Pott Creek II Stream Restoration Project
Year 4 Monitoring Report - 2008

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Mid-Atlantic Mitigation, LLC

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1.0 EXECUTIVE SUMMARY/PROJECT ABSTRACT

On behalf of the North Carolina Department of Transportation (NCDOT), Mid-Atlantic Mitigation, LLC (MAM) with technical assistance from Mulkey Engineers and Consultants (Mulkey) restored 10,054 linear feet of stream that was severely degraded due to past channelization, removal and ongoing clearing and maintenance of the riparian buffer, and continuous cattle grazing. Construction of the project began in October 2004 and was completed in April 2005. The Pott Creek II Stream Restoration Project will provide NCDOT with 10,054 Stream Mitigation Units (SMUs).

The project goals are to provide a stable network of stream channels that neither aggrade nor degrade while maintaining their dimension, pattern, and profile with the capacity to transport the watershed's water and sediment load. The objective of the restoration plan is to restore the primary stream function and values associated with nutrient removal and transformation, sediment retention, flood-flow attenuation, wildlife (both aquatic and terrestrial) habitat, and also to provide restoration of riparian zones that have been historically used for pasture. Ultimately, the Pott Creek II site will improve the overall downstream water quality by reducing the amount of sediment being produced by bank erosion and increased scour and will also improve fish and aquatic habitat by providing both natural material stabilization structures (rootwads, rock vanes, and riparian buffer) and by reducing the silt and clay fines in the streambed. Additional water quality benefits will be generated by removing cattle from the riparian corridor. Degraded agricultural/pasture wetlands and existing bottomland hardwood wetlands on site will be preserved.

Pott Creek enters from the north and runs the entire length of the project crossing under Paint Shop Road and continuing south. Unnamed Tributary 1 (UT 1) enters from the west and had been heavily degraded by cattle traffic and grazing. UT2, UT3, and UT5 enter from the east and were severely entrenched. UT 4 enters from the west, south of the confluence of Pott Creek and Rhodes Mill Creek, and was also severely degraded by cattle traffic and grazing and also showed evidence of past channelization. Approximately 7209 linear feet of the channel on Pott Creek was restored and relocated consistent with C-type stream channels, approximately 1827 linear feet of channel was restored on the perennial tributaries, and approximately 1018 linear feet of channel on Rhodes Mill Creek were restored by construction of a channel with proper dimension, pattern, and profile.

The streams and vegetation will be monitored annually for five years (October 2005 thru October 2009) by Mid-Atlantic Mitigation LLC (a division of EarthMark Mitigation Services) and the monitoring report will be submitted to NCEEP/NCDOT by the end of the calendar year. Ten 50' by 50' and one 100' by 25' permanent vegetative plots were established on-site. Survivability within these plots will help determine the success of the project. Six permanent cross-sections throughout Pott Creek, two throughout Rhodes Mill Creek, and one on unnamed tributaries 1 thru 4 were established. Cross-sections will document changes in dimension, pattern and profile of the restored stream(s). Approximately 3000 linear feet of longitudinal profiles have been established throughout

the project and will monitor the riffle-run-pool-glide sequences and overall stability of the restored stream(s). Within the profiles pebble counts will be performed to monitor any unacceptable increase in sand and finer substrate. All cross-sections and longitudinal profile sections are noted on the As-built plans. In April 2008, in response to EEP concerns over ineffective monitoring techniques in Years 1 through 3, MAM resurveyed the bed profile of the entire project. This April 2008 survey is considered the new baseline and part of the Year 3 Monitoring Report. A supplemental report containing this survey work, updated As-Built drawings, and a report from the designing engineer, Jenny Fleming, was submitted in June of 2008.

The fourth year monitoring began with vegetation monitoring on July 29th, 2008 and was completed on October 22nd, 2008 with survey of the cross sections and profiles. The vegetation in all of the plots continues to meet and/or exceed the requirements. Limited noxious species were found in some areas and will be monitored and treated if necessary, more detailed information is included in Section 3.1.2.

2.0 PROJECT BACKGROUND

2.1 LOCATION AND SETTING

The Pott Creek II Stream Restoration Project is located in Catawba County approximately five miles west of Maiden and eight miles southwest of Newton, North Carolina. It is located approximately one mile west of the intersection of the Hickory-Lincolnton Hwy and Paint Shop Road on either side of Paint Shop Road.

The Pott Creek II Stream Restoration Project lies in the South Fork Catawba River Basin and in the US Geologic Survey (USGS) Hydrologic Unit Code (HUC) 03050102.

The restoration project is being managed and monitored by Mid-Atlantic Mitigation, LLC.

2.2 STRUCTURE AND OBJECTIVES

The restoration of Pott Creek utilized a combination of natural channel design methodologies with limited soil bio-engineering applications and methods consistent with a Rosgen Priority Level II-type restoration along Pott Creek and Rhodes Mill Creek. Level II restoration involved constructing a new channel at the existing elevation. Pott Creek was constructed to the west of the existing channel and Rhodes Mill Creek was constructed to the north of the existing channel. A Priority Level I restoration (reconnecting the channel to its historical floodplain) was not feasible due to limited relief across the site and controlling outfall and inflow elevations. Advantages of the Priority II restoration include a decrease in bank height ratio and improved stream pattern geometry resulting in reduced streambank erosion, establishment of riparian vegetation to help stabilize the banks, establishment of a floodplain to help remove stress from the channel during flood events, improvement of aquatic habitat, abatement of wide-scale flooding of original land surface, and reduction of sediment and easier downstream grade

transition. The Level II restoration, over time, will stabilize pattern and the channel profile, reduce overall shear, restore natural dimension, and reduce sedimentation. A Priority Level I restoration was utilized on the largest tributary, UT 1 of the five tributaries. Level I restoration is advantageous because it promotes re-connection to the floodplain and a stable channel. It also reduces the bank height ratio and streambank erosion, reducing overall land loss, decreasing sediment, and raising the water table. The slope of the new channel was reduced until its bankfull elevation was consistent with the adjacent floodplain on either side.

2.3 PROJECT HISTORY AND BACKGROUND

Table I. Project Deliverables

Mitigation Type	**Linear Feet**	**SMU Formula**
Stream Restoration (Pott Creek main channel)	7209.0	7209.0
Stream Enhancement –Category I (Pott Creek main channel)	0	0
Stream Restoration (Rhodes Mill Creek)	1018.0	1018.0
Stream Restoration (Pott Creek unnamed tributaries)	1827.0	1827.0
TOTALS		**10,054.0**

Table II. Project Activity and Reporting History

Activity or Report	**Calendar Year of Completion or Planned Completion**	**Actual Completion Date**
Restoration Plan	March 2004	September 2004
Construction	*August 2004	April 2005
Temporary and Permanent seeding	August 2004	April 2005
Bareroot Plantings	October 2004	February 2005
Mitigation Plan	November 2004	June 2005
Year 1 Monitoring	December 2004	October 2005
Year 2 Monitoring	October 2006	October 2006
Year 3 Monitoring	October 2007	October 2007
Year 4 Monitoring	October 2008	October 2008
Year 5 Monitoring	October 2009	

* By contract amendment the planned completion date was extended until April 2005

Table III. Project Contacts

Project Manager Mid-Atlantic Mitigation, LLC	1960 Derita Road Concord, NC 28027 Rich Mogensen (704) 782-4133
Designer Mulkey Engineers and Consultants	6750 Tryon Road Raleigh, NC 27511
Construction Contractor Shamrock Environmental Corporation	P.O Box 14987 Browns Summit, NC 27214
Planting & Seeding Contractor Mid-Atlantic Mitigation, LLC Seed mixes provided by IKEX Nursery Stock provided by NC Forest Service; Mellow Marsh Farm; and Pinelands Nursery & Supply	1960 Derita Road Concord, NC 28027 Kristy Rodrigue (704) 277-3383
Monitoring Performers Mid-Atlantic Mitigation, LLC	1960 Derita Road Concord, North Carolina 28027 Christine Cook (704) 782-4140

Table IV. Project Background

Project Background Table	
Project County	Catawba
Drainage Area	19.7 square miles
Drainage Cover Estimate (%)	3%
Physiographic Region	Piedmont
Ecoregion	45a Southern Inner Piedmont
Wetland Type	Piedmont Bottomland Forest / Piedmont Swamp Forest
Cowardin Classification	PSS1A, PFO1A
Dominant soil types	Chewacla (Wehadkee) Congaree
Reference site ID	UT to Fourth Creek
USGS HUC for Project and Reference	03050102/ 03050101
NCDWQ Sub-basin for Project and Reference	03-08-35/ 03-08-32
% of project easement fenced	30 – no cattle is present on adjacent properties that are not fenced

3.0 PROJECT CONDITION AND MONITORING RESULTS

3.1 VEGETATION ASSESSMENT

3.1.1 Soil Data

Table V. Preliminary Soil Data

Series	Max Depth (in)	% Clay on Surface	K	T	OM %
Chewacla	60	10-27	.28	5	1-4
Wehadkee	61	15-40	.32	5	2-5
Congaree	62	10-25	.37	5	< 4

3.1.2 Vegetative Problem Areas

Mutiflora Rose and *Rhubus sp o*ccur in some areas of the project, primarily in Zone 2 (flood plain). Neither species has taken control or out-competed the planted woody vegetation. The primary area of concern is along the left bank of UT1. This population has remained stable throughout the last four years of the monitoring period, it is merely a nuisance while walking the site and during monitoring activities, but appears to pose no threat to planted vegetation, or other desirable populations. Chinese privet is also found bordering some of the project and is found in the large adjacent wetland preservation areas. The population is infringing on the conservation easement on the left bank of the upstream reach, between Veg Plot 4 and UT 3. Privet growing in the project area will be closely monitored and herbicide treatment is planned for the spring.

3.1.3 Stem Counts

Two Planting Zones were established at the Pott Creek II Restoration Project. Zone 1 which consisted of mainly livestakes and Zone 2 which consisted of native hardwood bareroot seedlings and tublings. Eleven permanent vegetative plots have been established at random locations, which sample both Zones 1 and 2. All vegetative plots are 2,500 square feet in size, vegetative plots 1-4, and 6-11 are all 50 foot by 50 foot squares, while vegetative plot 5 is a 100 foot by 25 foot rectangle due to limited space along UT1. Living woody stems were counted in each plot and analyzed for species diversity and survival. Overall coverage of each plot for herbaceous and woody species has exceeded 75% in all plots and throughout the project, this is documented by the vegetation photolog (Appendix A). Volunteers and/or invasive species were noted, but were not figured into the final stem count.

On July 29th, 2008, the third year-vegetative monitoring was performed on the established vegetative plots.

Table VI. Approximate number of Planted species

Planted Species	Bareroot Seedling	Tublings	Livestakes
Quercus nigra	2,000		
Quercus phellos	2,000	1,000	
Quercus palustris	2,000	1,000	
Quercus bicolor		1,000	
Quercus lyrata	2,500		
Fraxinus pennsylvanica	2,000		
Platanus occidentalis	1,000		1,000
Celtis laevigata	1,050		
Diospyros virginiana	200		
Cornus amomum	1,000	1,000	3,000
Lindera benzoin	1,500		
Betula nigra	1,000		400
Cephalanthus occidentalis	525		
Salix nigra			3,000
Salix sericea			600
Sambucus canadensis			1,025
	16,775	**4,000**	**9,025**

Total Planted Species= 20,775 Total Livestakes planted= 9,025

Table VII. Stems Counts for Live, Stressed, and Volunteers species

	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6	Plot 7	Plot 8	Plot 9	Plot 10	Plot 11	**Total**
Total Live Planted	24	11	23	26	18	28	27	23	29	34	16	259
Volunteers	14	26	36	19	3	13	31	0	25	15	26	208
Number "Stressed"	0	2	1	8	2	2	1	0	0	0	0	16
Stems per acre (w/o Vols)	418	192	401	453	314	488	470	401	505	592	279	410
Number of Species	6	7	10	7	5	8	9	4	6	7	10	15
Number of Planted Species	6	7	9	6	5	7	9	4	6	7	8	12

3.1.4 Vegetation Assessment Summary

Vegetation success will be defined as tree survival to meet 320 stems per acre after 3 years and 260 stems per acre after 5 years inside the permanent vegetative plots and herbaceous cover evaluated with photos showing 75% coverage, after 5 years.

Table VIII. Combined Totals for Stem Count

Combined Totals	
Percent Survival	66
Percent "Stressed"	3
Stems Per Acre w/o volunteers	410
Number of Species Counted	15
Total Planted Species Counted	12

The community continues to be very diverse and rich with healthy volunteers. The survival of planted stems was very stable in comparison with the 2007 report, while the number of healthy, desirable volunteers continues to rise. The number of stressed individuals dropped by 4%, some stressed individuals from 2007 were found dead, while very few new stressed individuals were found. The Green Ash population in Veg Plot 4 appears to be suffering from some sort of spot blight or fungus. Plot 2 is the only plot with a stem count below 260 stems per acre, at 192 stems per acre, the 2007 and 2008 counts were identical. The site as a whole shows an average of 410 planted stems per acre, and demonstrates approximately 66 percent survival.

In Appendix A, the vegetative survey data tables show the actual counts of each species found per plot. Volunteer stems are also shown in the survey data. The herbaceous cover plant community has not changed significantly over the last three years and exceeds 75 percent, with 95 to100 percent cover noted in all Veg Plots.

3.2 CHANNEL STABILITY ASSESSMENT

3.2.1 Cross Sections

There are six permanent cross-sections throughout Pott Creek (four on the upstream side of the bridge at Paint Shop Road and two on the downstream side). Cross-sections on Pott Creek are 50% riffles and 50% pools. There are two permanent cross-sections on Rhodes Mill Creek, one riffle, one pool; and one cross section on each of the unnamed tributaries (1 thru 4). Each permanent cross-section is shown on the as-built plan and will be surveyed each year to monitor changes in the dimension of the restored stream(s), photographic documentation of each cross-section will also be made.

Cross-sections were surveyed on October 22nd, 2008 by Ryan McBryde, PLS, assisted by David Horne of the MAM staff. In winter 2007 MAM staff located and remarked all original irons for future surveys. Appendix B has the cross-section data tables, plots and photos.

Pott Creek CS1 (Riffle)
Sand deposition causes slight fluctuations in bed and bank elevations, but does not appear significant. Photos show this area as being well vegetated and stable. The thalweg appears left of center. This cross section has changed very little since 2006.

Pott Creek CS2 (Riffle)
There appear to be no significant differences between the year 1 (2005) and year 4 (2008) surveys, however it is evident that deposition has allowed vegetation to take root on the island/ point bar right of center, and that this island continues to fluctuate. Thalweg remains right of center. Photos show this area as being well vegetated and stable. Point bars are a natural feature of sandy piedmont streams. For conditions of the riffle see pebble count information in section 3.2.3 and Appendix D.

Pott Creek CS3 (Pool)
The depth of the pool has increased slightly since the 2007 survey and has returned to a state more reminiscent of the original 2005 survey, still not as deep as the original pool, but is within the range of designed pool depths for the reach. The thalweg is currently centered. Photos show this area as being well vegetated and stable. This is a dynamic system with much sand being passed through during larger storm events.

Pott Creek CS4 (Pool)
Sand fluctuates in and out of this pool area, but the pool depth has remained relatively stable since 2006 and is within the range of designed pool depths for the reach. The thalweg continues to shift from year to year and currently pool depths are equal to either side of a slight rise in the center of the pool. Photos show this area as being well vegetated and stable.

Pott Creek CS5 (Riffle)
Photos show this area as being well vegetated and stable. A sand bar has formed and stabilized with vegetation on the right side of the channel.

Pott Creek CS6 (Pool)
Photos show this area as being well vegetated and stable. Pool depth has remained relatively stable since 2005 and is within the range of designed pool depths for the reach. The 2007 survey appeared to show some scour on the left side, but this appears to have stabilized.

UT 1 CSa
The thalweg of UT1 trends towards being left of center, and photos show this area as being well vegetated and stable. It appears that some silt deposition and/or deposition of organic material from vegetation growth have caused the cross section to become more shallow. UT 1 is the largest of the UT's and shows a trend of shallowing and deepening from year to year which will adjust with future storm events that may wash out the silt and/or organic material from this cross section.

UT 2 CSb
There appears to be no significant changes to this cross-sections from previous years' surveys. The thalweg of UT2 trends towards being centered, and photos show this area as being well vegetated and stable.

UT 3 CSc
The stream bed appears to be trending towards a wider, deeper configuration. The thalweg of UT3 trends towards being left of center, and photos show this area as being well vegetated and stable.

UT 4 CSd
Some scouring or wash out of deposited silt and organic material appears to have occured on the left bank. The thalweg of UT4 trends towards being centered, and photos show this area as being well vegetated and stable.

Rhodes Mill CS1 (Pool)
The thalweg of this cross section trends towards being left of center, and photos show this area as being well vegetated and stable. It appears that some sand deposition fluctuates from year to year on the right bank. Past surveys indicate that future storm events may remove deposited sand from this cross section. This is a dynamic system with much sand being passed through during storm events.

Rhodes Mill CS2 (Riffle)
The thalweg of this cross section is currently right of center, and photos show this area as being well vegetated and stable. It appears that some sand deposition fluctuates from year to year on the right bank. Past surveys indicate that future storm events may remove deposited sand from this cross section. This is a dynamic system with much sand being passed through during storm events.

3.2.2 Bank Full Events

Bank full events have been documented in all previous monitoring years, which fulfills the requirement of 2 events to be documented in separate monitoring years. The original crest-stage gage installed on August 24, 2006 was stolen from the site or washed away in a storm event during the 2008 monitoring year and replaced in March. One bank full event was documented during this monitoring period during a site visit on September 5th, 2008 with photos of the crest stage gage and rack lines on the banks. These photos are located in Appendix C.

Due to the age of the site and years of build up of debris, signs of over-bank flow (rack lines and drift debris) have become more difficult to document. In light of having achieved this goal, and the overall stability of the site, MAM proposes to discontinue bank full event monitoring for 2009.

3.2.3 Longitudinal Profiles

Profiles were surveyed on October 22nd, 2008 on approximately 3000 linear feet over the entire project (Pott Creek 1023 lf; Rhodes Mill 500 lf; UT1 630 lf; UT2 340 lf; UT3 380 lf; and UT4 360 lf). Pebble counts were done on all constructed riffles and any naturally forming riffles with significant build up of bed material within the profile reach. Raw

data, data tables, and graphs of the Pebble Count data are available in Appendix D. The following observations were made in each profile section:

Pott Creek – 1023 foot profile: No significant erosion problems were noted inside the profile reach. There are two constructed riffles inside profile limits, a pebble count was done on each. There are also several naturally forming riffles, but no significant bed material has accumulated so no pebble counts were done on these riffles. This reach carries a significant bed load of sand and the naturally forming sand riffles appear to be remaining relatively stable. Riffle 1 is located near the beginning of the project where the effects of the sandy bed load are most problematic. Riffle 1 does show an increase in sand, particularly very course sand. Riffle 2, shows a slight increase in very fine and fine gravel over the very course gravel and fine cobble sampled in previous years. Stable sand bars are present in several of the riffles above UT 1, not just within the Profile limits. The significant bed load of sand carried in Pott Creek has the greatest effect on the pool areas. Pools may be shorter in overall length, but deep areas remain stable with excess sand accumulating in the run and glide sections of the stream channel. Sections from approximately 100 feet to 600 feet show little change from the April survey. The pool(s) around the 700 foot mark appear deeper while the pool(s) at the 900 foot mark appear shallower. This is the upper most segment of the project where most sand and silt washes in from upstream of the project during high flow events settles out. With that in mind, this section of the project is in excellent condition.

Rhodes Mill Creek – 500 foot Profile: There are two areas of minor concern within this profile reach. The right bank associated with Pool 1 has developed a slight under cut, however the area has remained stable throughout the growing season and is well vegetated. This feature also creates a unique area of pool habitat within the profile reach. The lower log vane which is associated with constructed Riffle 3 (Associated with Cross Section 2 approximately Station 19+25) has continued to erode slightly on the right bank despite live-staking efforts. The log structure associated with the construction of this riffle had become completely exposed on the right side and the stream flows around the log structure on the right. This area has stabilized, but according to the monitoring team, the riffle is not evident and was not sampled, which indicates a total shift to sand and finer particles. Pebble counts were repeated on Riffles 1 and 2 within the profile limits. Riffle 1 contains a narrow sand deposit approximately one foot from the right bank. This area is stable and the pebble count shows no significant fining or embedding and all of the smaller substrate appears to have been moved downstream. The smaller particles from Riffle 1 appear to have settled into Riffle 2, which shows an increase in fine and very fine gravel, but shows no real shift towards sand and finer particles. It was obvious after the 2005 monitoring that the riffles on Rhodes Mill Creek were constructed with some stone which is not large enough to withstand the actual high flows this stream experiences, however the stream itself continues to stabilize and is in overall good condition. Riffle 1 shows evidence that course gravel (16 to 32 mm) to large cobble (128 to 180 mm) are the appropriate size for this reach. Pools within the reach appear to have maintained or increased in depth, but show a trend of downstream migration.

UT1 – 630 foot Profile: This stream is the largest and most active of all the UT's, but contains no defined substrate other then sand and silt. 2007 observations show the bed to be mostly sand and to have no evidence of any permanent vegetative growth in the stream bed. One small section of the left bank, which was noted in the 2005 report and live-staked in 2006 has once again sloughed off and will need to be live-staked again, this area represents approximately 3 feet of the more than 600 feet of UT1, and is therefore not a significant problem. The profile survey shows little change from April except for the middle section where a pool around the 250 foot mark appears to have filled and another around the 300 foot mark appears to have migrated downstream and shallowed slightly. The pool below the structure at the confluence of Pott Creek appears to have lengthened and deepened.

UT2 – 340 foot Profile: UT2 limited bed form diversity, with some sandy substrate, but a mostly mud/muck bottom, which may allow annuals like polygonum an opportunity to grow on the stream bottom during dryer conditions, but there is no evidence of that happening this year (2008). UT2 has one approximately 3 foot (out of 350 feet; < 1% cover) section where some cattails are growing in the stream but are not blocking stream flow. UT2 also has a well developed *juncus effuses* population along the banks, the plants are providing shade for the streambed but are not blocking stream flow or growing directly in the streambed. The profile survey shows no significant changes since the April survey.

UT3 – 380 foot Profile: UT3 also has limited bed form diversity, with some sandy substrate, but a mostly mud/muck bottom, which may allow annuals like polygonum an opportunity to grow on the stream bottom during dryer conditions, but there is no evidence of that happening this year. UT3 has developed a much larger population of cattails (approximately 40 feet, non-contiguous of 480 feet; about 8% cover) and while they are not blocking stream flow they are creating some of the better habitat along these small streams, they will be monitored and controlled if necessary. Several pools appear to have widened and deepened. The substrate of UT3 appears to allow for substantial fluctuations of pool depths and locations.

UT 4- 360 foot Profile: UT4 also has limited bed form diversity and its substrate is entirely red mud. There is one small section (approximately 4 feet out of 350; slightly over 1% cover) where grass has grown in a shallow area of the stream bed, but is not significant at this time. The profile survey shows no significant changes since the April survey.

3.2.4 Channel Stability Problem Areas

All structures marked on the as-built plan were photographed and assessed for structural failures and erosion problems, also the entire length of Pott Creek, Rhodes Mill, and all of the UT's were walked and any significant problem areas were photographed and documented. The Photo Log is available in Appendix E. No major problem areas were identified. Areas directly under the bridge in the DOT ROW outside of the easement continue to be bare but have not suffered significant additional erosion since the initial

bankfull flood event in October of 2005. The area directly under the bridge still needs to be stabilized by the NCDOT (it is not in the conservation easement area), but shows little change from previous years.

3.2.5 Other Problems

Beaver are being actively managed and there was no evidence of beaver activity during monitoring work. Spring beaver maintenance activity was documented and an update was submitted at that time, photos are also included in Appendix E.

3.2.6 Channel Stability Assessment Summary

Overall, with respect to the major over bank events since restoration was completed the site is in excellent condition and is weathering all over bank events well. The site appears very stable and problem areas within the restored reach comprise less than 5% of the overall length of the project.

APPENDIX A. Vegetation Raw Data

Vegetation Raw Data
Vegetation Monitoring Plot Photos

Pott Creek II Vegetaive Plot Monitoring - 2008

Species	Plots											Initial Totals	Year 4 Totals	Survival %
	1	2	3	4	5	6	7	8[a]	9	10	11			
Shrubs														
Sugarberry (*Celtis laevigata*)												3		**0%**
Buttonbush (*Cephalanthus occidentalis*)												2		**0%**
Silky dogwood (*Cornus ammonum*)		2	3		1	4	1		4	2	3	44	20	**45%**
Spicebush (*Lindera benzoin*)												10		**0%**
Elderberry (*Sambucus canadensis*)			2				2					1	4	**>100%**
Totals	**0**	**2**	**5**	**0**	**1**	**4**	**3**	**0**	**4**	**2**	**3**	**60**		**0%**
Trees														
River birch (*Betula nigra*)	6	5	10	3			1				3	12	28	**>100%**
Persimmon (*Diospyros virginiana*)	2	1					1					5	4	**80%**
Green ash (*Fraxinus pennsylvanica*)	14		4	10	6	6	5	4	14	17	4	133	84	**63%**
American sycamore (*Platanus occidentalis*)	2	12	9	2		6	35	6	10	1	6	27	89	**>100%**
Swamp white oak (*Quercus bicolor*)	0		1		2	3	5					31	11	**35%**
Overcup oak (*Quercus lyrata*)		2	1	14	8	8	3	11	4	11	4	58	66	**>100%**
Water oak (*Quercus nigra*)											1	12	1	**8%**
Pin oak (*Quercus palustris*)			1			3	5			4	2	66	15	**23%**
Willow oak (*Quercus phellos*)	5	1		4					2	1		41	13	**32%**
Black Willow (*Salix nigra*)	9	14	12	6	4	9		2	20	13	8	23	97	**>100%**
Silky willow (*Salix sericiea*)												1	0	**0%**
Volunteer Species														
Tag alder (*Alnus serrulata*)			16								4	0	20	
Tulip poplar (*Liriodendron tulipifera)*						2							2	
Sweet gum (*Liquidambar styraciflua*)				6							7		13	
Totals	**38**	**37**	**59**	**45**	**21**	**41**	**58**	**23**	**54**	**49**	**42**	**409**	**467**	**>100%**

[a] - During June/July 2008, approximately 80% of Vegetation Plot #8 was mown by an unknown utility contractor

Pott Creek II Vegetaive Plot Monitoring - 2008

Species	Plots											Initial Totals	Year 4 Totals	Survival %
	1	2	3	4	5	6	7	8[a]	9	10	11			
Shrubs														
Sugarberry (*Celtis laevigata*)												3		**0%**
Buttonbush (*Cephalanthus occidentalis*)												2		**0%**
Silky dogwood (*Cornus ammonum*)		2	3		1	4	1		4	2	3	44	20	**45%**
Spicebush (*Lindera benzoin*)												10		**0%**
Elderberry (*Sambucus canadensis*)			2				2					1	1	**100%**
Totals	**0**	**2**	**5**	**0**	**1**	**4**	**3**	**0**	**4**	**2**	**3**	**60**		**0%**
Trees														
River birch (*Betula nigra*)	6	5	10	3			1				3	12	12	**100%**
Persimmon (*Diospyros virginiana*)	2	1					1					5	4	**80%**
Green ash (*Fraxinus pennsylvanica*)	14		4	10	6	6	5	4	14	17	4	133	84	**63%**
American sycamore (*Platanus occidentalis*)	2	12	9	2		6	35	6	10	1	6	27	27	**100%**
Swamp white oak (*Quercus bicolor*)	0		1		2	3	5					31	11	**35%**
Overcup oak (*Quercus lyrata*)		2	1	14	8	8	3	11	4	11	4	58	58	**100%**
Water oak (*Quercus nigra*)											1	12	1	**8%**
Pin oak (*Quercus palustris*)			1			3	5			4	2	66	15	**23%**
Willow oak (*Quercus phellos*)	5	1		4					2	1		41	13	**32%**
Black Willow (*Salix nigra*)	9	14	12	6	4	9		2	20	13	8	23	23	**100%**
Silky willow (*Salix sericiea*)												1	0	**0%**
Totals	**38**	**37**	**43**	**39**	**21**	**39**	**58**	**23**	**54**	**49**	**31**	**409**	**269**	**66%**

2500 square feet each

Total 27500
(1 acre = 43560 sq. feet)

	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6	Plot 7	Plot 8	Plot 9	Plot 10	Plot 11	**Total**
Total Live Planted	24	11	23	26	18	28	27	23	29	34	16	259
Volunteers	14	26	36	19	3	13	31	0	25	15	26	208
	38	37	59	45	21	41	58	23	54	49	42	467
Number "Stressed"	0	2	1	8	2	2	1	0	0	0	0	16

Stems per acre	662	645	1028	784	366	714	1011	401	941	854	732	740
Stems per acre w/o Vols	418	192	401	453	314	488	470	401	505	592	279	410
Number of Species	6	7	10	7	5	8	9	4	6	7	10	
Number of Planted Species	6	7	9	6	5	7	9	4	6	7	8	

Combined Totals

Percent Survival	100%
Percent Survival w/o vols	66%
Percent "Stressed"	3%
Stems Per Acre	740
Stems Per Acre w/o vols	410%
Number of Species	15%
Total Planted Species	12%

Vegetation Plots

Vegetation Plot 1

Vegetation Plot 2

Vegetation Plot 3

Vegetation Plot 4

Vegetation Plot 5

Vegetation Plot 6

Vegetation Plot 7

Vegetation Plot 8

Vegetation Plot 9

Vegetation Plot 10

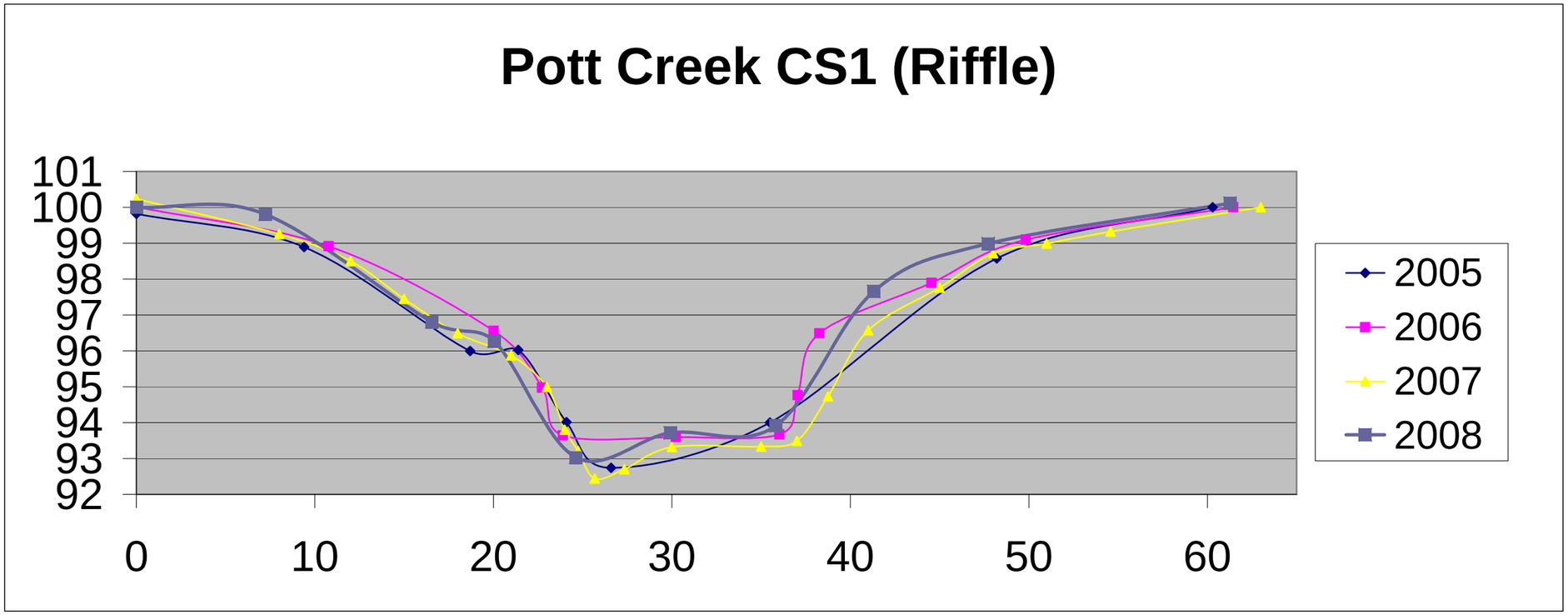
Vegetation Plot 11

APPENDIX B. Cross Sections

Data Plots and Tables
Photos

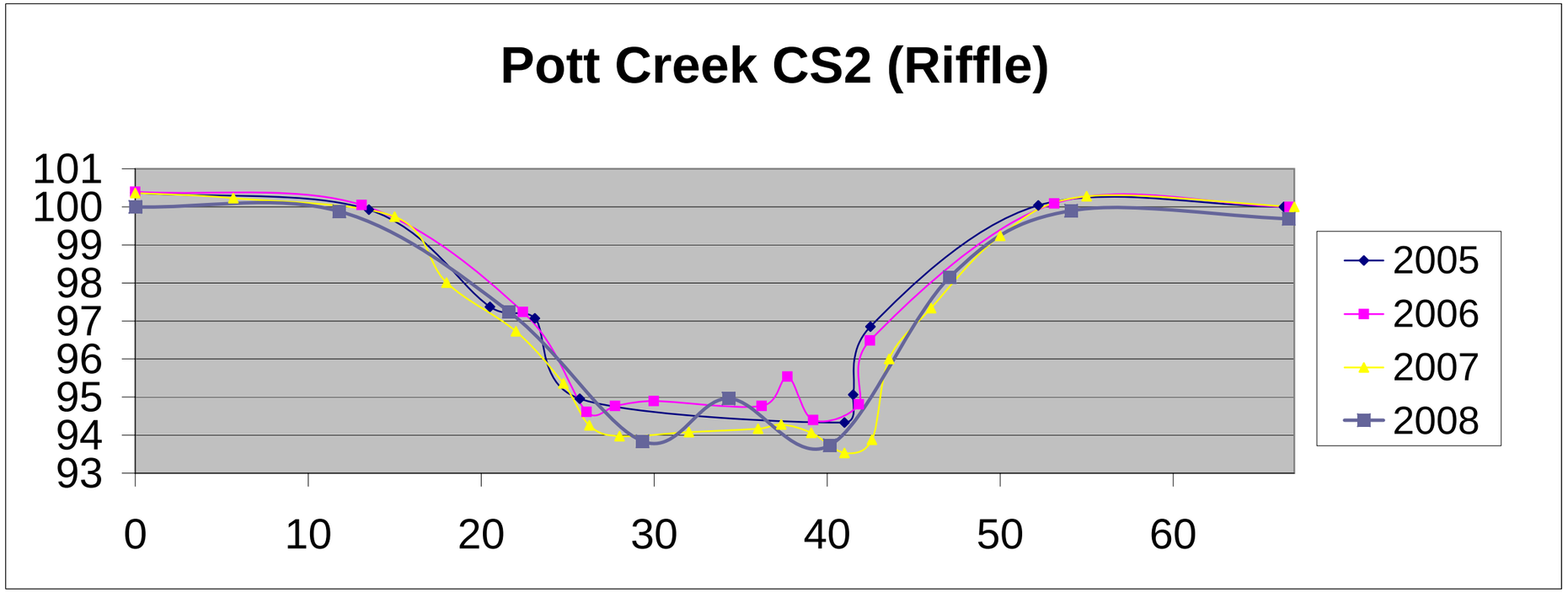
Survey Data		
Station	Elevation	Feature
0	100	
7.22	99.807	lbf
16.55	96.807	
20.04	96.271	
24.61	93.026	tw
29.91	93.716	
35.82	93.912	
41.3	97.654	
47.7	98.988	rbf
61.3	100.113	

Summary Data Table	As-built Mean	M1 2005	M2 2006	M3 2007	M4 2008	M5 2009
Bankfull Cross Sectional Area: Range 105 -136	120.5	128.30	118.2	121.2	184.95	
Bankfull Width: Range 33.3 - 41.2	37.25	41.50	40.9	37.2	40.48	
Bankfull Mean Depth: Range 3.1 - 3.3	3.2	3.10	2.9	3.3	4.57	
Bankfull Max Depth: Range 4.5 - 5.1	4.82	6.20	5.5	6.3	6.77	
Width/Depth Ratio: Range 10.7 - 12.5	11.6	13.40	14.10	11.40	8.86	
Entrenchment Ratio: Range 7.2 - 9.0	8.05	7.20	7.30	8.10	7.41	
Average Width of Flood Prone Area = 300						



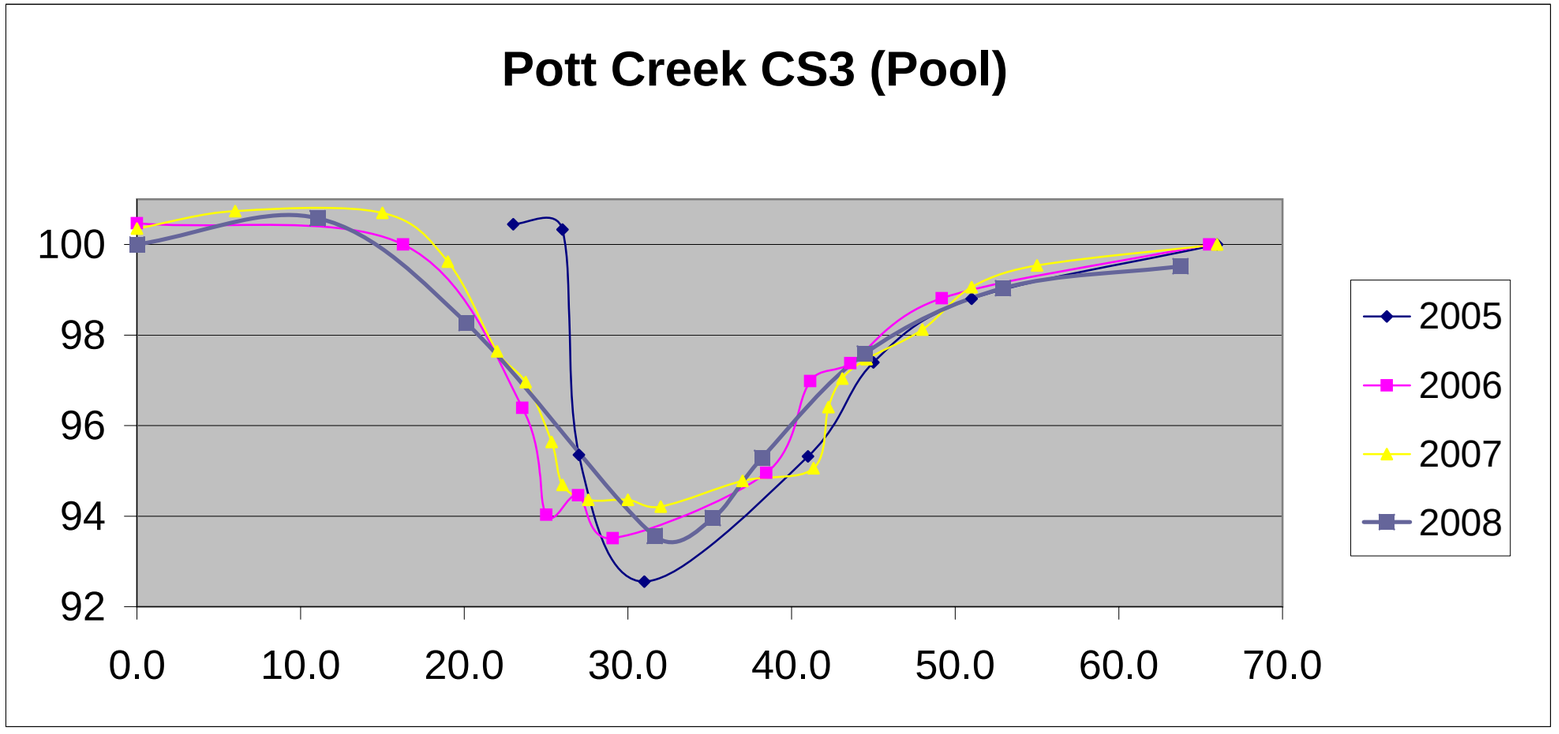
Survey Data		
Station	Elevation	Feature
0.0	100	
11.8	99.882	lbf
21.6	97.246	
29.3	93.836	
34.3	94.964	
40.2	93.734	tw
47.1	98.155	
54.1	99.901	rbf
66.7	99.688	

Summary Data Table	As-built Mean	M1 2005	M2 2006	M3 2007	M4 2008	M5 2009
Bankfull Cross Sectional Area: Range 105 -136	120.5	132.60	134.30	141.40	181.68	
Bankfull Width: Range 33.3 - 41.2	37.25	56.20	55	37.4	42.30	
Bankfull Mean Depth: Range 3.1 - 3.3	3.2	2.40	2.4	3.8	4.30	
Bankfull Max Depth: Range 4.5 - 5.1	4.82	5.70	5.7	6.2	6.15	
Width/Depth Ratio: Range 10.7 - 12.5	11.6	23.80	22.60	9.90	9.85	
Entrenchment Ratio: Range 7.2 - 9.0	8.05	5.30	5.50	8.00	7.09	
Average Width of Flood Prone Area = 300						



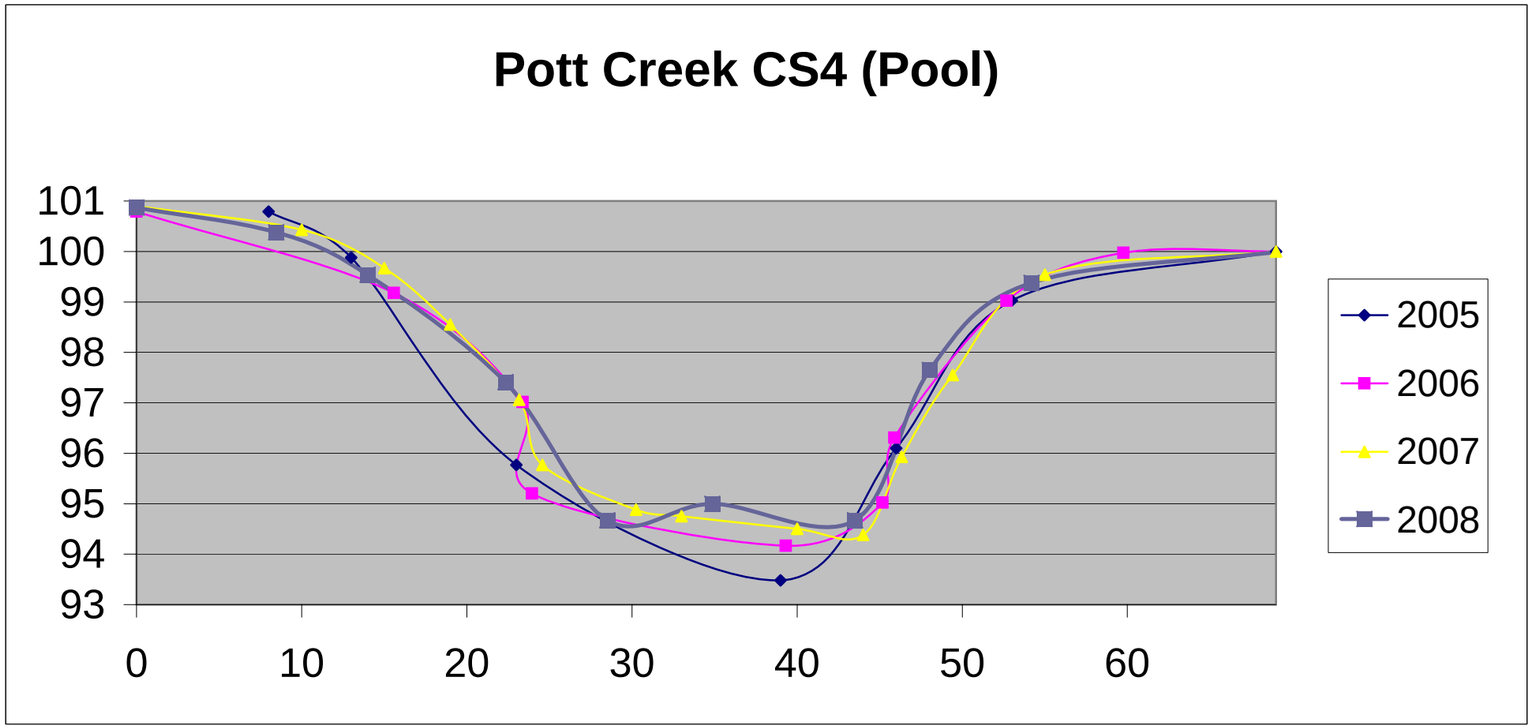
Survey Data		
Station	Elevation	Feature
0.0	100	
11.0	100.584	lbf
20.1	98.268	
31.6	93.562	tw
35.2	93.958	
38.2	95.285	
44.5	97.593	
52.9	99.036	rbf
63.8	99.521	

Summary Data Table	As-built Mean	M1 2005	M2 2006	M3 2007	M4 2008	M5 2009
Bankfull Cross Sectional Area	152	136.80	141.50	110.00	135.76	
Bankfull Width: Range 33.3 - 41.2	37.25	39.80	49.2	35.9	41.90	
Bankfull Mean Depth: Range 3.1 - 3.3	3.2	3.40	2.90	3.1	3.24	
Bankfull Max Depth: Range 4.5 - 5.1	4.82	7.80	6.50	5.3	5.96	
Width/Depth Ratio: Range 10.7 - 12.5	11.6	11.60	17.10	11.70	12.93	
Entrenchment Ratio: Range 7.2 - 9.0	8.05	7.50	6.10	8.40	7.16	
Average Width of Flood Prone Area = 300						



Survey Data		
Station	Elevation	Feature
0.0	100.87	
8.5	100.38	lbf
14.0	99.54	
22.3	97.41	
28.5	94.67	
34.9	95	
43.5	94.67	
48.0	97.65	
54.2	99.38	rbf
69.3	100	

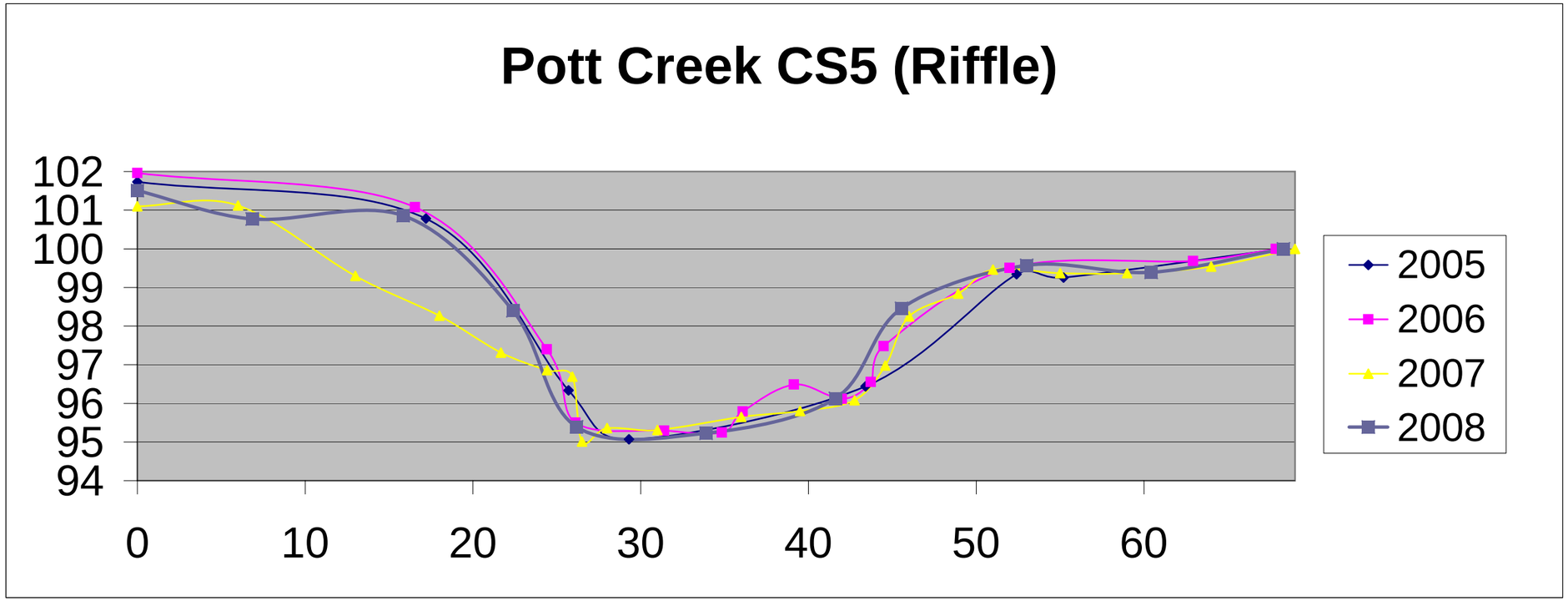
Summary Data Table	As-built Mean	M1 2005	M2 2006	M3 2007	M4 2008	M5 2009
Bankfull Cross Sectional Area	152	156.60	154.80	151.30	141.67	
Bankfull Width: Range 33.3 - 41.2	37.25	44.30	51.90	56.2	45.7	
Bankfull Mean Depth: Range 3.1 - 3.3	3.2	3.50	3.00	2.7	3.1	
Bankfull Max Depth: Range 4.5 - 5.1	4.82	6.40	5.80	5.6	5.33	
Width/Depth Ratio: Range 10.7 - 12.5	11.6	12.50	17.40	20.90	14.74	
Entrenchment Ratio: Range 7.2 - 9.0	8.05	6.80	5.80	5.30	6.56	
Average Width of Flood Prone Area = 300						



Survey Data		
Station	Elevation	Feature
0.0	101.51	
6.8	100.77	
15.9	100.86	lbf
22.4	98.4	
26.2	95.39	
33.9	95.23	tw
41.6	96.13	
45.6	98.46	
53.0	99.57	
60.4	99.39	
68.3	100	rbf

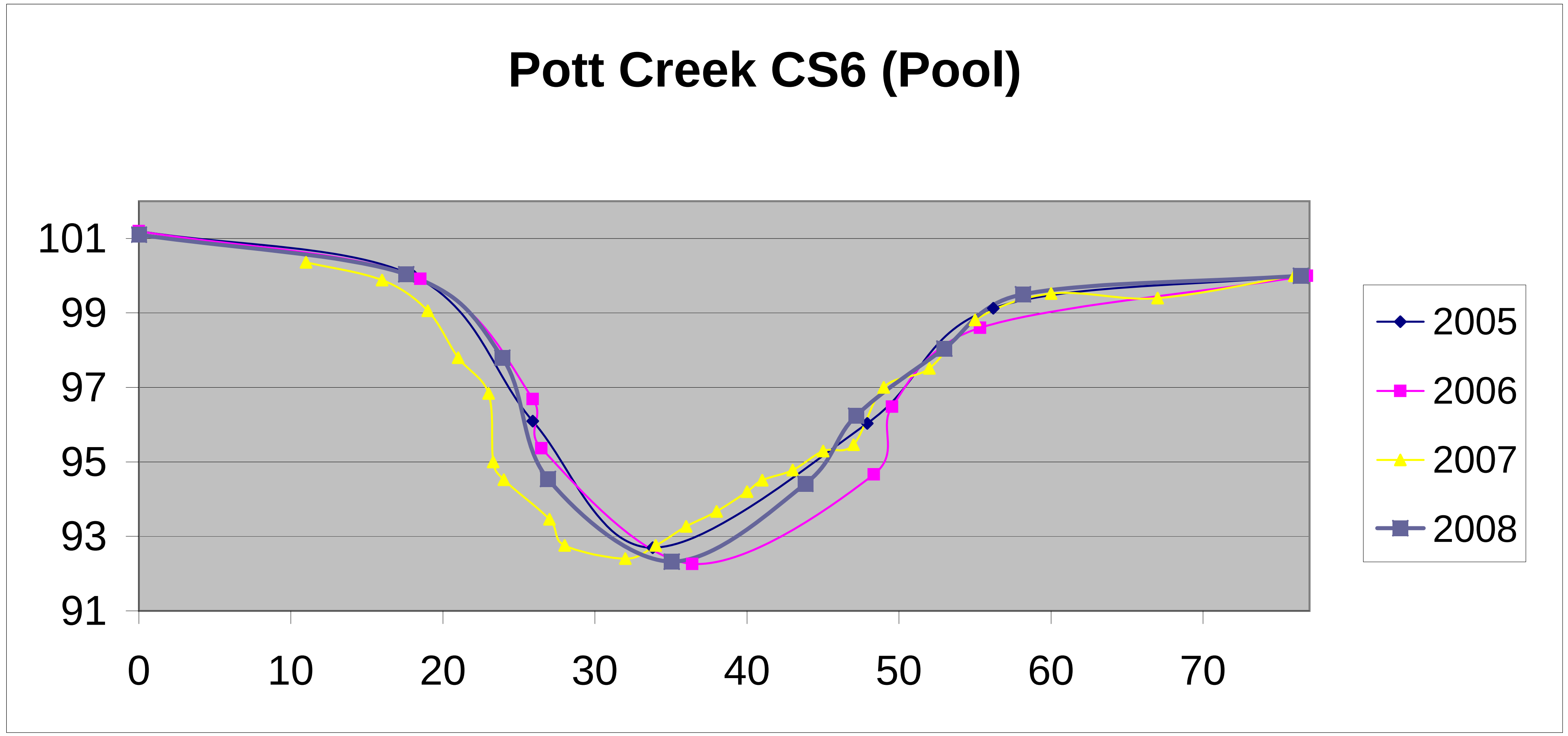
1.6
4.61
4.77
3.87
1.54
0.43
0.61
17.43

Summary Data Table	As-built Mean	M1 2005	M2 2006	M3 2007	M4 2008	M5 2009
Bankfull Cross Sectional Area: Range 105 -136	120.5	114.00	106.90	126.90	130.48	
Bankfull Width: Range 33.3 - 41.2	37.25	49.50	49	58.7	52.40	
Bankfull Mean Depth: Range 3.1 - 3.3	3.2	2.30	2.2	2.2	2.49	
Bankfull Max Depth: Range 4.5 - 5.1	4.82	4.90	4.8	5	4.77	
Width/Depth Ratio: Range 10.7 - 12.5	11.6	21.50	22.50	27.10	21.04	
Entrenchment Ratio: Range 7.2 - 9.0	8.05	6.10	6.10	5.10	5.73	
Average Width of Flood Prone Area = 300						



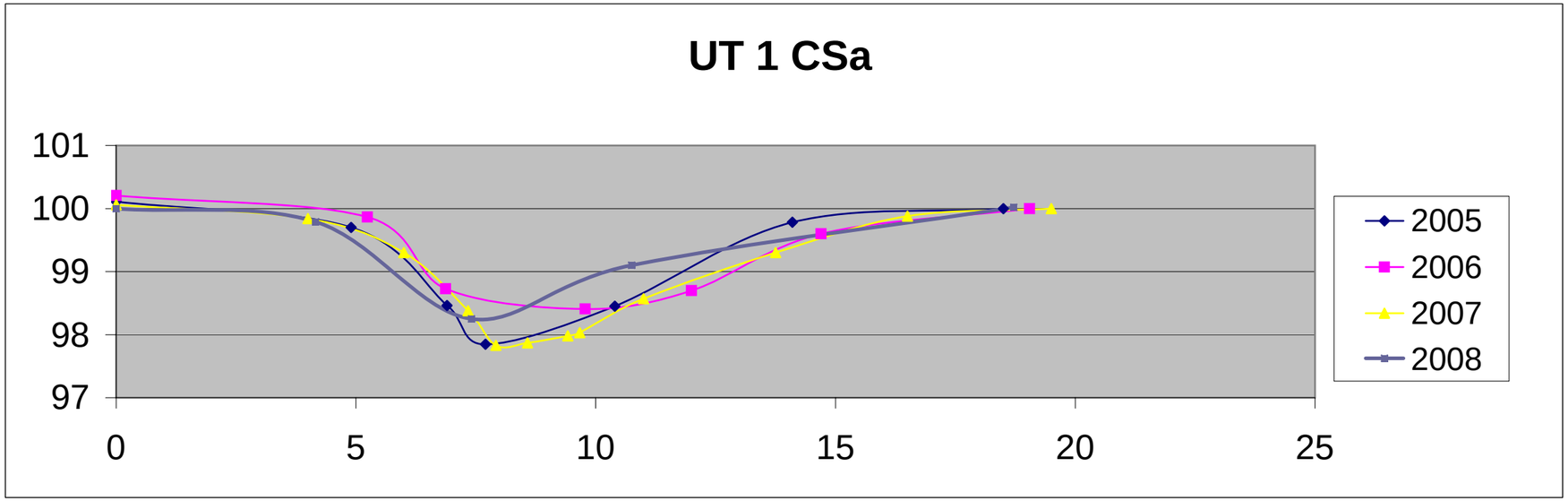
Survey Data		
Station	Elevation	Feature
0	101.1	
17.58	100.04	lbf
23.91	97.8	
26.91	94.54	
35.04	92.32	tw
43.8	94.41	
47.2	96.24	
53.0	98.04	
58.2	99.5	rbf
76.44	100	

Summary Data Table	As-built Mean	M1 2005	M2 2006	M3 2007	M4 2008	M5 2009
Bankfull Cross Sectional Area	152	126.50	124.20	136.90	160.04	
Bankfull Width: Range 33.3 - 41.2	37.25	36.40	33.8	35.6	40.62	
Bankfull Mean Depth: Range 3.1 - 3.3	3.2	3.50	3.7	3.8	3.94	
Bankfull Max Depth: Range 4.5 - 5.1	4.82	6.40	6.3	6.4	7.18	
Width/Depth Ratio: Range 10.7 - 12.5	11.6	10.50	9.20	9.30	10.31	
Entrenchment Ratio: Range 7.2 - 9.0	8.05	8.20	8.90	8.40	7.39	
Average Width of Flood Prone Area = 300						



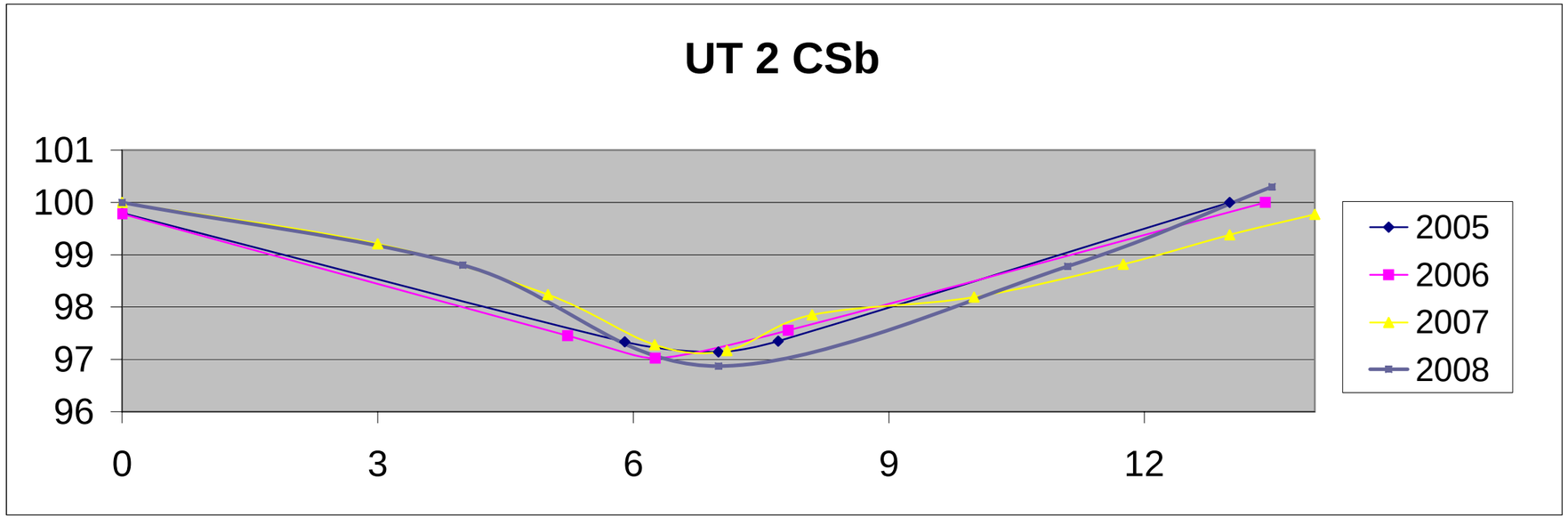
Survey Data		
Station	Elevation	Feature
0.0	100.00	
4.2	99.79	lbf
7.4	98.25	tw
10.8	99.10	
18.7	100.02	rbf

Summary Data Table	As-built Mean	M1 2005	M2 2006	M3 2007	M4 2008	M5 2009
Bankfull Cross Sectional Area	10.2	9.60	10.00	11.60	13.78	
Bankfull Width	10.5	10.20	12.4	12.3	14.50	
Bankfull Mean Depth	0.97	0.90	0.8	0.9	0.95	
Bankfull Max Depth	1.9	1.90	1.5	2	1.75	
Width/Depth Ratio	10.8	10.80	15.30	13.10	15.26	
Entrenchment Ratio	16.7	17.20	14.20	14.20	12.07	
Average Width of Flood Prone Area = 175						



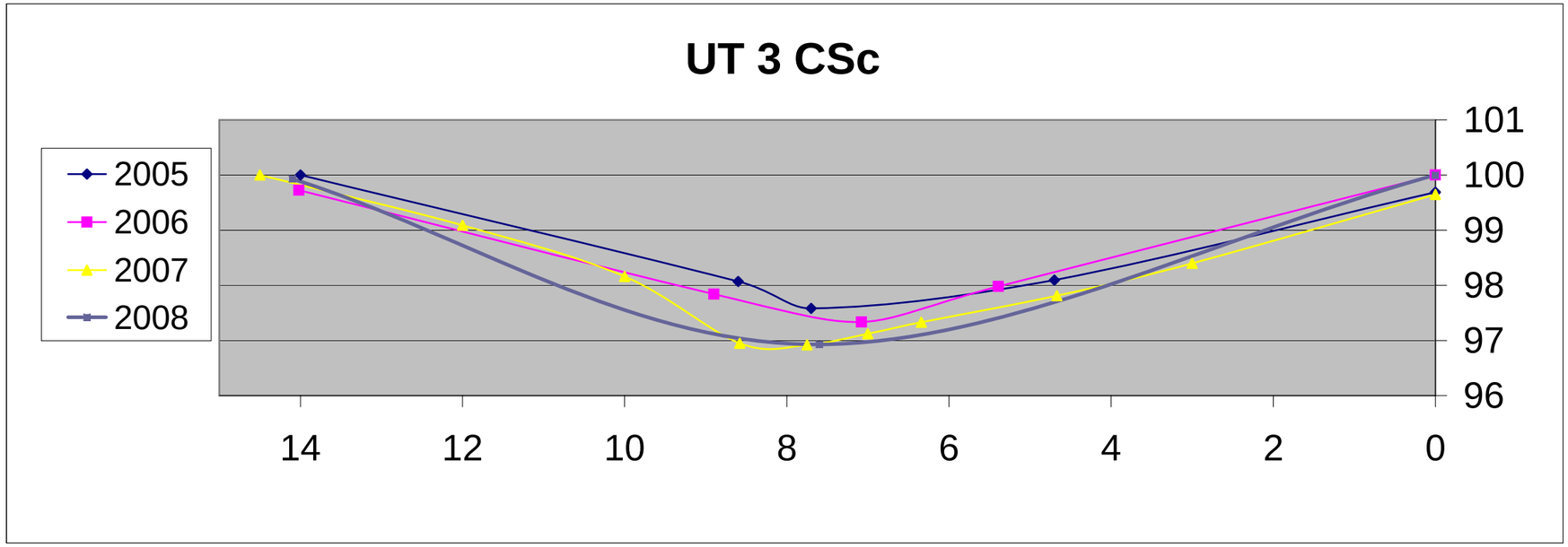
Survey Data		
Station	Elevation	Feature
13.5	100.3	rbf
11.1	98.78	
7.0	96.87	tw
4.0	98.8	
0.0	100	lbf

Summary Data Table	As-built Mean	M1 2005	M2 2006	M3 2007	M4 2008	M5 2009
Bankfull Cross Sectional Area	21	20.40	21.10	19.30	24.98	
Bankfull Width	13.7	13.00	13.40	14	13.50	
Bankfull Mean Depth	1.5	1.60	1.6	1.4	1.85	
Bankfull Max Depth	2.79	2.90	3	2.8	3.13	
Width/Depth Ratio	9.1	8.30	8.50	10.10	7.30	
Entrenchment Ratio	5.8	6.20	6.00	5.70	5.93	
Average Width of Flood Prone Area = 80						



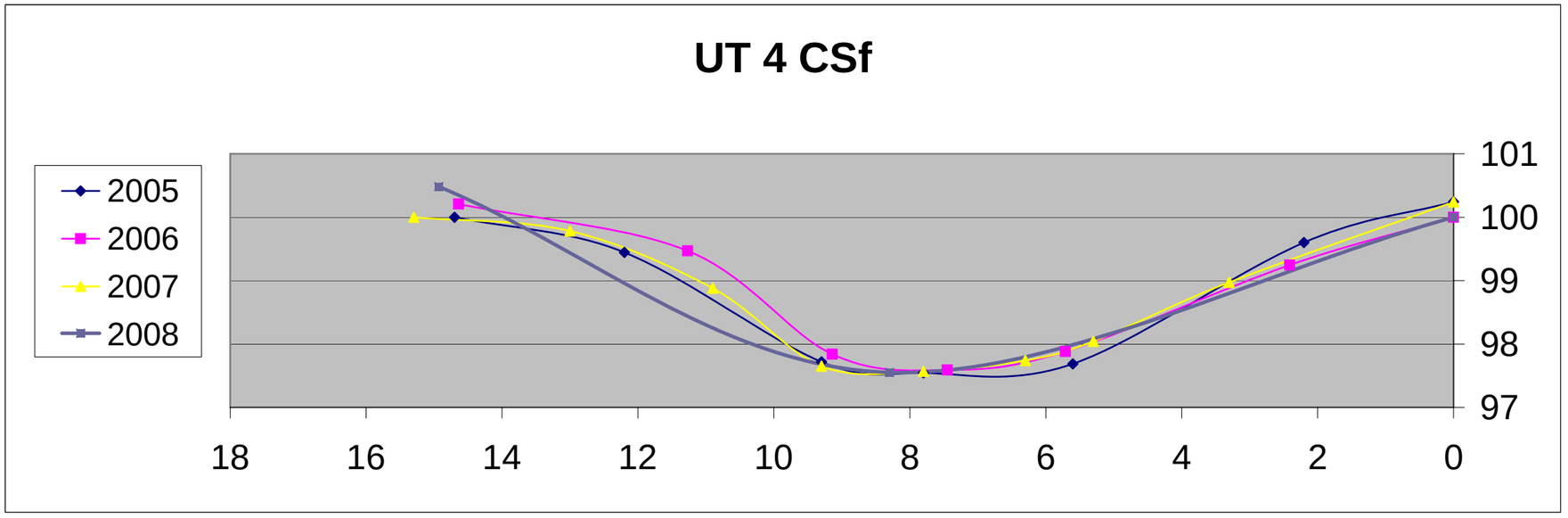
Survey Data		
Station	Elevation	Feature
0.0	100	rbf
7.6	96.93	tw
14.1	99.93	lbf

Summary Data Table	As-built Mean	M1 2005	M2 2006	M3 2007	M4 2008	M5 2009
Bankfull Cross Sectional Area	18.3	18.90	20.00	24.10		
Bankfull Width	13.9	14.00	14.00	14.50	14.10	
Bankfull Mean Depth	1.3	1.30	1.4	1.7		
Bankfull Max Depth	2.68	2.40	2.7	3.1	3.00	
Width/Depth Ratio	10.7	10.40	9.80	8.70		
Entrenchment Ratio	18	17.90	17.80	17.20	17.73	
Average Width of Flood Prone Area = 250						



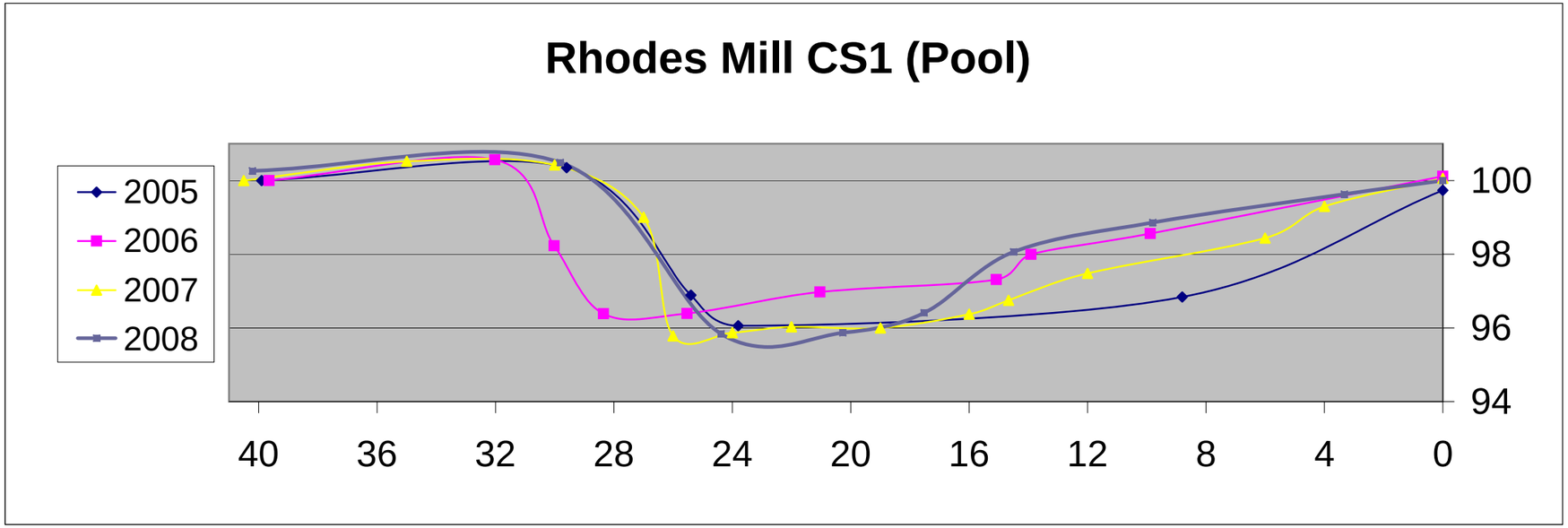
Survey Data		
Station	Elevation	Feature
0.0	100	rbf
8.3	97.55	
14.9	100.48	lbf

Summary Data Table	As-built Mean	M1 2005	M2 2006	M3 2007	M4 2008	M5 2009
Bankfull Cross Sectional Area	19.4	22.00	20.00	21.60		
Bankfull Width	13.2	14.70	14.6	15.3	14.90	
Bankfull Mean Depth	1.47	1.50	1.4	1.4		
Bankfull Max Depth	2.37	2.70	2.6	2.7	2.45	
Width/Depth Ratio	8.98	9.80	10.70	10.80		
Entrenchment Ratio	8.71	7.80	7.90	7.50	7.72	
Average Width of Flood Prone Area = 115						



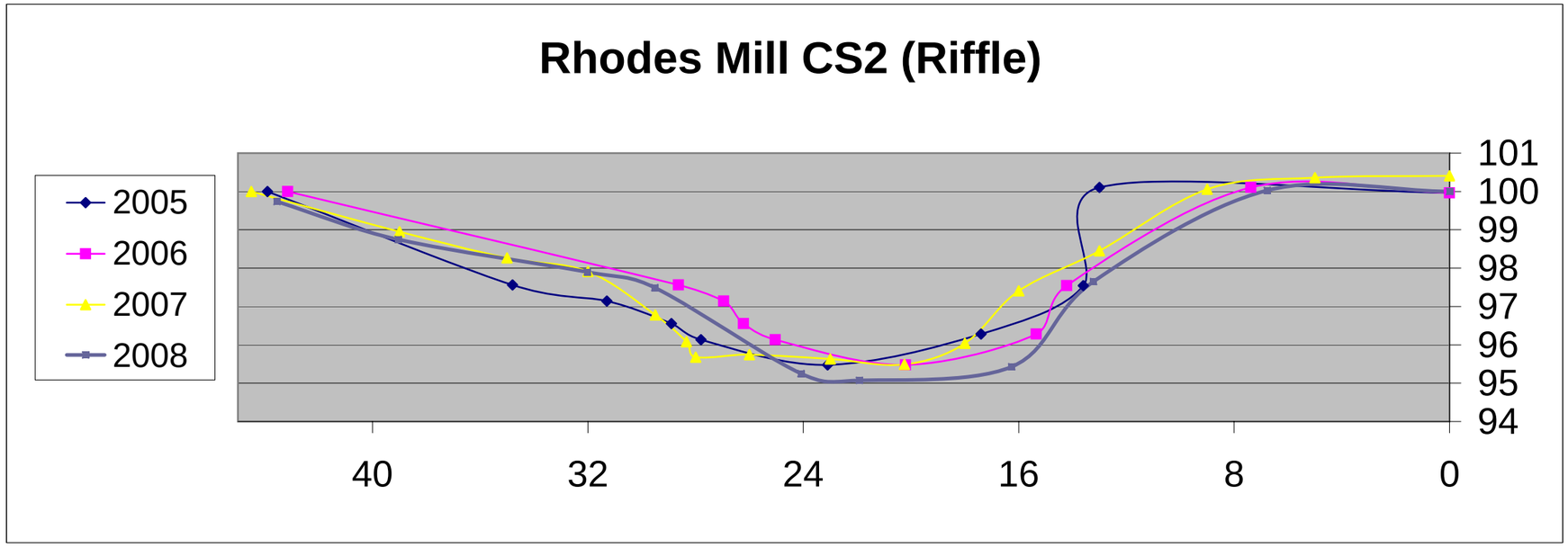
Survey Data		
Station	Elevation	Feature
0	100.00	rbf
3.33	99.63	
9.8	98.86	
14.5	98.06	
17.52	96.41	
20.27	95.87	
24.38	95.84	tw
29.81	100.49	lbf
40.21	100.26	

Summary Data Table	As-built Mean	M1 2005	M2 2006	M3 2007	M4 2008	M5 2009
Bankfull Cross Sectional Area	50	72.20	66.20	53.20	76.02	
Bankfull Width	32	28.90	31	23.6	29.81	
Bankfull Mean Depth	2.19	2.50	2.1	2.3	2.55	
Bankfull Max Depth	3.15	3.70	3.7	3.5	4.16	
Width/Depth Ratio	14.6	11.50	14.60	10.50	11.69	
Entrenchment Ratio	9.38	10.40	9.70	12.70	10.06	
Average Width of Flood Prone Area = 300						

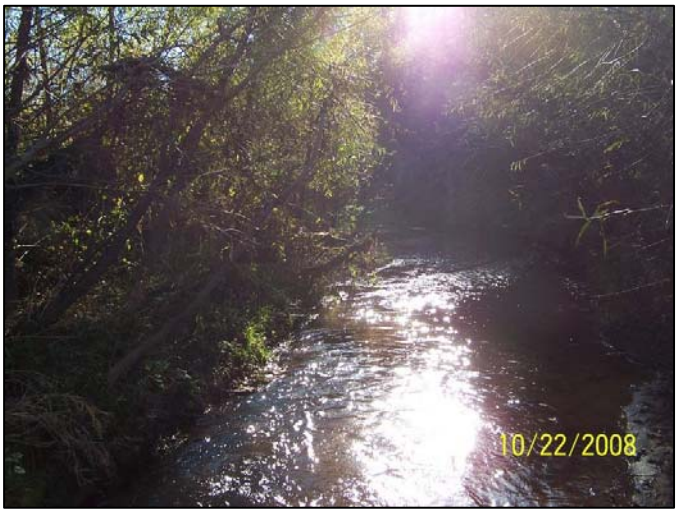


Survey Data		
Station	Elevation	Feature
0	100	
6.77	100.03	rbf
13.22	97.65	
16.26	95.43	
21.92	95.07	tw
24.09	95.25	
29.52	97.49	
32.02	97.9	
39.05	98.75	
43.55	99.74	lbf

Summary Data Table	As-built Mean	M1 2005	M2 2006	M3 2007	M4 2008	M5 2009
Bankfull Cross Sectional Area	70	73.50	80.70	88.50	108.50	
Bankfull Width	32	32.80	37.5	35	36.78	
Bankfull Mean Depth	2.19	2.20	2.2	2.5	2.95	
Bankfull Max Depth	3.15	4.20	4.5	4.6	4.67	
Width/Depth Ratio	14.6	14.60	17.40	13.80	12.47	
Entrenchment Ratio	9.38	9.20	8.00	8.60	8.16	
Average Width of Flood Prone Area = 300						



Cross Sections



PC Cross Section 1 – facing downstream

PC Cross Section 1 – facing upstream

PC Cross Section 2 – facing downstream

PC Cross Section 2 – facing upstream

PC Cross Section 3 – facing downstream

PC Cross Section 3 – facing upstream

PC Cross Section 4 – facing downstream

PC Cross Section 4 – facing upstream

PC Cross Section 5 – facing downstream

PC Cross Section 5 – facing upstream

RM Cross Section 1 – facing downstream

RM Cross Section 1 – facing upstream

RM Cross Section 2 – facing downstream

RM Cross Section 2 – facing upstream

UT1 Cross Section – facing downstream

UT1 Cross Section – facing upstream

UT2 Cross Section – facing downstream

UT2 Cross Section – facing upstream

UT3 Cross Section – facing downstream

UT3 Cross Section – facing upstream

UT4 Cross Section – facing downstream

UT4 Cross Section – facing upstream

APPENDIX C. Bank Full Events

Photo Log

Bankfull Event documented September 5th, 2008, actual event was hurricane associated rainfall from August 25th through 28th when an excess of 14 inches fell in the Lincolnton area over a 4 day period.


09/05/2008


09/05/2008

APPENDIX D. Profile Raw Data

Data Tables
Pebble Count Graphs

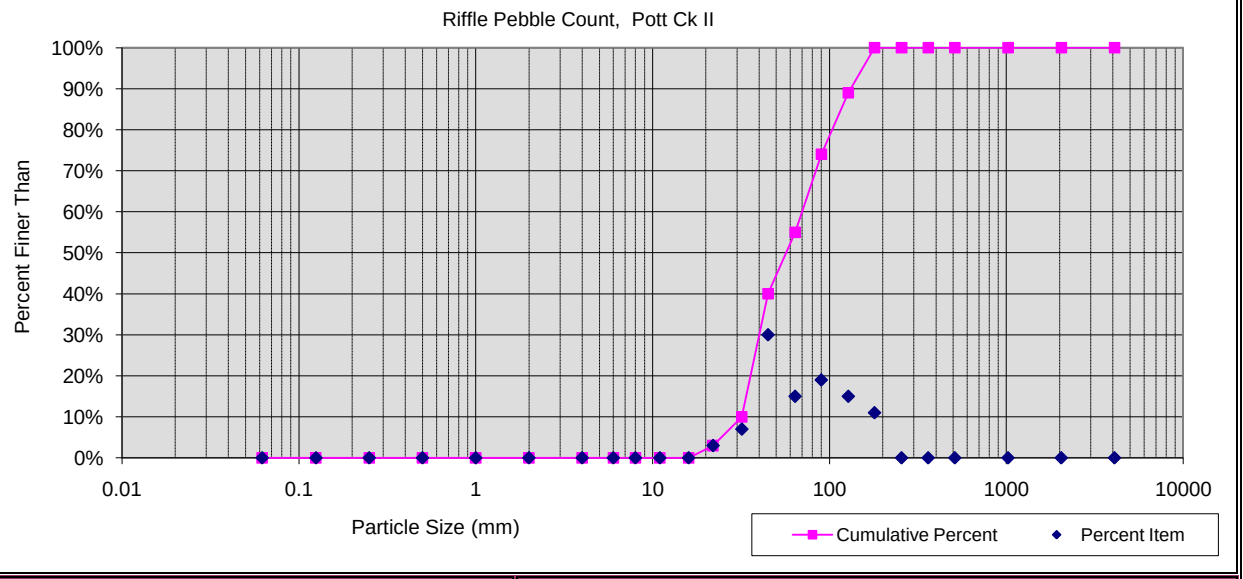
Pott Creek II Pebble Count

7/27/2008

Riffle Pebble Count

Material	Size Range (mm)		Count
silt/clay	0	0.062	
very fine sand	0.062	0.13	
fine sand	0.13	0.25	
medium sand	0.25	0.5	
coarse sand	0.5	1	
very coarse sand	1	2	
very fine gravel	2	4	
fine gravel	4	6	
fine gravel	6	8	
medium gravel	8	11	
medium gravel	11	16	
coarse gravel	16	22	3
coarse gravel	22	32	7
very coarse gravel	32	45	30
very coarse gravel	45	64	15
small cobble	64	90	19
medium cobble	90	128	15
large cobble	128	180	11
very large cobble	180	256	
small boulder	256	362	
small boulder	362	512	
medium boulder	512	1024	
large boulder	1024	2048	
very large boulder	2048	4096	
bedrock			
		Total Particle Count:	100

	Pott Creek II
	Rhodes Mill Creek Riffle 1
	Linclonton, NC
Note:	



Size percent less than (mm)				
D16	D35	D50	D84	D95
34.258	42.51	56.9	114	154

Percent by substrate type					
silt/clay	sand	gravel	cobble	boulder	bedrock
0%	0%	55%	45%	0%	0%

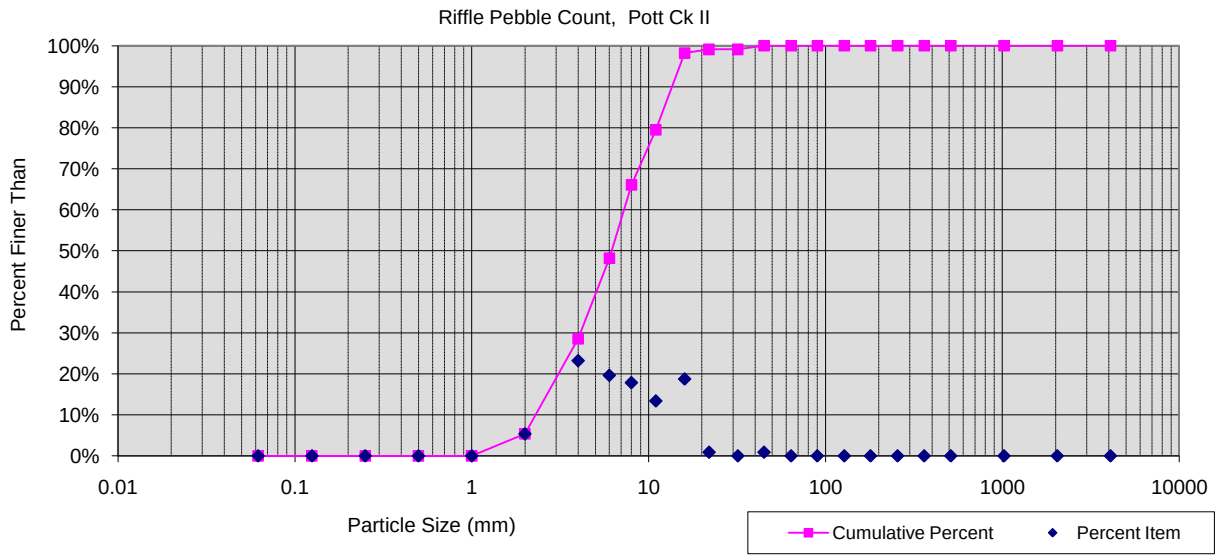
Pott Creek II Pebble Count

7/27/2008

Riffle Pebble Count

Material	Size Range (mm)		Count
silt/clay	0	0.062	
very fine sand	0.062	0.13	
fine sand	0.13	0.25	
medium sand	0.25	0.5	
coarse sand	0.5	1	
very coarse sand	1	2	6
very fine gravel	2	4	26
fine gravel	4	6	22
fine gravel	6	8	20
medium gravel	8	11	15
medium gravel	11	16	21
coarse gravel	16	22	1
coarse gravel	22	32	
very coarse gravel	32	45	1
very coarse gravel	45	64	
small cobble	64	90	
medium cobble	90	128	
large cobble	128	180	
very large cobble	180	256	
small boulder	256	362	
small boulder	362	512	
medium boulder	512	1024	
large boulder	1024	2048	
very large boulder	2048	4096	
bedrock			
Total Particle Count:			112

	Pott Creek II
	Rhodes Mill Creek Riffle 2
	Linclonton, NC
Note:	



Size percent less than (mm)				
D16	D35	D50	D84	D95
2.748	4.57	6.2	12	15

Percent by substrate type					
silt/clay	sand	gravel	cobble	boulder	bedrock
0%	5%	95%	0%	0%	0%

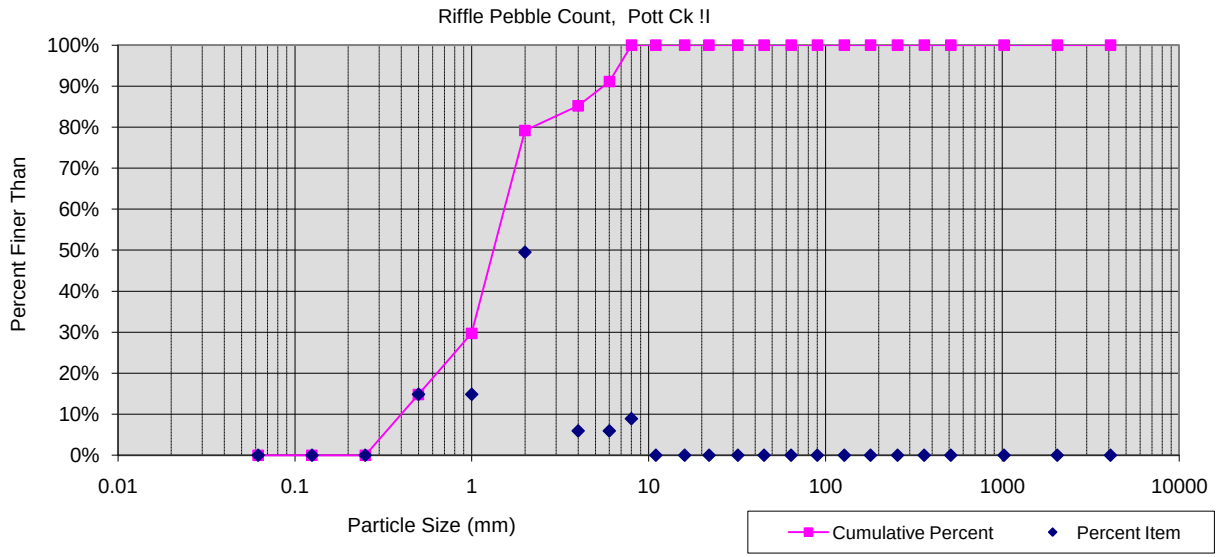
Pott Creek II Pebble Count

7/27/2008

Riffle Pebble Count

Material	Size Range (mm)		Count
silt/clay	0	0.062	
very fine sand	0.062	0.13	
fine sand	0.13	0.25	
medium sand	0.25	0.5	15
coarse sand	0.5	1	15
very coarse sand	1	2	50
very fine gravel	2	4	6
fine gravel	4	6	6
fine gravel	6	8	9
medium gravel	8	11	
medium gravel	11	16	
coarse gravel	16	22	
coarse gravel	22	32	
very coarse gravel	32	45	
very coarse gravel	45	64	
small cobble	64	90	
medium cobble	90	128	
large cobble	128	180	
very large cobble	180	256	
small boulder	256	362	
small boulder	362	512	
medium boulder	512	1024	
large boulder	1024	2048	
very large boulder	2048	4096	
bedrock			
Total Particle Count:			101

	Pott Creek II
	Pott Creek Riffle 1
	Linclonton, NC
Note:	**(adjacent to PCJH5)**



Size percent less than (mm)				
D16	D35	D50	D84	D95
0.528	1.08	1.3	3	7

Percent by substrate type					
silt/clay	sand	gravel	cobble	boulder	bedrock
0%	79%	21%	0%	0%	0%

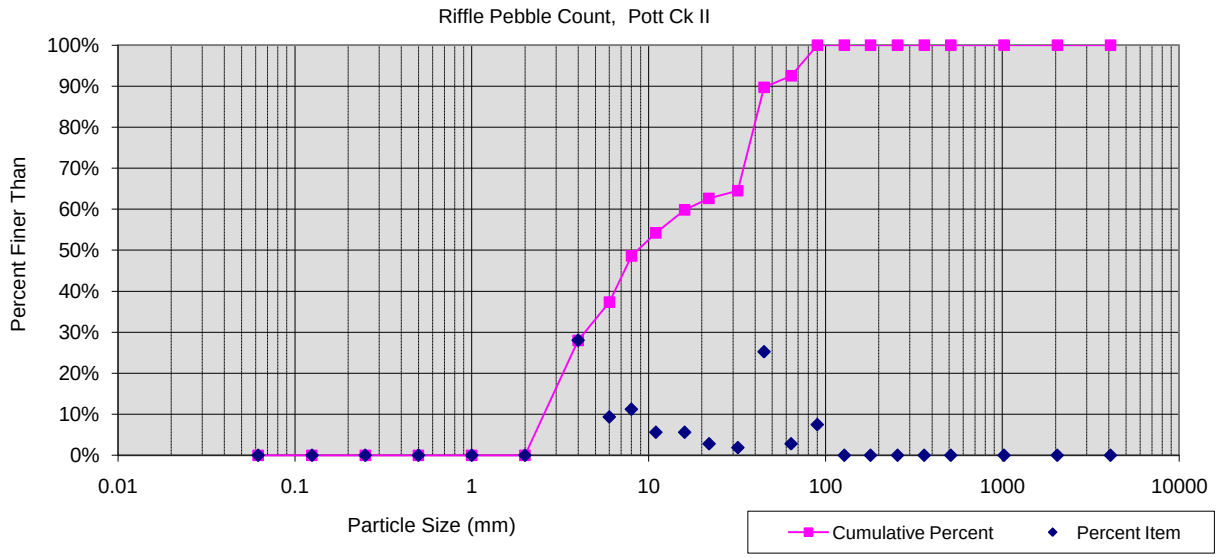
Pott Creek II Pebble Count

7/27/2008

Riffle Pebble Count

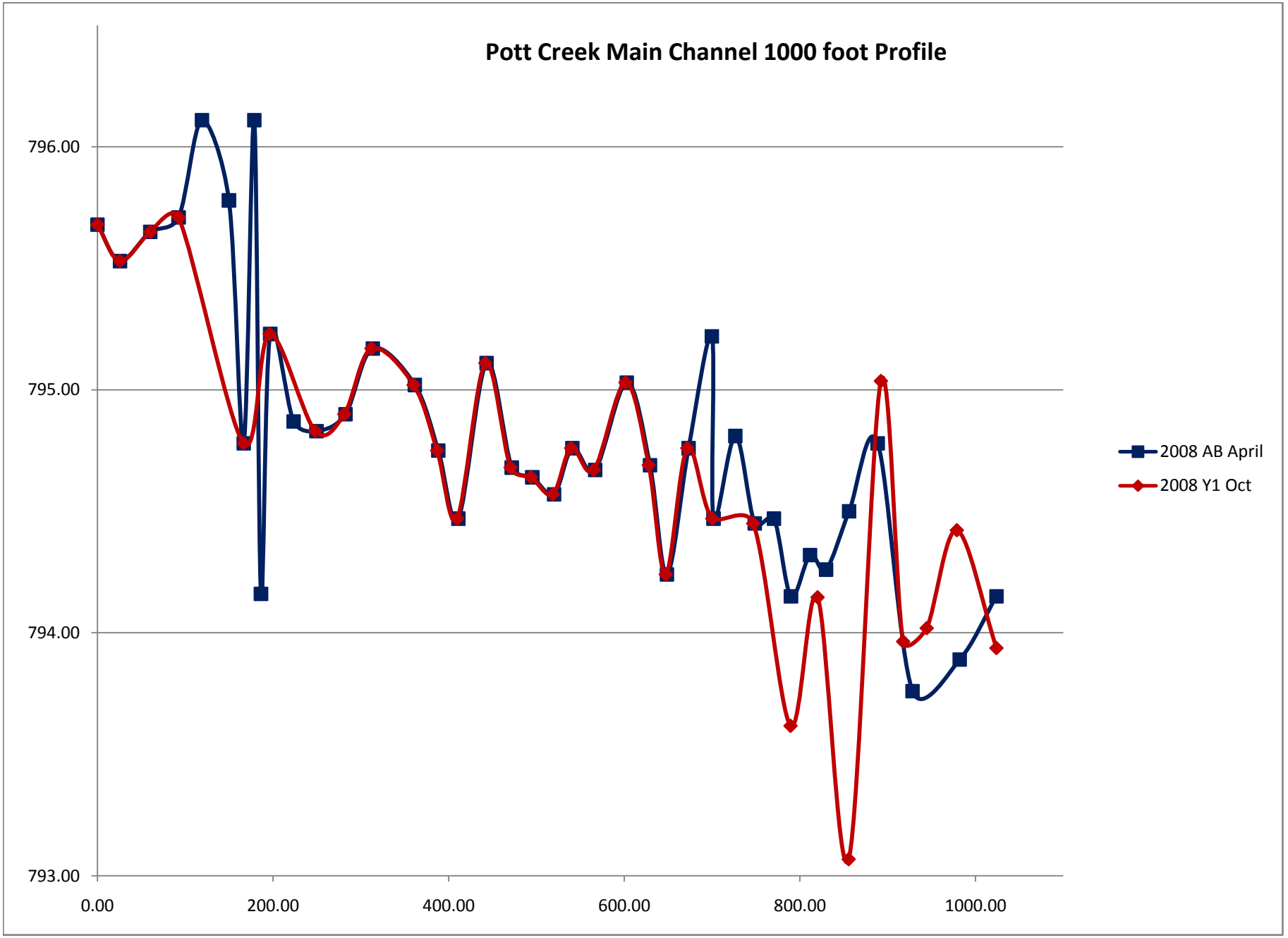
Material	Size Range (mm)		Count
silt/clay	0	0.062	
very fine sand	0.062	0.13	
fine sand	0.13	0.25	
medium sand	0.25	0.5	
coarse sand	0.5	1	
very coarse sand	1	2	
very fine gravel	2	4	30
fine gravel	4	6	10
fine gravel	6	8	12
medium gravel	8	11	6
medium gravel	11	16	6
coarse gravel	16	22	3
coarse gravel	22	32	2
very coarse gravel	32	45	27
very coarse gravel	45	64	3
small cobble	64	90	8
medium cobble	90	128	
large cobble	128	180	
very large cobble	180	256	
small boulder	256	362	
small boulder	362	512	
medium boulder	512	1024	
large boulder	1024	2048	
very large boulder	2048	4096	
bedrock			
		Total Particle Count:	107

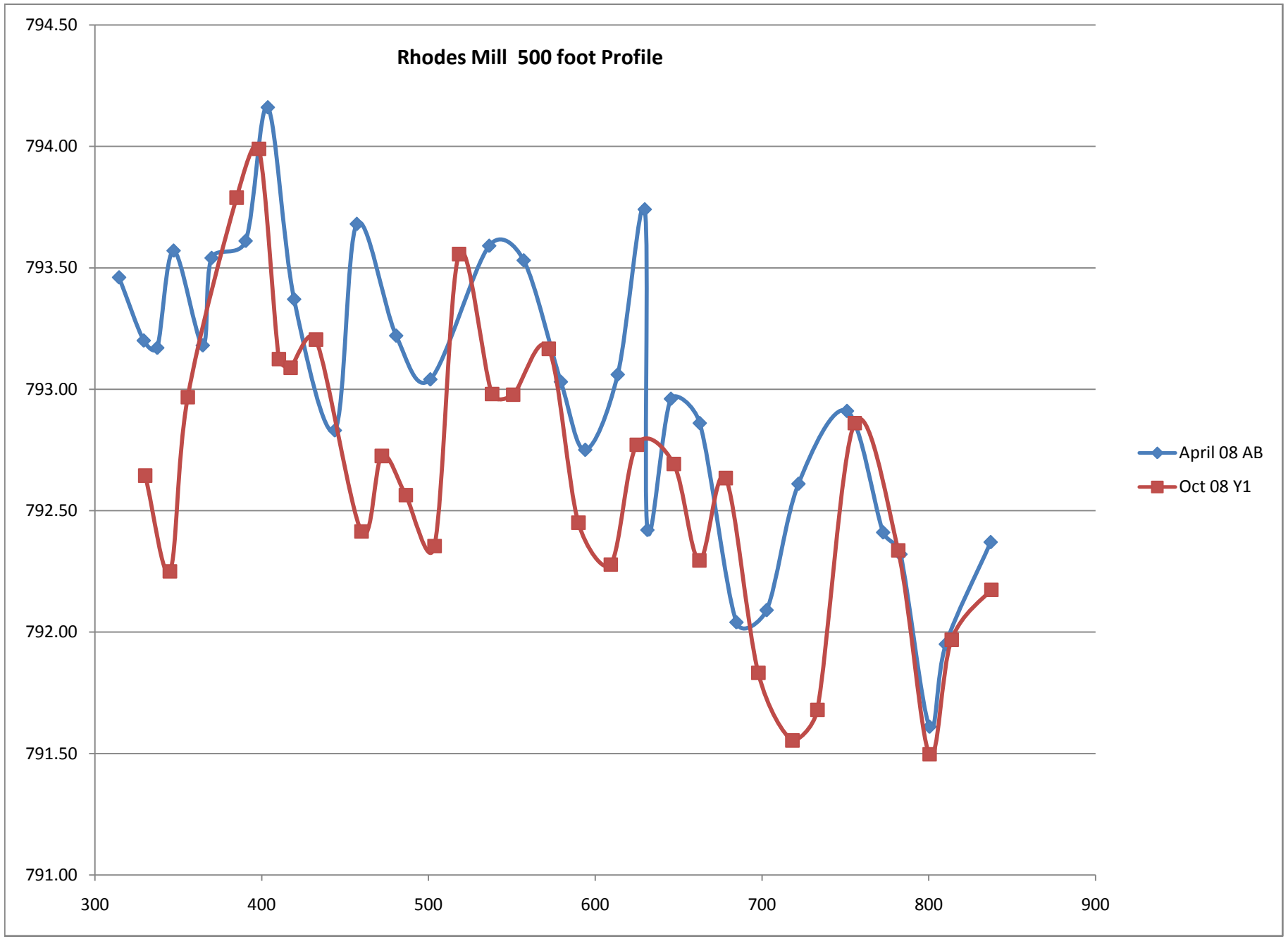
	Pott Creek II
	Pott Creek Riffle 2
	Linclonton, NC
Note:	**(adjacent to PCLS3)**

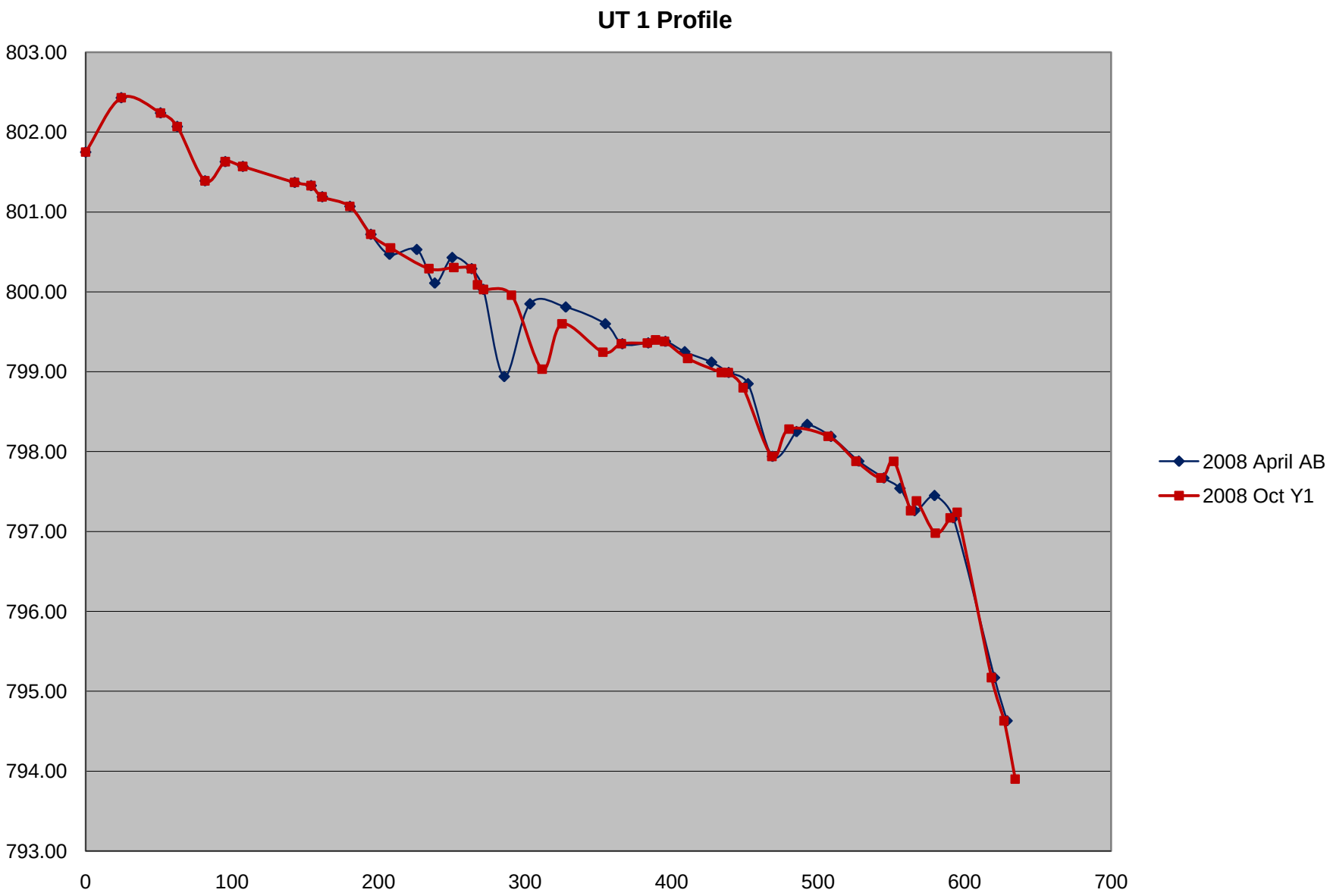


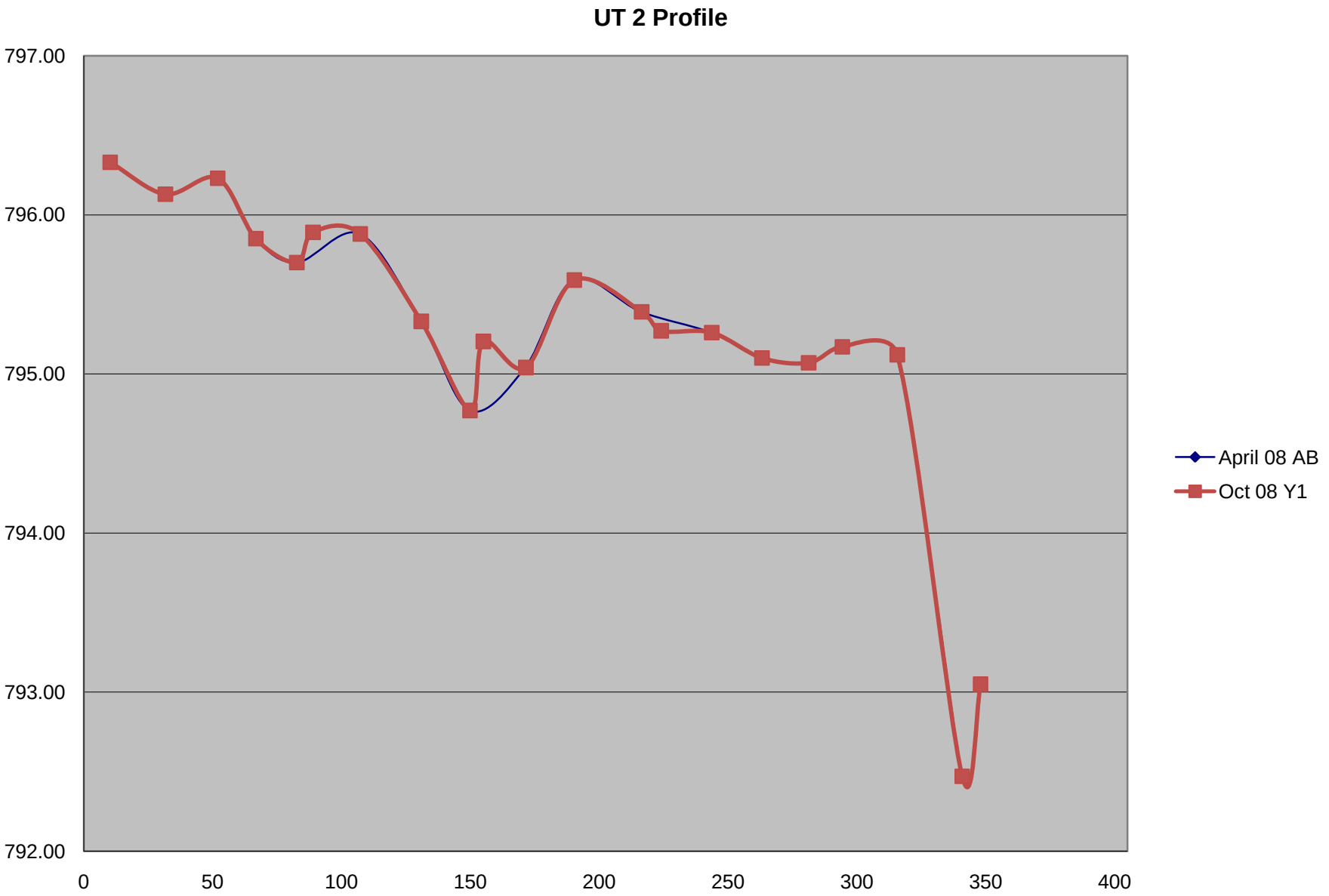
Size percent less than (mm)				
D16	D35	D50	D84	D95
2.970	5.41	8.7	42	72

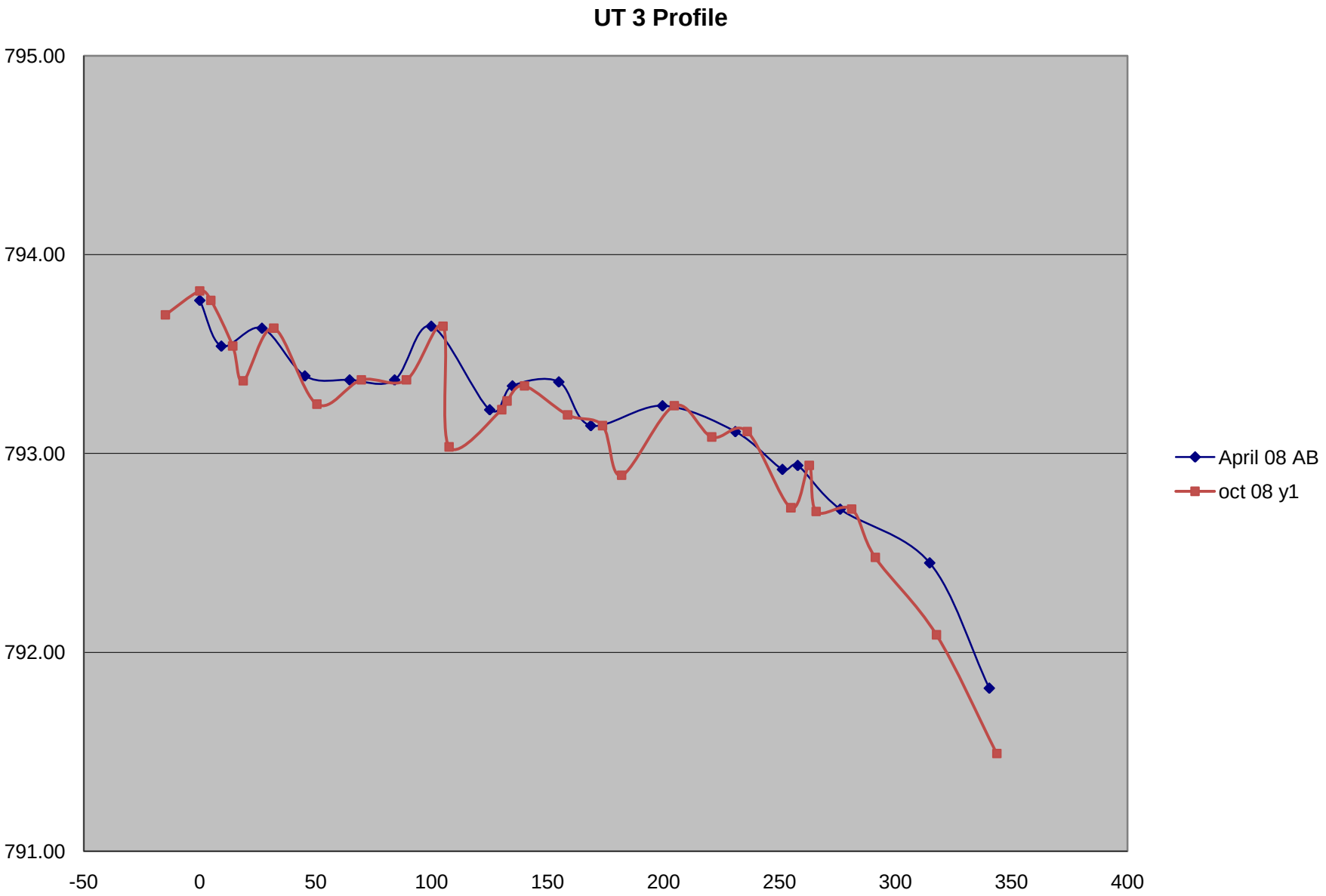
Percent by substrate type					
silt/clay	sand	gravel	cobble	boulder	bedrock
0%	0%	93%	7%	0%	0%

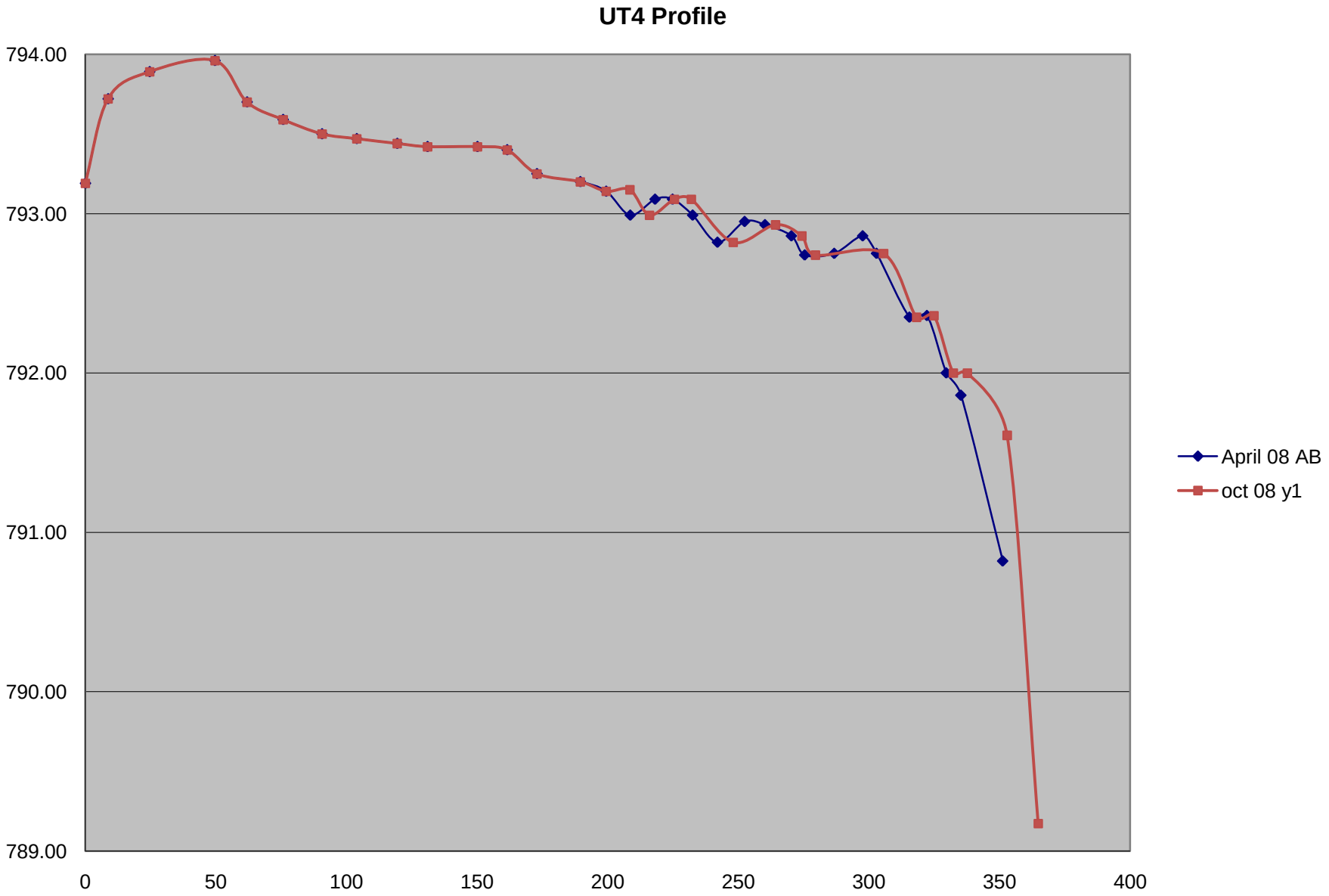

Pott Creek Main Channel 1000 foot Profile
796.00
795.00
794.00
793.00
0.00
200.00
400.00
600.00
800.00
1000.00
2008 AB April
2008 Y1 Oct


Rhodes Mill 500 foot Profile
794.50
794.00
793.50
793.00
792.50
792.00
791.50
791.00
300
400
500
600
700
800
900
April 08 AB
Oct 08 Y1


UT 1 Profile
803.00
802.00
801.00
800.00
799.00
798.00
797.00
796.00
795.00
794.00
793.00
0
100
200
300
400
500
600
700
2008 April AB
2008 Oct Y1


UT 2 Profile
797.00
796.00
795.00
794.00
793.00
792.00
0
50
100
150
200
250
300
350
400
April 08 AB
Oct 08 Y1


UT 3 Profile
795.00
794.00
793.00
792.00
791.00
-50
0
50
100
150
200
250
300
350
400
April 08 AB
oct 08 y1


UT4 Profile
794.00
793.00
792.00
791.00
790.00
789.00
0
50
100
150
200
250
300
350
400
April 08 AB
oct 08 y1

APPENDIX E. Structures and Problem Areas

Photo Log

Beaver Dam Removal – April 15, 2008


04/15/2008


04/15/2008


04/15/2008


04/15/2008


04/15/2008

Pott Creek Photo Log

PCCV(Crossvane)1U(Upstream) – looking downstream

PCCV1U – looking upstream

PCCV2U – looking downstream

PCCV2U – looking upstream

PCCV3U – looking downstream

PCCV3U – looking upstream

PCCV4U – looking downstream

PCCV4U – looking upstream

PCCV5D(Downstream) – looking downstream

PCCV5D – looking upstream

PCJH(J-hook)1U – looking downstream

PCJH1U – looking upstream

PCJH2U – looking downstream

PCJH2U – looking upstream

PCJH3U – looking downstream

PCJH3U – looking upstream

PCJH4U – looking downstream

PCJH4U – looking upstream

PCJH5U – looking downstream

PCJH5U – looking upstream

PCJH6U – looking downstream

PCJH6U – looking upstream

PCJH7U – looking downstream

PCJH7U – looking upstream

PCJH8U – looking downstream

PCJH8U – looking upstream

PCJH10D – looking downstream

PCJH10D – looking upstream

PCJH11D – looking downstream

PCJH11D – looking upstream

PCLS(Log Sill)1-2 – looking downstream

PCLS1-2 – looking upstream

PCLS3 – looking downstream

PCLS3 – looking upstream

PCLS4-5 – looking downstream

PCLS4-5 – looking upstream

PCRV(Rockvane)1U – looking downstream

PCRC1U – looking upstream

PCRV2U – looking downstream

PCRC2U – looking upstream

PCRV3U – looking downstream

PCRC3U – looking upstream

PCRV4U – looking downstream

PCRC4U – looking upstream

PCRV5U – looking downstream

PCRC5U – looking upstream

PCRV7D – looking downstream

PCRC7D – looking upstream

PCRV8D – looking downstream

PCRC8D – looking upstream

Rhodes Mill Creek Photo Log

RMCV1 – looking downstream

RMCV1 – looking upstream

RMJH1 – looking downstream

RMJH1 – looking upstream

RMLS1 – looking downstream

RMLS1 – looking upstream

RMLS2 – looking downstream

RMLS2 – looking upstream

RMRV1 – looking downstream

RMRV1 – looking upstream

Tributary Photo Log

UT1

UT1CV1

UT1RV1

UT1CV2

UT3

UT3CV1

Problem Areas

Small problem area near confluence of Pott Creek and Rhodes MIll

Evidence of 4-Wheeler trespassing, damage to project is minor.

Due to poor placement, half of Veg Plot 8 is located in a small powerline easement and was moved in Summer of 2008.