	3743.00	405.45	3187.49	408.04						
		2299.00	411.56	2441.00	410.41	3749.00	405.08	3203.66	408.99						
		2308.00	411.49	2445.00	410.68	3775.00	406.57	3226.85	409.01						
		2317.00	411.97	2454.00	410.96	3823.00	406.04	3238.00	408.85						
		2325.00	412.03	2462.00	411.01	3823.00	405.11	3253.61	407.91						
		2335.00	411.93	2473.00	411.50	3827.00	404.64	3272.11	409.19						
		2344.00	411.89	2482.00	411.28	3834.00	405.47	3290.36	408.93						
		2352.00	411.62	2489.00	411.44	3842.00	404.23	3301.52	408.88						
		2357.00	411.50	2493.50	411.45	3859.00	404.83	3306.66	407.30						
		2362.00	411.66	2498.00	411.32	3877.00	405.39	3319.26	407.88						
		2365.00	411.29	2505.00	410.60	3911.00	404.99	3334.61	408.83						
		2373.00	410.51	2513.00	410.51	3918.00	404.37	3349.56	408.84						
		2380.50	411.39	2522.00	410.63	3934.00	404.20	3368.15	407.99						
		2389.00	411.85	2530.00	410.92	3960.00	403.81	3374.36	407.44						
		2399.00	411.37	2534.00	411.16			3395.51	407.21						
		2409.00	411.64	2539.00	411.46			3408.57	408.49						
		2423.00	411.47	2548.00	411.34			3432.82	408.46						
		2429.00	411.28	2563.50	411.08			3452.44	407.88						
		2438.00	410.59	2572.00	411.07			3463.19	407.54						
		2440.50	410.48	2592.00	411.12			3469.80	407.20						
		2448.50	410.90	2602.00	410.87			3479.84	407.40						
		2461.00	411.04	2612.50	411.27			3487.11	407.08						
		2471.00	411.41	2614.50	410.91			3492.63	406.91						
		2478.50	411.20	2615.00	409.79			3503.74	407.30						
		2488.00	411.38	2620.00	409.30			3515.84	407.23						
		2495.00	411.31	2630.50	409.29			3531.03	408.15						
		2498.00	411.23	2644.00	410.72			3555.98	408.35						
		2506.00	410.46	2651.00	410.81			3571.28	407.85						
		2511.50	410.29	2660.00	410.62			3573.27	408.07						
		2518.00	410.43	2665.00	410.29			3573.79	408.02						
		2527.00	410.73	2669.00	410.13			3574.03	408.13						
		2531.50	410.86	2677.50	410.94			3585.27	407.05						
		2535.00	410.68	2686.50	410.99			3590.04	406.76						
		2540.00	411.50	2704.00	410.81			3605.76	408.12						
		2542.00	411.40	2720.00	410.81			3627.95	407.99						

THW MYO: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		2552.50	411.46	2734.00	410.86			3650.91	407.95		
		2569.00	411.28	2747.00	410.72			3653.21	406.36		
		2586.50	411.35	2759.00	410.51			3668.94	406.19		
		2597.50	411.09	2760.50	410.60			3687.18	407.33		
		2607.00	410.98	2762.00	409.31			3712.53	407.23		
		2615.00	411.11	2769.00	408.83			3719.09	407.15		
		2615.50	409.83	2778.00	409.08			3734.59	407.41		
		2626.00	409.20	2788.00	409.71			3739.50	405.41		
		2637.50	409.47	2793.50	410.35			3757.22	405.64		
		2645.00	410.77	2814.00	410.35			3769.65	406.95		
		2650.00	410.77	2828.00	410.39			3791.35	406.94		
		2664.00	410.64	2840.50	410.32			3815.20	406.49		
		2668.00	410.24	2847.50	410.40			3815.67	405.51		
		2679.00	411.00	2869.00	410.31			3818.41	405.03		
		2697.00	410.85	2874.50	409.29			3826.89	405.81		
		2705.00	410.78	2887.50	408.78			3835.04	403.97		
		2709.00	410.71	2897.50	409.03			3860.26	405.26		
		2718.00	410.78	2906.00	409.23						
		2726.00	410.86	2912.50	410.02						
		2736.50	410.82	2918.00	410.31						
		2748.00	410.74	2927.50	410.29						
		2764.00	410.65	2935.00	410.18						
		2764.50	409.61	2941.00	410.26						
		2770.00	408.96	2947.00	410.35						
		2777.00	408.89	2953.00	410.25						
		2784.00	409.47	2953.00	410.27						
		2784.00	409.40	2968.00	409.06						
		2794.00	410.16	2974.00	409.29						
		2800.00	410.43	2982.00	410.13						
		2819.50	410.26	2985.00	410.17						
		2835.00	410.46	2995.00	409.75						
		2848.00	410.43	2998.00	409.23						
		2861.00	410.34	3002.50	409.67						
		2870.50	410.35	3010.00	409.71						
		2874.00	410.27	3021.00	409.58						
		2890.00	408.88	3024.50	409.43						
		2899.00	409.30	3024.75	409.16						
		2907.00	409.42	3032.00	408.85						
		2917.00	410.24	3038.00	409.26						
		2928.00	410.34	3042.00	408.81						
		2940.00	410.28	3044.50	408.62						

Water Surf MY5 (2014)	
Station	Elevation

Bankfull MY5: (2014)	
Station	Elevation

THW MYO: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)		Water Surf MY5 (2014)		Bankfull MY5: (2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		2955.00	410.25	3052.00	409.47										
		2964.00	409.28	3056.50	409.62										
		2973.00	408.83	3066.00	409.53										
		2977.00	409.22	3077.00	409.28										
		2987.50	410.01	3088.00	409.20										
		2999.00	409.50	3097.50	409.08										
		3009.00	409.86	3103.50	408.69										
		3020.00	409.71	3108.00	407.85										
		3024.00	409.54	3119.00	407.40										
		3034.50	409.19	3126.00	407.86										
		3034.50	409.15	3135.50	408.91										
		3044.50	408.78	3146.00	409.26										
		3054.00	409.75	3162.00	409.23										
		3077.00	409.42	3172.00	409.16										
		3089.00	409.48	3175.00	409.25										
		3100.00	409.34	3181.00	409.10										
		3104.00	409.04	3186.00	408.44										
		3112.00	407.75	3196.00	407.81										
		3119.00	407.56	3201.00	408.15										
		3127.00	408.02	3208.00	408.93										
		3132.00	408.95	3217.00	408.93										
		3144.00	409.32	3225.00	409.07										
		3155.00	409.25	3235.50	408.95										
		3176.00	409.24	3250.50	408.81										
		3185.00	409.25	3257.00	408.13										
		3192.00	408.34	3260.50	408.04										
		3200.00	407.86	3274.50	409.05										
		3207.00	408.51	3287.00	409.05										
		3212.00	409.07	3306.00	408.70										
		3220.00	408.98	3306.50	408.88										
		3234.50	408.96	3307.00	408.93										
		3249.00	408.91	3307.00	407.64										
		3264.00	408.16	3312.50	407.34										
		3268.50	408.48	3323.50	407.76										
		3276.00	409.13	3338.00	409.00										
		3282.50	408.95	3351.00	408.42										
		3297.50	408.88	3363.00	408.50										
		3310.50	408.87	3371.00	407.88										
		3311.50	407.63	3375.00	408.19										
		3315.00	407.30	3378.00	407.42										
		3319.00	407.14	3383.00	406.95										

THW MYO: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)		Water Surf MY5 (2014)		Bankfull MY5: (2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		3332.00	407.97	3395.00	407.56										
		3340.00	408.60	3402.50	407.42										
		3353.00	408.38	3410.50	408.26										
		3363.00	408.42	3418.00	408.36										
		3368.50	408.13	3420.00	408.56										
		3374.00	407.85	3438.00	408.56										
		3377.50	408.16	3454.00	408.30										
		3378.00	407.43	3464.00	407.77										
		3380.00	407.22	3466.00	407.99										
		3384.00	406.77	3470.50	407.47										
		3392.50	407.35	3479.00	407.35										
		3404.00	407.11	3486.50	407.49										
		3404.00	407.16	3490.25	407.93										
		3408.50	408.02	3494.50	407.05										
		3421.00	408.42	3504.50	407.47										
		3437.00	408.35	3506.00	407.71										
		3455.00	408.06	3510.50	407.32										
		3458.00	407.91	3520.00	407.40										
		3463.00	407.53	3529.00	407.51										
		3472.50	407.52	3534.00	407.86										
		3481.00	407.28	3535.00	408.16										
		3486.00	407.52	3540.50	408.09										
		3494.00	406.93	3556.00	408.15										
		3497.50	406.87	3580.00	407.82										
		3508.50	407.41	3588.00	407.32										
		3535.00	407.44	3594.00	406.97										
		3539.00	407.97	3598.00	407.07										
		3548.50	408.02	3602.50	407.30										
		3560.00	408.10	3610.00	408.00										
		3582.00	407.85	3622.50	407.85										
		3582.00	407.77	3649.50	407.65										
		3592.50	407.00	3655.50	408.06										
		3597.50	406.91	3656.00	406.58										
		3609.50	407.42	3660.00	406.12										
		3612.50	407.93	3671.50	406.25										
		3627.50	407.70	3690.00	407.38										
		3640.00	407.71	3700.00	407.00										
		3657.00	407.31	3707.00	407.32										
		3658.00	406.63	3724.00	407.08										
		3661.50	406.01	3738.00	407.39										
		3671.00	406.10	3739.00	407.51										

THW MYO: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)		Water Surf MY5 (2014)		Bankfull MY5: (2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		3677.00	406.35	3739.50	405.57										
		3684.00	406.53	3747.00	405.28										
		3692.00	407.33	3758.00	405.88										
		3729.00	407.01	3770.50	406.73										
		3742.00	407.11	3787.00	406.55										
		3742.50	405.45	3798.00	406.26										
		3747.50	405.28	3819.00	406.11										
		3755.00	405.44	3820.00	405.12										
		3761.00	405.86	3825.50	404.81										
		3769.00	406.10	3830.00	405.54										
		3772.00	406.79	3834.50	404.69										
		3786.00	406.60	3839.00	404.42										
		3804.00	406.14	3848.50	404.99										
		3809.00	405.79	3848.50	405.04										
		3817.00	406.38	3860.50	405.11										
		3822.00	406.24	3873.50	405.48										
		3822.50	405.14	3894.00	405.45										
		3827.00	404.59	3908.50	405.26										
		3832.50	405.43	3910.00	404.91										
		3834.00	404.60	3940.50	404.18										
		3836.00	404.45	3962.00	404.06										
		3840.00	404.30												
		3845.00	404.48												
		3853.00	404.96												
		3860.00	405.05												
		3864.00	404.99												
		3869.00	405.27												
		3877.00	405.34												
		3889.00	405.60												
		3901.00	405.27												
		3908.00	404.96												
		3910.00	404.77												
		3928.50	404.38												
		3940.50	404.07												

N-Trib Cross Sections		
Number	Station	Y-axis Line
1.00	1592.00	411.00
1.00	1592.00	419.00
2.00	2130.00	409.00
2.00	2130.00	414.00
3.00	2632.00	409.00
3.00	2632.00	414.00
4.00	2713.00	409.00
4.00	2713.00	414.50
5.00	3663.00	404.50
5.00	3663.00	411.50
6.00	3719.00	404.50
6.00	3719.00	411.50

Grade Control Structures		
Type	Station	Elevation
cross vane	1063.00	415.65
single log	1150.00	415.24
cross vane	1215.00	415.25
single log	1345.00	415.04
single log	1545.00	414.23
single log	1714.00	413.96
log x-vane	1814.00	413.39
single log	2270.00	412.18
single log	2498.00	411.37
log vane	2615.00	411.27
log vane	2763.00	411.05
single log	2870.00	410.55
single log	3100.00	409.80
log sill	3210.00	409.35
log vane	3307.00	409.19
single log	3375.00	408.66
single log	3457.00	408.54
left vane	3655.00	407.78
left vane	3740.00	407.14
cross vane	3823.00	406.49

Rootwads	
Station	elevation
1455.00	414.75
2060.00	413.00

Cattle / Road Crossing			
Cattle Crossing start		Cattle Crossing end	
Elevation	Station	Elevation	Station
411.50	1900.00	411.50	1950.00
414.00	1900.00	414.00	1950.00

Appendix D -- eTable
Longitudinal Profile Survey Data: 2009-2014, Southern UT
UT Bear Creek (Weaver/McLeod) #92347

THW MY0: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
1000.00	424.33	1000.00	423.62	1000.00	423.28	1064.00	423.89	1000.32	423.94	1055.00	424.51
1053.64	424.23	1005.00	422.42	1012.50	422.62	1070.00	423.71	1024.57	422.03	1060.21	425.32
1062.81	425.16	1040.50	423.19	1012.50	421.66	1083.00	424.84	1036.81	422.26	1067.14	424.05
1062.89	423.66	1049.00	423.89	1024.00	422.16	1084.00	424.85	1042.81	422.85	1087.34	424.56
1081.66	424.61	1061.00	425.16	1032.50	422.15	1110.00	424.62	1046.22	423.22	1109.63	424.44
1095.56	424.65	1062.50	424.00	1044.00	423.27	1137.00	424.27	1060.76	424.70	1123.53	424.42
1115.93	424.66	1067.50	423.64	1052.00	423.91	1163.00	424.13	1061.35	425.09	1132.91	424.28
1136.88	424.11	1074.00	424.50	1060.00	424.74	1180.00	424.33	1061.47	425.24	1139.53	424.04
1156.45	424.51	1084.00	424.68	1060.50	424.92	1202.00	424.48	1064.43	424.11	1153.55	424.24
1163.55	423.74	1105.00	424.38	1061.00	424.98	1218.00	424.36	1068.73	423.38	1156.45	424.21
1183.23	424.40	1112.50	424.57	1061.50	423.84	1237.00	424.36	1085.46	424.88	1157.88	424.37
1208.11	423.94	1118.00	424.56	1067.00	423.51	1242.00	423.96	1097.02	424.08	1169.30	423.45
1229.08	424.10	1120.00	424.70	1072.00	423.99	1253.00	423.93	1100.69	424.35	1178.33	424.23
1254.33	423.94	1125.00	424.51	1078.00	424.50	1263.00	424.03	1107.17	424.24	1197.27	424.19
1278.73	423.96	1128.00	424.23	1080.50	424.74	1295.00	424.02	1117.86	424.47	1203.23	423.72
1301.97	423.37	1136.00	424.04	1089.50	424.58	1306.00	423.80	1127.95	424.42	1217.60	423.83
1321.74	423.92	1145.00	424.48	1095.50	424.49	1320.00	423.84	1132.48	424.00	1223.81	424.00
1334.79	423.74	1148.00	424.45	1105.00	424.55	1337.00	423.76	1135.86	423.91	1236.20	423.85
1361.95	423.40	1154.00	424.48	1109.50	424.51	1347.00	423.77	1142.53	424.10	1247.04	423.94
1378.20	423.27	1158.50	424.35	1112.00	424.59	1353.00	423.81	1158.03	424.22	1261.90	423.93
1394.72	423.36	1161.00	424.03	1121.00	424.84	1360.00	423.71	1159.12	424.30	1270.02	424.00
1397.00	423.65	1163.00	423.84	1128.00	424.35	1378.00	423.25	1163.16	424.00	1301.84	423.31
1418.14	422.96	1170.00	424.18	1134.50	424.27	1387.00	423.10	1169.43	423.63	1310.02	423.65
1430.65	422.76	1173.00	424.33	1141.00	424.37	1393.00	423.28	1170.77	424.05	1321.18	423.77
1443.00	423.34	1176.50	424.35	1150.00	424.60	1398.00	423.63	1170.17	424.46	1332.59	423.60
1450.25	422.40	1187.00	424.31	1155.00	424.59	1398.00	422.29	1171.10	424.07	1370.77	423.11
1478.85	422.57	1190.00	424.09	1162.50	424.05	1400.00	422.24	1172.87	424.20	1397.36	423.39
1480.63	422.29	1195.00	424.35	1168.50	424.33	1407.00	423.05	1174.07	423.93	1438.72	422.16
1492.97	422.17	1197.50	424.26	1173.00	424.35	1422.00	422.89	1187.75	424.35	1461.66	422.22
1505.43	422.75	1200.50	424.27	1178.00	424.35	1438.00	422.76	1191.36	424.06	1478.17	422.69
1512.82	421.85	1207.00	423.89	1182.00	424.40	1445.00	423.21	1197.20	424.14	1493.51	422.25
1535.62	421.61	1210.00	423.84	1185.00	424.42	1445.00	422.01	1201.26	423.94	1501.04	422.77

Water Surf MY5: 2014	
Station	Elevation
DRY	DRY

Bankfull MY5: 2014	
Station	Elevation
1050.00	426.28
1094.18	426.06
1139.17	425.92
1187.61	425.92
1222.05	425.53
1234.31	425.44
1254.75	425.37
1308.74	424.67
1401.94	424.40
1456.66	424.12
1547.60	422.83
1600.63	422.31
1639.47	421.47
1750.94	420.20
1852.92	420.06
1920.29	418.67
2008.74	418.17
2099.88	417.71
2166.91	417.54
2223.87	416.60
2262.66	416.70
2302.88	416.45
2424.23	414.29
2462.84	413.61
2520.12	412.38

THW MY0: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
1548.05	421.72	1212.50	424.00	1190.50	424.16	1452.00	422.48	1208.29	423.76	1513.03	421.09
1556.70	421.74	1220.00	424.33	1191.00	424.12	1485.00	422.58	1209.76	423.93	1520.38	421.88
1563.00	421.98	1223.00	424.31	1195.00	424.45	1492.00	422.07	1214.37	424.07	1536.67	421.16
1589.58	421.15	1230.00	424.12	1204.00	424.27	1497.00	422.17	1224.71	424.17	1552.49	420.75
1592.00	421.46	1232.50	423.96	1208.50	423.94	1504.00	422.07	1232.67	423.95	1553.96	421.62
1619.15	420.30	1236.50	424.17	1216.00	424.32	1506.00	422.66	1251.04	423.87	1569.30	420.93
1629.00	420.77	1244.00	424.09	1225.00	424.28	1507.00	422.68	1256.79	423.78	1572.97	420.60
1635.05	419.57	1248.00	423.93	1232.00	424.19	1508.00	421.02	1262.08	423.97	1584.87	420.53
1644.71	420.08	1253.00	423.83	1237.00	424.28	1509.00	421.08	1264.06	424.11	1593.79	421.29
1658.23	419.83	1257.50	423.66	1242.00	423.90	1519.00	421.99	1268.57	424.13	1597.70	420.01
1663.07	419.56	1263.00	423.90	1245.00	424.14	1530.00	421.27	1283.55	424.01	1601.02	420.33
1691.53	419.92	1266.00	423.96	1250.00	423.94	1535.00	421.62	1295.52	423.74	1621.78	420.02
1704.50	419.33	1277.00	424.07	1253.00	423.89	1540.00	421.41	1300.64	423.84	1631.97	420.59
1713.61	419.87	1287.00	423.92	1258.00	423.74	1544.00	421.48	1303.31	423.84	1632.46	419.38
1714.13	418.43	1295.00	424.01	1262.00	423.84	1548.00	421.25	1319.49	423.80	1653.23	420.08
1733.33	419.18	1297.00	423.76	1265.00	424.03	1558.00	421.03	1332.27	423.77	1659.46	420.27
1758.36	419.12	1302.00	423.54	1270.00	424.06	1560.00	421.98	1337.31	423.66	1673.69	419.10
1772.33	419.12	1307.00	423.76	1278.00	424.04	1561.00	420.78	1349.04	423.79	1686.68	419.83
1774.00	419.47	1312.00	423.96	1285.00	424.02	1564.00	419.87	1350.08	423.62	1704.72	419.27
1791.50	418.95	1324.00	423.85	1293.50	423.91	1565.00	421.88	1358.11	423.85	1714.85	419.56
1809.39	418.41	1336.00	423.80	1296.00	423.92	1566.00	420.72	1360.92	423.21	1715.36	418.40
1813.18	418.54	1338.00	423.63	1301.00	423.56	1573.00	421.14	1367.82	423.32	1738.25	418.71
1818.00	419.06	1343.00	423.76	1304.00	423.61	1578.00	421.36	1372.35	423.39	1754.66	419.08
1842.24	418.44	1349.50	423.79	1306.50	423.75	1588.00	420.96	1384.36	423.13	1770.13	418.70
1851.17	418.18	1353.00	423.82	1312.50	423.83	1593.00	421.42	1388.74	423.17	1776.85	419.24
1870.33	418.46	1360.00	423.75	1316.50	423.74	1593.00	420.30	1393.33	422.90	1777.41	417.71
1874.38	418.57	1366.00	423.47	1324.00	423.80	1595.00	419.98	1395.18	423.78	1791.10	418.61
1874.97	417.72	1371.00	423.48	1328.00	423.78	1604.00	420.48	1397.04	422.38	1806.20	418.12
1889.23	418.02	1375.50	423.49	1332.00	423.78	1612.00	420.85	1411.10	423.12	1818.67	419.10
1898.24	417.84	1380.00	423.39	1339.50	423.57	1622.00	420.05	1412.94	422.59	1838.36	418.26
1905.00	418.18	1382.00	423.50	1345.00	423.68	1629.00	420.68	1414.05	422.92	1861.18	418.49
1926.56	417.62	1384.50	423.08	1351.00	423.73	1629.00	419.36	1427.20	422.25	1873.26	417.95
1938.78	417.28	1386.50	423.14	1357.00	423.67	1643.00	419.87	1440.55	422.70	1875.05	417.75
1951.16	417.23	1392.00	423.45	1361.00	423.67	1649.00	419.83	1443.34	423.43	1891.33	418.21
1958.00	417.70	1395.50	423.33	1367.00	423.28	1657.00	420.27	1446.80	422.43	1922.55	417.50
1967.68	417.07	1396.50	423.69	1370.50	423.32	1658.00	419.68	1451.67	422.54	1941.01	417.20

Water Surf MY5: 2014	
Station	Elevation

Bankfull MY5: 2014	
Station	Elevation

THW MY0: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
2001.62	416.93	1397.00	423.38	1376.00	423.30	1664.00	419.19	1453.21	422.79	1954.49	417.05
2019.17	416.47	1399.00	423.12	1380.50	423.25	1670.00	419.24	1470.44	422.37	1992.22	416.57
2046.36	416.86	1405.00	423.47	1386.50	422.96	1681.00	419.50	1483.47	422.53	2007.79	416.83
2070.10	416.36	1407.50	423.40	1392.00	423.33	1703.00	419.59	1489.50	422.16	2027.01	416.48
2070.41	416.32	1413.00	423.27	1397.00	423.18	1713.00	419.72	1493.61	422.32	2034.42	416.41
2085.80	416.57	1418.50	423.30	1397.50	423.55	1713.00	418.81	1501.74	422.17	2050.04	416.30
2108.98	416.36	1425.00	423.15	1398.50	422.32	1722.00	418.50	1505.63	422.82	2058.14	416.12
2114.23	416.40	1427.00	422.93	1403.50	422.75	1729.00	418.90	1508.36	421.44	2062.45	416.37
2120.26	416.79	1428.00	422.90	1405.00	422.97	1747.00	419.31	1520.06	421.77	2082.30	416.70
2120.49	415.69	1430.50	422.67	1406.00	422.96	1755.00	419.24	1522.39	421.33	2087.59	416.39
2129.35	416.23	1432.00	422.63	1408.00	423.05	1767.00	419.03	1523.75	421.59	2111.65	416.67
2159.81	416.11	1435.00	422.76	1413.50	422.96	1775.00	419.34	1529.18	421.28	2120.12	415.60
2163.00	416.41	1442.00	422.99	1415.00	422.72	1775.00	417.75	1529.84	421.52	2148.35	415.96
2170.04	415.58	1443.00	423.22	1423.50	422.86	1778.00	417.94	1534.54	421.65	2150.29	416.47
2199.29	415.52	1444.00	423.36	1430.00	422.46	1785.00	418.67	1535.48	421.47	2151.09	415.56
2214.96	415.72	1445.00	422.13	1435.00	422.50	1799.00	418.61	1536.10	421.62	2177.15	415.26
2230.59	415.17	1447.50	422.07	1437.50	422.73	1806.00	418.14	1541.55	421.50	2190.51	415.50
2239.98	415.49	1451.50	422.57	1442.00	422.84	1818.00	418.83	1544.28	421.55	2203.52	414.98
2240.00	415.73	1457.00	422.86	1444.00	423.12	1818.00	417.80	1544.69	421.50	2218.98	415.20
2247.10	414.94	1464.00	422.77	1445.00	421.97	1828.00	418.24	1547.76	421.59	2228.84	415.39
2263.59	415.00	1467.50	422.81	1445.50	422.36	1842.00	418.38	1549.57	421.23	2230.11	414.62
2270.51	415.40	1469.00	422.58	1450.00	422.26	1858.00	418.22	1555.23	421.11	2245.87	414.66
2270.93	414.71	1472.00	422.40	1454.50	422.45	1875.00	418.34	1555.74	420.95	2257.11	415.15
2275.92	414.71	1477.00	422.38	1460.50	422.51	1875.00	417.79	1559.70	420.65	2259.25	414.52
2299.45	414.65	1478.00	422.55	1465.00	422.48	1880.00	417.50	1561.72	421.83	2270.37	414.87
2313.51	414.82	1481.00	422.66	1467.00	422.63	1884.00	417.87	1563.45	420.50	2289.09	414.63
2316.00	414.94	1483.50	422.86	1474.00	422.17	1894.00	417.65	1564.91	420.49	2306.62	414.38
2322.83	413.75	1486.00	422.60	1475.50	422.23	1901.00	417.54	1566.66	421.50	2322.29	414.11
2332.08	414.20	1490.00	422.25	1477.00	422.14	1905.00	418.28	1568.33	420.36	2333.87	414.02
2348.14	414.20	1491.00	422.10	1481.50	422.43	1905.00	417.48	1569.13	420.38	2339.03	414.23
2350.34	414.49	1492.50	422.30	1485.00	422.45	1910.00	417.71	1581.71	420.40	2339.48	412.88
2350.99	413.28	1498.00	422.35	1485.50	422.40	1913.00	417.53	1588.87	421.23	2348.73	414.06
2358.04	413.87	1503.50	422.31	1489.00	422.27	1925.00	417.61	1589.75	421.26	2369.42	413.36
2388.19	413.33	1504.00	422.78	1494.50	422.28	1930.00	417.96	1590.29	420.07	2379.83	413.18
2393.80	413.49	1505.50	422.71	1498.50	422.17	1946.00	417.76	1590.33	420.05	2385.44	413.41
2397.00	413.62	1506.00	421.26	1501.00	422.17	1960.00	417.81	1591.40	420.15	2386.53	413.48

Water Surf MY5: 2014	
Station	Elevation

Bankfull MY5: 2014	
Station	Elevation

THW MY0: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
2402.19	412.59	1507.50	421.28	1503.50	422.58	1960.00	416.63	1594.50	419.82	2396.60	412.80
2428.75	412.48	1512.00	421.29	1506.00	422.68	1970.00	417.22	1599.24	420.11	2401.33	412.63
2435.00	413.18	1515.00	421.72	1506.50	421.14	1975.00	417.20	1608.33	420.62	2430.38	412.48
2440.96	412.92	1515.00	421.57	1509.00	421.26	1994.00	417.10	1618.08	420.09	2436.30	413.31
2454.00	412.58	1519.00	421.77	1513.50	421.38	2008.00	417.04	1625.96	420.18	2450.59	412.25
2460.90	412.09	1534.00	421.47	1519.00	421.87	2015.00	417.01	1627.38	420.50	2468.35	411.77
2484.00	411.97	1535.50	421.29	1528.00	421.25	2020.00	416.90	1629.78	419.31	2483.18	411.24
2491.72	411.25	1538.00	421.23	1535.00	421.63	2022.00	416.95	1639.80	419.46	2493.72	411.31
2505.00	411.69	1542.00	421.14	1536.50	421.43	2029.00	416.91	1648.44	419.62	2505.81	411.62
2511.76	410.67	1547.50	421.06	1540.00	421.35	2039.00	416.90	1653.18	419.79	2507.96	410.99
2521.86	410.83	1552.00	421.41	1545.50	421.47	2045.00	416.71	1655.39	420.08	2518.54	410.96
2525.00	411.12	1555.00	421.72	1549.50	421.41	2050.00	416.93	1667.21	419.19	2529.75	411.20
2548.00	410.80	1559.00	421.40	1555.00	421.78	2063.00	416.73	1679.77	419.42	2553.69	411.05
2548.27	411.16	1560.00	421.78	1559.00	421.24	2068.00	416.50	1684.09	419.47	2554.88	410.03
2563.03	409.25	1560.50	420.58	1560.00	421.96	2076.00	416.40	1685.80	419.53	2561.36	409.56
2573.48	410.39	1562.50	419.81	1560.50	420.62	2085.00	416.48	1688.30	419.89	2572.22	410.29
2573.70	410.38	1564.00	419.50	1564.00	419.77	2090.00	416.81	1695.33	420.05	2594.41	409.99
2591.00	410.27	1565.00	421.65	1565.00	421.82	2095.00	416.79	1702.36	419.98	2600.46	408.91
2595.26	408.95	1566.00	420.34	1565.50	420.60	2097.00	416.49	1704.72	419.83	2620.58	409.83
2623.00	410.01	1568.00	420.36	1573.00	421.08	2103.00	416.00	1707.08	419.51	2629.50	408.69
2626.33	408.70	1570.00	420.79	1581.00	421.20	2107.00	416.52	1708.93	419.24	2647.40	409.44
2633.54	408.70	1573.00	420.95	1585.00	420.95	2110.00	416.62	1715.08	419.61	2662.00	408.49
2647.00	409.47	1578.50	421.02	1590.00	421.21	2117.00	416.58	1716.39	419.81	2691.95	408.87
2654.14	408.60	1584.50	420.76	1592.00	421.44	2120.00	416.79	1717.85	418.58	2701.20	407.95
2683.88	408.79	1590.00	420.86	1592.50	420.28	2120.00	415.97	1724.87	418.47		
2690.00	408.79	1590.50	421.19	1597.00	419.89	2122.00	415.84	1730.21	418.70		
2699.15	408.24	1592.50	421.25	1600.50	420.35	2125.00	416.04	1738.68	419.15		
		1593.00	420.03	1613.00	420.79	2134.00	415.95	1748.66	419.22		
		1595.00	419.81	1620.50	420.04	2139.00	416.14	1752.64	419.34		
		1596.00	419.65	1626.00	420.06	2149.00	416.09	1763.57	418.83		
		1597.50	419.66	1629.00	420.37	2164.00	416.02	1765.47	418.98		
		1600.00	420.25	1629.50	420.72	2164.00	416.58	1768.22	418.78		
		1604.50	420.25	1630.00	419.46	2165.00	415.48	1772.11	418.60		
		1612.00	420.65	1632.50	419.31	2171.00	415.67	1773.17	419.17		
		1616.00	420.58	1635.50	419.40	2179.00	415.72	1774.58	418.53		
		1618.50	420.48	1640.50	419.80	2184.00	415.45	1777.47	417.74		

Water Surf MY5: 2014	
Station	Elevation

Bankfull MY5: 2014	
Station	Elevation

THW MY0: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)		Water Surf MY5: 2014		Bankfull MY5: 2014	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		1620.00	420.26	1644.00	420.04	2187.00	415.22	1791.09	418.61						
		1623.00	420.47	1648.00	419.85	2192.00	415.37	1792.14	418.97						
		1627.50	420.45	1648.00	420.00	2196.00	415.55	1793.84	418.29						
		1629.00	420.61	1655.00	420.17	2200.00	415.47	1806.16	418.12						
		1629.50	420.95	1657.50	420.38	2207.00	415.64	1810.08	417.91						
		1630.00	419.65	1658.00	419.54	2211.00	415.23	1818.09	418.37						
		1633.50	419.63	1666.50	419.22	2216.00	415.29	1819.24	418.88						
		1637.00	419.73	1671.00	419.24	2224.00	415.34	1820.37	417.72						
		1641.00	420.04	1677.50	419.26	2231.00	415.40	1835.67	418.51						
		1642.50	420.25	1680.50	419.33	2241.00	415.89	1845.08	418.37						
		1645.00	420.27	1681.00	419.38	2242.00	415.02	1849.34	418.00						
		1647.50	420.07	1692.00	419.95	2250.00	415.19	1853.06	418.02						
		1648.50	420.07	1702.00	419.71	2254.00	415.39	1857.42	418.26						
		1652.50	420.28	1705.50	419.32	2260.00	414.83	1867.13	418.50						
		1655.00	420.49	1712.50	419.72	2269.00	415.46	1869.32	418.55						
		1657.00	420.65	1713.00	418.74	2271.00	415.42	1870.91	417.98						
		1657.50	419.67	1715.00	418.90	2271.00	414.97	1877.77	417.84						
		1661.00	419.60	1722.50	418.55	2275.00	414.52	1887.50	418.00						
		1664.50	419.48	1725.00	418.72	2278.00	414.75	1892.97	417.84						
		1667.00	419.40	1730.00	418.99	2282.00	415.11	1894.16	418.10						
		1672.50	419.62	1734.50	419.24	2298.00	414.49	1895.64	417.55						
		1678.00	419.46	1741.00	419.29	2304.00	414.89	1913.62	417.41						
		1680.50	419.49	1745.00	419.28	2316.00	415.20	1915.17	417.58						
		1684.50	420.09	1750.00	419.30	2317.00	414.10	1925.21	417.47						
		1687.00	420.30	1752.50	419.25	2320.00	414.88	1925.87	417.54						
		1697.50	420.30	1757.50	419.22	2322.00	413.85	1930.06	417.63						
		1702.00	420.11	1762.50	419.13	2327.00	414.38	1944.75	417.52						
		1702.50	419.93	1766.00	419.16	2339.00	413.90	1946.05	417.76						
		1707.50	419.57	1771.50	418.98	2349.00	414.39	1947.86	416.58						
		1711.00	419.81	1775.00	419.40	2350.00	414.70	1975.28	416.87						
		1712.50	419.95	1776.00	417.72	2353.00	413.30	1996.88	416.84						
		1713.00	418.96	1779.00	418.18	2360.00	414.00	2009.78	416.59						
		1719.00	418.74	1784.00	418.55	2365.00	414.16	2021.67	416.65						
		1724.00	418.83	1789.00	418.78	2380.00	413.74	2061.08	416.11						
		1730.00	419.24	1792.00	418.78	2383.00	413.18	2062.89	416.15						
		1735.00	419.49	1796.00	418.81	2390.00	413.39	2074.07	416.64						

THW MY0: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)		Water Surf MY5: 2014		Bankfull MY5: 2014	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		1744.00	419.44	1799.50	418.71	2396.00	413.55	2098.06	416.57						
		1752.50	419.46	1806.00	418.25	2397.00	412.36	2107.19	416.57						
		1760.00	419.35	1810.00	418.34	2400.00	413.38	2108.92	416.86						
		1763.00	419.46	1814.00	418.63	2402.00	412.66	2111.74	415.70						
		1768.00	419.52	1817.50	418.70	2410.00	413.00	2143.07	415.96						
		1770.50	419.17	1818.00	418.99	2415.00	413.07	2153.79	416.38						
		1773.00	419.35	1818.50	418.03	2424.00	412.47	2156.89	415.51						
		1774.00	419.66	1824.00	418.07	2430.00	412.40	2175.78	415.06						
		1775.50	418.02	1830.50	418.54	2438.00	413.52	2191.01	415.31						
		1778.00	418.39	1837.50	418.50	2443.00	412.90	2210.83	415.14						
		1782.00	418.55	1842.00	418.58	2452.00	411.96	2221.86	414.97						
		1788.00	419.12	1848.00	418.30	2455.00	412.38	2228.46	415.31						
		1798.00	418.99	1854.50	418.35	2458.00	411.40	2229.70	415.74						
		1803.50	418.31	1858.00	418.41	2467.00	412.19	2231.44	414.75						
		1807.50	418.29	1863.00	418.54	2485.00	411.82	2246.18	414.85						
		1815.00	418.83	1870.00	418.43	2486.00	410.79	2256.38	415.22						
		1817.50	418.89	1875.50	418.48	2496.00	411.59	2259.20	415.45						
		1817.50	419.13	1875.75	417.91	2506.00	411.53	2261.25	414.55						
		1818.50	418.34	1879.00	417.70	2511.00	410.49	2293.33	414.72						
		1823.00	418.25	1886.50	417.95	2526.00	411.19	2305.13	414.37						
		1827.50	418.49	1889.00	417.93	2526.00	410.40	2305.99	415.01						
		1832.00	418.78	1890.50	418.09	2545.00	410.08	2307.28	414.08						
		1838.00	418.68	1897.50	417.21	2550.00	410.76	2308.44	414.02						
		1847.50	418.56	1902.00	417.66	2550.00	409.88	2309.83	414.60						
		1852.50	418.49	1905.00	418.10	2565.00	409.29	2310.94	413.82						
		1856.50	418.48	1905.50	417.73	2580.00	411.12	2322.89	414.22						
		1867.50	418.83	1908.50	417.67	2590.00	410.37	2326.82	414.06						
		1870.00	418.56	1913.00	417.70	2592.00	409.36	2333.50	413.94						
		1873.00	418.74	1919.00	417.82	2595.00	410.08	2339.78	414.51						
		1874.00	418.70	1925.50	417.83	2595.00	408.90	2342.48	413.24						
		1875.00	418.23	1929.50	418.05	2601.00	408.72	2349.95	414.19						
		1877.50	417.84	1940.50	417.93	2605.00	409.24	2362.78	413.91						
		1885.00	418.49	1943.50	417.76	2611.00	409.65	2372.66	412.95						
		1888.50	418.29	1944.00	417.55	2620.00	409.12	2378.45	413.31						
		1892.50	418.30	1948.00	417.41	2625.00	409.82	2382.28	412.96						
		1896.50	417.60	1954.00	417.37	2625.00	408.53	2387.21	413.58						

THW MY0: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)		Water Surf MY5: 2014		Bankfull MY5: 2014	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		1902.50	417.87	1957.00	417.54	2632.00	408.55	2390.85	412.31						
		1905.00	418.13	1960.00	417.77	2640.00	409.05	2402.05	413.00						
		1905.50	418.46	1960.50	416.48	2643.00	410.36	2421.50	412.26						
		1906.50	417.72	1964.00	416.83	2649.00	409.33	2427.53	413.02						
		1910.00	417.49	1969.00	417.13	2649.00	407.89	2439.21	411.75						
		1913.00	417.61	1976.00	417.08	2657.00	408.51	2449.10	412.42						
		1916.00	417.70	1981.00	416.87	2663.00	408.87	2450.45	412.47						
		1920.00	417.76	1987.50	416.98	2674.00	408.71	2452.17	412.04						
		1925.00	417.77	1995.00	417.01	2680.00	408.36	2467.32	411.52						
		1927.50	417.95	2001.00	417.02	2686.00	408.84	2474.50	411.96						
		1931.50	418.00	2008.00	417.04	2686.00	409.40	2476.01	411.19						
		1941.50	417.93	2013.00	416.99	2690.00	408.14	2488.60	411.37						
		1944.50	417.75	2020.00	416.94	2702.00	407.38	2490.17	411.65						
		1946.50	417.57	2025.50	417.04			2496.79	410.72						
		1950.50	417.66	2033.50	416.90			2513.20	410.83						
		1953.00	417.53	2038.00	416.98			2515.30	411.29						
		1957.50	417.68	2043.50	416.75			2517.63	410.54						
		1958.00	417.73	2044.00	416.75			2537.28	410.28						
		1958.50	417.91	2050.50	416.94			2539.68	411.11						
		1960.00	416.64	2059.00	416.73			2541.53	409.92						
		1964.00	416.97	2064.50	416.72			2554.22	409.57						
		1965.50	417.16	2070.00	416.37			2560.44	410.04						
		1972.00	417.32	2074.00	416.27			2566.75	410.48						
		1975.00	417.13	2078.00	416.50			2568.60	409.57						
		1977.00	416.99	2083.00	416.50			2569.70	409.78						
		1982.00	416.99	2089.00	416.59			2576.37	410.20						
		1990.00	417.09	2095.50	416.70			2588.29	409.17						
		1997.50	417.06	2099.00	416.25			2594.01	409.90						
		2007.50	417.18	2102.00	415.99			2614.79	409.40						
		2013.50	417.03	2107.00	416.44			2616.56	410.09						
		2017.50	416.97	2110.00	416.46			2618.13	408.91						
		2023.50	416.96	2117.00	416.69			2639.85	409.72						
		2033.00	416.92	2119.00	416.82			2640.56	409.36						
		2044.00	416.92	2119.50	415.81			2642.78	407.77						
		2051.50	416.88	2121.00	415.75			2659.50	409.00						
		2056.50	416.63	2122.50	416.15			2680.73	408.19						

THW MY0: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)		Water Surf MY5: 2014		Bankfull MY5: 2014	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		2062.00	416.64	2128.00	416.01			2682.95	408.60						
		2066.00	416.64	2133.50	415.90			2684.66	408.08						
		2068.00	416.38	2140.00	416.41										
		2072.00	416.16	2144.50	416.30										
		2075.00	416.16	2149.50	415.82										
		2079.00	416.36	2158.50	416.07										
		2081.50	416.38	2162.50	416.20										
		2089.50	416.65	2163.00	415.74										
		2097.00	416.37	2163.25	416.48										
		2100.50	416.09	2164.00	415.27										
		2104.50	415.96	2169.00	415.39										
		2107.50	416.35	2172.50	415.50										
		2111.00	416.49	2181.00	415.40										
		2118.00	416.50	2186.00	415.19										
		2119.00	416.80	2188.50	415.06										
		2120.50	416.83	2196.00	415.39										
		2121.00	415.75	2199.50	415.34										
		2123.00	415.69	2205.00	415.40										
		2124.50	416.20	2207.50	415.52										
		2129.00	416.02	2212.00	415.15										
		2136.00	415.95	2215.00	415.30										
		2141.00	416.21	2217.50	415.23										
		2147.00	416.26	2221.00	415.16										
		2151.00	415.87	2225.00	415.23										
		2155.50	415.78	2227.00	415.15										
		2158.00	415.94	2230.00	415.30										
		2161.50	416.24	2232.00	415.30										
		2164.50	416.46	2236.50	415.25										
		2165.00	415.17	2240.00	415.59										
		2169.00	415.25	2240.50	415.80										
		2172.50	415.65	2241.50	414.83										
		2180.00	415.49	2244.00	414.94										
		2184.00	415.51	2247.00	415.09										
		2187.00	415.29	2257.00	415.04										
		2190.00	415.31	2259.00	414.81										
		2192.50	415.40	2261.00	415.02										

THW MY0: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)		Water Surf MY5: 2014		Bankfull MY5: 2014	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		2197.00	415.50	2265.00	415.23										
		2202.00	415.53	2268.00	415.33										
		2207.50	415.66	2270.00	415.37										
		2211.00	415.37	2274.00	414.38										
		2217.50	415.41	2278.00	414.86										
		2225.50	415.31	2282.00	415.02										
		2232.50	415.29	2285.50	414.93										
		2237.00	415.31	2294.00	414.63										
		2240.00	415.63	2300.00	414.64										
		2241.00	415.91	2302.00	414.73										
		2242.00	414.90	2314.00	414.80										
		2244.50	414.93	2315.00	414.99										
		2250.00	415.15	2315.50	413.74										
		2257.50	415.07	2317.50	414.04										
		2260.50	415.03	2318.00	414.74										
		2268.00	415.33	2319.50	413.75										
		2269.50	415.42	2322.50	413.65										
		2270.00	415.41	2326.00	414.25										
		2270.50	414.81	2333.00	414.32										
		2276.50	414.58	2340.00	413.91										
		2282.50	415.03	2344.50	414.08										
		2289.00	414.88	2349.50	414.34										
		2292.00	414.74	2350.50	414.49										
		2296.00	414.45	2351.00	413.11										
		2298.50	414.43	2354.00	413.16										
		2302.00	414.70	2358.00	413.76										
		2305.00	414.88	2363.00	414.19										
		2310.00	414.67	2371.00	414.09										
		2315.00	415.05	2378.00	413.78										
		2315.50	413.65	2382.00	413.37										
		2318.50	413.60	2385.50	413.52										
		2320.00	414.83	2390.00	413.54										
		2322.50	413.75	2394.50	413.47										
		2327.50	414.43	2395.00	413.71										
		2333.00	414.33	2398.00	412.11										
		2338.00	414.02	2399.50	413.58										

THW MY0: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)		Water Surf MY5: 2014		Bankfull MY5: 2014	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		2344.00	414.10	2400.00	412.82										
		2350.00	414.47	2406.50	413.07										
		2350.50	414.58	2415.00	413.05										
		2352.50	413.18	2420.00	412.74										
		2355.00	413.17	2424.00	412.65										
		2359.50	414.06	2428.00	412.62										
		2362.00	414.34	2431.00	412.57										
		2372.00	414.13	2440.00	413.28										
		2378.50	413.88	2445.00	412.65										
		2382.00	413.52	2452.50	412.08										
		2387.50	413.57	2455.00	412.52										
		2394.50	413.59	2455.50	411.67										
		2396.00	413.87	2459.00	411.58										
		2397.00	412.72	2465.00	411.66										
		2398.50	412.23	2469.00	411.70										
		2400.00	413.69	2475.00	411.69										
		2401.00	412.97	2480.00	411.50										
		2403.50	413.01	2483.00	411.47										
		2406.50	413.27	2485.50	411.83										
		2410.50	413.28	2486.00	410.97										
		2414.00	413.32	2491.50	410.78										
		2415.50	413.23	2495.00	411.31										
		2419.50	413.05	2499.00	411.45										
		2423.50	412.71	2505.50	411.56										
		2427.50	412.73	2506.00	410.78										
		2431.00	412.65	2512.00	410.56										
		2433.00	412.83	2516.00	410.91										
		2438.00	413.39	2520.00	410.76										
		2446.00	412.69	2523.00	410.56										
		2450.00	412.53	2525.50	411.23										
		2453.00	412.24	2526.00	410.69										
		2456.00	412.54	2530.00	410.35										
		2456.50	412.71	2533.50	410.58										
		2457.00	411.86	2536.00	410.59										
		2458.50	411.63	2538.00	410.36										
		2463.50	411.94	2541.00	410.47										

THW MY0: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)		Water Surf MY5: 2014		Bankfull MY5: 2014	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		2465.50	411.98	2545.50	410.34										
		2468.50	411.62	2548.50	410.82										
		2474.00	411.44	2550.00	411.05										
		2478.00	411.40	2550.50	410.11										
		2485.50	411.53	2553.00	409.90										
		2486.00	411.55	2563.00	409.66										
		2486.50	410.93	2568.00	409.71										
		2488.00	410.78	2573.50	410.30										
		2492.00	410.71	2583.00	410.45										
		2496.50	411.44	2590.00	410.18										
		2505.50	411.30	2590.50	410.49										
		2506.50	411.53	2591.50	409.48										
		2507.00	410.72	2593.00	409.82										
		2510.50	410.39	2594.50	409.79										
		2514.00	410.87	2595.00	410.40										
		2517.00	411.05	2595.50	409.04										
		2522.00	410.86	2600.50	409.06										
		2524.00	411.22	2608.00	409.76										
		2526.00	410.65	2620.00	409.32										
		2528.00	411.34	2623.50	409.67										
		2530.00	410.52	2624.00	410.04										
		2538.50	410.31	2624.50	408.75										
		2543.00	410.35	2631.00	408.81										
		2547.00	410.70	2639.00	409.11										
		2547.50	411.08	2643.50	409.34										
		2549.00	410.89	2648.50	409.57										
		2549.50	409.96	2649.50	408.18										
		2552.00	409.87	2653.00	408.15										
		2559.00	409.67	2655.50	408.66										
		2564.00	409.33	2661.50	409.08										
		2568.00	409.75	2674.00	408.97										
		2573.00	410.19	2683.00	408.68										
		2579.00	410.42	2688.00	408.53										
		2588.00	410.04	2699.00	407.90										
		2589.00	410.47	2699.50	407.89										
		2590.00	409.47												

THW MY0: (5/2009)		THW MY1: (12/2010)		THW MY2: (8/2011)		THW MY3: (9/2012)		THW MY4: (11/2013)		THW MY5: (10/2014)		Water Surf MY5: 2014		Bankfull MY5: 2014	
Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation	Station	Elevation
		2592.00	409.46												
		2593.00	410.21												
		2594.00	408.87												
		2598.00	408.83												
		2606.00	409.62												
		2611.50	409.36												
		2616.00	409.12												
		2622.00	409.58												
		2622.50	409.90												
		2623.50	408.70												
		2628.50	408.74												
		2635.00	408.86												
		2643.00	409.24												
		2647.00	409.22												
		2647.50	409.45												
		2648.00	408.07												
		2652.00	407.98												
		2658.00	408.84												
		2664.00	408.85												
		2671.00	408.98												
		2679.00	408.59												
		2687.00	408.74												
		2687.50	408.97												
		2688.00	409.01												
		2689.00	408.35												
		2696.00	407.51												

Cross Sections		
Number	Station	Y-axis
7	1577	418
7	1577	426
8	2501	409
8	2501	418
9	2562	409
9	2562	418

Grade Control Structures		
Type	Station	Elevation
CV	1063.00	425.16
logsill	1397.50	423.65
logsill	1443.82	423.34
root wad	1506.00	422.75
log step	1563.08	421.98
root wad	1592.41	421.46
logsill	1629.81	420.77
step rock	1658.23	420.65
step rock	1714.00	419.87
logsill	1774.56	419.47
logsill	1818.37	419.06
step rock	1873.98	418.57
logsill	1905.15	418.18
logsill	1958.14	417.70
step rock	2120.00	416.79
logsill	2163.43	416.41
logsill	2240.71	415.73
step rock	2269.97	415.40
logsill	2316.53	414.94
step rock	2350.00	414.49
logsill	2397.65	413.62
logsill	2435.53	413.18
logsill	2454.81	412.58
logsill	2484.98	411.97
logsill	2505.46	411.69
step rock	2525.00	411.12
j-hook	2548.00	411.16
logsill	2591.55	410.27
logsill	2623.25	410.01
logsill	2647.83	409.47
step rock	2690.00	408.79

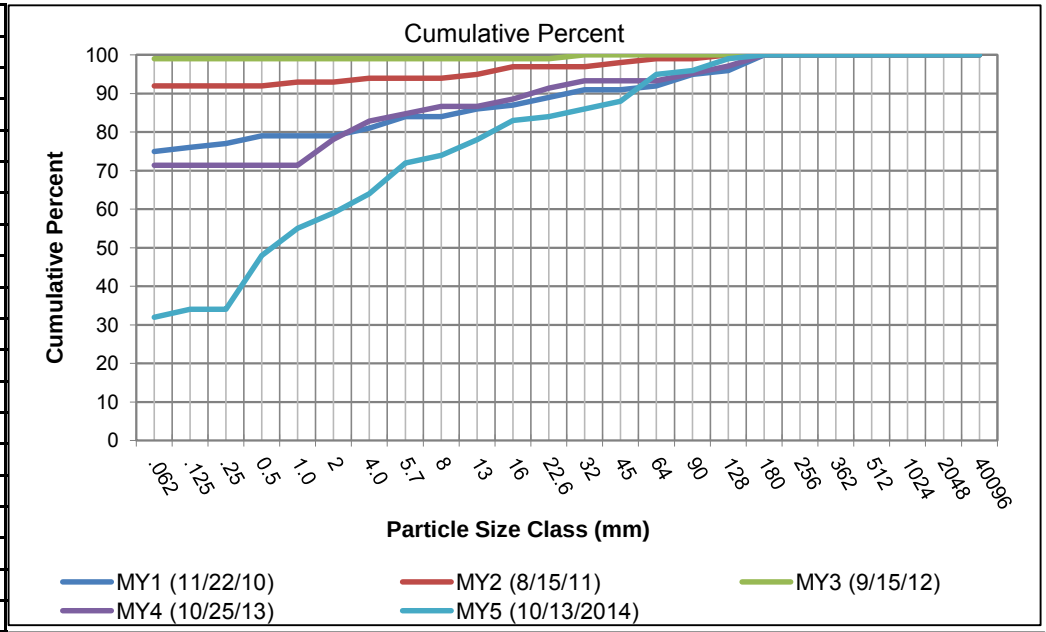
Rootwads	
Station	elevation
1485	423.00
1535	421.98
1805	419.06
1895	418.18
1940	417.70
2075	416.79

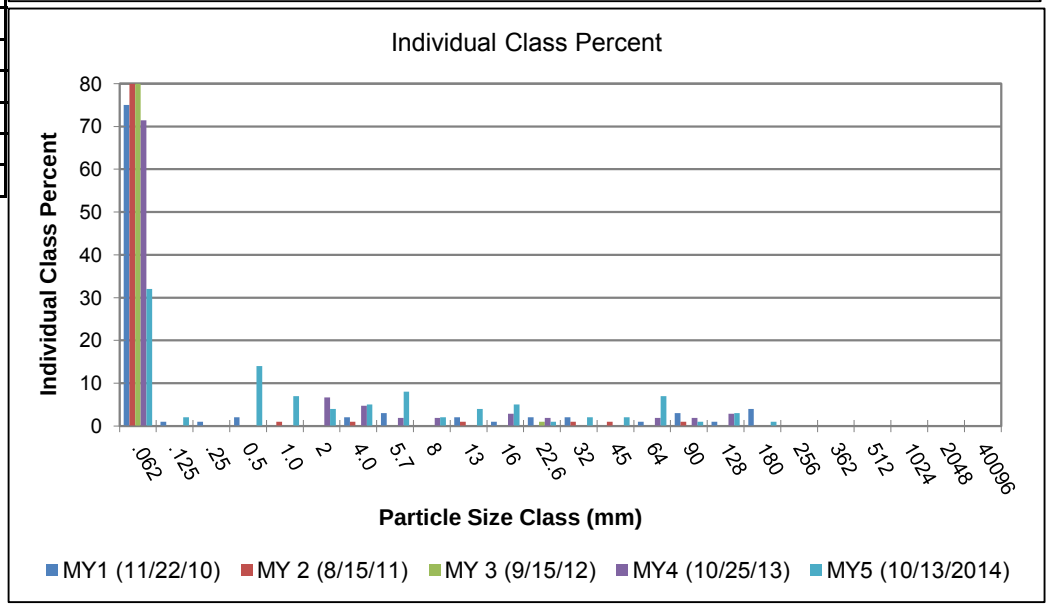
Cattle Crossing			
Cattle Crossing start		Cattle Crossing end	
elevation	Station	elevation	Station
418	1670.00	418	1720.00
421	1670.00	421	1720.00

Figure 7.1 Pebble Count Plot: X-Sec 1 -- MY5-2014 -- UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section One - Northern UT			2014		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	32	32	32
Sand	Very Fine Sand	.125	2	2	34
	Fine Sand	.25	0	0	34
	Medium Sand	0.5	14	14	48
	Coarse Sand	1.0	7	7	55
	Very Course Sand	2	4	4	59
Gravel	Very Fine Gravel	4.0	5	5	64
	Fine Gravel	5.7	8	8	72
	Fine Gravel	8	2	2	74
	Medium Gravel	13	4	4	78
	Medium Gravel	16	5	5	83
	Coarse Gravel	22.6	1	1	84
	Coarse Gravel	32	2	2	86
	Very Course Gravel	45	2	2	88
	Very Course Gravel	64	7	7	95
Cobble	Small Cobble	90	1	1	96
	Small Cobble	128	3	3	99
	Medium Cobble	180	1	1	100
	Large Cobble	256	0	0	100
Boulder	Small Boulders	362	0	0	100
	Small Boulders	512	0	0	100
	Medium Boulders	1024	0	0	100
	Large Boulders	2048	0	0	100
Bedrock	Bedrock	40096	0	0	100
	Total		100		

Summary Data	
D50	1
D84	22.3
D95	64



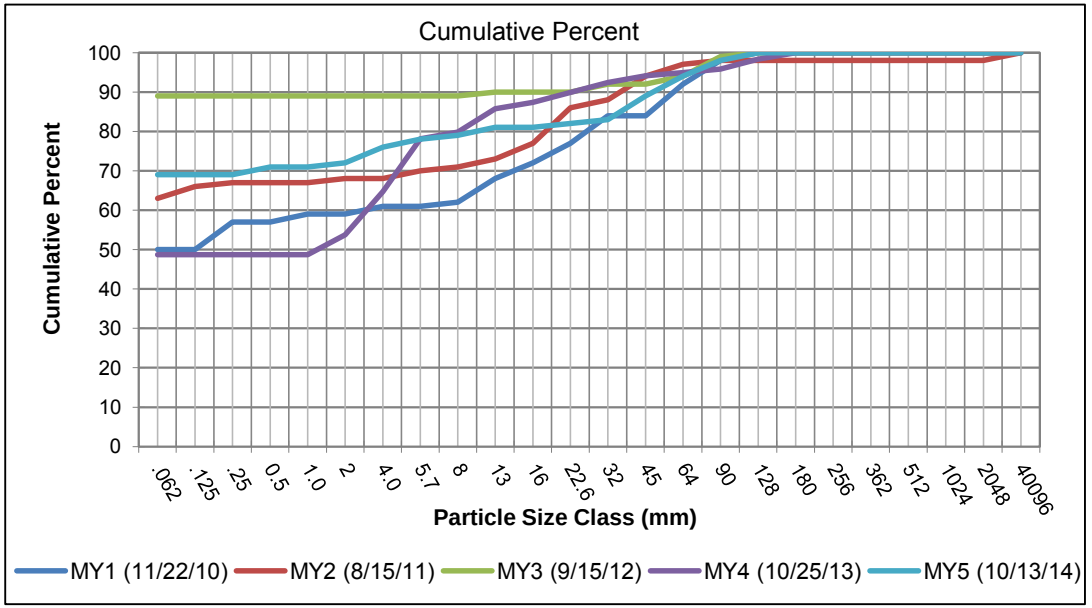


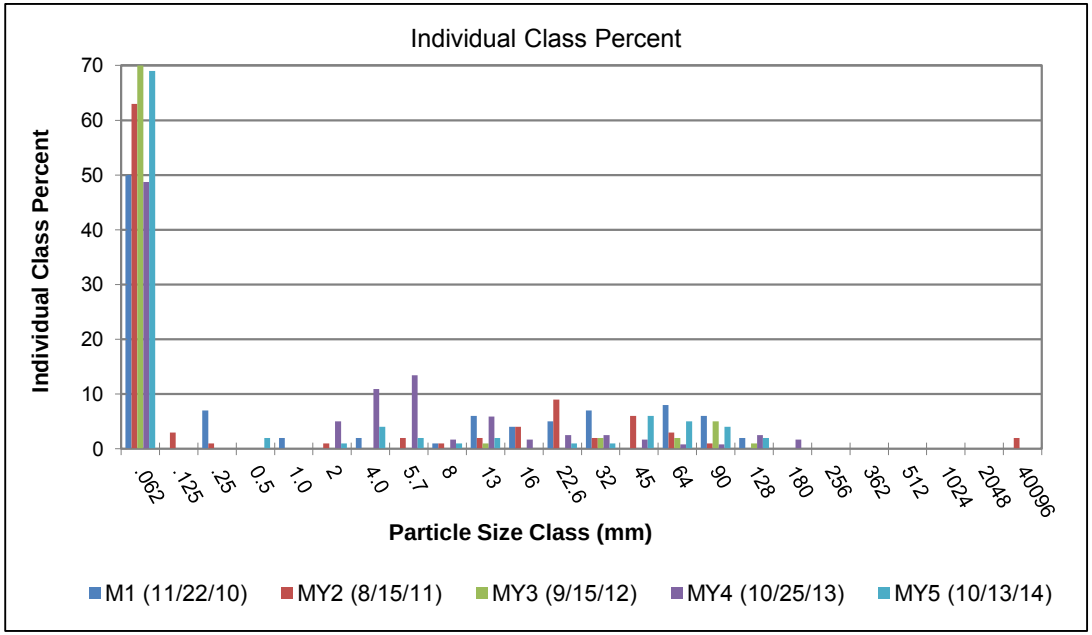
Cross-Section 1

Figure 7.2 Pebble Count Plot: X-Sec 2 -- MY5-2014 -- UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Two-Northern UT			2014		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	69	69	69
Sand	Very Fine Sand	.125	0	0	69
	Fine Sand	.25	0	0	69
	Medium Sand	0.5	2	2	71
	Coarse Sand	1.0	0	0	71
	Very Course Sand	2	1	1	72
Gravel	Very Fine Gravel	4.0	4	4	76
	Fine Gravel	5.7	2	2	78
	Fine Gravel	8	1	1	79
	Medium Gravel	13	2	2	81
	Medium Gravel	16	0	0	81
	Coarse Gravel	22.6	1	1	82
	Coarse Gravel	32	1	1	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	0	100
	Large Cobble	256	0	0	100
Boulder	Small Boulders	362	0	0	100
	Small Boulders	512	0	0	100
	Medium Boulders	1024	0	0	100
	Large Boulders	2048	0	0	100
Bedrock	Bedrock	40096	0	0	100
	Total		100		

Summary Data	
D50	0.062
D84	45
D95	90



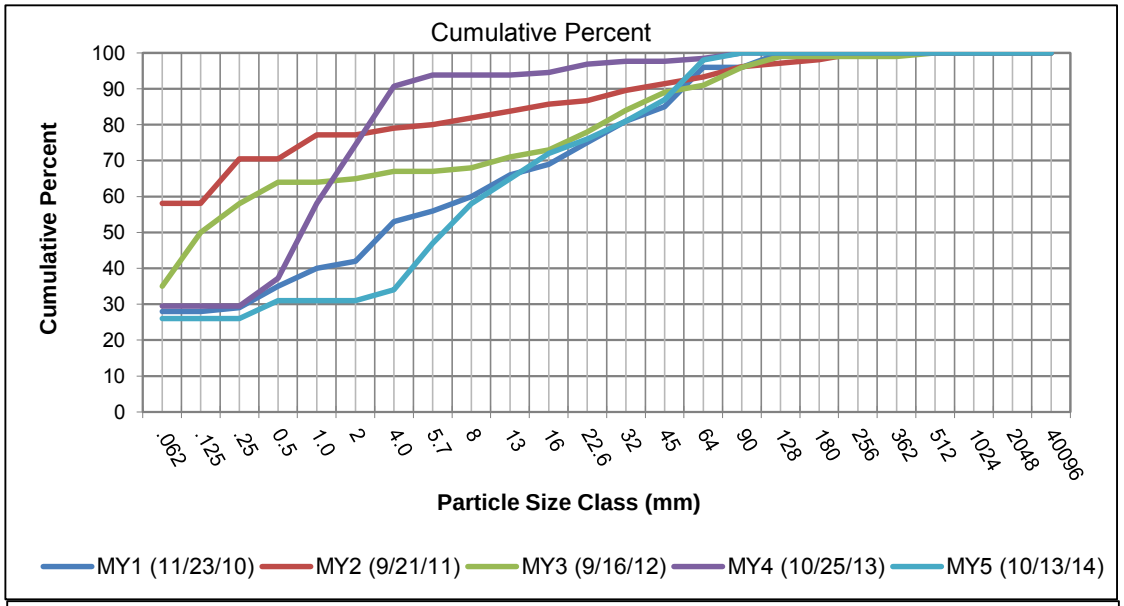


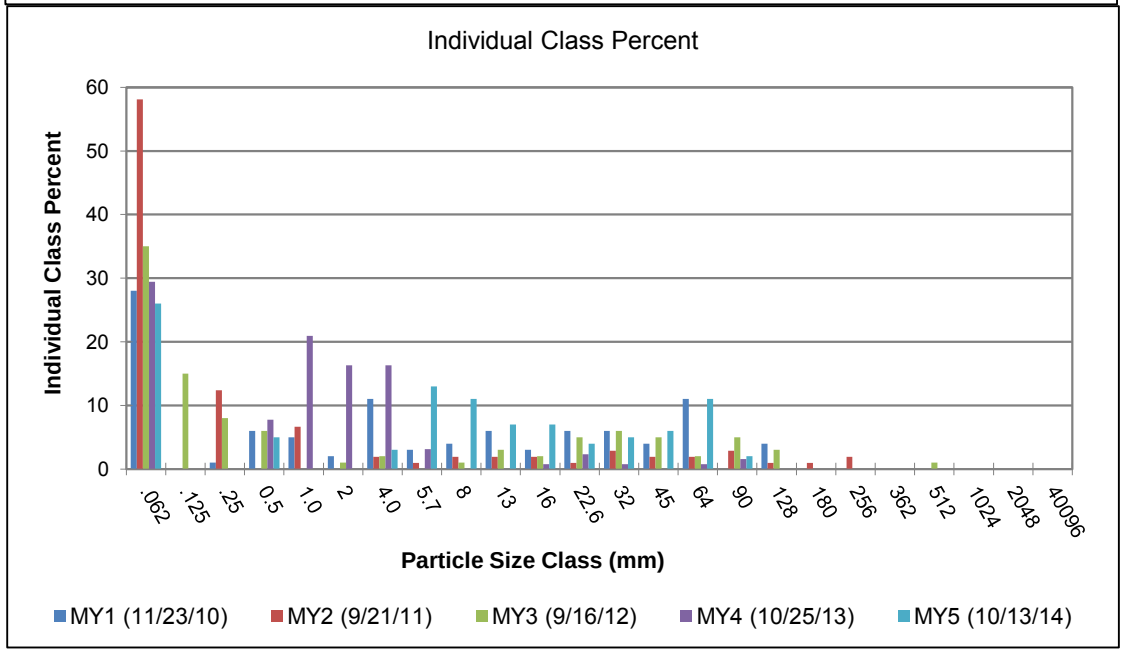
Cross-Section 2

Figure 7.3 Pebble Count Plot: X-Sec 3 -- MY5-2014 -- UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Three-Northern UT			2014		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	26	26	26
Sand	Very Fine Sand	.125	0	0	26
	Fine Sand	.25	0	0	26
	Medium Sand	0.5	5	5	31
	Coarse Sand	1.0	0	0	31
	Very Course Sand	2	0	0	31
Gravel	Very Fine Gravel	4.0	3	3	34
	Fine Gravel	5.7	13	13	47
	Fine Gravel	8	11	11	58
	Medium Gravel	13	7	7	65
	Medium Gravel	16	7	7	72
	Coarse Gravel	22.6	4	4	76
	Coarse Gravel	32	5	5	81
	Very Course Gravel	45	6	6	87
	Very Course Gravel	64	11	11	98
Cobble	Small Cobble	90	2	2	100
	Small Cobble	128	0	0	100
	Medium Cobble	180	0	0	100
	Large Cobble	256	0	0	100
Boulder	Small Boulders	362	0	0	100
	Small Boulders	512	0	0	100
	Medium Boulders	1024	0	0	100
	Large Boulders	2048	0	0	100
Bedrock	Bedrock	40096	0	0	100
	Total		100		

Summary Data	
D50	8
D84	45
D95	64



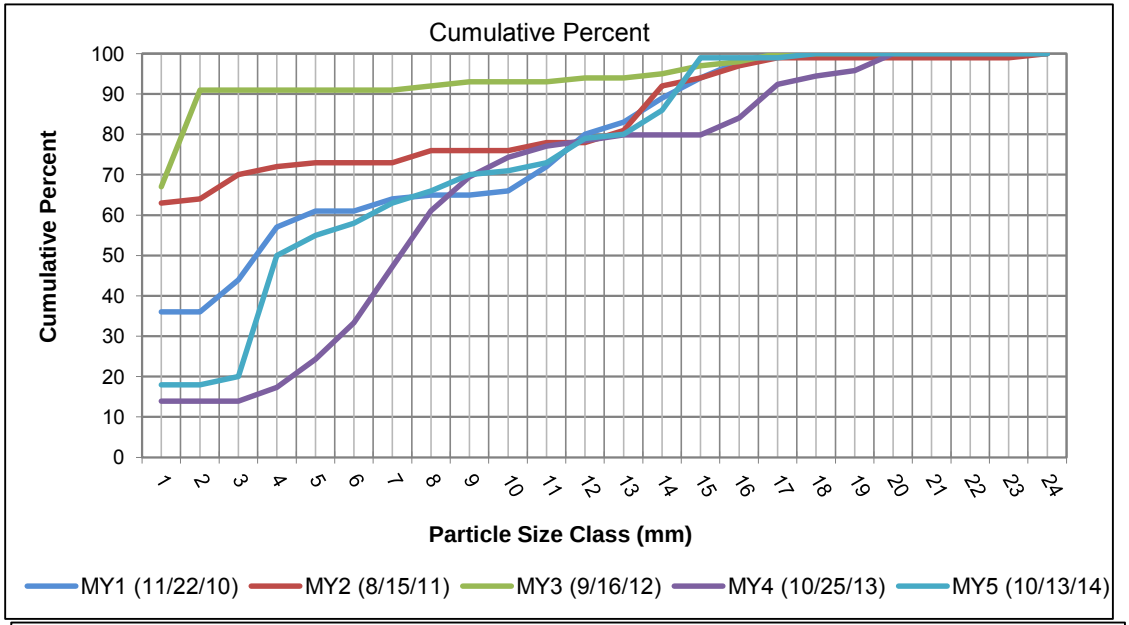


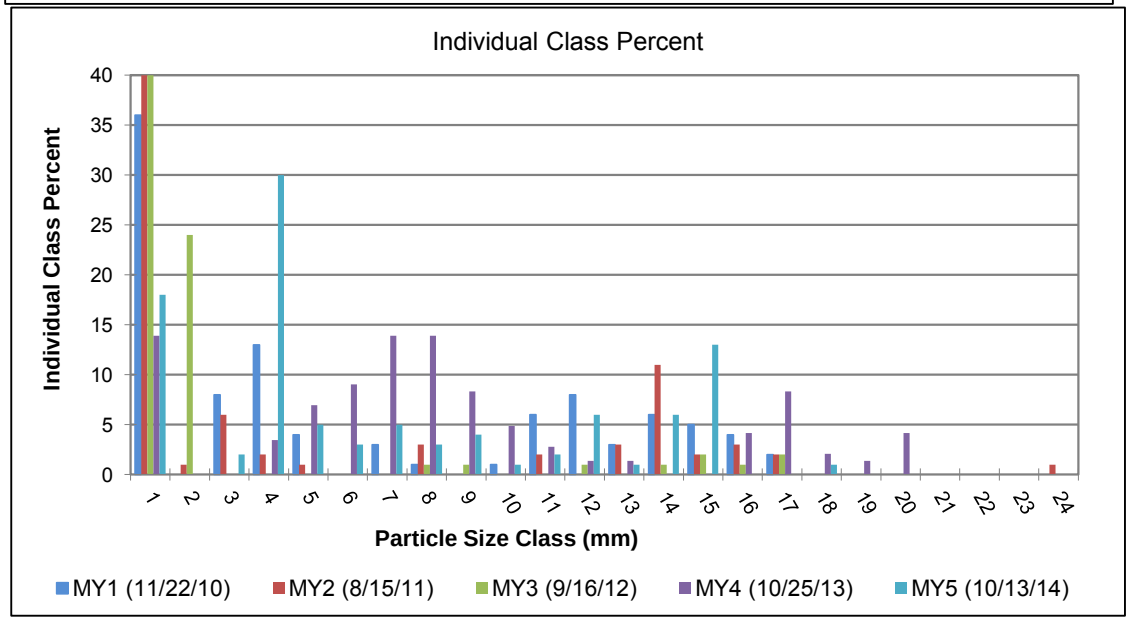
Cross-Section 3

Figure 7.4 Pebble Count Plot: X-Sec 4 -- MY5-2014 -- UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Four-Northern UT			2014		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	18	18	18
Sand	Very Fine Sand	.125	0	0	18
	Fine Sand	.25	2	2	20
	Medium Sand	0.5	30	30	50
	Coarse Sand	1.0	5	5	55
	Very Course Sand	2	3	3	58
Gravel	Very Fine Gravel	4.0	5	5	63
	Fine Gravel	5.7	3	3	66
	Fine Gravel	8	4	4	70
	Medium Gravel	13	1	1	71
	Medium Gravel	16	2	2	73
	Coarse Gravel	22.6	6	6	79
	Coarse Gravel	32	1	1	80
	Very Course Gravel	45	6	6	86
	Very Course Gravel	64	13	13	99
Cobble	Small Cobble	90	0	0	99
	Small Cobble	128	0	0	99
	Medium Cobble	180	1	1	100
	Large Cobble	256	0	0	100
Boulder	Small Boulders	362	0	0	100
	Small Boulders	512	0	0	100
	Medium Boulders	1024	0	0	100
	Large Boulders	2048	0	0	100
Bedrock	Bedrock	40096	0	0	100
	Total		100		

Summary Data	
D50	0.5
D84	45
D95	64



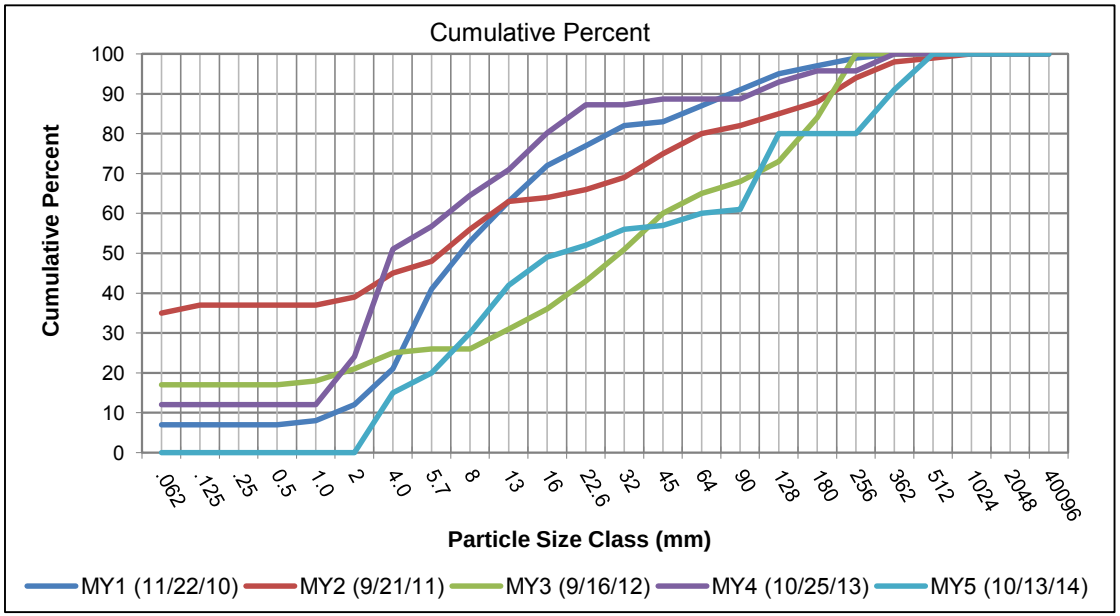


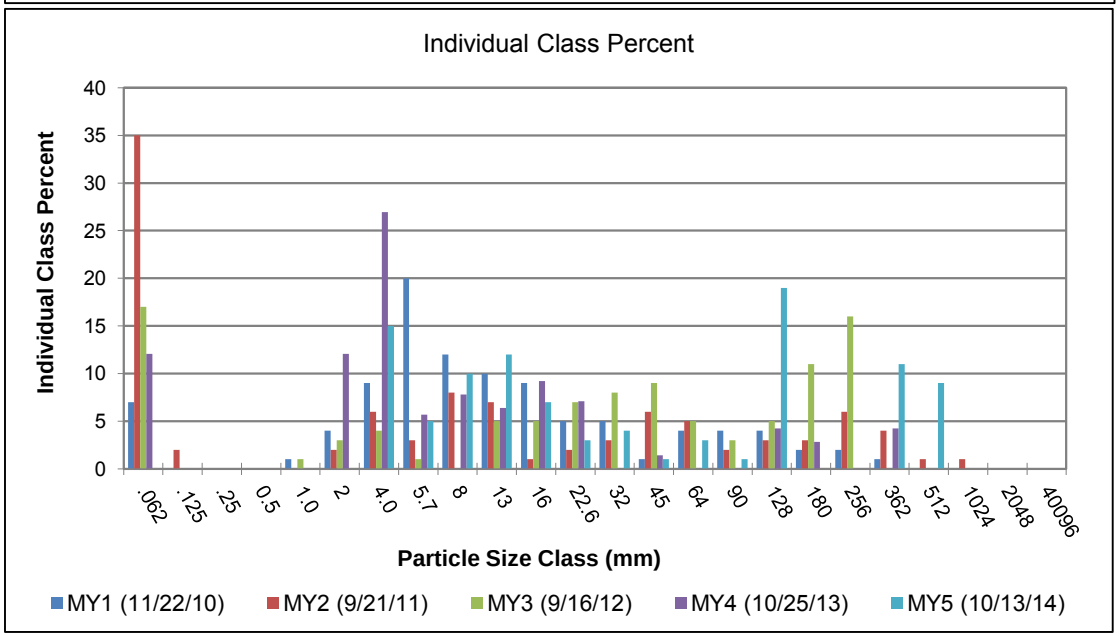
Cross-Section 4

Figure 7.5 Pebble Count Plot: X-Sec 5 -- MY5-2014 -- UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Five-Northern UT			2014		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	0	0	0
Sand	Very Fine Sand	.125	0	0	0
	Fine Sand	.25	0	0	0
	Medium Sand	0.5	0	0	0
	Coarse Sand	1.0	0	0	0
	Very Course Sand	2	0	0	0
Gravel	Very Fine Gravel	4.0	15	15	15
	Fine Gravel	5.7	5	5	20
	Fine Gravel	8	10	10	30
	Medium Gravel	13	12	12	42
	Medium Gravel	16	7	7	49
	Coarse Gravel	22.6	3	3	52
	Coarse Gravel	32	4	4	56
	Very Course Gravel	45	1	1	57
	Very Course Gravel	64	3	3	60
Cobble	Small Cobble	90	1	1	61
	Small Cobble	128	19	19	80
	Medium Cobble	180	0	0	80
	Large Cobble	256	0	0	80
Boulder	Small Boulders	362	11	11	91
	Small Boulders	512	9	9	100
	Medium Boulders	1024	0	0	100
	Large Boulders	2048	0	0	100
Bedrock	Bedrock	40096	0	0	100
	Total		100	100	

Summary Data	
D50	22.3
D84	362
D95	512



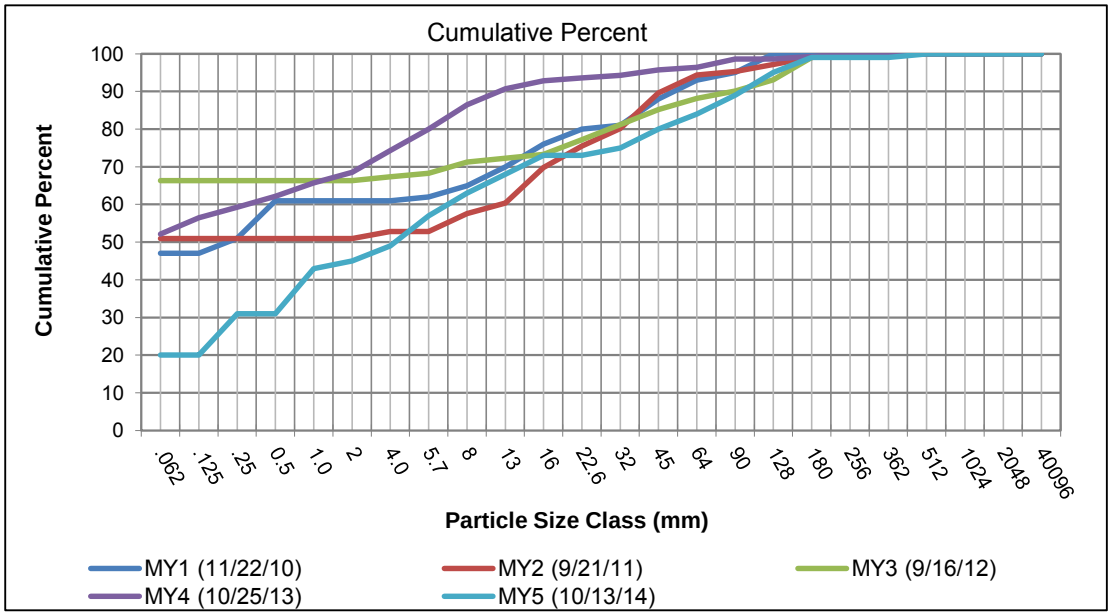


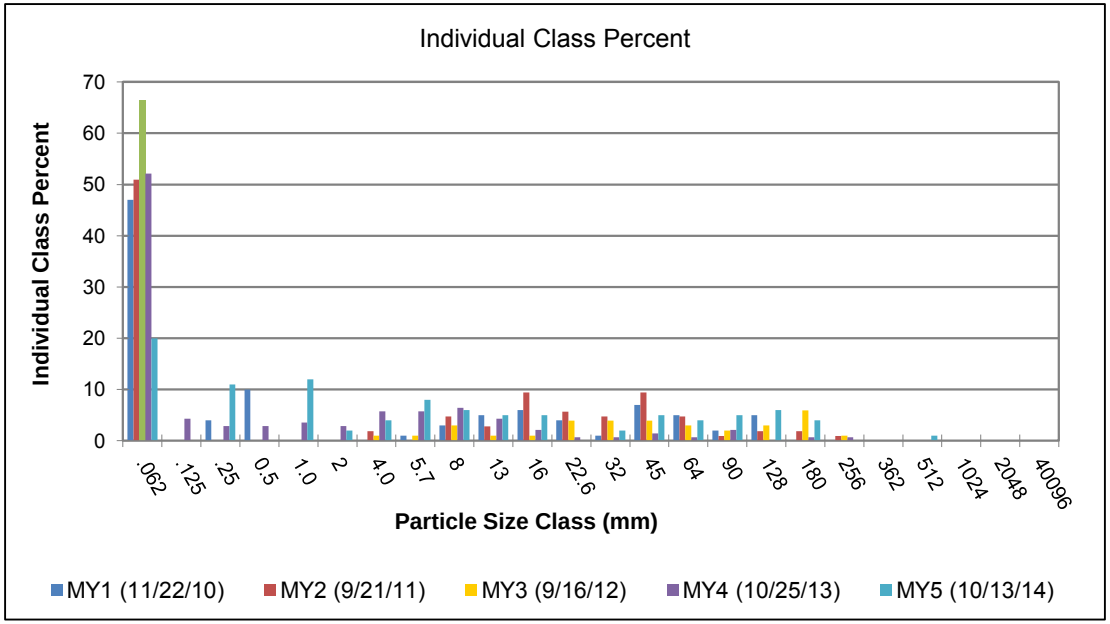
Cross-Section 5

Figure 7.6 Pebble Count Plot: X-Sec 6 -- MY5-2014 -- UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Six-Northern UT			2014		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	20	20	20
Sand	Very Fine Sand	.125	0	0	20
	Fine Sand	.25	11	11	31
	Medium Sand	0.5	0	0	31
	Coarse Sand	1.0	12	12	43
	Very Course Sand	2	2	2	45
Gravel	Very Fine Gravel	4.0	4	4	49
	Fine Gravel	5.7	8	8	57
	Fine Gravel	8	6	6	63
	Medium Gravel	13	5	5	68
	Medium Gravel	16	5	5	73
	Coarse Gravel	22.6	0	0	73
	Coarse Gravel	32	2	2	75
	Very Course Gravel	45	5	5	80
	Very Course Gravel	64	4	4	84
Cobble	Small Cobble	90	5	5	89
	Small Cobble	128	6	6	95
	Medium Cobble	180	4	4	99
	Large Cobble	256	0	0	99
Boulder	Small Boulders	362	0	0	99
	Small Boulders	512	1	1	100
	Medium Boulders	1024	0	0	100
	Large Boulders	2048	0	0	100
Bedrock	Bedrock	40096	0	0	100
	Total		100		

Summary Data	
D50	5.7
D84	64
D95	128



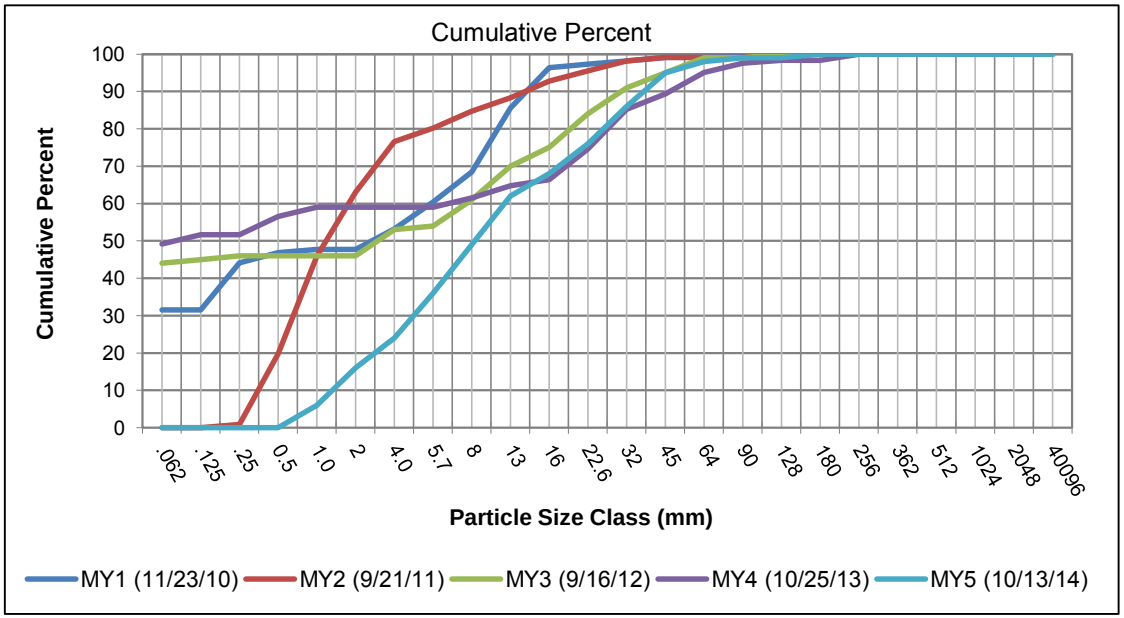


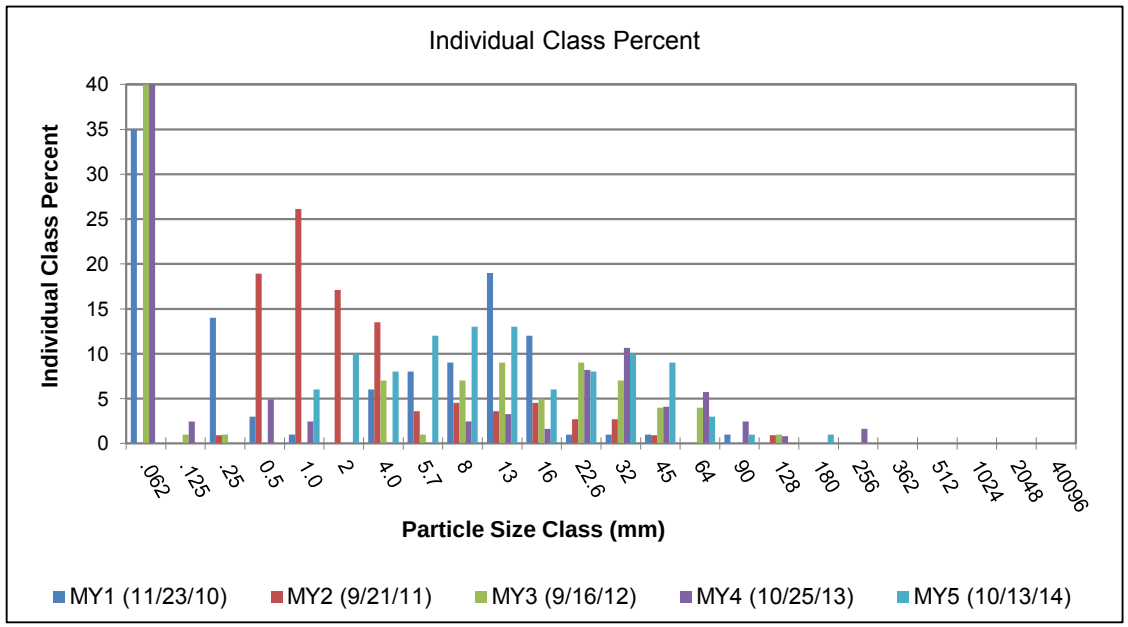
Cross-Section 6

Figure 7.7 Pebble Count Plot: X-Sec 7 -- MY5-2014 -- UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Seven-Southern UT			2014		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	0	0	0
Sand	Very Fine Sand	.125	0	0	0
	Fine Sand	.25	0	0	0
	Medium Sand	0.5	0	0	0
	Coarse Sand	1.0	6	6	6
	Very Course Sand	2	10	10	16
Gravel	Very Fine Gravel	4.0	8	8	24
	Fine Gravel	5.7	12	12	36
	Fine Gravel	8	13	13	49
	Medium Gravel	13	13	13	62
	Medium Gravel	16	6	6	68
	Coarse Gravel	22.6	8	8	76
	Coarse Gravel	32	10	10	86
	Very Course Gravel	45	9	9	95
	Very Course Gravel	64	3	3	98
Cobble	Small Cobble	90	1	1	99
	Small Cobble	128	0	0	99
	Medium Cobble	180	1	1	100
	Large Cobble	256	0	0	100
Boulder	Small Boulders	362	0	0	100
	Small Boulders	512	0	0	100
	Medium Boulders	1024	0	0	100
	Large Boulders	2048	0	0	100
Bedrock	Bedrock	40096	0	0	100
	Total		100		

Summary Data	
D50	11.3
D84	32
D95	45





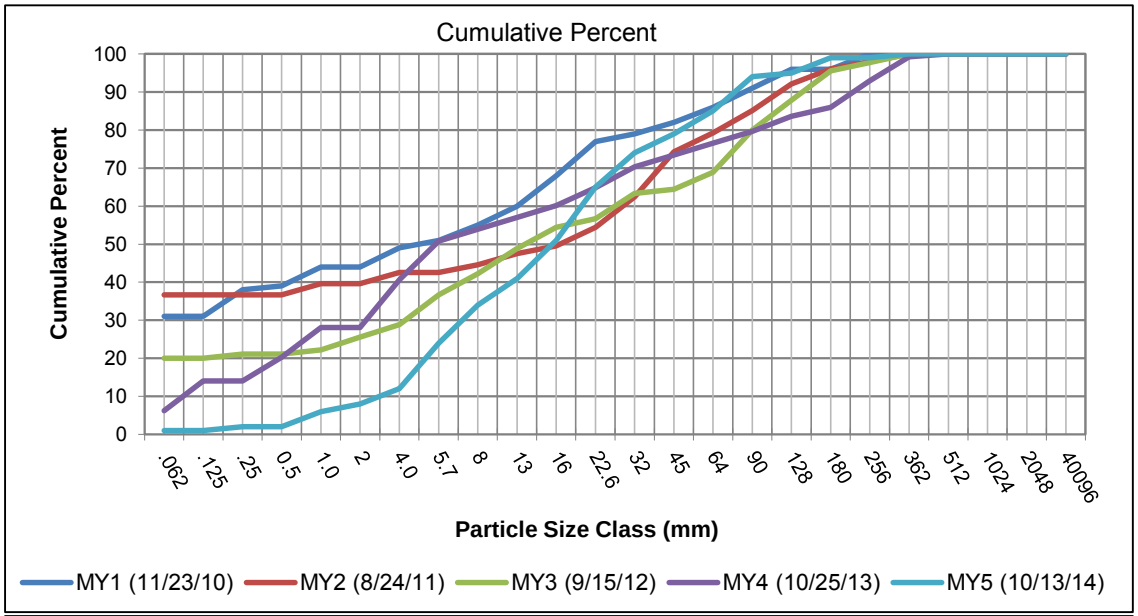
Cross-Section 7

Figure 7.8 Pebble Count Plot: X-Sec 8 -- MY5-2014 -- UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Eight-Southern UT			2014		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	1	1	1
Sand	Very Fine Sand	.125	0	0	1
	Fine Sand	.25	1	1	2
	Medium Sand	0.5	0	0	2
	Coarse Sand	1.0	4	4	6
	Very Course Sand	2	2	2	8
Gravel	Very Fine Gravel	4.0	4	4	12
	Fine Gravel	5.7	12	12	24
	Fine Gravel	8	10	10	34
	Medium Gravel	13	7	7	41
	Medium Gravel	16	10	10	51
	Coarse Gravel	22.6	14	14	65
	Coarse Gravel	32	9	9	74
	Very Course Gravel	45	5	5	79
	Very Course Gravel	64	6	6	85
Cobble	Small Cobble	90	9	9	94
	Small Cobble	128	1	1	95
	Medium Cobble	180	4	4	99
	Large Cobble	256	0	0	99
Boulder	Small Boulders	362	1	1	100
	Small Boulders	512	0	0	100
	Medium Boulders	1024	0	0	100
	Large Boulders	2048	0	0	100
Bedrock	Bedrock	40096	0	0	100
	Total		100		

Summary Data	
D50	16
D84	64
D95	128

Cross-Section 8



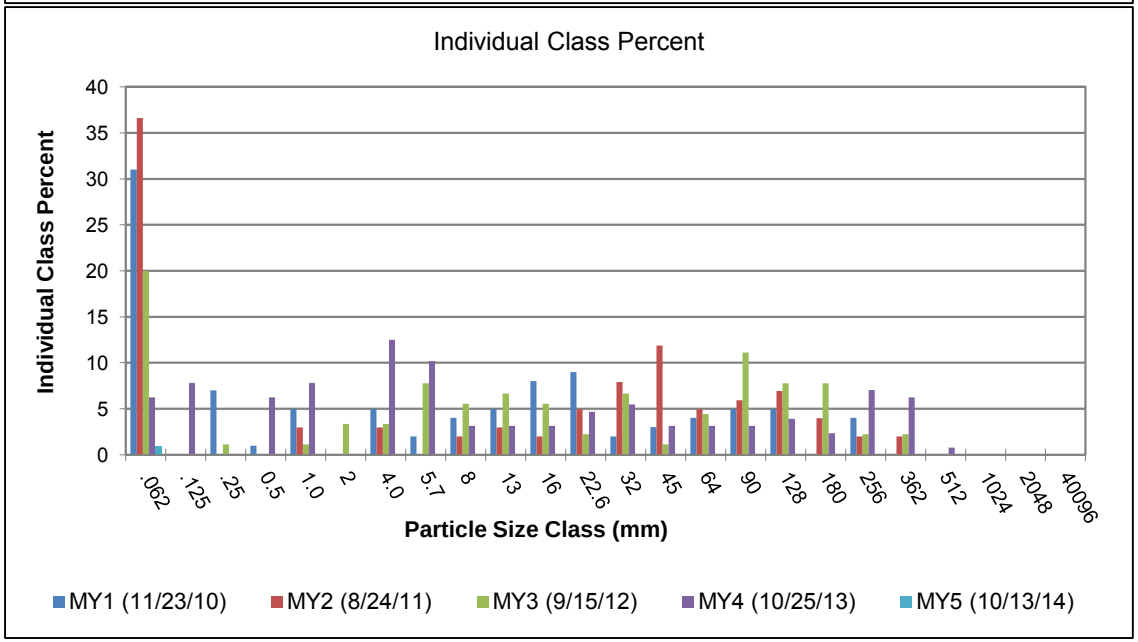
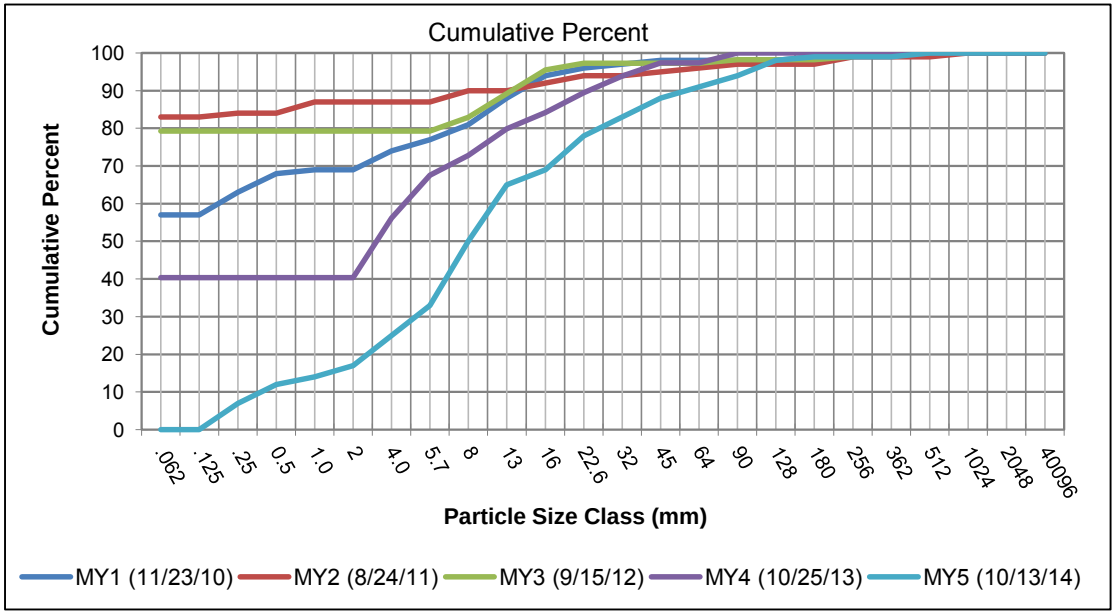
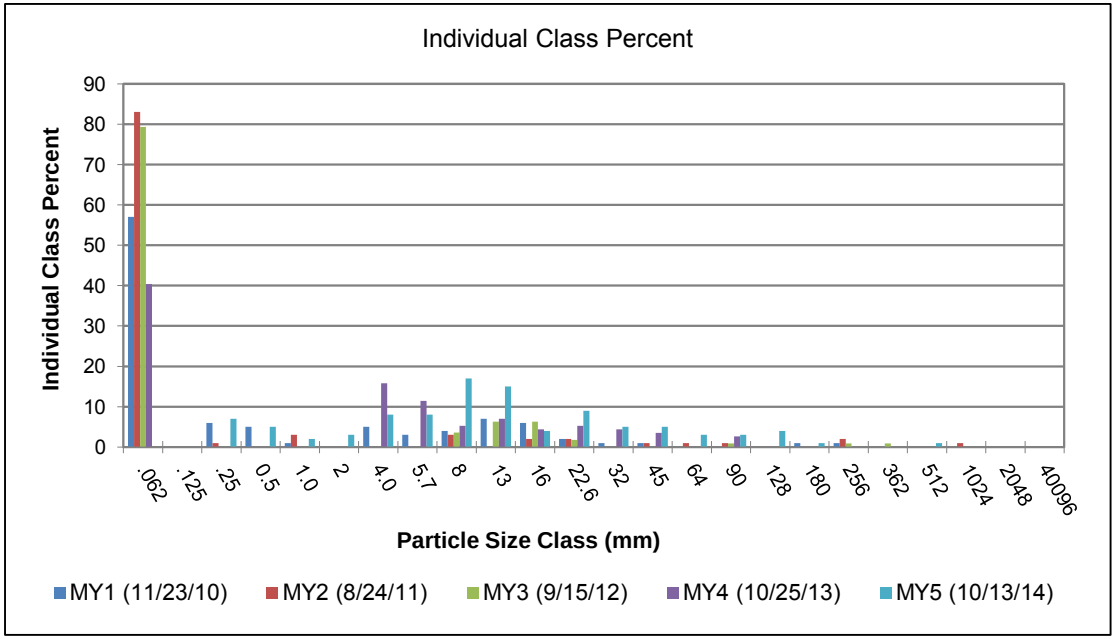


Figure 7.9 Pebble Count Plot: X-Sec 9 -- MY5-2014 -- UT to Bear Creek Stream Restoration (EEP Project #92347)

Cross Section Nine-Southern UT			2014		
Descript.	**Material**	**Size (mm)**	**Total #**	**Class %**	**Cum %**
Silt/Clay	Silt/Clay	.062	0	0	0
Sand	Very Fine Sand	.125	0	0	0
	Fine Sand	.25	7	7	7
	Medium Sand	0.5	5	5	12
	Coarse Sand	1.0	2	2	14
	Very Course Sand	2	3	3	17
Gravel	Very Fine Gravel	4.0	8	8	25
	Fine Gravel	5.7	8	8	33
	Fine Gravel	8	17	17	50
	Medium Gravel	13	15	15	65
	Medium Gravel	16	4	4	69
	Coarse Gravel	22.6	9	9	78
	Coarse Gravel	32	5	5	83
	Very Course Gravel	45	5	5	88
	Very Course Gravel	64	3	3	91
Cobble	Small Cobble	90	3	3	94
	Small Cobble	128	4	4	98
	Medium Cobble	180	1	1	99
	Large Cobble	256	0	0	99
Boulder	Small Boulders	362	0	0	99
	Small Boulders	512	1	1	100
	Medium Boulders	1024	0	0	100
	Large Boulders	2048	0	0	100
Bedrock	Bedrock	40096	0	0	100
	Total		100		

Summary Data	
D50	8
D84	45
D95	128





Cross-Section 9

e-Table. Raw Pebble Count Survey Data Sheets

Cross Section: 1 **Feature:** Riffle

Year:	Baseline	MY1	MY2	MY3	MY4	MY5
Date:	NA	11/23/2010		9/15/2012	10/25/2013	

Size	Total	Total	Total	Total	Total	Total
.062		75	92	99	75	32
.125		1				2
.25		1				0
0.5		2				14
1.0		0	1			7
2		0			7	4
4.0		2	1		5	5
5.7		3			2	8
8		0			2	2
13		2	1			4
16		1	2		2	5
22.6		2			3	1
32		2		1	2	2
45		0	1			2
64		1	1			7
90		3			2	1
128		1	1		2	3
180		4			3	1
256						0
362						0
512						0
1024						0
2048						0
40096						0
	0	100	100	100	105	100

Cross Section: 2 **Feature:** Riffle

Year:	Baseline	MY1	MY2	MY3	MY4	MY5
Date:	NA	11/23/2010		9/15/2012	10/25/2013	
Size	Total	Total	Total	Total	Total	Total
.062		50	63	89	58	69
.125		0	3			0
.25		7	1			0
0.5		0				2
1.0		2				0
2		0	1		6	1
4.0		2			13	4
5.7		0	2		16	2
8		1	1		2	1
13		6	2	1	7	2
16		4	4		2	0
22.6		5	9		3	1
32		7	2	2	3	1
45		0	6		2	6
64		8	3	2	1	5
90		6	1	5	1	4
128		2		1	3	2
180					2	0
256						0
362						0
512						0
1024						0
2048						0
40096			2			0
	0	100	100	100	119	100

Cross Section: 3 **Feature:** Pool

Year:	Baseline	MY1	MY2	MY3	MY4	MY5
Date:	NA	11/23/2010		9/16/2012	10/25/2013	
Size	Total	Total	Total	Total	Total	Total
.062		28	61	35	38	26
.125		0	0	15		0
.25		1	13	8		0
0.5		6	0	6	10	5
1.0		5	7		27	0
2		2	0	1	21	0
4.0		11	2	2	21	3
5.7		3	1		4	13
8		4	2	1		11
13		6	2	3		7
16		3	2	2	1	7
22.6		6	1	5	3	4
32		6	3	6	1	5
45		4	2	5		6
64		11	2	2	1	11
90		0	3	5	2	2
128		4	1	3		0
180			1			0
256			2			0
362						0
512				1		0
1024						0
2048						0
40096						0
	0	100	105	100	129	

Cross Section: 4 **Feature:** Riffle

Year:	Baseline	MY1	MY2	MY3	MY4	MY5
Date:	4/20/2010	11/23/2010		9/16/2012	10/25/2013	
Size	Total	Total	Total	Total	Total	Total
.062	37	36	63	67	20	18
.125	1	0	1	24		0
.25	2	8	6			2
0.5	12	13	2		5	30
1.0	5	4	1		10	5
2	5	0			13	3
4.0	6.0	3			20	5
5.7	3	1	3	1	20	3
8	0	0		1	12	4
13	2	1			7	1
16	2	6	2		4	2
22.6	3	8		1	2	6
32	5	3	3		2	1
45	2	6	11	1		6
64	7	5	2	2		13
90	4	4	3	1	6	0
128	3	2	2	2	12	0
180	1				3	1
256					2	0
362					6	0
512						0
1024						0
2048						0
40096			1			0
	100	100	100	100	144	

Cross Section: 5 **Feature:** Pool

Year:	Baseline	MY1	MY2	MY3	MY4	MY5
Date:	NA	11/23/2010		9/16/2012	10/25/2013	

Size	Total	Total	Total	Total	Total	Total
.062		7	35	17	17	0
.125		0	2			0
.25		0	0			0
0.5		0	0			0
1.0		1	0	1		0
2		4	2	3	17	0
4.0		9	6	4	38	15
5.7		20	3	1	8	5
8		12	8		11	10
13		10	7	5	9	12
16		9	1	5	13	7
22.6		5	2	7	10	3
32		5	3	8		4
45		1	6	9	2	1
64		4	5	5		3
90		4	2	3		1
128		4	3	5	6	19
180		2	3	11	4	0
256		2	6	16		0
362		1	4		6	11
512			1			9
1024			1			0
2048						0
40096						0
		0	100	100	100	141

Cross Section: 6 **Feature:** Riffle

Year:	Baseline	MY1	MY2	MY3	MY4	MY5
Date:	NA	11/23/2010		9/16/2012	10/25/2013	

Size	Total	Total	Total	Total	Total	Total
.062		47	54	67	73	20
.125		0	0		6	0
.25		4	0		4	11
0.5		10	0		4	0
1.0		0	0		5	12
2		0	0		4	2
4.0		0	2	1	8	4
5.7		1	0	1	8	8
8		3	5	3	9	6
13		5	3	1	6	5
16		6	10	1	3	5
22.6		4	6	4	1	0
32		1	5	4	1	2
45		7	10	4	2	5
64		5	5	3	1	4
90		2	1	2	3	5
128		5	2	3		6
180			2	6	1	4
256			1	1	1	0
362						0
512						1
1024						0
2048						0
40096						0
	0	100	106	101	140	

Cross Section: 7 **Feature:** Riffle

Year:	Baseline	MY1	MY2	MY3	MY4	MY5
Date:	NA	11/23/2010		9/16/2012	10/25/2013	

Size	Total	Total	Total	Total	Total	Total
.062		35	0	44	60	0
.125		0	0	1	3	0
.25		14	1	1		0
0.5		3	21		6	0
1.0		1	29		3	6
2		0	19			10
4.0		6	15	7		8
5.7		8	4	1		12
8		9	5	7	3	13
13		19	4	9	4	13
16		12	5	5	2	6
22.6		1	3	9	10	8
32		1	3	7	13	10
45		1	1	4	5	9
64		0	0	4	7	3
90		1	0		3	1
128			1	1	1	0
180						1
256					2	0
362						0
512						0
1024						0
2048						0
40096						0
		0	111	111	100	122

Cross Section: 8 **Feature:** Riffle

Year:	Baseline	MY1	MY2	MY3	MY4	MY5
Date:	NA	11/23/2010		9/15/2012	10/25/2013	
Size	Total	Total	Total	Total	Total	Total
.062		31	37	18	8	1
.125		0			10	0
.25		7		1		1
0.5		1			8	0
1.0		5	3	1	10	4
2		0		3		2
4.0		5	3	3	16	4
5.7		2		7	13	12
8		4	2	5	4	10
13		5	3	6	4	7
16		8	2	5	4	10
22.6		9	5	2	6	14
32		2	8	6	7	9
45		3	12	1	4	5
64		4	5	4	4	6
90		5	6	10	4	9
128		5	7	7	5	1
180		0	4	7	3	4
256		4	2	2	9	0
362			2	2	8	1
512					1	0
1024						0
2048						0
40096						0
			100	101	90	128

Cross Section: 9 **Feature:** Pool

Year:	Baseline	MY1	MY2	MY3	MY4	MY5
Date:	NA	11/23/2010		9/15/2012	10/25/2013	
Size	Total	Total	Total	Total	Total	Total
.062		57	83	88	46	0
.125		0				0
.25		6	1			7
0.5		5				5
1.0		1	3			2
2		0				3
4.0		5			18	8
5.7		3			13	8
8		4	3	4	6	17
13		7		7	8	15
16		6	2	7	5	4
22.6		2	2	2	6	9
32		1			5	5
45		1	1		4	5
64		0	1			3
90		0	1	1	3	3
128		0				4
180		1				1
256		1	2	1		0
362				1		0
512						1
1024			1			0
2048						0
40096						0
		100	100	111	114	

Table 9.1 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 9.2 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 10.1 Monitoring Data - Dimensional Morphology Summary (Dimensional Parameters – Cross Sections)

UT to Bear Creek (NCEEP# 92347) - Northern UT (2,975 feet)

	Cross Section 1 (N: Riffle)							Cross Section 2 (N: Riffle)							Cross Section 3 (N: 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+
Record elevation (datum) used	100	100	100	100	100	100		100	100	100	100	100	100		100	100	100	100	100	100	
Bankfull Width (ft)	18.5	18.4	18.5	20.1	21.2	19.68		18.3	18.6	17.9	20.7	20.8	19.01		20.0	21.0	19.0	20.1	20.3	32.6	
Floodprone Width (ft)	100.0	100.0	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0	100.0	100.0	
Bankfull Mean Depth (ft)	1.4	1.4	1.4	1.2	1.2	1.2		1.3	1.3	1.3	1.1	1.2	1.1		2.2	2.1	2.2	2.3	2.2	2.1	
Bankfull Max Depth (ft)	2.2	2.2	2.2	2.1	2.1	2.3		2.1	2.0	2.1	1.8	2.0	2.1		3.9	3.8	3.9	4.0	3.7	3.8	
Bankfull Cross Sectional Area (ft^2)	26.3	25.8	25.5	23.3	23.4	28.41		24.0	23.9	23.3	21.7	22.5	27.30		44.2	44.8	42.0	45.9	43.9	69.3	
Bankfull Width/Depth Ratio	13.0	13.2	13.4	17.4	17.3	16.4		13.9	14.4	13.8	19.8	17.3	17.3		9.1	9.9	8.6	8.8	9.0	15.8	
Bankfull Entrenchment Ratio	5.4	5.4	5.4	5.0	5.0	5.1		5.5	5.4	5.6	4.8	4.8	5.3		5.0	4.8	5.3	5.0	5.1	3.1	
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	
Cross Sectional Area between end pins (ft^2)	75.3	76.9	75.7	71.1	72.8	71.1		96.9	96.5	91.4	76.9	78.3	76.9		119.5	115.9	105.0	84.2	86.2	84.2	
d50 (mm)		0.04	0.03	0.03	0.06	1.0			0.06	0.05	0.04	0.9	0.06			3.5	0.05	0.13	1.1	8	
	Cross Section 4 (N: Riffle)							**Cross Section 5 (N: Pool)**							**Cross Section 6 (N: Riffle)**						
Based on fixed baseline bankfull elevation[1]	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+	Base	MY1	MY2	MY3	MY4	MY5	MY+
Record elevation (datum) used	100	100	100	100	100	100		100	100	100	100	100	100		100	100	100	100	100	100	
Bankfull Width (ft)	20.3	19.1	20.9	19.6	20.8	19.1		22.9	22.2	24.7	25.3	25.4	22.8		18.9	19.1	22.8	20.6	21.3	20.6	
Floodprone Width (ft)	100.0	100.0	100.0	100.0	100.0	100.0		220.0	220.0	220.0	220.0	220.0	220.0		220.0	220.0	220.0	220.0	220.0	220.0	
Bankfull Mean Depth (ft)	1.5	1.5	1.4	1.4	1.5	1.4		1.5	1.6	1.4	1.4	1.4	1.6		1.2	1.1	1.2	1.1	1.2	1.1	
Bankfull Max Depth (ft)	2.4	2.3	2.3	2.2	2.4	2.6		3.8	3.8	3.7	3.7	3.6	3.1		1.9	1.9	2.1	1.9	2.0	1.9	
Bankfull Cross Sectional Area (ft^2)	29.5	28.0	29.6	26.9	27.9	31.6		33.3	34.9	35.6	34.0	34.6	28.2		23.0	21.4	26.2	22.9	24.0	23.9	
Bankfull Width/Depth Ratio	14.0	13.1	14.8	14.3	13.9	13.6		15.7	14.1	17.1	18.8	18.9	14.4		15.6	17.0	19.9	18.6	17.8	18.5	
Bankfull Entrenchment Ratio	4.9	5.2	4.8	5.1	4.9	5.2		9.6	9.9	8.9	8.7	8.7	9.7		11.6	11.6	9.6	10.7	10.3	10.7	
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0	1.0	1.0	
Cross Sectional Area between end pins (ft^2)	115.9	105.0	84.2	50.4	55.8	50.4		66.5	59.5	66.6	61.9	63.0	61.9		55.9	56.5	51.8	33.2	38.7	33.2	
d50 (mm)		0.37	0.37	0.05	4.2	0.5			7.42	6.27	30.83	3.95	22.3			0.22	0.06	0.05	0.08	5.7	

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

UT to Bear Creek (NCEEP# 92347) - Southern UT (1,700 feet)

	Cross Section 7 (S: Riffle)						Cross Section 8 (S: Riffle)						Cross Section 9 (S: Pool)					
Based on fixed baseline bankfull elevation[1]	Base	MY1	MY2	MY3	MY4	MY5	Base	MY1	MY2	MY3	MY4	MY5	Base	MY1	MY2	MY3	MY4	MY5
Record elevation (datum) used	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Bankfull Width (ft)	13.7	12.2	11.1	10.4	17.4	8.8	13.5	17.0	16.3	8.5	16.0	9.8	18.5	21.0	23.6	22.7	22.5	20.4
Floodprone Width (ft)	100.0	100.0	100.0	100.0	100.0	100.0	50.0	50.0	50.0	50.0	50.0	50.0	115.9	105.0	84.2	100.0	100.0	50.0
Bankfull Mean Depth (ft)	0.4	0.5	0.6	0.6	0.7	0.6	0.6	0.5	0.5	0.8	0.9	0.8	1.1	1.1	1.0	1.1	1.1	1.1
Bankfull Max Depth (ft)	1.3	1.5	1.5	1.5	1.6	1.5	1.4	1.5	1.5	1.4	1..6	1.5	2.7	2.9	2.9	3.0	3.0	2.5
Bankfull Cross Sectional Area (ft^2)	6.1	6.0	6.2	6.2	6.9	8.9	7.8	8.2	8.9	7.0	9.4	9.8	20.7	22.9	23.2	23.8	23.0	14.7
Bankfull Width/Depth Ratio	31.1	24.9	19.9	17.7	24.8	14.6	23.3	35.5	30.2	10.3	17.8	12.2	16.6	19.3	24.0	21.8	20.5	18.6
Bankfull Entrenchment Ratio	7.3	8.2	9.0	9.6	9.6	11.4	3.7	2.9	3.1	5.9	3.1	5.1	6.1	5.0	3.6	4.2	4.3	2.4
Bankfull Bank Height Ratio	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Cross Sectional Area between end pins (ft^2)	23.7	24.2	23.1	13.5	21.5	13.5	42.6	44.2	46.4	26.2	43.8	26.2	95.8	93.9	97.2	59.3	59.3	59.3
d50 (mm)		2.8	1.2	3.1	0.1	11.3		4.9	16.7	12.2	5.2	16		0.05	0.04	0.04	3.2	8

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

Table 11.1 Monitoring Data - Stream Reach Morphology Data Summary 2010-2014
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	17.9	20.0	19.7	22.8	2.3	4	19.6	20.3	20.4	20.7	0.5	4	19.6	20.3	20.4	20.7	0.5	4	19.0	19.6	19.4	20.6	0.7	4.0
Floodprone Width (ft)	100	130	100	220	60	4	100	130	100	220	60	4	100	130	100	220	60	4	100	130	100	220	60	4	100	130	100	220	60	4	100.0	130.0	100.0	220.0	60.0	4.0
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	1.2	1.3	1.3	1.4	0.1	4	1.1	1.2	1.1	1.4	0.1	4	1.1	1.2	1.2	1.4	0.1	4	1.1	1.2	1.2	1.4	0.1	4.0
[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	2.1	2.2	2.1	2.3	0.1	4	1.8	2.0	2.0	2.2	0.2	4	1.8	2.0	2.0	2.2	0.2	4	1.9	2.2	2.2	2.6	0.3	4.0
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	23.3	26.1	25.9	29.6	2.6	4	21.7	23.7	23.1	26.9	2.2	4	21.7	23.7	23.1	26.9	2.2	4	23.9	27.8	27.9	31.6	3.2	4.0
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	13.4	15.5	14.3	19.9	3.0	4	14.3	17.5	18.0	19.8	2.4	4	14.3	17.5	18.0	19.8	2.4	4	13.6	16.4	16.8	18.5	2.0	4.0
Entrenchment Ratio	4.9	6.9	5.4	11.6	3.2	4	5.2	6.9	5.4	11.6	3.1	4	4.8	6.4	5.5	9.6	2.2	4	4.8	6.4	5.0	10.7	2.9	4	4.8	6.4	5.1	10.7	2.9	4	5.1	6.6	5.2	10.7	2.8	4.0
[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	1.0	1.0	1.0	1.0	0.0	4	1.0	1.0	1.0	1.0	0.0	4	1.0	1.0	1.0	1.0	0.0	4	1.0	1.0	1.0	1.0	0.0	4.0
Profile																																				
Riffle Length (ft)	13.9	33.8	35.7	67.0	12.0	21	10	30.3	30.0	54.5	12.1	21	9	31.14	28.5	81.5	14.0	25	20	39.6	34.5	73	18.0	22	14.0	45.5	42.8	117.2	20.5	31	24.56	51.85	48.34	108.2	19.72	24
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	0.005	0.01	0.01	0.05	0.01	25	0.003	0.01	0.01	0.02	0.01	22	0.004	0.01	0.01	0.025	0.006	31	0.004	0.284	0.191	1.459	0.361	24
Pool Length (ft)	28.7	58.2	58.7	112.8	18.9	23	22	35.1	32.5	80	15.5	31	22	36.37	34.5	80	16.3	31	26	45.1	38	83	22.5	31	22.9	45.3	41.8	94.6	15.0	32	15.21	34.96	33.13	73.97	12.28	24
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	1.9	3.1	3.1	3.9	0.5	31	2.15	3.2	3.29	4.05	0.51	29	0.41	1.19	1.29	1.92	0.4	32	NA	NA	NA	NA	NA	24
Pool Spacing (ft)	42.6	131	103	309	75.8	22	52	92.3	85.5	172	41.7	30	52	91.4	82.8	174	40.7	31	4	99.0	87.5	179	47.3	28	47.5	91.1	83.8	162.7	30.6	31	10.14	50.71	38.63	177.5	39.72	24
Pattern																																				
Channel Beltwidth (ft)	28.86	62.54	61.35	112.3	19.41	20																														
Radius of Curvature (ft)	31.6	57.53	53.58	98.16	17.48	22																														
Rc:Bankfull width (ft/ft)	1.6	2.9	2.7	4.96	0.88	22																														
Meander Wavelength (ft)	166	227.1	225.8	310.3	34.59	21																														
Meander Width Ratio	1.46	3.16	3.1	5.67	0.98	20																														

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						C5						C4						C4						C4					
Channel Thalweg length (ft)	2975						3041						3036						3064						2960						2926					
Sinuosity (ft)	1.1						1.13						1.13						1.14						1.14						1.14					
Water Surface Slope (Channel) (ft/ft)	--						0.003						0.004						0.004						0.003						0.003					
BF slope (ft/ft)	0.003						0.003						0.003						0.003						0.003						0.003					
[3]Ri% / Ru% / P% / G% / S%	29	14	56	1	0		21	16	37	9	0		31	16	44	9	0		29.7	11	47.7	11.5	0		30	11	48	12	0		30	11	43	12	0	
[3]SC% / Sa% / G% / C% / B% / Be%													56	9	28	6	1		62.22	9.667	17.3	10.65	0.167	0	62	10	17	11	0	0	28	17	45	9	1	0
[3]d16 / d35 / d50 / d84 / d95 /													0.022	0.042	1.1383	36.62	96.18		0.025	2.537	5.188	42.24	96.04		0	3	5	42	96		1	3.1	6.3	97.2	153.7	
[2]% of Reach with Eroding Banks	3						2						2						1						1						1					
Channel Stability or Habitat Metric	--						--						--						--						--						--					
Biological or Other	--						--						--						--						--						--					

Shaded cells indicate that these will typically not be filled in.
1 = The distributions for these parameters can include information from both the cross-section surveys and the longitudinal profile.
2 = Proportion of reach exhibiting banks that are eroding based on the visual survey from visual assessment table
3 = Riffle, Run, Pool, Glide, Step; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave
4. = Of value/needed only if the n exceeds 3

Table 11.2 Monitoring Data - Stream Reach Morphology Data Summary 2010-2014
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)	13.5	13.6	13.6	13.7	--	2	12.2	14.6	14.6	17.0	--	2	11.1	13.7	13.7	16.3	--	2	4.0	7.2	7.2	10.4	--	2	8.5	9.5	9.5	10.4	1.3	2	8.8	9.3	9.3	9.8	0.7	2.0
Floodprone Width (ft)	50.0	75.0	75.0	100.0	--	2	50.0	75.0	75.0	100.0	--	2	50.0	75.0	75.0	100.0	--	2	50.0	75.0	75.0	100.0	--	2	50.0	75.0	75.0	100.0	35.4	2	50.0	75.0	75.0	100.0	35.4	2.0
Bankfull Mean Depth (ft)	0.4	0.5	0.5	0.6	--	2	0.5	0.5	0.5	0.5	--	2	0.5	0.6	0.6	0.6	--	2	0.6	0.7	0.7	0.8	--	2	0.6	0.7	0.7	0.8	0.1	2	0.6	0.7	0.7	0.8	0.1	2.0
[1]Bankfull Max Depth (ft)	1.3	1.3	1.3	1.4	--	2	1.5	1.5	1.5	1.5	--	2	1.5	1.5	1.5	1.5	--	2	1.4	1.4	1.4	1.5	--	2	1.4	1.5	1.5	1.5	0.1	2	1.5	1.5	1.5	1.5	0.0	2.0
Bankfull Cross Sectional Area (ft^2)	6.1	6.9	6.9	7.8	--	2	6.0	7.1	7.1	8.2	--	2	6.2	7.5	7.5	8.9	--	2	6.2	6.6	6.6	7.0	--	2	6.2	6.6	6.6	7.0	0.6	2	8.9	9.3	9.3	9.8	0.7	2.0
Width/Depth Ratio	23.3	27.2	27.2	31.1	--	2	24.9	30.2	30.2	35.5	--	2	19.9	25.0	25.0	30.2	--	2	10.3	14.0	14.0	17.7	--	2	10.3	14.0	14.0	17.7	5.2	2	12.2	13.4	13.4	14.6	1.7	2.0
Entrenchment Ratio	3.7	5.5	5.5	7.3	--	2	2.9	5.6	5.6	8.2	--	2	3.1	6.0	6.0	9.0	--	2	5.9	7.7	7.7	9.6	--	2	5.9	7.8	7.8	9.6	2.6	2	5.1	8.3	8.3	11.4	4.5	2.0
[1]Bank Height Ratio	1.0	1.0	1.0	1.0	--	2	1.0	1.0	1.0	1.0	--	2	1.0	1.0	1.0	1.0	--	2	1.0	1.0	1.0	1.0	--	2	1.0	1.0	1.0	1.0	0.0	2	1.0	1.0	1.0	1.0	0.0	2.0
Profile																																				
Riffle Length (ft)	9.0	20.9	17.6	40.2	8.9	13	3.5	10.67	10	24	4.4	27	3.5	11.45	9.75	29	4.85	28	5	15.87	16	31	6.877	23	12.7	48.7	30.9	222.3	51.4	19	11.9	19.86	20.29	30.05	6.398	9
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	0.002	0.03	0.02	0.13	0.018	28	0.004	0.077	0.022	1.006	0.091	23	0.00	0.08	0.02	1.01	0.09	19	0.071	0.456	0.477	0.88	0.267	9
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	4	14.73	13	34.5	7.398	49	7	19.54	19	40	10.29	39	3.84	20.7	20.0	44.9	9.1	34	0.022	11.46	7.75	30.88	11.06	9
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	1.32	2.1	2.07	3.18	0.396	48	0.911	2.191	2.117	4.037	0.536	39	0.1	0.67	0.58	3.21	0.4	33	NA	NA	NA	NA	NA	9
Pool Spacing (ft)	15.9	49.1	41.8	169.3	34.3	29	9.5	33.71	32	112	18.12	47	6.5	33.04	29.25	113.5	17.83	48	4	42.95	33	183	27.78	38	2.5	50.6	41.9	227.6	43.8	33	3.132	106.5	49.06	415.5	127.3	9
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						C4						C4						C4						C4					
Channel Thalweg length (ft)	1700						1741						1737						1724						1694						1701					
Sinuosity (ft)	1.10						1.13						1.13						1.12						1.12						1.12					
Water Surface Slope (Channel) (ft/ft)	--						0.01						0.01						0.01						0.01						0.01					
BF slope (ft/ft)	0.01						0.01						0.01						0.009						0.01						0.01					
[3]Ri% / Ru% / P% / G% / S%	16	12	55	0	0		17	16	42	6	0		22	17	50	11	0		23	21	49	7	0		23	21	49	7	0		23	21	49	7	0	
[3]SC% / Sa% / G% / C% / B% / Be%													40	23	28	8	1	0	48	3	38	11	1	0	45	12	33	9	1	0	1	13	77	8	1	0
[3]d16 / d35 / d50 / d84 / d95 /													0.163	0.3	6.0	30.96	78		0.027	1.8	5.1	46.9	78.96		0.027	1.807	6.3	46.91	78.96		3.2	8.3	11.8	47	100	
[2]% of Reach with Eroding Banks	1						0						0						0						0						0					
Channel Stability or Habitat Metric	--						--						--						--						--						--					
Biological or Other	--						--						--						--						--						--					

Shaded cells indicate that these will typically not be filled in.
meters can include information from both the cross-section surveys and the longitudinal profile.
chibiting banks that are eroding based on the visual survey from visual assessment table
ep; Silt/Clay, Sand, Gravel, Cobble, Boulder, Bedrock; dip = max pave, disp = max subpave
4. = Of value/needed only if the n exceeds 3

APPENDIX E.

HYDROLOGIC DATA

Table 12	Verification of Bankfull Events
Figure 8	Monthly Rainfall Data at SILR Station
Figure 9.1-9.2	Daily Precipitation and Monitoring Well Graphs
Table 13.0	Wetland Hydrology Criteria Attainment
e-Tables	Raw data: Precipitation and Monitoring Wells

Table 12. Verification of Bankfull Flow Events UT Bear Creek (Weaver/McLeod) - EEP# 92347 - 2014 (MY-5)			
Date of Data Collection	Rain Gage Date of Occurrence	Evaluation Method	Photo # (if available)
8-Apr-14	Jan 11-12, 2014: 2.1" precip at NCCH-04 gage.	Rain gage data plus Apr 8 on-site observation of crest gage and matted vegetation.	next page below Table 13
8-Apr-14	Mar 7-8, 2014: 2.8" precip at NCCH-04 gage.	Rain gage data plus Apr 8 on-site observation of crest gage and matted vegetation.	next page below Table 13
28-Oct-14	May 16, 2014: 3.8" precip at NCCH-04 gage.	Rain gage data plus Oct 28 on-site observation of crest gage and matted vegetation.	NA
28-Oct-14	July 21-22, 2014: 3.5" precip at NCCH-04 gage.	Rain gage data plus Oct 28 on-site observation of crest gage and matted vegetation.	NA
28-Oct-14	Aug 9-12, 2014: 4.7" precip at NCCH-04 gage.	Rain gage data plus Oct 28 on-site observation of crest gage and matted vegetation.	NA
8 Apr 2014: Crest gage cork granules = 2.5 ft above gage bottom = 1.1 ft above bankfull			
28 Oct 2014: Crest gage cork granules = 2.8 ft above gage bottom = 1.4 ft above bankfull			

Table 13. Wetland Groundwater Gauge Attainment Data UT Bear Creek (Weaver/McLeod) EEP# 92347 - 2014 (MY-5)					
Groundwater Gauge ID	Success Criteria Achieved/Max Consecutive Days during Growing Season (Percent of 216-day Growing Season in Chatham Co (Apr 1 - Nov 3)				
	Year 1 (2010)	**Year 2 (2011)**	**Year 3 (2012)**	**Year 4 (2013)**	**Year 5 (2014)**
09BEA457	No: 21 days (9.7%)	Yes: 37 days (17.1%)	Yes: 28 days (13.0%)	Yes: 82 days (38.0%)	Yes: 41 days (19.0%)
138BDBD7	No: 20 days (9.2%)	Yes: 43 days (19.9%)	Yes: 30 days (13.8%)	Yes: 80 days (37.0%)	Yes: 63 days (29.2%)

North Trib - Matted vegetation and wrack deposit, Sta 19+50, 08 Apr 2014

South Trib - Matted vegetation and wrack deposit, Sta 21+00, 08 Apr 2014

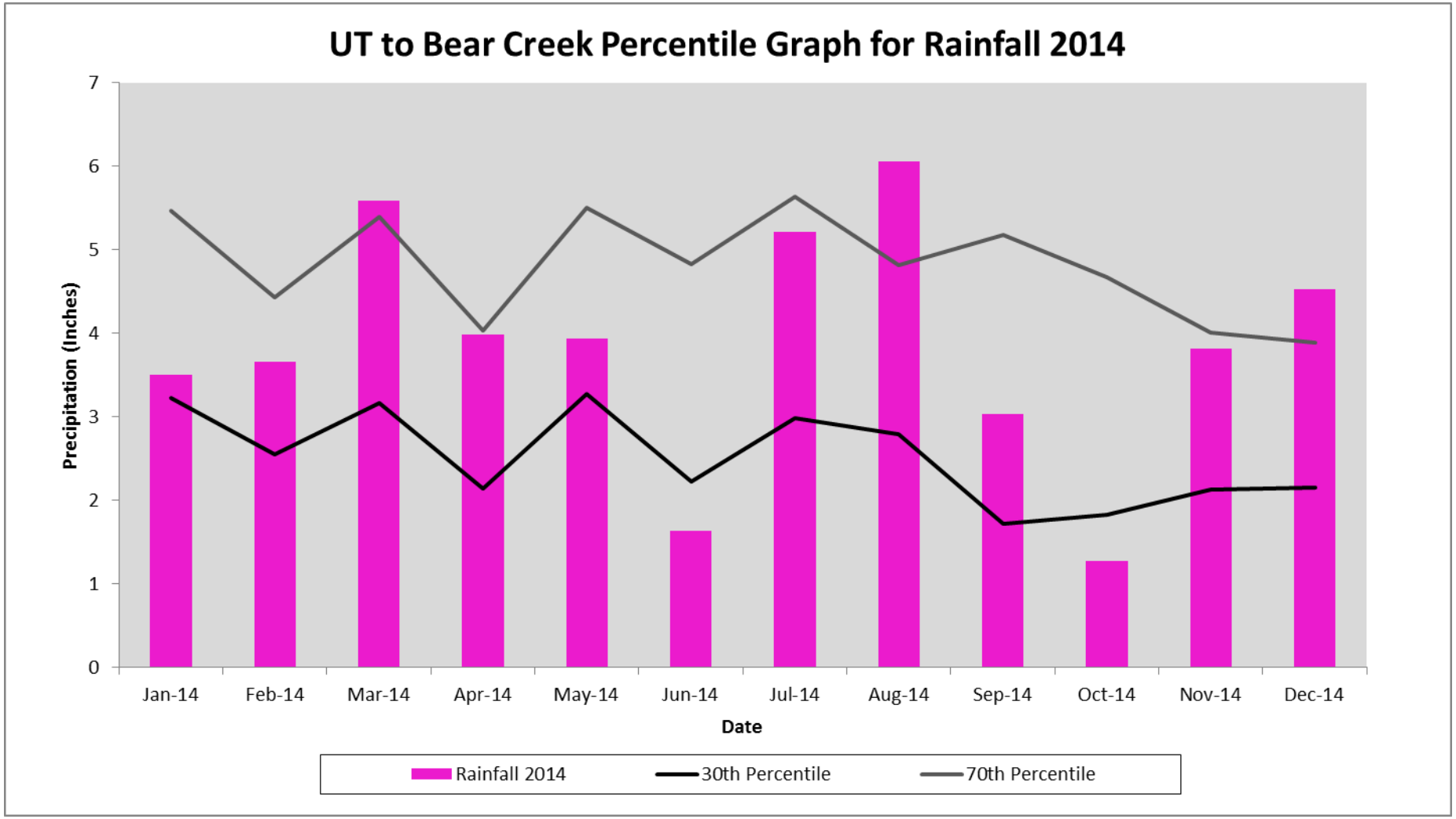


Figure 8. Monthly average rainfall during 2014 at NCCH-04 gage (4 miles NE of project site) with 30th and 70th percentile climate normals based on the 30-year period from 1981 to 2010 at the Siler City Airport.

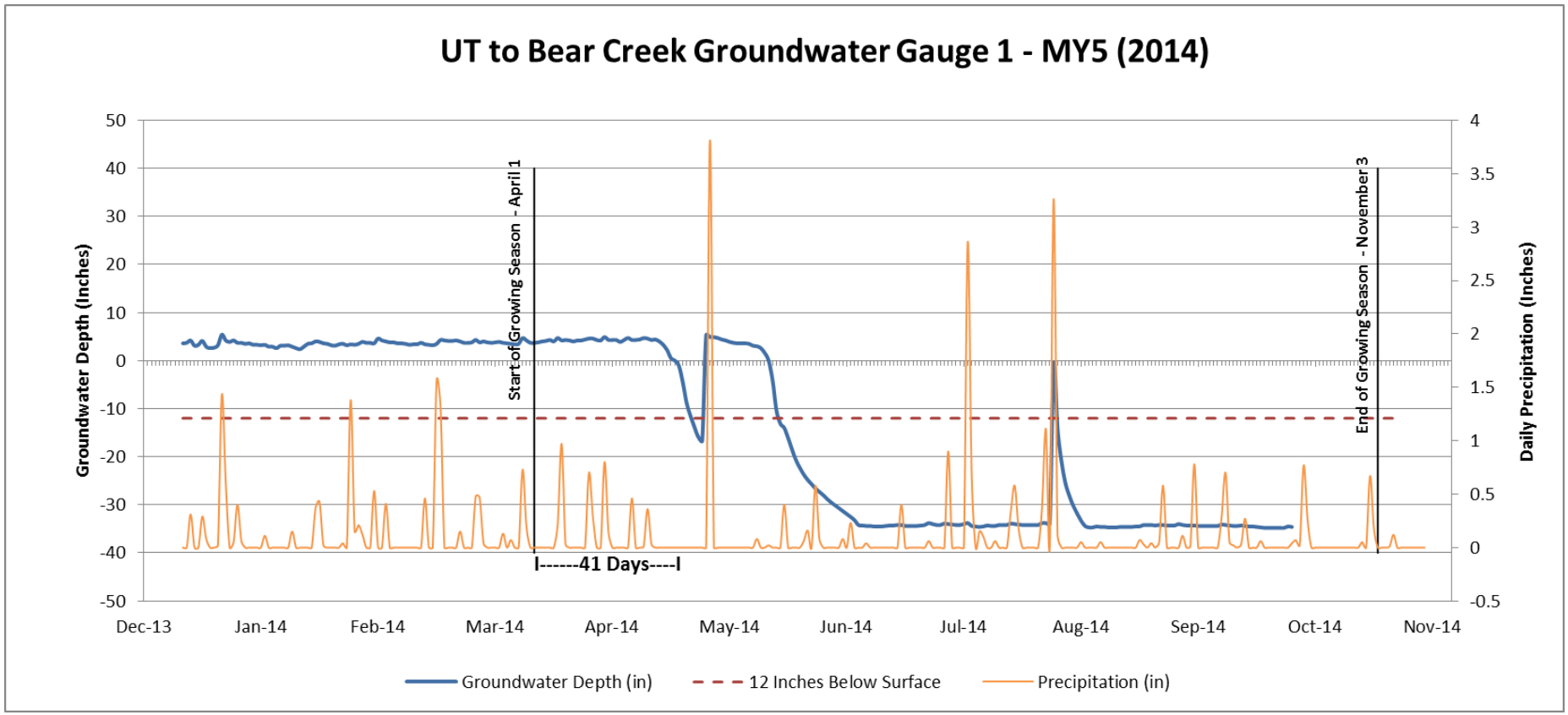


Figure 9.1. Daily depth to groundwater table, wetland monitoring gage #1 (RDS #09BEA457) and corresponding daily precipitation recorded at NCCH-04 rain gage located 4 miles NE of the UT Bear Creek project site.

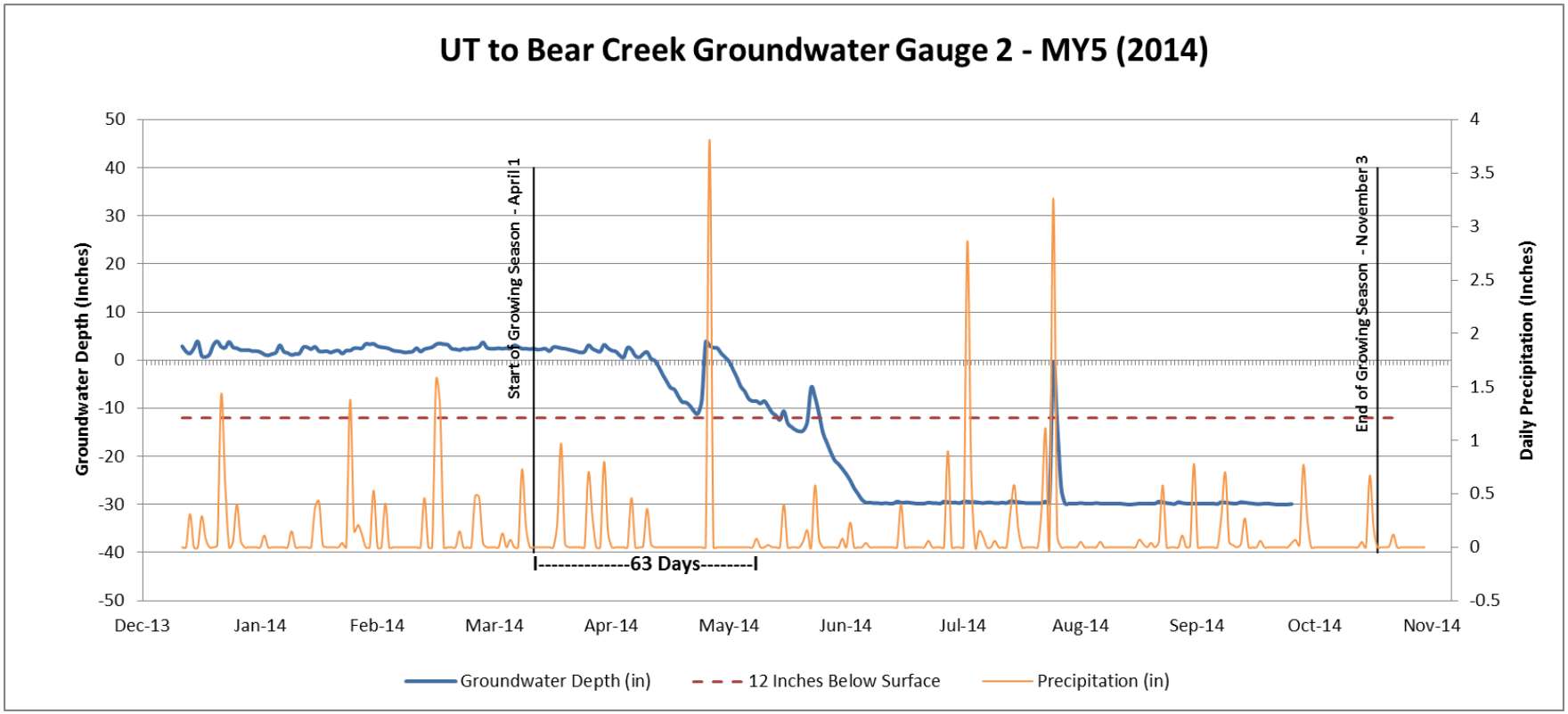


Figure 9.1. Daily depth to groundwater table, wetland monitoring gage #2 (RDS #138BDBD7) and corresponding daily precipitation recorded at NCCH-04 rain gage located 4 miles NE of the UT Bear Creek project site.

NOAA Rain Gage ID: US1-NCCH-04 (Goldston 3.8 N)				Groundwater Wells (in)	
Lat: 35.649 Lon: -79.336 (4 mi NE of Bear Cr site)				**09BEA457**	**138BDBD7**
		Precipitation (inches)			
	Date 2014	Daily	Month	GW depth (in)	GW depth (in)
	1/1/2014	0		3.6	2.9
	1/2/2014	0		3.7	1.8
	1/3/2014	0.31		4.2	1.4
	1/4/2014	0		3.1	2.5
	1/5/2014	0		3.3	3.9
	1/6/2014	0.29		4.1	0.9
	1/7/2014	0.08		2.9	0.7
	1/8/2014	0		2.6	1.2
	1/9/2014	0		2.7	3.2
	1/10/2014	0.02		3.2	3.9
	1/11/2014	1.43		5.4	2.8
	1/12/2014	0.6		4.2	2.6
	1/13/2014	0		3.9	3.8
	1/14/2014	0.05		4.2	2.7
	1/15/2014	0.4		3.7	2.5
	1/16/2014	0.06		3.7	2.1
	1/17/2014	0		3.5	2.1
	1/18/2014	0		3.6	2.1
	1/19/2014	0		3.3	1.9
	1/20/2014	0		3.3	1.9
	1/21/2014	0		3.2	1.7
	1/22/2014	0.11		3.3	1.2
	1/23/2014	0		2.9	1
	1/24/2014	0		2.9	1.3
	1/25/2014	0		2.6	1.6
	1/26/2014	0		3.1	3.1
	1/27/2014	0		3.1	1.8
	1/28/2014	0		3.2	1.5
	1/29/2014	0.15		2.9	1.1
	1/30/2014	0		2.6	1.3
JAN	1/31/2014	0	3.50	2.4	1.4
	2/1/2014	0		2.9	2.7
	2/2/2014	0		3.5	2.7
	2/3/2014	0		3.6	2.3
	2/4/2014	0.37		4	2.8
	2/5/2014	0.43		3.9	1.9
	2/6/2014	0.02		3.6	1.8
	2/7/2014	0		3.5	1.9
	2/8/2014	0		3.2	1.6
	2/9/2014	0		3.1	1.9
	2/10/2014	0		3.4	2
	2/11/2014	0.04		3.5	1.4
	2/12/2014	0		3.2	2
	2/13/2014	1.38		3.4	2

	Date 2014	Daily	Month		GW depth (in)	GW depth (in)	
	2/14/2014	0.15			3.3	2.5	
	2/15/2014	0.21			3.5	2.5	
	2/16/2014	0.12			3.9	2.5	
	2/17/2014	0			3.7	3.4	
	2/18/2014	0			3.7	3.3	
	2/19/2014	0.53			3.6	3.4	
	2/20/2014	0			4.6	2.9	
	2/21/2014	0			4.2	2.7	
	2/22/2014	0.41			4	2.6	
	2/23/2014	0			3.8	2.4	
	2/24/2014	0			3.8	2	
	2/25/2014	0			3.6	1.9	
	2/26/2014	0			3.6	1.8	
	2/27/2014	0			3.5	1.6	
FEB	2/28/2014	0	3.66		3.3	1.7	
	3/1/2014	0			3.4	1.8	
	3/2/2014	0			3.4	2.5	
	3/3/2014	0			3.7	1.8	
	3/4/2014	0.46			3.4	2.3	
	3/5/2014	0			3.3	2.5	
	3/6/2014	0			3.2	2.7	
	3/7/2014	1.56			3.5	3.3	
	3/8/2014	1.31			4.3	3.5	
	3/9/2014	0			4.2	3.3	
	3/10/2014	0			4.1	3.2	
	3/11/2014	0			4.1	2.4	
	3/12/2014	0			4.2	2.3	
	3/13/2014	0.15			4	2.1	
	3/14/2014	0			3.7	2.4	
	3/15/2014	0			3.7	2.3	
	3/16/2014	0			3.8	2.5	
	3/17/2014	0.48			4.3	2.5	
	3/18/2014	0.47			3.8	2.8	
	3/19/2014	0.04			4	3.7	
	3/20/2014	0			3.8	2.6	
	3/21/2014	0			3.7	2.4	
	3/22/2014	0			3.8	2.4	
	3/23/2014	0			3.9	2.5	
	3/24/2014	0.13			3.7	2.4	
	3/25/2014	0			3.6	2.5	
	3/26/2014	0.07			3.5	2.4	
	3/27/2014	0			3.4	3.1	
	3/28/2014	0			3.5	2.8	
	3/29/2014	0.73			4.7	2.4	
	3/30/2014	0.19			4.2	2.4	
MAR	3/31/2014	0	5.59		3.7	2.3	
	4/1/2014	0		Grow Seas	3.7	2.4	
	4/2/2014	0		Grow Seas	3.8	2.2	

	Date 2014	Daily	Month		GW depth (in)	GW depth (in)
	4/3/2014	0		Grow Seas	4	2.3
	4/4/2014	0		Grow Seas	4.1	2.4
	4/5/2014	0		Grow Seas	4.3	1.9
	4/6/2014	0		Grow Seas	4	2.7
	4/7/2014	0.22		Grow Seas	4.7	2.7
	4/8/2014	0.97		Grow Seas	4.2	2.5
	4/9/2014	0.03		Grow Seas	4.3	2.4
	4/10/2014	0		Grow Seas	4.2	2.2
	4/11/2014	0		Grow Seas	4	2
	4/12/2014	0		Grow Seas	4.2	1.8
	4/13/2014	0		Grow Seas	4.2	1.6
	4/14/2014	0		Grow Seas	4.4	1.8
	4/15/2014	0.70		Grow Seas	4.6	3.1
	4/16/2014	0.29		Grow Seas	4.6	2.4
	4/17/2014	0		Grow Seas	4.3	2
	4/18/2014	0		Grow Seas	4.2	1.8
	4/19/2014	0.80		Grow Seas	4.9	3.2
	4/20/2014	0.14		Grow Seas	4.3	2.5
	4/21/2014	0		Grow Seas	4.3	2
	4/22/2014	0		Grow Seas	4.3	1.8
	4/23/2014	0		Grow Seas	3.9	1
	4/24/2014	0		Grow Seas	4.3	0.6
	4/25/2014	0		Grow Seas	4.7	2.6
	4/26/2014	0.46		Grow Seas	4.3	2.2
	4/27/2014	0		Grow Seas	4.3	0.9
	4/28/2014	0		Grow Seas	4.4	0.6
	4/29/2014	0.01		Grow Seas	4.7	1.3
APR	4/30/2014	0.36	3.98	Grow Seas	4.6	1.7
	5/1/2014	0.03		Grow Seas	4.3	0.3
	5/2/2014	0		Grow Seas	4.4	-0.1
	5/3/2014	0		Grow Seas	4	-1.4
	5/4/2014	0		Grow Seas	3.3	-3
	5/5/2014	0		Grow Seas	2.2	-4.4
	5/6/2014	0		Grow Seas	0.5	-5.7
	5/7/2014	0		Grow Seas	0	-6.1
	5/8/2014	0		Grow Seas	-1	-7.5
	5/9/2014	0		Grow Seas	-4.4	-8.7
	5/10/2014	0		Grow Seas	-8.8	-8.8
	5/11/2014	0		Grow Seas	-11.5	-9.5
	5/12/2014	0		Grow Seas	-13.8	-10.6
	5/13/2014	0		Grow Seas	-15.9	-11.1
	5/14/2014	0		Grow Seas	-16.7	-8.4
	5/15/2014	0		Grow Seas	5.3	3.8
	5/16/2014	3.81		Grow Seas	4.9	3
	5/17/2014	0		Grow Seas	4.9	2.6
	5/18/2014	0		Grow Seas	4.7	2.5
	5/19/2014	0		Grow Seas	4.4	1.4
	5/20/2014	0		Grow Seas	4.2	0.6

	Date 2014	Daily	Month		GW depth (in)	GW depth (in)
	5/21/2014	0		Grow Seas	3.9	-0.3
	5/22/2014	0		Grow Seas	3.7	-1.9
	5/23/2014	0		Grow Seas	3.6	-3.6
	5/24/2014	0		Grow Seas	3.6	-5.5
	5/25/2014	0		Grow Seas	3.6	-6.5
	5/26/2014	0		Grow Seas	3.5	-8
	5/27/2014	0		Grow Seas	3.1	-8.5
	5/28/2014	0.08		Grow Seas	3	-8.5
	5/29/2014	0		Grow Seas	2.6	-9
	5/30/2014	0		Grow Seas	1.6	-8.5
MAY	5/31/2014	0.02	3.94	Grow Seas	0	-9.6
	6/1/2014	0		Grow Seas	-4	-10.9
	6/2/2014	0		Grow Seas	-10.3	-11.5
	6/3/2014	0		Grow Seas	-13.1	-12.4
	6/4/2014	0.40		Grow Seas	-14	-10.6
	6/5/2014	0		Grow Seas	-16.1	-13.1
	6/6/2014	0		Grow Seas	-18.5	-13.9
	6/7/2014	0		Grow Seas	-20.7	-14.5
	6/8/2014	0		Grow Seas	-22.3	-14.8
	6/9/2014	0.06		Grow Seas	-23.7	-14.6
	6/10/2014	0.16		Grow Seas	-24.8	-12.9
	6/11/2014	0		Grow Seas	-25.7	-5.7
	6/12/2014	0.58		Grow Seas	-26.6	-7.7
	6/13/2014	0.08		Grow Seas	-27.3	-11.1
	6/14/2014	0		Grow Seas	-28	-15
	6/15/2014	0		Grow Seas	-28.8	-17.1
	6/16/2014	0		Grow Seas	-29.5	-19.1
	6/17/2014	0		Grow Seas	-30.1	-20.8
	6/18/2014	0		Grow Seas	-30.7	-21.6
	6/19/2014	0.08		Grow Seas	-31.3	-22.6
	6/20/2014	0		Grow Seas	-31.9	-23.7
	6/21/2014	0.23		Grow Seas	-32.5	-25
	6/22/2014	0		Grow Seas	-33.2	-26.6
	6/23/2014	0		Grow Seas	-34.2	-27.8
	6/24/2014	0		Grow Seas	-34.3	-29
	6/25/2014	0.04		Grow Seas	-34.4	-29.6
	6/26/2014	0		Grow Seas	-34.4	-29.6
	6/27/2014	0		Grow Seas	-34.5	-29.7
	6/28/2014	0		Grow Seas	-34.5	-29.7
	6/29/2014	0		Grow Seas	-34.5	-29.8
JUN	6/30/2014	0	1.63	Grow Seas	-34.4	-29.7
	7/1/2014	0		Grow Seas	-34.3	-29.8
	7/2/2014	0		Grow Seas	-34.3	-29.8
	7/3/2014	0		Grow Seas	-34.2	-29.4
	7/4/2014	0.4		Grow Seas	-34.2	-29.6
	7/5/2014	0		Grow Seas	-34.4	-29.6
	7/6/2014	0		Grow Seas	-34.4	-29.6
	7/7/2014	0		Grow Seas	-34.4	-29.7

	Date 2014	Daily	Month		GW depth (in)	GW depth (in)
	7/8/2014	0		Grow Seas	-34.4	-29.8
	7/9/2014	0		Grow Seas	-34.3	-29.8
	7/10/2014	0		Grow Seas	-34.2	-29.8
	7/11/2014	0.06		Grow Seas	-33.8	-29.6
	7/12/2014	0		Grow Seas	-34	-29.7
	7/13/2014	0		Grow Seas	-34.2	-29.7
	7/14/2014	0		Grow Seas	-34.2	-29.8
	7/15/2014	0		Grow Seas	-33.9	-29.4
	7/16/2014	0.90		Grow Seas	-34	-29.5
	7/17/2014	0		Grow Seas	-34.1	-29.6
	7/18/2014	0		Grow Seas	-34.2	-29.6
	7/19/2014	0		Grow Seas	-34.2	-29.7
	7/20/2014	0		Grow Seas	-34	-29.4
	7/21/2014	2.86		Grow Seas	-33.8	-29.4
	7/22/2014	0.68		Grow Seas	-34.4	-29.5
	7/23/2014	0		Grow Seas	-34.5	-29.5
	7/24/2014	0.15		Grow Seas	-34.6	-29.6
	7/25/2014	0.1		Grow Seas	-34.5	-29.7
	7/26/2014	0		Grow Seas	-34.3	-29.6
	7/27/2014	0		Grow Seas	-34.4	-29.6
	7/28/2014	0.06		Grow Seas	-34.4	-29.7
	7/29/2014	0		Grow Seas	-34.2	-29.7
	7/30/2014	0		Grow Seas	-34.2	-29.6
JUL	7/31/2014	0	5.21	Grow Seas	-34.2	-29.7
	8/1/2014	0.33		Grow Seas	-33.9	-29.3
	8/2/2014	0.58		Grow Seas	-34	-29.4
	8/3/2014	0.18		Grow Seas	-34.1	-29.5
	8/4/2014	0		Grow Seas	-34.2	-29.6
	8/5/2014	0		Grow Seas	-34.2	-29.7
	8/6/2014	0		Grow Seas	-34.2	-29.7
	8/7/2014	0		Grow Seas	-34.2	-29.7
	8/8/2014	0		Grow Seas	-34.2	-29.7
	8/9/2014	0.37		Grow Seas	-33.8	-29.7
	8/10/2014	1.11		Grow Seas	-33.8	-29.4
	8/11/2014	0.02		Grow Seas	-33.9	-29.6
	8/12/2014	3.26		Grow Seas	-0.8	-0.7
	8/13/2014	0.11		Grow Seas	-14.2	-13.3
	8/14/2014	0		Grow Seas	-21	-26.5
	8/15/2014	0		Grow Seas	-25.5	-29.8
	8/16/2014	0		Grow Seas	-28.1	-29.8
	8/17/2014	0		Grow Seas	-30.2	-29.8
	8/18/2014	0		Grow Seas	-31.8	-29.8
	8/19/2014	0.05		Grow Seas	-33.3	-29.7
	8/20/2014	0		Grow Seas	-34.4	-29.8
	8/21/2014	0		Grow Seas	-34.7	-29.8
	8/22/2014	0		Grow Seas	-34.7	-29.8
	8/23/2014	0		Grow Seas	-34.5	-29.7
	8/24/2014	0.05		Grow Seas	-34.6	-29.8

	Date 2014	Daily	Month		GW depth (in)	GW depth (in)
	8/25/2014	0		Grow Seas	-34.6	-29.8
	8/26/2014	0		Grow Seas	-34.7	-29.8
	8/27/2014	0		Grow Seas	-34.7	-29.8
	8/28/2014	0		Grow Seas	-34.7	-29.8
	8/29/2014	0		Grow Seas	-34.6	-29.8
	8/30/2014	0		Grow Seas	-34.6	-29.9
AUG	8/31/2014	0	6.06	Grow Seas	-34.6	-30
	9/1/2014	0		Grow Seas	-34.6	-30
	9/2/2014	0		Grow Seas	-34.5	-29.9
	9/3/2014	0.07		Grow Seas	-34.5	-29.8
	9/4/2014	0.03		Grow Seas	-34.2	-29.8
	9/5/2014	0		Grow Seas	-34.2	-29.8
	9/6/2014	0.04		Grow Seas	-34.2	-29.8
	9/7/2014	0		Grow Seas	-34.3	-29.8
	9/8/2014	0.05		Grow Seas	-34.2	-29.4
	9/9/2014	0.58		Grow Seas	-34.2	-29.5
	9/10/2014	0		Grow Seas	-34.3	-29.7
	9/11/2014	0		Grow Seas	-34.3	-29.8
	9/12/2014	0		Grow Seas	-34.3	-29.9
	9/13/2014	0		Grow Seas	-34	-29.5
	9/14/2014	0.11		Grow Seas	-34.2	-29.7
	9/15/2014	0		Grow Seas	-34.3	-29.8
	9/16/2014	0.01		Grow Seas	-34.3	-29.8
	9/17/2014	0.78		Grow Seas	-34.3	-29.8
	9/18/2014	0		Grow Seas	-34.4	-29.8
	9/19/2014	0		Grow Seas	-34.4	-29.8
	9/20/2014	0		Grow Seas	-34.4	-29.8
	9/21/2014	0		Grow Seas	-34.4	-29.8
	9/22/2014	0		Grow Seas	-34.4	-29.8
	9/23/2014	0		Grow Seas	-34.4	-29.9
	9/24/2014	0.29		Grow Seas	-34.1	-29.5
	9/25/2014	0.70		Grow Seas	-34.2	-29.6
	9/26/2014	0.05		Grow Seas	-34.3	-29.7
	9/27/2014	0.02		Grow Seas	-34.4	-29.8
	9/28/2014	0		Grow Seas	-34.4	-29.8
	9/29/2014	0.03		Grow Seas	-34.3	-29.5
SEP	9/30/2014	0.27	3.03	Grow Seas	-34.4	-29.6
	10/1/2014	0		Grow Seas	-34.5	-29.7
	10/2/2014	0		Grow Seas	-34.5	-29.8
	10/3/2014	0		Grow Seas	-34.6	-29.9
	10/4/2014	0.06		Grow Seas	-34.7	-29.9
	10/5/2014	0		Grow Seas	-34.8	-29.8
	10/6/2014	0		Grow Seas	-34.8	-29.8
	10/7/2014	0		Grow Seas	-34.8	-29.9
	10/8/2014	0		Grow Seas	-34.8	-30
	10/9/2014	0		Grow Seas	-34.8	-30
	10/10/2014	0		Grow Seas	-34.8	-30
	10/11/2014	0		Grow Seas	-34.5	-30

	Date 2014	Daily	Month		GW depth (in)	GW depth (in)
	10/12/2014	0.04		Grow Seas	-34.6	-29.9
	10/13/2014	0.07		Grow Seas		
	10/14/2014	0.02		Grow Seas		
	10/15/2014	0.77		Grow Seas		
	10/16/2014	0.26		Grow Seas		
	10/17/2014	0		Grow Seas		
	10/18/2014	0		Grow Seas		
	10/19/2014	0		Grow Seas		
	10/20/2014	0		Grow Seas		
	10/21/2014	0		Grow Seas		
	10/22/2014	0		Grow Seas		
	10/23/2014	0		Grow Seas		
	10/24/2014	0		Grow Seas		
	10/25/2014	0		Grow Seas		
	10/26/2014	0		Grow Seas		
	10/27/2014	0		Grow Seas		
	10/28/2014	0		Grow Seas		
	10/29/2014	0		Grow Seas		
	10/30/2014	0.05		Grow Seas		
OCT	10/31/2014	0	1.27	Grow Seas		
	11/1/2014	0.67		Grow Seas		
	11/2/2014	0.17		Grow Seas		
	11/3/2014	0		Grow Seas		
	11/4/2014	0				
	11/5/2014	0				
	11/6/2014	0.01				
	11/7/2014	0.12				
	11/8/2014	0				
	11/9/2014	0				
	11/10/2014	0				
	11/11/2014	0				
	11/12/2014	0				
	11/13/2014	0				
	11/14/2014	0				
	11/15/2014	0				
	11/16/2014	0				
	11/17/2014	0.11				
	11/18/2014	0.33				
	11/19/2014	0				
	11/20/2014	0				
	11/21/2014	0				
	11/22/2014	0				
	11/23/2014	0				
	11/24/2014	0.74				
	11/25/2014	0.03				
	11/26/2014	1.34				
	11/27/2014	0.25				
	11/28/2014	0.05				

	Date 2014	Daily	Month	GW depth (in)	GW depth (in)
	11/29/2014	0			
NOV	11/30/2014	0	3.82		
	12/1/2014	0			
	12/2/2014	0			
	12/3/2014	0.02			
	12/4/2014	0			
	12/5/2014	0			
	12/6/2014	0			
	12/7/2014	0.15			
	12/8/2014	0			
	12/9/2014	0.24			
	12/10/2014	0.03			
	12/11/2014	0			
	12/12/2014	0			
	12/13/2014	0			
	12/14/2014	0			
	12/15/2014	0			
	12/16/2014	0			
	12/17/2014	0.43			
	12/18/2014	0			
	12/19/2014	0			
	12/20/2014	0			
	12/21/2014	0.08			
	12/22/2014	0.46			
	12/23/2014	0.06			
	12/24/2014	1.17			
	12/25/2014	0.82			
	12/26/2014	0			
	12/27/2014	0			
	12/28/2014	0.03			
	12/29/2014	0.7			
	12/30/2014	0.31			
DEC	12/31/2014	0.03	4.53		
Annual Total 2014		46.22	46.22		

Grow Season = Apr 1 to Nov 3 = 217 days
12.5% of 217 = 27 days (Siler City)

Monthly Climate Normals, 1981-2010

SILR station	30-yr ave month precip, inches			2014 precip @ NCCH-04
1981-2010 data	average	30% exc	70% exc	month total
January	4.61	3.23	5.47	3.50
February	3.72	2.55	4.43	3.66
March	4.55	3.17	5.40	5.59
April	3.35	2.14	4.03	3.98
May	4.64	3.27	5.50	3.94
June	3.97	2.23	4.83	1.63
July	4.67	2.98	5.63	5.21
August	4.05	2.79	4.82	6.06
September	4.26	1.72	5.18	3.03
October	3.82	1.83	4.67	1.27
November	3.33	2.13	4.01	3.82
December	3.24	2.15	3.89	4.53
Total Annual	48.21			46.22

Table 13. Wetland Groundwater Gauge Attainment Data UT Bear Creek (Weaver/McLeod) EEP# 92347 - 2014 (MY-5)					
Groundwater Gauge ID	Success Criteria Achieved/Max Consecutive Days during Growing Season (Percent of 216-day Growing Season in Chatham Co (Apr 1 - Nov 3)				
	Year 1 (2010)	**Year 2 (2011)**	**Year 3 (2012)**	**Year 4 (2013)**	**Year 5 (2014)**
09BEA457	No: 21 days (9.7%)	Yes: 37 days (17.1%)	Yes: 28 days (13.0%)	Yes: 82 days (38.0%)	Yes: 41 days (19.0%)
138BDBD7	No: 20 days (9.2%)	Yes: 43 days (19.9%)	Yes: 30 days (13.8%)	Yes: 80 days (37.0%)	Yes: 63 days (29.2%)

North Trib - Matted vegetation and wrack deposit, Sta 19+50, 08 Apr 2014

South Trib - Matted vegetation and wrack deposit, Sta 21+00, 08 Apr 2014