Large-Scale Channel Erosion Testing (ASTM D 6460 modified)

of

Flexamat Channel Lining over Sandy Loam

February 2009

Submitted to:

Motz Enterprises, Inc. 9415 Montgomery Rd, Ste H Cincinnati, Ohio 45242

Attn: Mr. Jim Motz

Submitted by: TRI/Environmental, Inc. 9063 Bee Caves Road Austin, TX 78733

> C. Joel Sprague Project Manager

February 23, 2009

Mr. Jim Motz

Motz Enterprises, Inc. 9415 Montgomery Rd, Ste H Cincinnati, Ohio 45241

E-mail: mmotz@flexamat.com

Subject: Channel Testing of Flexamat over Sandy Loam (Log #2278-01-34)

Dear Mr. Motz:

This letter report presents the results for large-scale channel erosion tests performed on Flexamat channel lining over Sandy loam. Included are data developed for target hydraulic shears ranging from 4 to 16 psf (0.2 to 0.8 kPa). All testing work was performed in general accordance with the ASTM D 6460, Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Earthen Channels from Stormwater-Induced Erosion, except, the permissible shear was projected rather than interpolated. Generated results were used to develop the following permissible or limiting shear (τ_{limit}) and limiting velocity (V_{limit}) for the tested material:

 $\tau_{limit\;FLEXAMAT(std)} = 24 + \; psf \qquad \qquad V_{limit\;FLEXAMAT(std)} = 19 + \; ft/sec$

TRI is pleased to present this *final* report. Please feel free to call if we can answer any questions or provide any additional information.

Sincerely,

C. Joel Sprague, P.E.

Senior Engineer

Geosynthetics Services Division

Cc: Sam Allen, Jarrett Nelson - TRI



CHANNEL TESTING REPORT

FLEXAMAT over Sandy loam

TESTING EQUIPMENT AND PROCEDURES

Overview of Test and Apparatus

TRI/Environmental, Inc.'s (TRI's) large-scale channel erosion testing facility is located at the Denver Downs Research Farm in Anderson, SC. Testing oversight is provided by C. Joel Sprague, P.E. The large-scale testing was performed in a rectangular flume having a 30% slope using a loamy soil test section. The concentrated flow is produced by gravity from an adjacent pond. Four sequential, increasing flows are applied to each test section for 30 minutes each to achieve a range of hydraulic shear stresses in order to define the permissible, or limiting, shear stress, τ_{limit} , which is the shear stress necessary to cause an average of 0.5 inch of soil loss over the entire channel bottom. Testing is performed in accordance with ASTM D 6460 protocol, except the permissible shear was projected rather than interpolated. Tables and graphs of shear versus soil loss are generated from the accumulated data.

Erosion Control Product

The following index properties were determined from testing the FLEXAMAT Erosion Control Matting.

Table 1. Tested FLEXAMAT Index Properties

Index Property / Test	Units	Values		
Flexamat Product	style	Flex-a-mat Standard		
Block size	(length x width)	6.5 in x 5.5 in		
Block weight	lbs	3.0		
Block Ground Cover	%	75		
Reinforcing Grid	style	Fornit 30/30		
Underlayment	style	Fortrac 3D-30		
Straw coverage rate	oz/sy	12 oz/sy		

Test Soil

The test soil used in the test plots had the following characteristics.



Table 2.	TRI-I	oam Cha	aracteristics

Soil Characteristic	Test Method	Value		
% Gravel		7		
% Sand	ASTM D 422	60		
% Silt	ASTM D 422	25		
% Clay		8		
Liquid Limit, %	ASTM D 4318	32		
Plasticity Index, %	ASTM D 4316	5		
Soil Classification	USDA	Sandy Loam		
Soil Classification	USCS	Silty Sand (SM)		

Preparation of the Test Channels

The test channels undergo a "standard" preparation procedure prior to each test. First, any rills or depressions resulting from previous testing are filled in with test soil. The entire test channel is then tilled to a depth not less than four inches. The test channel is then raked and formed to create a channel bottom that is level side-to-side and at a smooth 30% slope top-to-bottom. Finally, a vibrating plate compactor is run over the channel to achieve 90% standard Proctor compaction. The submitted erosion control product is then installed as directed by the client.

Installation of Erosion Control Product in Test Channel

As noted, the submitted erosion control product is installed as directed by the client. For the tests reported herein, the erosion control product was installed as follows:

- o Straw placed uniformly on soil surface;
- o Underlayment matting placed overtop the straw;
- o FLEXAMAT unrolled over the straw/matting.

Note that anchorage was provided at the top of the flume.

Specific Test Procedure

Immediately prior to testing, the black plastic is removed from the test channel and initial soil surface elevation readings are made at predetermined cross-sections. The channel is then exposed to sequential 30-minute flows having typical target hydraulic shear stresses of 4, 8, 12, and 16 psf. During the testing, flow depth and corresponding flow velocity measurements are taken at the predetermined cross-section locations. Between flow events, the flow is stopped and soil surface elevation measurements are made to facilitate calculation of soil loss. Flows are then increased to achieve the subsequent shear target in an attempt to create more than 0.5 inches of soil loss. ½-inch of soil loss was not accomplished prior to reaching maximum flow capacity. Pictures of channel testing are shown in Figures 1 thru 8.





Figure 1. Rectangular Channel Setup



Figure 2. Gravity Flow to Flume



Figure 3. Channel Flow Velocity Measurement (typical)



Figure 4. Low Flow in Channel



Figure 5. Medium Flow in Channel



Figure 6. High Flow in Channel



Figure 7. Rect. Channel After High Flow



Figure 8. Channel After Matting Removed (no apparent soil surface disruption)

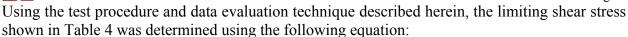
TEST RESULTS

Average soil loss and the associated hydraulic shear calculated from flow and depth measurements made during the testing are the principle data used to determine the performance of the product tested. This data is entered into a spreadsheet that transforms the flow depth and velocity into an hydraulic shear stress and the soil loss measurements into and average Clopper Soil Loss Index (CSLI). A graph of shear versus soil loss for the protected condition is shown in Figure 9. The associated velocities are plotted in Figure 10. The graphs include a polynomial regression line fit to the test data to facilitate a projection of the limiting shear stress, τ_{limit} ,, and limiting velocity, V_{limit} ,, since ½-inch of soil loss was not achieved during testing.

Table 3. Summary Data Table – Protected Test Reach

Test # (run # - target shear)	Flow depth (in)	Flow velocity (fps)	Flow (cfs)	Manning's roughness,	Max Bed Shear Stress (psf)	CSLI (in)	Cumm. CSLI (in)
R1-4	3.79	6.56	4.13	0.058	5.82	-0.06	-0.06
R1-8	5.07	8.88	7.48	0.052	7.79	-0.05	-0.11
R1-12	6.99	11.06	12.87	0.051	10.74	-0.07	-0.18
R1-16	11.03	14.88	27.30	0.052	16.95	-0.11	-0.29
R2-4	3.61	6.38	3.82	0.058	5.55	-0.04	-0.04
R2-8	5.21	8.69	7.53	0.054	8.00	-0.05	-0.09
R2-12	7.10	10.81	12.77	0.053	10.92	-0.05	-0.14
R2-16	10.80	14.56	26.19	0.052	16.60	-0.11	-0.25
R3-4	3.53	6.31	3.70	0.057	5.42	-0.04	-0.04
R3-8	5.31	8.56	7.58	0.055	8.17	-0.07	-0.11
R3-12	6.88	10.63	12.17	0.053	10.57	-0.07	-0.17
R3-16	10.88	14.88	26.95	0.051	16.71	-0.13	-0.30





$$\tau_{\text{limit}}$$
, = γ d S

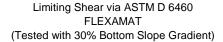
where: τ_{limit} , = limiting shear stress;

 γ = unit weight of water, 62.4pcf;

d = depth of water, ft S = channel slope, 0.30

Table 4. Overall C-Factor

Product	Limiting Shear, τ _{limit}	Limiting Velocity, V _{limit}		
FLEXAMAT - standard	24+ psf	19+ ft/sec		



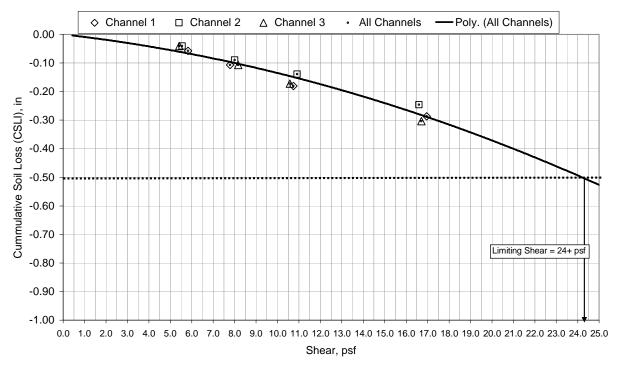


Figure 11. Shear Stress vs. Soil Loss - Tested Product



Limiting Velocity via ASTM D 6460 FLEXAMAT (Tested with 30% Bottom Slope Gradient)

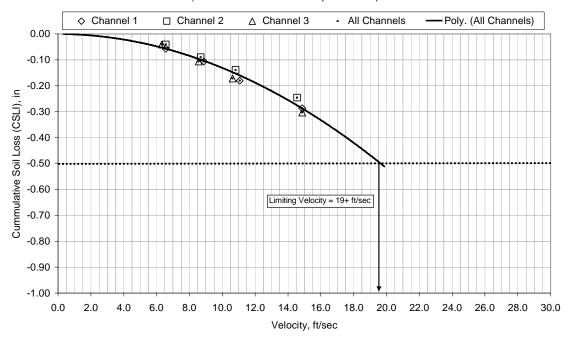


Figure 12. Velocity vs. Soil Loss - Tested Product

Manning's n vs. Water Depth FLEXAMAT (Tested with 30% Bottom Slope Gradient)

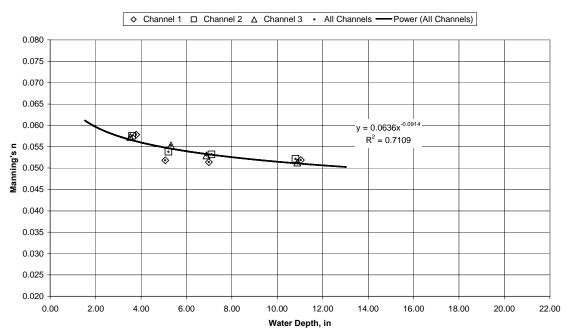


Figure 13. Roughness vs. Flow Depth – Tested Product



CONCLUSIONS

Rectangular (vertical wall) channel (flume) tests were performed in accordance with ASTM D 6460 using sandy loam soil protected with FLEXAMAT. Testing in a rectangular (vertical wall) channel was conducted to achieve increasing shear levels in an attempt to cause at least 0.5-inch of soil loss. In this testing, 0.5-inches of soil loss was not achieved before reaching the maximum available flows (i.e. shear stress and velocity). Figure 11 shows the maximum bottom shear stress and associated soil loss from each flow event along with a projection of the shear stress at which 0.5 inches of accumulated soil loss would be expected to occur. This projection shows an allowable shear stress for the standard FLEXAMAT system to be over 24 psf.



APPENDIX A – RECORDED DATA

Test Record Sheets

	ANNEL 1 - SHEA	AR STRESS 1	Date:	2/14/09		Start Time:	12:00 PM	End Time:	12:30 PM	
		K SIKESS I	Soil:	Loam	Target	Shear (psf):	6.00	Slope:	30%	•
ran	ong flume	20 ft test section			F	lexamat Pe	rmanent Cha		Mat	
<u> </u>		2 ft wide flume					Т	EST DATA		
	1 2 FLOW	3	Outlet Weir Water Depth, in	1	12.00	3				
Weir wid	idth (ft) = 4		Water Velocity, ft/s		3.00					
0 ft	A B.	С	Flow Rate, cfs	0.00	12.00	0.00				
			Cross-section 1	А	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
		To orig	ginal Surface Elev, cm	28.5	26.5	28		6		38.0
		To ero	ded Surface Elev, cm	28	26.5	28	Vavg (fps) =	6.00	Bed Max Shear Stress	
			Soil Loss / Gain, cm	-0.5	0	0	navg =	0.067	(psf)	Water Depth (in
		'	Clopper Soil Loss, cm	-0.5	0	0	Flow (cfs) =	4.13	6.35	4.13
2 ft		 			Ī	oss/Gain, in	-0.07	14.00.001	Avg Clopper Soil Loss, in	-0.07
		To orio	Cross-section 2 ginal Surface Elev, cm	A 28.5	B 28	C 30.5	V @ 0.2d	V @ 0.6d 6	V @ 0.8d	To Water Surf, cr 39.0
		· · ·	ided Surface Elev, cm	28.5	28	30.5	Vavg (fps) =	6.00	D 114 OL O	33.0
			Soil Loss / Gain, cm	0	0	-0.5	navg =	0.065	Bed Max Shear Stress (psf)	Water Depth (in
			Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	4.00	6.15	4.00
4 ft		<u> </u>		Av	g Bottom L	oss/Gain, in	-0.07		Avg Clopper Soil Loss, in	-0.07
			Cross-section 3	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
		· · · · · ·	ginal Surface Elev, cm	30	30	31		6.5		40.0
		To ero	ded Surface Elev, cm	30	30	31	Vavg (fps) =	6.50	Bed Max Shear Stress	M-4 D :: "
			Soil Loss / Gain, cm	0	0	0	navg = Flow (cfs) =	0.058 4.12	(psf) 5.85	Water Depth (in
6 ft			Clopper Soil Loss, cm	U		oss/Gain, in	0.00	4.12	5.85 Avg Clopper Soil Loss, in	0.00
		<u> </u>	Cross-section 4	Α	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
		To orig	ginal Surface Elev, cm	32	31	32.5		6.5		41.5
			ded Surface Elev, cm	32	31	32	Vavg (fps) =	6.50	Bed Max Shear Stress	
			Soil Loss / Gain, cm	0	0	-0.5	navg =	0.059	(psf)	Water Depth (in)
		'	Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	4.19	5.95	3.87
8 ft		 			Ī	oss/Gain, in	-0.07		Avg Clopper Soil Loss, in	-0.07
			Cross-section 5	A	31	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
		i	ginal Surface Elev, cm oded Surface Elev, cm	33 33	31	32.5 32	Vavg (fps) =	6.50		41.5
		1000	Soil Loss / Gain, cm	0	0	-0.5	navg =	0.058	Bed Max Shear Stress (psf)	Water Depth (in)
			Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	4.05	5.75	3.74
10 ft				Av	g Bottom L	oss/Gain, in	-0.07		Avg Clopper Soil Loss, in	-0.07
			Cross-section 6	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
		· ·	ginal Surface Elev, cm	34	31	32		7		41.5
		To ero	ded Surface Elev, cm	34 0	31 0	32 0	Vavg (fps) =	7.00	Bed Max Shear Stress	Water Depth (in)
		1 1 .	Soil Loss / Gain, cm Clopper Soil Loss, cm	0	0	0	navg = Flow (cfs) =	0.052 4.21	(psf) 5.55	3.61
12 ft			Cioppei Coli Loss, citi			oss/Gain, in	0.00		Avg Clopper Soil Loss, in	0.00
			Cross-section 7		ř					
				Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
	1 1 1	To orig	inal Surface Elev, cm	A 36	B 35	C 34.5	V @ 0.2d	7 @ 0.6d	V @ 0.8d	To Water Surf, cr 44.0
		1 1	ginal Surface Elev, cm eded Surface Elev, cm				V @ 0.2d Vavg (fps) =		V @ 0.8d Bed Max Shear Stress	To Water Surf, cr 44.0
		To ero	oded Surface Elev, cm Soil Loss / Gain, cm	36 35.5 -0.5	35 34.5 -0.5	34.5 34.5 0	Vavg (fps) = navg =	7 7.00 0.052	Bed Max Shear Stress (psf)	44.0 Water Depth (in)
14.6		To ero	ded Surface Elev, cm	36 35.5 -0.5 -0.5	35 34.5 -0.5 -0.5	34.5 34.5 0	Vavg (fps) = navg = Flow (cfs) =	7 7.00	Bed Max Shear Stress (psf) 5.55	44.0 Water Depth (in
14 ft		To ero	oded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	36 35.5 -0.5 -0.5	35 34.5 -0.5 -0.5 rg Bottom L	34.5 34.5 0 0 oss/Gain, in	Vavg (fps) = navg = Flow (cfs) = -0.13	7 7.00 0.052 4.21	Bed Max Shear Stress (psf) 5.55 Avg Clopper Soil Loss, in	44.0 Water Depth (in 3.61 -0.13
14 ft		To ero	oded Surface Elev, cm Soil Loss / Gain, cm	36 35.5 -0.5 -0.5	35 34.5 -0.5 -0.5	34.5 34.5 0 0 oss/Gain, in	Vavg (fps) = navg = Flow (cfs) =	7 7.00 0.052	Bed Max Shear Stress (psf) 5.55	Water Depth (in 3.61 -0.13
14 ft		To ero	ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8	36 35.5 -0.5 -0.5 Aw	35 34.5 -0.5 -0.5 g Bottom L	34.5 34.5 0 0 oss/Gain, in	Vavg (fps) = navg = Flow (cfs) = -0.13	7 7.00 0.052 4.21 V @ 0.6d	Bed Max Shear Stress (psf) 5.55 Avg Clopper Soil Loss, in V @ 0.8d	44.0 Water Depth (in 3.61 -0.13
14 ft		To ero	ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 ginal Surface Elev, cm	36 35.5 -0.5 -0.5 Av A	35 34.5 -0.5 -0.5 g Bottom L B	34.5 34.5 0 0 oss/Gain, in C	Vavg (fps) = navg = Flow (cfs) = -0.13	7 7.00 0.052 4.21 V @ 0.6d 7	Bed Max Shear Stress (psf) 5.55 Avg Clopper Soil Loss, in	Water Depth (in 3.61 -0.13
		To ero	ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 ginal Surface Elev, cm ided Surface Elev, cm	36 35.5 -0.5 -0.5 Av A 35 35 0	35 34.5 -0.5 -0.5 g Bottom L B 34 33.5 -0.5	34.5 34.5 0 0 oss/Gain, in C 35 35 0	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) =	7 7.00 0.052 4.21 V @ 0.6d 7 7.00	Bed Max Shear Stress (pst) 5.55 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	44.0 Water Depth (in 3.61 -0.13 To Water Surf, ct 43.5 Water Depth (in 3.54
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		To ero	ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 ginal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9	36 35.5 -0.5 -0.5 Av A 35 35 0 0 Av	35 34.5 -0.5 -0.5 g Bottom L B 34 33.5 -0.5 g Bottom L B	34.5 34.5 0 0 oss/Gain, in C 35 35 0 0 oss/Gain, in	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) =	7 7.00 0.052 4.21 V @ 0.6d 7 7.00 0.052 4.13	Bed Max Shear Stress (pst) 5.55 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	44.0 Water Depth (in 3.61 -0.13 To Water Surf, c 43.5 Water Depth (in 3.54 -0.07 To Water Surf, c 7.00
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16 ft		To orig To orig To ero	ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 ginal Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9 ginal Surface Elev, cm ded Surface Elev, cm Clopper Soil Loss, cm Cross-section 10 ginal Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	36 35.5 -0.5 -0.5 -0.5 Av A 35 0 0 Av A 35 35 0 Av A 35 35 0 0 Av A 36 37 0 Av A 37 0 Av A 38 0 Av A	35 34.5 -0.5 -0.5 g Bottom L B 34 33.5 -0.5 -0.5 g Bottom L B 35 0 0 g Bottom L B 32 0	34.5 34.5 0 0 0ss/Gain, in C 35 35 0 0 oss/Gain, in C 36 36 0 0 ss/Gain, in C 35 36 36 0 0 ss/Gain, in C 35	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d	7 7.00 0.052 4.21 V @ 0.6d 7 7.00 0.052 4.13 V @ 0.6d 7.5 0.047 4.27 V @ 0.6d 7.5 0.044 0.060 0.060 0.060 0.060 0.060 0.060	Bed Max Shear Stress (psf) 5.55 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.45 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.24 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) Bed Max Shear Stress (psf)	44.0 Water Depth (in 3.61 -0.13 To Water Surf, c 43.5 Water Depth (in 3.54 -0.07 To Water Surf, c 44.0 Water Depth (in 3.41 -0.00 To Water Surf, c 42.0 Water Depth (in 3.41 -0.00 Water Depth (in 3.41 -0.00
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16 ft		To originate of the control of the c	ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 ginal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9 ginal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 ginal Surface Elev, cm ded Surface Elev, cm Clopper Soil Loss, cm Cross-section 10 ginal Surface Elev, cm clopper Soil Loss, cm Cross-section 11 ginal Surface Elev, cm ded Surface Elev, cm	36 35.5 -0.5 -0.5 -0.5 -0.5 -0.5 Av A 35 0 0 Av A 35 35 0 0 Av A 31 34 0 0 Av A 31.5 0 0 0 0 Av	35 34.5 -0.5 -0.5 g Bottom L B 34 33.5 -0.5 -0.5 g Bottom L B 35 36 0 0 g Bottom L B 32 32 0 0 g Bottom L B 32 32 0 0 0 g Bottom L	34.5 34.5 0 0 0ss/Gain, in C 35 35 0 0 0ss/Gain, in C 36 36 36 0 0 0ss/Gain, in C 35 36 36 0 0 0 0ss/Gain, in C 35 34.5 -0.5 0ss/Gain, in C 31 31 0	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 7.007 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = Flow (cfs) = Read Flow (cfs) = Read Flow (cfs) = Read Flow (cfs) =	7 7.00 0.052 4.21 V @ 0.6d 7 7.00 0.052 4.13 V @ 0.6d 7.5 7.50 0.047 4.27 V @ 0.6d 7.5 7.50 0.047 4.27	Bed Max Shear Stress (psf) 5.55 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.45 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.24 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.24 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.14 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.14 Avg Clopper Soil Loss, in V @ 0.8d	44.0 Water Depth (in 3.61 -0.13 To Water Surf, c 43.5 Water Depth (in 3.54 -0.07 To Water Surf, c 44.0 Water Depth (in 3.41 0.00 To Water Surf, c 42.0 Water Depth (in 3.35 -0.07 To Water Surf, c 39.0 Water Depth (in 3.22
16 ft		To originate of the control of the c	ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 ginal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9 ginal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 ginal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 ginal Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 11 ginal Surface Elev, cm soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 11 ginal Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	36 35.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.6 -0.7 -0.5 -0.6 -0.7 -0.7 -0.7 -0.7 -0.7 -0.7 -0.7 -0.7	35 34.5 -0.5 -0.5 g Bottom L B 34 33.5 -0.5 -0.5 g Bottom L B 35 36 0 0 g Bottom L B 32 32 0 0 g Bottom L B 30 0 g Bottom L	34.5 34.5 0 0 0ss/Gain, in C 35 35 0 0 0ss/Gain, in C 36 36 0 0 0ss/Gain, in C 35 36 36 0 0 0 0ss/Gain, in C 35 34.5 -0.5 -0.5 -0.5 0ss/Gain, in C 31 31 0 0 0ss/Gain, in	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07	7 7.00 0.052 4.21 V @ 0.6d 7.00 0.052 4.13 V @ 0.6d 7.5 7.50 0.047 4.27 V @ 0.6d 7.5 7.50 0.418 V @ 0.6d 7.5 7.50 0.418	Bed Max Shear Stress (psf) 5.55 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.45 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.24 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.14 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.14 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 4.94 Avg Clopper Soil Loss, in	44.0 Water Depth (in 3.61 -0.13 To Water Surf, c 43.5 Water Depth (in 3.54 -0.07 To Water Surf, c 44.0 Water Depth (in 3.41 0.00 To Water Surf, c 42.0 Water Depth (in 3.35 -0.07 To Water Surf, c 39.0 Water Depth (in 3.22 0.00
16 ft		To originate of the control of the c	ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 ginal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9 ginal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 ginal Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 ginal Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 11 ginal Surface Elev, cm soil Loss / Gain, cm Cross-section 11 ginal Surface Elev, cm soil Loss / Gain, cm Soil Loss / Gain, cm	36 35.5 -0.5 -0.5 -0.5 -0.5 -0.5 Av A 35 0 0 Av A 35 35 0 0 Av A 31 34 0 0 Av A 31.5 0 0 0 0 Av	35 34.5 -0.5 -0.5 g Bottom L B 34 33.5 -0.5 -0.5 g Bottom L B 35 36 0 0 g Bottom L B 32 32 0 0 g Bottom L B 32 32 0 0 0 g Bottom L	34.5 34.5 0 0 0ss/Gain, in C 35 35 0 0 0ss/Gain, in C 36 36 36 0 0 0ss/Gain, in C 35 36 36 0 0 0 0ss/Gain, in C 35 34.5 -0.5 0ss/Gain, in C 31 31 0	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = Respect to the content of the co	7 7.00 0.052 4.21 V @ 0.6d 7 7.00 0.052 4.13 V @ 0.6d 7.5 7.50 0.047 4.27 V @ 0.6d 7.5 7.50 0.046 4.18 V @ 0.6d 7.5 7.50 0.046 4.18 V @ 0.6d 7.5 7.50 0.046 4.18	Bed Max Shear Stress (psf) 5.55 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.45 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.24 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.24 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.14 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.14 Avg Clopper Soil Loss, in V @ 0.8d	44.0 Water Depth (in 3.61 -0.13 To Water Surf, c 43.5 Water Depth (in 3.54 -0.07 To Water Surf, c 44.0 Water Depth (in 3.41 0.00 To Water Surf, c 42.0 Water Depth (in 3.35 -0.07 To Water Surf, c 39.0 Water Depth (in 3.32

	CHAN	NEL 1 - SHEAI	etdess 2	Date:	2/14/09		Start Time:	1:00 PM	End Time:	1:30 PM	
	СПАМ	NEL I - SHEAI	K STRESS 2	Soil:	Loam	Target S	Shear (psf):	10.00	Slope:	30%	•
	ft long	flume	20 ft test section			F	lexamat Pe	ermanent Cha	annel Lining	Mat	
1500	rpms	_	2 ft wide flume			1	1	Т	EST DATA		
		1 2	3	Inlet Weir	1	2	3				
		FLOW		Water Depth, in		15.00					
		(ft) = 4		Water Velocity, ft/s	0.00	4.50	0.00				
0	ft	A BL (- -	Flow Rate, cfs	0.00	22.50	0.00				
				Cross-section 1	A	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, c
				inal Surface Elev, cm	28	26.5	28	\/(f)	8		42.0
			i lo erod	ded Surface Elev, cm	28 0	26	28 0	Vavg (fps) =	8.00	Bed Max Shear Stress	Water Depth (in
				Soil Loss / Gain, cm Clopper Soil Loss, cm	0	-0.5 -0.5	0	navg =	7.70	(psf) 8.87	Water Depth (in
2	ft			Jopper Son Loss, cm		g Bottom Lo		Flow (cfs) =	7.70	Avg Clopper Soil Loss, in	5.77 -0.07
				Cross-section 2	A	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, c
			To origi	inal Surface Elev, cm	28.5	28	30	V @ 0.20	8.5	V @ 0.00	42.0
			1 1	ded Surface Elev, cm	28	28	30	Vavg (fps) =	8.50	D 114 OL OL	12.10
				Soil Loss / Gain, cm	-0.5	0	0	navg =	0.055	Bed Max Shear Stress (psf)	Water Depth (in
				Clopper Soil Loss, cm	-0.5	0	0	Flow (cfs) =	7.44	8.07	5.25
4	ft					g Bottom Lo	ss/Gain, in	-0.07		Avg Clopper Soil Loss, in	-0.07
				Cross-section 3	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, c
			To origi	inal Surface Elev, cm	30	30	31		9		43.0
			To eroo	ded Surface Elev, cm	30	30	31	Vavg (fps) =	9.00	Bed Max Shear Stress	
				Soil Loss / Gain, cm	0	0	0	navg =	0.050	(psf)	Water Depth (in
				Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	7.48	7.66	4.99
6	ft		⊢		Av	g Bottom Lo	ss/Gain, in	0.00		Avg Clopper Soil Loss, in	0.00
				Cross-section 4	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, c
			To original	inal Surface Elev, cm	32	31	32		9		44.0
			To eroo	ded Surface Elev, cm	32	30.5	32	Vavg (fps) =	9.00	Bed Max Shear Stress	
				Soil Loss / Gain, cm	0	-0.5	0	navg =	0.050	(psf)	Water Depth (in
_				Clopper Soil Loss, cm	0	-0.5	0	Flow (cfs) =	7.38	7.56	4.92
8	ft		: 			g Bottom Lo	1	-0.07		Avg Clopper Soil Loss, in	-0.07
				Cross-section 5	A	B	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, c
			1	inal Surface Elev, cm	33	31	32	\/(f)	9		44.5
			i o eroc	ded Surface Elev, cm	33 0	31 0	32 0	Vavg (fps) =	9.00	Bed Max Shear Stress	Water Depth (in
				Soil Loss / Gain, cm Clopper Soil Loss, cm	0	0	0	navg = Flow (cfs) =	0.050 7.38	(psf) 7.56	Water Depth (in 4.92
10	ft			Jopper Son Loss, cm		g Bottom Lo		0.00	7.30	Avg Clopper Soil Loss, in	0.00
10			! 	Cross-section 6	A	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
			To origi	inal Surface Elev, cm	34	31	32	V @ 0.20	9	V @ 0.00	45.0
			; <u> </u>	ded Surface Elev, cm	34	31	32	Vavg (fps) =	9.00	5 114 01 01	40.0
				Soil Loss / Gain, cm	0	0	0	navg =	0.050	Bed Max Shear Stress (psf)	Water Depth (in
			:	Clopper Soil Loss, cm	0			Flow (cfs) =	7.48	7.66	
12		i			U	0	0				4.99
	ft					0 g Bottom Lo		0.00		Avg Clopper Soil Loss, in	4.99 0.00
	ft			Cross-section 7					V @ 0.6d		0.00
	ft		_	Cross-section 7	Av	g Bottom Lo	ss/Gain, in	0.00	V @ 0.6d 9	Avg Clopper Soil Loss, in	0.00
	ft		To origi		Av A	g Bottom Lo	oss/Gain, in	0.00		Avg Clopper Soil Loss, in	0.00 To Water Surf, c
	ft		To origi	inal Surface Elev, cm	Av A 35.5	g Bottom Lo	c SS/Gain, in C 34.5	0.00 V @ 0.2d	9	Avg Clopper Soil Loss, in V @ 0.8d	0.00 To Water Surf, c 47.0
			To origi To erod	inal Surface Elev, cm ded Surface Elev, cm	Av A 35.5 34.5 -1 -1	g Bottom Lc B 34.5 34 -0.5 -0.5	0 c 34.5 34.5 0 0	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) =	9 9.00	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66	0.00 To Water Surf, c 47.0 Water Depth (in 4.99
14			To origi To erod	inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	Av A 35.5 34.5 -1 -1 Av	g Bottom Lc B 34.5 34 -0.5 -0.5 g Bottom Lc	oss/Gain, in C 34.5 34.5 0 0 oss/Gain, in	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20	9 9.00 0.050 7.48	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in	0.00 To Water Surf, c 47.0 Water Depth (in 4.99 -0.20
14			To origi To erod	inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8	Av A 35.5 34.5 -1 -1 Av A	g Bottom Lc B 34.5 34 -0.5 -0.5 g Bottom Lc	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) =	9 9.00 0.050 7.48 V @ 0.6d	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66	0.00 To Water Surf, c 47.0 Water Depth (in 4.99 -0.20 To Water Surf, c
14			To origi	inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 inal Surface Elev, cm	Av A 35.5 34.5 -1 -1 Av A 35	g Bottom Lo B 34.5 34 -0.5 -0.5 g Bottom Lo B 33.5	ss/Gain, in C 34.5 34.5 0 0 ss/Gain, in C 35	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d	9 9.00 0.050 7.48 V @ 0.6d 9.5	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in	0.00 To Water Surf, c 47.0 Water Depth (in 4.99 -0.20
14			To origi	nal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 inal Surface Elev, cm ded Surface Elev, cm	Av A 35.5 34.5 -1 -1 Av A 35 35	g Bottom Lo B 34.5 34 -0.5 -0.5 g Bottom Lo B 33.5 33.5	ss/Gain, in	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) =	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress	0.00 To Water Surf, c 47.0 Water Depth (in 4.99 -0.20 To Water Surf, c 46.5
14			To origing To origing To origing To eroo	nal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm	Av A 35.5 34.5 -1 -1 Av A 35 35 0	g Bottom Lc B 34.5 34 -0.5 -0.5 g Bottom Lc B 33.5 0	ss/Gain, in C 34.5 34.5 0 oss/Gain, in C 35 0	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) = navg =	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50 0.046	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	0.00 To Water Surf, c 47.0 Water Depth (ir 4.99 -0.20 To Water Surf, c 46.5 Water Depth (ir
	ft		To origing To origing To origing To eroo	nal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 inal Surface Elev, cm ded Surface Elev, cm	Av A 35.5 34.5 -1 -1 Av A 35 35 0 0	g Bottom Lo B 34.5 34 -0.5 -0.5 g Bottom Lo B 33.5 33.5 0 0	SS/Gain, in C 34.5 O SS/Gain, in C 35 O O SS/Gain, in C 35 O O O O O O O O O O O O O O O O O O O	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) = navg = Flow (cfs) =	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.26	0.00 To Water Surf, c 47.0 Water Depth (in 4.99 -0.20 To Water Surf, c 46.5 Water Depth (in 4.72
14	ft		To origing To origing To origing To eroo	nal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	Av A 35.5 34.5 -1 -1 Av A 35 35 0 0 Av	g Bottom Lc B 34.5 34 -0.5 -0.5 g Bottom Lc B 33.5 33.5 0 0 g Bottom Lc	ss/Gain, in C 34.5 34.5 0 0 ss/Gain, in C 35 35 0 0 ss/Gain, in	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.00	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50 0.046 7.48	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	0.00 To Water Surf, c 47.0 Water Depth (ir 4.99 -0.20 To Water Surf, c 46.5 Water Depth (ir 4.72 -0.00
	ft		To origing To eroo	nal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm	Av A 35.5 34.5 -1 -1 Av A 35 35 0 0	g Bottom Lo B 34.5 34 -0.5 -0.5 g Bottom Lo B 33.5 33.5 0 0	SS/Gain, in C 34.5 O SS/Gain, in C 35 O O SS/Gain, in C 35 O O O O O O O O O O O O O O O O O O O	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) = navg = Flow (cfs) =	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50 0.046	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.26 Avg Clopper Soil Loss, in	0.00 To Water Surf, c 47.0 Water Depth (ir 4.99 -0.20 To Water Surf, c 46.5 Water Depth (ir 4.72 -0.00 To Water Surf, c
	ft		To origing To eroo	nal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9	Av A 35.5 34.5 -1 -1 Av A 35 0 0 Av A	g Bottom Lc B 34.5 34 -0.5 -0.5 g Bottom Lc B 33.5 33.5 0 0 g Bottom Lc	sss/Gain, in C 34.5 34.5 0 0 sss/Gain, in C 35 35 0 0 sss/Gain, in C	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.00	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50 0.046 7.48	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.26 Avg Clopper Soil Loss, in V @ 0.8d	0.00 To Water Surf, c 47.0 Water Depth (ir 4.99 -0.20 To Water Surf, c 46.5 Water Depth (ir 4.72 -0.00
	ft		To origing To eroo	inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9 inal Surface Elev, cm	Av A 35.5 34.5 -1 -1 Av A 35 35 0 0 Av A 35	g Bottom Lc B 34.5 34 -0.5 -0.5 g Bottom Lc B 33.5 0 0 g Bottom Lc	ss/Gain, in C 34.5 34.5 0 0 0 oss/Gain, in C 35 35 0 0 0 oss/Gain, in C C 36 35 0 0 0 oss/Gain, in C C 36 36	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50 0.046 7.48 V @ 0.6d 9.5	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.26 Avg Clopper Soil Loss, in	0.00 To Water Surf, c 47.0 Water Depth (in 4.99 -0.20 To Water Surf, c 46.5 Water Depth (in 4.72 0.00 To Water Surf, c
	ft		To originate the control of the cont	inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 inal Surface Elev, cm ded Surface Elev, cm Clopper Soil Loss, cm Cross-section 9 inal Surface Elev, cm ded Surface Elev, cm ded Surface Elev, cm ded Surface Elev, cm	Av A 35.5 34.5 -1 -1 Av A 35 35 0 0 Av A 35 35 35	g Bottom Lc B 34.5 34 -0.5 -0.5 g Bottom Lc B 33.5 0 0 g Bottom Lc	ss/Gain, in C 34.5 34.5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = Vavg (fps) =	9 9.00 0.050 7.48 V @ 0.6d 9.5 0.046 7.48 V @ 0.6d 9.5	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.26 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress V @ 0.8d	0.00 To Water Surf, c 47.0 Water Depth (in 4.99 -0.20 To Water Surf, c 46.5 Water Depth (in 4.72 0.00 To Water Surf, c
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16	ft ft		To originate the control of the cont	inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 inal Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Cross-section 9	Av A 35.5 34.5 -1 -1 Av A 35 35 0 Av A 35 0 0 0 0 0	g Bottom Lc B 34.5 34 -0.5 -0.5 g Bottom Lc B 33.5 33.5 0 g Bottom Lc B 35 0 0	ss/Gain, in C 34.5 34.5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = navg = Flow (cfs) =	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50 0.046 7.48 V @ 0.6d 9.5 9.50 0.046	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.26 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.36	0.00 To Water Surf, c 47.0 Water Depth (ir 4.99 -0.20 To Water Surf, c 46.5 Water Depth (ir 4.72 0.00 To Water Surf, c 47.5 Water Depth (ir 4.79 0.00
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16	ft ft ft		To origing To eroo	mal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Cross-section 8 mal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Cross-section 9 mal Surface Elev, cm ded Surface Elev, cm Cross-section 9 mal Surface Elev, cm Soil Loss / Gain, cm Cross-section 10 mal Surface Elev, cm Soil Loss / Gain, cm Cross-section 10 mal Surface Elev, cm Soil Loss / Gain, cm Cross-section 10 mal Surface Elev, cm Soil Loss / Gain, cm	Av A 35.5 34.5 -1 -1 Av A 35.5 0 0 Av A 35 35 0 Av A 34 34 0 0	g Bottom Lc B 34.5 34 -0.5 -0.5 g Bottom Lc B 33.5 0 0 g Bottom Lc B 35 35 0 0 g Bottom Lc B 35 35 0 0 0 g Bottom Lc	ss/Gain, in C 34.5 34.5 0 0 oss/Gain, in C 35 35 0 0 oss/Gain, in C 36 36 0 0 oss/Gain, in C 36 36 0 0 oss/Gain, in	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50 0.046 7.48 V @ 0.6d 7.48 V @ 0.6d 10 10.00 0.042	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.26 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.36 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.36 Avg Clopper Soil Loss, in V @ 0.8d	0.00 To Water Surf, c 47.0 Water Depth (ir 4.99 -0.20 To Water Surf, c 46.5 Water Depth (ir 4.72 0.00 To Water Surf, c 47.5 Water Depth (ir 4.79 0.00 To Water Surf, c 47.5 Water Depth (ir 4.79 0.00 To Water Surf, c 4.79 0.00 To Water Surf, c 4.79 0.00 Water Depth (ir
16	ft ft ft		To origing To eroo	mal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Cross-section 8 mal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Cross-section 9 mal Surface Elev, cm ded Surface Elev, cm Cross-section 9 mal Surface Elev, cm Soil Loss / Gain, cm Cross-section 10 mal Surface Elev, cm Soil Loss / Gain, cm Cross-section 10 mal Surface Elev, cm Soil Loss / Gain, cm Cross-section 10 mal Surface Elev, cm Soil Loss / Gain, cm	Av A 35.5 34.5 -1 -1 Av A 35.5 0 0 Av A 35 35 0 Av A 34 34 0 0	g Bottom Lo B 34.5 34 -0.5 -0.5 g Bottom Lo B 33.5 33.5 0 0 g Bottom Lo B 35 36 0 0 g Bottom Lo B 32 32 0 0	ss/Gain, in C 34.5 34.5 0 0 oss/Gain, in C 35 35 0 0 oss/Gain, in C 36 36 0 0 oss/Gain, in C 36 36 0 0 oss/Gain, in	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = Flow (cfs) = 0.00 V @ 0.2d	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50 0.046 7.48 V @ 0.6d 7.48 V @ 0.6d 10 10.00 0.042	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.26 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.36 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.36 Avg Clopper Soil Loss, in V @ 0.8d	0.00 To Water Surf, c 47.0 Water Depth (ii 4.99 -0.20 To Water Surf, c 46.5 Water Depth (ii 4.72 0.00 To Water Surf, c 47.5 Water Depth (ii 4.79 0.00 To Water Surf, c 45.0 Water Depth (ii 4.79 0.00 To Water Surf, c 45.0 Water Depth (ii 4.53 0.00
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16	ft ft ft		To originate the control of the cont	mal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Cross-section 8 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 inal Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 11 inal Surface Elev, cm ded Surface Elev, cm	Av A 35.5 34.5 -1 -1 Av A 35.5 35.0 0 Av A 35.35 0 0 Av A 34.34 0 0 Av A 31.5 31	g Bottom Lc B 34.5 34 -0.5 -0.5 g Bottom Lc B 33.5 0 0 g Bottom Lc B 32 0 0 g Bottom Lc B 32 0 0 g Bottom Lc B 32 32 0 0 30 30	ss/Gain, in C 34.5 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = 0.00 V @ 0.2d	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50 0.046 7.48 V @ 0.6d 9.5 9.50 0.046 7.58 V @ 0.6d 10 0.042 7.55 V @ 0.6d 10 10.00	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.26 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.36 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 6.96 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 6.96 Avg Clopper Soil Loss, in V @ 0.8d	0.00 To Water Surf, c 47.0 Water Depth (ir 4.99 -0.20 To Water Surf, c 46.5 Water Depth (ir 4.72 0.00 To Water Surf, c 47.5 Water Depth (ir 4.79 0.00 To Water Surf, c 45.0 Water Depth (ir 4.79 0.00 To Water Surf, c 45.0 Water Depth (ir 4.53 0.00 To Water Surf, c 42.0
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16	ft ft ft		To originate to or	mal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Cross-section 8 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 inal Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 11 inal Surface Elev, cm ded Surface Elev, cm	Av A 35.5 34.5 -1 -1 Av A 35.5 35 0 0 Av A 35 35 0 0 Av A 34 34 0 0 Av A 31.5 31 -0.5	g Bottom Lc B 34.5 34 -0.5 -0.5 g Bottom Lc B 33.5 33.5 0 0 g Bottom Lc B 35 35 0 0 g Bottom Lc B 32 0 0 g Bottom Lc B 32 0 0 0 g Bottom Lc	ss/Gain, in C 34.5 34.5 0 0 0 ss/Gain, in C 36 36 0 0 0 ss/Gain, in C 34.5 34.5 0 0 0 0 ss/Gain, in C 34.5 34.5 0 0 0 0 0 ss/Gain, in C 34.5 34.5 0 0 0 0 ss/Gain, in C 34.5 34.5 0 0 0 0 ss/Gain, in C 34.5 34.5 0 0 0 0 ss/Gain, in C 0 0 ss/Gain, in C 0 0 0 ss/Gain, in C 0 0 0 ss/Gain, in C 0 0 0 0 ss/Gain, in C 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.20 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50 0.046 7.48 V @ 0.6d 9.5 9.50 0.046 7.58 V @ 0.6d 10 0.042 7.55 V @ 0.6d 10 10.00	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.26 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.36 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 6.96 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 6.96 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 6.96 Avg Clopper Soil Loss, in V @ 0.8d	0.00 To Water Surf, c 47.0 Water Depth (ir 4.99 -0.20 To Water Surf, c 46.5 Water Depth (ir 4.72 0.00 To Water Surf, c 47.5 Water Depth (ir 4.79 0.00 To Water Surf, c 45.0 Water Depth (ir 4.79 0.00 To Water Surf, c 45.0 Water Depth (ir 4.50 Water Depth (ir 4.40
16	ft ft ft		To originate to or	mal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Cross-section 8 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9 inal Surface Elev, cm ded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 inal Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 inal Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 11 inal Surface Elev, cm ded Surface Elev, cm Soil Loss, cm	Av A 35.5 34.5 -1 -1 Av A 35.5 35 0 0 Av A 35 35 0 0 Av A 34 34 0 0 Av A 31.5 31 -0.5	g Bottom Lc B 34.5 34 -0.5 -0.5 g Bottom Lc B 33.5 33.5 0 0 g Bottom Lc B 35 35 0 0 g Bottom Lc B 35 35 0 0 g Bottom Lc B 32 32 32 32 32 32 30 0 0 g Bottom Lc B 32 32 30 0 0 0 0 0 0 0 0 0 0 0 0	ss/Gain, in C 34.5 34.5 0 0 0 ss/Gain, in C 36 36 0 0 0 ss/Gain, in C 34.5 34.5 0 0 0 0 ss/Gain, in C 34.5 34.5 0 0 0 0 0 ss/Gain, in C 34.5 34.5 0 0 0 0 ss/Gain, in C 34.5 34.5 0 0 0 0 ss/Gain, in C 34.5 34.5 0 0 0 0 ss/Gain, in C 0 0 ss/Gain, in C 0 0 0 ss/Gain, in C 0 0 0 ss/Gain, in C 0 0 0 0 ss/Gain, in C 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = -0.20 Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d	9 9.00 0.050 7.48 V @ 0.6d 9.5 9.50 0.046 7.48 V @ 0.6d 9.5 9.50 0.046 7.58 V @ 0.6d 10 10.00 0.042 7.55 V @ 0.6d 10 10.00 0.042 7.44	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.66 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.26 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 7.36 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 6.96 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 6.96 Avg Clopper Soil Loss, in V @ 0.8d	0.00 To Water Surf, c 47.0 Water Depth (in 4.99 -0.20 To Water Surf, c 46.5 Water Depth (in 4.72 0.00 To Water Surf, c 47.5 Water Depth (in 4.79 0.00 To Water Surf, c 45.0 Water Depth (in 4.53 0.00 To Water Surf, c 45.0 Water Depth (in 4.53 0.00 To Water Surf, c 42.0

CHANNEL 1 - SHE	AR STRESS 3	Date:	2/14/09		Start Time:		End Time:	2:30 PM	
40 61 6	00 11 1 1	Soil:	Loam	Target	Shear (psf):		Slope:		
40 ft long flume rpms	20 ft test section 2 ft wide flume	į			Flexamat F	Permanent Cl		g Mat	
1pins 1 2	3	Inlet Weir	1	2	3		EST DATA		
FLOV		Water Depth, in		19.00					
Weir width (ft) = 4	•	ter Velocity, ft/s		6.00					
0 ft A B	С	Flow Rate, cfs	0.00	38.00	0.00				
	С	ross-section 1	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
	To original S	urface Elev, cm	28	26	28		10.5		46.0
	To eroded S	urface Elev, cm	28	26	28	Vavg (fps) =	10.50	Bed Max Shear Stress	
	Soil I	Loss / Gain, cm	0	0	0	navg =	0.056	(psf)	Water Depth (in)
	Cloppe	er Soil Loss, cm	0	0	0	Flow (cfs) =	12.86	11.29	7.35
2 ft	<u> </u>		Av	g Bottom Lo	oss/Gain, in	0.00		Avg Clopper Soil Loss, in	0.00
	<u>c</u>	ross-section 2	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
	To original S	urface Elev, cm	28	28	30		10.5		47.5
	To eroded S	urface Elev, cm	28	28	30	Vavg (fps) =	10.50	Bed Max Shear Stress	
	i i	Loss / Gain, cm	0	0	0	navg =	0.056	(psf)	Water Depth (in
	Cloppe	er Soil Loss, cm	0	0	0	Flow (cfs) =	12.98	11.39	7.41
4 ft				Ī	oss/Gain, in			Avg Clopper Soil Loss, in	0.00
		ross-section 3	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
	!	urface Elev, cm	30	30	31	Varia (for	11 00		48.0
	:	urface Elev, cm Loss / Gain. cm	30 0	29	31 0	Vavg (fps) =	11.00	Bed Max Shear Stress (psf)	Water Depth (in
	i		0	-1 -1	0	navg =	0.052	(pst) 10.89	7.09
6 ft	Сюрре	er Soil Loss, cm			oss/Gain, in	Flow (cfs) = -0.13	12.99	Avg Clopper Soil Loss, in	-0.13
		ross-section 4	Α	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
	· · · · · · · · · · · · · · · · · · ·	urface Elev, cm	32	30.5	32	. 0 0.20	11	. 0.00	49.0
	,	urface Elev, cm	32	29.5	32	Vavg (fps) =	11.00	5 114 01 01	1010
	:	Loss / Gain, cm	0	-1	0	navg =	0.052	Bed Max Shear Stress (psf)	Water Depth (in
	Cloppe	er Soil Loss, cm	0	-1	0	Flow (cfs) =	12.87	10.79	7.02
8 ft			Ave	g Bottom Le	oss/Gain, in	-0.13		Avg Clopper Soil Loss, in	-0.13
	С	ross-section 5	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
	To original S	urface Elev, cm	33	31	32		11		49.5
	To eroded S	urface Elev, cm	33	30.5	32	Vavg (fps) =	11.00	Bed Max Shear Stress	
	Soil I	Loss / Gain, cm	0	-0.5	0	navg =	0.051	(psf)	Water Depth (in)
	Cloppe	er Soil Loss, cm	0	-0.5	0	Flow (cfs) =	12.75	10.69	6.96
10 ft			Av	g Bottom Lo	oss/Gain, in	-0.07		Avg Clopper Soil Loss, in	-0.07
	· · · · · · · · · · · · · · · · · · ·	ross-section 6	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
	-	urface Elev, cm	34	31	32	V/= (f.)	11.5		49.5
	i	urface Elev, cm	34	31	32	Vavg (fps) =	11.50	Bed Max Shear Stress	\M-4- D
	: 1	Loss / Gain, cm	0	0	0	navg =	0.048	(psf)	Water Depth (in
12 ft	Cloppe	er Soil Loss, cm	Ο Δν		0 oss/Gain, in	Flow (cfs) = 0.00	12.95	10.39 Avg Clopper Soil Loss, in	6.76 0.00
		ross-section 7	Α	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
		urface Elev, cm	34.5	34	34.5	1 0 0.20	11.5	V 0 0.00	50.5
	: I *	urface Elev. cm	34	33.5	34	Vavg (fps) =	11.50	D - d M Ob Ot	
	Soil I	Loss / Gain, cm	-0.5	-0.5	-0.5	navg =	0.047	Bed Max Shear Stress (psf)	Water Depth (in)
		er Soil Loss, cm	-0.5	-0.5	-0.5	Flow (cfs) =	12.58	10.08	6.56
14 ft			Ave	g Bottom Lo	oss/Gain, in	-0.20		Avg Clopper Soil Loss, in	-0.20
	<u>c</u>	ross-section 8	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
	To original S	urface Elev, cm	35	33.5	35		11.5		51.5
	:	urface Elev, cm	35	33	35	Vavg (fps) =	11.50	Bed Max Shear Stress	
	i	Loss / Gain, cm	0	-0.5	0	navg =	0.048	(psf)	Water Depth (in
	Cloppe	er Soil Loss, cm	0	-0.5	0	Flow (cfs) =	12.95	10.39	6.76
16 ft	 			ĭ	oss/Gain, in			Avg Clopper Soil Loss, in	-0.07
	i -	ross-section 9	A	B	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, c
		urface Elev, cm	35	35	36	Varia (for	11.5		51.5
	: I	urface Elev, cm	35 0	-1	36 0	Vavg (fps) =	11.50	Bed Max Shear Stress	Water Death (:-
	i I	Loss / Gain, cm er Soil Loss, cm	0	-1	0	navg = Flow (cfs) =	0.047 12.45	(psf) 9.98	Water Depth (in 6.50
18 ft	Сюрре	Jon 2003, UII			oss/Gain, in		12.40	Avg Clopper Soil Loss, in	-0.13
	Cro	oss-section 10	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, c
	· · · · · · · · · · · · · · · · · · ·	urface Elev, cm	34	32	34.5		11.5		50.0
	i –	urface Elev, cm	34	31.5	34.5	Vavg (fps) =	11.50	Bed Max Shear Stress	
	1	Loss / Gain, cm	0	-0.5	0	navg =	0.047	(psf)	Water Depth (in
	Cloppe	er Soil Loss, cm	0	-0.5	0	Flow (cfs) =	12.58	10.08	6.56
20 ft			Ave	g Bottom Lo	oss/Gain, in	-0.07		Avg Clopper Soil Loss, in	-0.07
	Cre	oss-section 11	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, c
	To original S	urface Elev, cm	31	30	31		11.5		47.0
		urface Elev, cm	30.5	29.5	30.5	Vavg (fps) =	11.50	Bed Max Shear Stress	
		Loss / Gain, cm	-0.5	-0.5	-0.5	navg =	0.048	(psf)	Water Depth (in
	Cloppe	er Soil Loss, cm	-0.5	-0.5	-0.5	Flow (cfs) =	12.70	10.18	6.63
	0-1	I Loss / Gain, in	-0.04	g Bottom Lo	oss/Gain, in -0.04		LocalGair	Avg Clopper Soil Loss, in per Cross-Section =	-0.20 -0.09
		per Soil Loss, in	-0.04 -0.04	-0.20 -0.20	-0.04	_	-	per Cross-Section = per Cross-Section =	-0.09

Soil:	A 28 28 0 0 A A 30 30 0 A A 32 31.5 -0.5 -0.5	7 Target 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	#DIV/0! C 28 27 -1 -1 -1 -2ss/Gain, in C 30 29.5 -0.5 -0.5 -0.5 oss/Gain, in C 31 30.5		Slope: hannel Lining EST DATA V @ 0.6d 14 14.00 0.058 27.56 V @ 0.6d 14.5 14.50 0.055 28.23 V @ 0.6d	V @ 0.8d Bed Max Shear Stress (psf) 18.15 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 17.95	To Water Surf, cr 57.0 Water Depth (in) 11.81 -0.13 To Water Surf, cr 58.0 Water Depth (in)
1	#DIV/0! A 28 28 0 0 A A A 28 28 0 0 A A A 30 30 0 A A A 32 31.5 -0.5	0.00 B 26 26 0 0 g Bottom Lo B 27.5 -0.5 -0.5 g Bottom Lo B 29 28.5 -0.5	#DIV/0! C 28 27 -1 -1 -1 -2ss/Gain, in C 30 29.5 -0.5 -0.5 -0.5 oss/Gain, in C 31 30.5	V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13	V @ 0.6d 14 14.00 0.058 27.56 V @ 0.6d 14.5 14.50 0.055 28.23	V @ 0.8d Bed Max Shear Stress (psf) 18.15 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 17.95	57.0 Water Depth (in) 11.81 -0.13 To Water Surf, cr 58.0
1	#DIV/0! A 28 28 0 0 A A A 28 28 0 0 A A A 30 30 0 A A A 32 31.5 -0.5	0.00 B 26 26 0 0 g Bottom Lo B 27.5 -0.5 -0.5 g Bottom Lo B 29 28.5 -0.5	#DIV/0! C 28 27 -1 -1 -1 -25/Gain, in C 30 -29.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0	V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13	V @ 0.6d 14 14.00 0.058 27.56 V @ 0.6d 14.5 14.50 0.055 28.23	Bed Max Shear Stress (psf) 18.15 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 17.95	57.0 Water Depth (in) 11.81 -0.13 To Water Surf, cr 58.0
PLOW	#DIV/0! A 28 28 0 0 A A A 28 28 0 0 A A A 30 30 0 A A A 32 31.5 -0.5	0.00 B 26 26 0 0 g Bottom Lo B 27.5 -0.5 -0.5 g Bottom Lo B 29 28.5 -0.5	#DIV/0! C 28 27 -1 -1 -1 -25/Gain, in C 30 -29.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13	14 14.00 0.058 27.56 V @ 0.6d 14.5 14.50 0.055 28.23	Bed Max Shear Stress (psf) 18.15 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 17.95	57.0 Water Depth (in 11.81 -0.13 To Water Surf, cr 58.0
Weir width (ft) = 200	A 28 28 0 0 A 28 28 0 0 A 30 30 0 A 32 31.5 -0.5 -0.5	B 26 26 0 0 0 g Bottom Le 28 27.5 -0.5 -0.5 29 Sottom Le 29 28.5 -0.5	C 28 27 -1 -1 -1 -1 -2	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13	14 14.00 0.058 27.56 V @ 0.6d 14.5 14.50 0.055 28.23	Bed Max Shear Stress (psf) 18.15 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 17.95	57.0 Water Depth (in 11.81 -0.13 To Water Surf, cr 58.0
Oft A B C Flow Rate, cfs Cross-section 1 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 2 ft Cross-section 2 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 4 ft Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 6 ft Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	A 28 28 0 0 A 28 28 0 0 A 30 30 0 A 32 31.5 -0.5 -0.5	B 26 26 0 0 0 g Bottom Le 28 27.5 -0.5 -0.5 29 Sottom Le 29 28.5 -0.5	C 28 27 -1 -1 -1 -1 -2	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13	14 14.00 0.058 27.56 V @ 0.6d 14.5 14.50 0.055 28.23	Bed Max Shear Stress (psf) 18.15 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 17.95	57.0 Water Depth (in 11.81 -0.13 To Water Surf, cr 58.0
Cross-section 1	A 28 28 0 0 A 28 28 0 0 A 30 30 0 A 32 31.5 -0.5 -0.5	B 26 26 0 0 0 g Bottom Le 28 27.5 -0.5 -0.5 29 Sottom Le 29 28.5 -0.5	C 28 27 -1 -1 -1 -1 -2	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13	14 14.00 0.058 27.56 V @ 0.6d 14.5 14.50 0.055 28.23	Bed Max Shear Stress (psf) 18.15 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 17.95	57.0 Water Depth (in 11.81 -0.13 To Water Surf, cr 58.0
To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	28 28 0 0 A A A 28 0 0 A A 30 30 0 A A 32 31.5 -0.5	26 26 0 0 g Bottom Le B 28 27.5 -0.5 -0.5 g Bottom Le B 29 28.5 -0.5	28 27 -1 -1 -1 oss/Gain, in C 30 29.5 -0.5 -0.5 oss/Gain, in C 31 30.5	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13	14 14.00 0.058 27.56 V @ 0.6d 14.5 14.50 0.055 28.23	Bed Max Shear Stress (psf) 18.15 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 17.95	57.0 Water Depth (in 11.81 -0.13 To Water Surf, cr 58.0
To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm A ft Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 6 ft Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	28 0 0 A 28 28 0 0 A A 30 30 0 0 A A A 32 31.5 -0.5 -0.5	26 0 0 0 9 Bottom Lo 8 28 27.5 -0.5 -0.5 9 Bottom Lo 8 29 28.5 -0.5	27 -1 -1 -1 oss/Gain, in C 30 -0.5 -0.5 -0.5 -0.5 31 30.5	navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13	14.00 0.058 27.56 V @ 0.6d 14.5 14.50 0.055 28.23	(psf) 18.15 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 17.95	Water Depth (in 11.81 -0.13 To Water Surf, cr 58.0
Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 2 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 4 ft Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 6 ft Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss, cm 10 ft Cross-section 7 To original Surface Elev, cm Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss, cm 15 ft Cross-section 9 To original Surface Elev, cm Soil Loss, cm Clopper Soil Loss, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss, cm Clopper Soil Loss, cm	0 0 A A 28 28 0 0 A A 30 0 A A 32 31.5 -0.5 -0.5	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	-1 -1 -1 oss/Gain, in C 30 29.5 -0.5 -0.5 oss/Gain, in C 31 30.5	navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13	0.058 27.56 V @ 0.6d 14.5 14.50 0.055 28.23	(psf) 18.15 Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 17.95	11.81 -0.13 To Water Surf, co
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To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm To eroded Surface Elev, cm	Av A	yg Bottom Le B 28 27.5 -0.5 -0.5 yg Bottom Le B 29 28.5 -0.5	0ss/Gain, in C 30 29.5 -0.5 -0.5 -0.5 0ss/Gain, in C 31 30.5	-0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13	V @ 0.6d 14.5 14.50 0.055 28.23	Avg Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 17.95	-0.13 To Water Surf, cr 58.0
Cross-section 2 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 6 ft Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 6 ft Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm Clopper Soil Loss, cm Clopper Soil Loss, cm	A 28 28 0 0 A A 30 30 0 A A 32 31.5 -0.5 -0.5	B 28 27.5 -0.5 -0.5 wg Bottom Le 29 28.5 -0.5	C 30 29.5 -0.5 -0.5 coss/Gain, in C 31 30.5	V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13	14.5 14.50 0.055 28.23	V @ 0.8d Bed Max Shear Stress (psf) 17.95	To Water Surf, cr 58.0
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To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 6 ft Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm	28 0 0 A A 30 30 0 0 A A 32 31.5 -0.5 -0.5	27.5 -0.5 -0.5 vg Bottom Le B 29 28.5 -0.5	29.5 -0.5 -0.5 coss/Gain, in C 31 30.5	navg = Flow (cfs) = -0.13	14.50 0.055 28.23	(psf) 17.95	
Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 6 ft Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm	0 0 A A 30 30 0 0 A A 32 31.5 -0.5	-0.5 -0.5 vg Bottom Lo B 29 28.5 -0.5	-0.5 -0.5 oss/Gain, in C 31 30.5	navg = Flow (cfs) = -0.13	0.055 28.23	(psf) 17.95	Water Depth (in
Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	0 Av	-0.5 wg Bottom Lo B 29 28.5 -0.5	-0.5 oss/Gain, in C 31 30.5	Flow (cfs) = -0.13	28.23	17.95	
4 ft Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 6 ft Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm	A 30 0 0 A A 32 31.5 -0.5 -0.5	B 29 28.5 -0.5	0ss/Gain, in C 31 30.5	-0.13			11.68
Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm	A 30 0 0 A A 32 31.5 -0.5 -0.5	B 29 28.5 -0.5	C 31 30.5		V @ 0.6d	Avg Clopper Soil Loss, in	-0.13
To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	30 30 0 0 A A 32 31.5 -0.5 -0.5	29 28.5 -0.5	31 30.5			V @ 0.8d	To Water Surf, cr
To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 7 To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	30 0 0 A A 32 31.5 -0.5	28.5 -0.5	30.5		14.5		58.0
Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 8 ft Cross-section 5 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm	0 0 A A 32 31.5 -0.5	-0.5		Vavg (fps) =	14.50	Red Mary Charles	22.7
Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm	0 A A 32 31.5 -0.5 -0.5		-0.5	navg =	0.053	Bed Max Shear Stress (psf)	Water Depth (in
6 ft Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 5 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10	A 32 31.5 -0.5 -0.5		-0.5	Flow (cfs) =	26.96	17.14	11.15
Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 5 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm	A 32 31.5 -0.5	vg Bottom Lo		-0.13		Avg Clopper Soil Loss, in	-0.13
To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 5 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm	32 31.5 -0.5 -0.5	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, co
To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 5 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft	31.5 -0.5 -0.5	29.5	32	. 0 5.24	14.5	. 0 0.00	60.0
Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 5 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	-0.5 -0.5	29.5	32	Vavg (fps) =	14.50	Dad Mar Ci	55.5
Clopper Soil Loss, cm Cross-section 5 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	-0.5	-0.5	0	navg =	0.055	Bed Max Shear Stress (psf)	Water Depth (in
8 ft Cross-section 5 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10		-0.5	0	Flow (cfs) =	27.75	17.65	11.48
Cross-section 5 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	A [*]	vg Bottom Lo		-0.13	27.110	Avg Clopper Soil Loss, in	-0.13
To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 10 ft Cross-section 6 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 6 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	33	30.5	32		15		59.0
Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 6 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm Clopper Soil Loss, cm Clopper Soil Loss, cm	33	30	32	Vavg (fps) =	15.00		00.0
Clopper Soil Loss, cm Cross-section 6 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm To original Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm	0	-0.5	0	navg =	0.050	Bed Max Shear Stress (psf)	Water Depth (in)
10 ft Cross-section 6 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	0	-0.5	0	Flow (cfs) =	26.90	16.54	10.76
Cross-section 6 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10		vg Bottom Lo		-0.07	20.50	Avg Clopper Soil Loss, in	-0.07
To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 12 ft Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 7 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	34	31	32	V @ 0.2u	15.5	V @ 0.00	59.0
Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 7 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	33.5	31	32	Vavg (fps) =	15.50		03.0
Clopper Soil Loss, cm Cross-section 7 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	-0.5	0	0	navg =	0.048	Bed Max Shear Stress (psf)	Water Depth (in)
12 ft Cross-section 7 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	-0.5	0	0	Flow (cfs) =	27.29	16.23	10.56
Cross-section 7 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10		vg Bottom Lo		-0.07	21.20	Avg Clopper Soil Loss, in	-0.07
To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	А	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm 18 ft Cross-section 10	34	33.5	34	7 0 0.20	15.5	V 0 0.00	60.0
Soil Loss / Gain, cm Clopper Soil Loss, cm 14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	34	32.5	34	Vavg (fps) =	15.50		00.0
Clopper Soil Loss, cm Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm Soil Loss, cm To original Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Clopper Soil Loss, cm 18 ft Cross-section 10	0	-1	0	navg =	0.048	Bed Max Shear Stress (psf)	Water Depth (in
14 ft Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm To original Surface Elev, cm To eroded Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm 18 ft Cross-section 10	0	-1	0	Flow (cfs) =	26.95	16.03	10.43
Cross-section 8 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To original Surface Elev, cm To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm		vg Bottom Lo		-0.13		Avg Clopper Soil Loss, in	-0.13
To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	A	B B	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	35	33	35		15.5	7 G 0.0u	60.5
Soil Loss / Gain, cm Clopper Soil Loss, cm 16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	34.5	33	35	Vavg (fps) =	15.50	5 111 5:	55.5
Clopper Soil Loss, cm Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	-0.5	0	0	navg =	0.048	Bed Max Shear Stress (psf)	Water Depth (in
16 ft Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	-0.5	0	0	Flow (cfs) =	26.78	15.93	10.37
Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10		vg Bottom Lo		-0.07	20.70	Avg Clopper Soil Loss, in	-0.07
To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	A	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, co
To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	35	34	36	. 0 0.20	15.5	. 0 0.00	61.0
Soil Loss / Gain, cm Clopper Soil Loss, cm 18 ft Cross-section 10	35	34	35	Vavg (fps) =	15.50	5 111 5:	51.0
Clopper Soil Loss, cm 18 ft Cross-section 10	0	0	-1	navg =	0.048	Bed Max Shear Stress (psf)	Water Depth (in
18 ft Cross-section 10	0	0	-1	Flow (cfs) =	26.78	(psi) 15.93	10.37
Cross-section 10		vg Bottom Lo		-0.13		Avg Clopper Soil Loss, in	-0.13
	A	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, c
10 Original Surtage Electronic	34	31.5	34.5	v 😸 U.ZU	15.5	v ⊜ ∪.ou	59.5
To original Surface Elev, cm To eroded Surface Elev, cm	34	31.5	34.5	Vava (fno)	15.50		39.3
Soil Loss / Gain, cm	0	-0.5	-0.5	Vavg (fps) = navg =	0.048	Bed Max Shear Stress (psf)	Water Depth (in
Clopper Soil Loss, cm	0	-0.5	-0.5	Flow (cfs) =	26.95	(psi) 16.03	10.43
20 ft		vg Bottom Lo	•	-0.13	20.90	Avg Clopper Soil Loss, in	-0.13
Cross-section 11	A	B BOLLOTT LC	C C	-0.13 V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, c
To original Surface Elev, cm	30.5	29.5	30.5	v & U.ZU	7 @ 0.6d	v 😸 U.0U	55.5
To eroded Surface Elev, cm	30.5	29.5	30.5	Vava (fno)			55.5
Soil Loss / Gain, cm	30			Vavg (fps) =	16.00	Bed Max Shear Stress	Water Donth (in
· F	-0 F	0	-0.5	navg =	0.045	(psf)	Water Depth (in
Clopper Soil Loss, cm	-0.5	0 vg Bottom Lo	-0.5	Flow (cfs) = -0.13	26.95	15.53 Avg Clopper Soil Loss, in	10.10 -0.13
Call Loan / Call to	-0.5				oss/Gain no		
Soil Loss / Gain, in Clopper Soil Loss, in	-0.5	-0.13 -0.13	-0.14 -0.14	-	-	Cross-Section = Cross-Section =	-0.11 -0.11

CHANNEL 2 - SHEAR STRESS 1	Date:	2/14/09	- Torgot	Start Time: Shear (psf):	12:00 PM 6.00	End Time: Slope:		-
40 ft long flume 20 ft test section	Soil:	Loam			anent Channel Lir		3070	
900 rpms 2 ft wide flume				ZAGINGE F OFFI		DATA		
1 2 3	Outlet Weir	1	2	3				
FLOW	Water Depth, in		12.00					
Weir width (ft) = 4	Water Velocity, ft/s		3.00					
0 ft A B C	Flow Rate, cfs	0.00	12.00	0.00				
	Cross-section 1	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	31	31	31		6		41.0
	To eroded Surface Elev, cm	31	31	30.5	Vavg (fps) =	6.00	Bed Max Shear	
	Soil Loss / Gain, cm Clopper Soil Loss, cm	0	0	-0.5 -0.5	navg = Flow (cfs) =	0.065 4.00	Stress (psf) 6.15	Water Depth (in) 4.00
2 ft	Clopper Soil Loss, Citi			Loss/Gain, in	-0.07		lopper Soil Loss, in	-0.07
	Cross-section 2	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	31	30	31		6		40.5
	To eroded Surface Elev, cm	31	30	31	Vavg (fps) =	6.00	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	0	navg =	0.064	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	3.87	5.95	3.87
4 ft				Loss/Gain, in	0.00	-	lopper Soil Loss, in	0.00
	Cross-section 3	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	31	30	32	\/ove_(fn=)	6		40.5
	To eroded Surface Elev, cm Soil Loss / Gain, cm	30.5 -0.5	30 0	32 0	Vavg (fps) =	0.063	Bed Max Shear Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	-0.5	0	0	navg = Flow (cfs) =	3.81	5.85	3.81
6 ft	5.5ppci 60ii £033, till	0.0		_oss/Gain, in	-0.07		lopper Soil Loss, in	-0.07
	Cross-section 4	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	33	32	33		6.5		41.5
	To eroded Surface Elev, cm	32.5	32	33	Vavg (fps) =	6.50	Bed Max Shear	
	Soil Loss / Gain, cm	-0.5	0	0	navg =	0.056	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	-0.5	0	0	Flow (cfs) =	3.84	5.45	3.54
8 ft				Loss/Gain, in	-0.07		lopper Soil Loss, in	-0.07
	Cross-section 5	A	B 00	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
1 1 1 1 1 1	To original Surface Elev, cm To eroded Surface Elev, cm	32 32	32 32	33 32.5	Vavg (fps) =	6.50		41.0
	Soil Loss / Gain, cm	0	0	-0.5	navg =	0.055	Bed Max Shear Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	3.77	5.34	3.48
10 ft			Avg Bottom	Loss/Gain, in	-0.07		lopper Soil Loss, in	-0.07
	Cross-section 6	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
1	To original Surface Elev, cm	32.5	32	33		6.5		41.0
	To eroded Surface Elev, cm	32.5	32	33	Vavg (fps) =	6.50	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	0	navg =	0.053	Stress (psf)	Water Depth (in)
12 ft	Clopper Soil Loss, cm	0	0 Ava Dattam	0	Flow (cfs) =	3.63	5.14 lopper Soil Loss, in	3.35
12 11	Cross-section 7	A	B B	Loss/Gain, in	0.00 V @ 0.2d	V @ 0.6d	V @ 0.8d	0.00 To Water Surf, cm
	To original Surface Elev, cm	33	32	32.5	V @ 0.2u	6.5	V € 0.8u	41.0
	To eroded Surface Elev, cm	33	31.5	32.5	Vavg (fps) =	6.50	Dad Mari Ohaan	11.0
	Soil Loss / Gain, cm	0	-0.5	0	navg =	0.054	Bed Max Shear Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	-0.5	0	Flow (cfs) =	3.70	5.24	3.41
14 ft			Avg Bottom	Loss/Gain, in	-0.07	Avg C	lopper Soil Loss, in	-0.07
	Cross-section 8	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	33	32	32		7		41.0
	To eroded Surface Elev, cm	33	32	32	Vavg (fps) =	7.00	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	0	navg =	0.050	Stress (psf)	Water Depth (in)
16 ft	Clopper Soil Loss, cm	0	0 Ava Bottom	0 Loss/Gain, in	Flow (cfs) = 0.00	3.98 Ava C	5.24 lopper Soil Loss, in	3.41 0.00
	Cross-section 9	A	B B	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	32	31	32	0.20	7	. 0 0.00	40.0
	To eroded Surface Elev, cm	32	30.5	32	Vavg (fps) =	7.00	Bed Max Shear	
	Soil Loss / Gain, cm	0	-0.5	0	navg =	0.050	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	-0.5	0	Flow (cfs) =	3.90	5.14	3.35
18 ft				Loss/Gain, in	-0.07		lopper Soil Loss, in	-0.07
	Cross-section 10	A	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	30	30	30	Vova (fna)	7 7 00		38.5
	To eroded Surface Elev, cm Soil Loss / Gain, cm	30 0	30 0	30	Vavg (fps) = navg =	7.00 0.050	Bed Max Shear Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	3.90	5.14	3.35
20 ft	, ,			Loss/Gain, in	0.00		lopper Soil Loss, in	0.00
	Cross-section 11	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
 -	To original Surface Elev, cm	30	31	31		7.5		39.0
	To eroded Surface Elev, cm	30	31	31	Vavg (fps) =	7.50	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	0	navg =	0.046	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	4.10	5.04	3.28
	0.01 / 0	0.01	•	Loss/Gain, in	0.00		lopper Soil Loss, in	0.00
	Soil Loss / Gain, in Clopper Soil Loss, in	-0.04 -0.04	-0.04 -0.04		Avg Bottom Loss Avg Clopper Soil	=		-0.04 -0.04
	2.2pp. 2011 E000, 111	0.04	0.07	0.04	. 5 -10ppci 00ii	51005-		

CHANNEL 2 - SHEAR STRESS 2	Date:	2/14/09		Start Time:	1:00 PM	End Time:		_
40 ft long flume 20 ft test section	Soil:	Loam		Shear (psf):	10.00 anent Channel Lir	Slope:	30%	
rpms 2 ft wide flume			110	xamat i eim		DATA		
1 2 3	Inlet Weir	1	2	3	1201	DATA		
FLOW	Water Depth, in		15.00					
Weir width (ft) = 4	Water Velocity, ft/s		4.50					
0 ft A B C	Flow Rate, cfs	0.00	22.50	0.00				
	Cross-section 1	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	31	31	30.5		8		45.0
	To eroded Surface Elev, cm	31	31	30.5	Vavg (fps) =	8.00	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	0	navg =	0.061	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	7.44	8.57	5.58
2 ft			Avg Bottom I	Loss/Gain, in	0.00	Avg C	lopper Soil Loss, in	0.00
	Cross-section 2	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	31	30	31		8.5		44.0
	To eroded Surface Elev, cm	31	30	31	Vavg (fps) =	8.50	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	0	navg =	0.055	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	7.44	8.07	5.25
4 ft			Avg Bottom I	Loss/Gain, in	0.00	Avg C	lopper Soil Loss, in	0.00
	Cross-section 3	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	30.5	30	32		8.5		44.0
	To eroded Surface Elev, cm	30.5	30	31.5	Vavg (fps) =	8.50	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	-0.5	navg =	0.055	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	7.44	8.07	5.25
6 ft			Avg Bottom I	Loss/Gain, in	-0.07	Avg C	lopper Soil Loss, in	-0.07
	Cross-section 4	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	32.5	32	33		8.5		45.5
	To eroded Surface Elev, cm	32.5	32	32.5	Vavg (fps) =	8.50	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	-0.5	navg =	0.055	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	7.34	7.97	5.18
8 ft			Avg Bottom I	Loss/Gain, in	-0.07	Avg C	lopper Soil Loss, in	-0.07
_	Cross-section 5	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	32	32	32.5		9		45.0
	To eroded Surface Elev, cm	32	32	32	Vavg (fps) =	9.00	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	-0.5	navg =	0.051	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	7.68	7.87	5.12
10 ft			Avg Bottom I	Loss/Gain, in	-0.07	Avg C	lopper Soil Loss, in	-0.07
_	Cross-section 6	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	32.5	32	33		9		45.5
	To eroded Surface Elev, cm	32.5	32	33	Vavg (fps) =	9.00	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	0	navg =	0.051	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	7.68	7.87	5.12
12 ft			Avg Bottom I	Loss/Gain, in	0.00	Avg C	lopper Soil Loss, in	0.00
	Cross-section 7	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	33	31.5	32.5		9		45.0
	To eroded Surface Elev, cm	33	31	32	Vavg (fps) =	9.00	Bed Max Shear	
	Soil Loss / Gain, cm	0	-0.5	-0.5	navg =	0.051	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	-0.5	-0.5	Flow (cfs) =	7.68	7.87	5.12
14 ft			Avg Bottom I	Loss/Gain, in	-0.13		lopper Soil Loss, in	-0.13
_	Cross-section 8	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	33	32	32		9		45.0
	To eroded Surface Elev, cm	32.5	32	32	Vavg (fps) =	9.00	Bed Max Shear	
	Soil Loss / Gain, cm	-0.5	0	0	navg =	0.051	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	-0.5	0	0	Flow (cfs) =	7.58	7.76	5.05
16 ft			Avg Bottom I		-0.07		lopper Soil Loss, in	-0.07
	Cross-section 9	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
	To original Surface Elev, cm	32	30.5	32		9.5		43.5
	To eroded Surface Elev, cm	31.5	30.5	31.5	Vavg (fps) =	9.50	Bed Max Shear	
	Soil Loss / Gain, cm	-0.5	0	-0.5	navg =	0.047	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	-0.5	0	-0.5	Flow (cfs) =	7.69	7.46	4.86
18 ft	_		Avg Bottom I		-0.13		lopper Soil Loss, in	-0.13
	Cross-section 10	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	30	30	30		9.5		42.5
	To eroded Surface Elev, cm	30	30	30	Vavg (fps) =	9.50	Bed Max Shear	W-4. D :: (
	Soil Loss / Gain, cm	0	0	0	navg =	0.047	Stress (psf)	Water Depth (in)
20.4	Clopper Soil Loss, cm	0	0 Ava Pottom I	0	Flow (cfs) =	7.79	7.56	4.92
20 ft				Loss/Gain, in	0.00		lopper Soil Loss, in	0.00
	Cross-section 11	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
	To original Surface Elev, cm	30	31	31		10		43.0
	To eroded Surface Elev, cm	30	31	31	Vavg (fps) =	10.00	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	0	navg =	0.045	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	0 Ava Pottom I	0	Flow (cfs) =	8.09	7.46	4.86
	0-21 (0.1.1	0.24	Avg Bottom I		0.00		lopper Soil Loss, in	0.00
	Soil Loss / Gain, in	-0.04	-0.02		Avg Bottom Loss	=		-0.05
	Clopper Soil Loss, in	-0.04	-0.02	-0.09		Loss per Cross-		-0.05

CHANNEL 2 - SI	HEAR STRESS 3	Date:	2/14/09		Start Time:	2:00 PM	End Time:		-
40 ft long flume	20 ft test section	Soil:	Loam		Shear (psf):	14.00 anent Channel Lir	Slope:	30%	
rpms	2 ft wide flume				zamat i cim		DATA		
1 2	3	Inlet Weir	1	2	3				
FLC	DW W	Water Depth, in		19.00					
Weir width (ft) = 4		Water Velocity, ft/s		6.00					
0 ft A B	<u> </u>	Flow Rate, cfs	0.00	38.00	0.00				
	—	Cross-section 1	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	1	To original Surface Elev, cm	31	31	30.5		10		50.5
		To eroded Surface Elev, cm	31	31	30	Vavg (fps) =	10.00	Bed Max Shear	5
		Soil Loss / Gain, cm Clopper Soil Loss, cm	0	0	-0.5 -0.5	navg = Flow (cfs) =	0.061 13.01	Stress (psf) 12.00	Water Depth (in)
2 ft		Clopper 30ii Loss, Cili			Loss/Gain, in	-0.07		lopper Soil Loss, in	7.81 -0.07
		Cross-section 2	А	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
		To original Surface Elev, cm	31	30	31		10.5		49.5
		To eroded Surface Elev, cm	31	30	31	Vavg (fps) =	10.50	Bed Max Shear	
		Soil Loss / Gain, cm	0	0	0	navg =	0.056	Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	12.98	11.39	7.41
4 ft					Loss/Gain, in	0.00		lopper Soil Loss, in	0.00
	—	Cross-section 3	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	!	To original Surface Elev, cm	30.5 30	30	31.5 31.5	\/ov/~ /fn-\	10.5		49.5
		To eroded Surface Elev, cm Soil Loss / Gain, cm	-0.5	0	31.5 0	Vavg (fps) = navg =	10.50 0.057	Bed Max Shear Stress (psf)	Water Depth (in)
	1	Clopper Soil Loss, cm	-0.5	0	0	Flow (cfs) =	13.09	11.50	7.48
6 ft		Olopper Coll 2003, Ulli	0.0		Loss/Gain, in	-0.07		lopper Soil Loss, in	-0.07
		Cross-section 4	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
		To original Surface Elev, cm	32.5	32	32.5		11		50.0
		To eroded Surface Elev, cm	32	32	32	Vavg (fps) =	11.00	Bed Max Shear	
		Soil Loss / Gain, cm	-0.5	0	-0.5	navg =	0.052	Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	-0.5	0	-0.5	Flow (cfs) =	12.99	10.89	7.09
8 ft					Loss/Gain, in	-0.13		lopper Soil Loss, in	i e
		Cross-section 5	A	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	i i	To original Surface Elev, cm To eroded Surface Elev, cm	32 32	32 32	32 32	Vavg (fps) =	11 11.00		49.5
		Soil Loss / Gain, cm	0	0	0	navg =	0.051	Bed Max Shear Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	12.63	10.59	6.89
10 ft		5.5pps. 55			Loss/Gain, in	0.00		lopper Soil Loss, in	0.00
		Cross-section 6	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
		To original Surface Elev, cm	32.5	32	33		11		50.0
		To eroded Surface Elev, cm	32	32	33	Vavg (fps) =	11.00	Bed Max Shear	
		Soil Loss / Gain, cm	-0.5	0	0	navg =	0.051	Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	-0.5	0	0	Flow (cfs) =	12.75	10.69	6.96
12 ft	 				Loss/Gain, in	-0.07		lopper Soil Loss, in	-0.07
		Cross-section 7 To original Surface Elev, cm	A 33	31	C 32	V @ 0.2d	V @ 0.6d 11	V @ 0.8d	To Water Surf, cm 49.5
	1	To eroded Surface Elev, cm	33	31	32	Vavg (fps) =	11.00		49.5
		Soil Loss / Gain, cm	0	0	0	navg =	0.051	Bed Max Shear Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	12.63	10.59	6.89
14 ft	<u></u>			Avg Bottom	Loss/Gain, in	0.00	Avg Cl	lopper Soil Loss, in	0.00
	7 ==	Cross-section 8	А	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	9	To original Surface Elev, cm	32.5	32	32		11.5		48.0
		To eroded Surface Elev, cm	32	32	32	Vavg (fps) =	11.50	Bed Max Shear	
		Soil Loss / Gain, cm	-0.5	0	0	navg =	0.046	Stress (psf)	Water Depth (in)
16 ft		Clopper Soil Loss, cm	-0.5	0 Ava Bottom	0 Loss/Gain, in	Flow (cfs) = -0.07	12.07 Ava Cl	9.68 lopper Soil Loss, in	6.30 -0.07
10 11	 	Cross-section 9	A	Avg Bottom B	C C	-0.07 V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
		To original Surface Elev, cm	31.5	30.5	31.5	v © 0.2u	11.5	v 😞 0.00	48.0
		To eroded Surface Elev, cm	31	30.5	31.5	Vavg (fps) =	11.50	Bed Max Shear	.5.0
		Soil Loss / Gain, cm	-0.5	0	0	navg =	0.048	Stress (psf)	Water Depth (in)
	1	Clopper Soil Loss, cm	-0.5	0	0	Flow (cfs) =	12.83	10.29	6.69
18 ft	<u> </u>			Avg Bottom	Loss/Gain, in	-0.07		lopper Soil Loss, in	-0.07
		Cross-section 10	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
	i	To original Surface Elev, cm	30	30	30	у ",	11.5		47.0
		To eroded Surface Elev, cm	30	30	30	Vavg (fps) =	11.50	Bed Max Shear	Water Darth (1)
		Soil Loss / Gain, cm Clopper Soil Loss, cm	0	0	0	navg = Flow (cfs) =	0.048 12.83	Stress (psf) 10.29	Water Depth (in) 6.69
20 ft		Gioppei Guii Luss, CIII	0		Loss/Gain, in	0.00		lopper Soil Loss, in	0.00
<u> </u>	 	Cross-section 11	А	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
		To original Surface Elev, cm	30	31	31		11.5		47.5
		To eroded Surface Elev, cm	30	31	30.5	Vavg (fps) =	11.50	Bed Max Shear	
		Soil Loss / Gain, cm	0	0	-0.5	navg =	0.048	Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	12.83	10.29	6.69
				_	Loss/Gain, in	-0.07		lopper Soil Loss, in	-0.07
		Soil Loss / Gain, in	-0.09 -0.09	0.00	-0.05 -0.05	Avg Bottom Loss	=		-0.05 -0.05
		Clopper Soil Loss, in				Avg Clopper Soil			

CHANNEL 2 -	SHEAR STRESS 4	Date:	2/14/09		Start Time:	4:00 PM 18.00	End Time:		-
40 ft long flume	20 ft test section	Soil:	Loam		Shear (psf):	anent Channel Lir	Slope:	30%	
rpms	2 ft wide flume			116	xamat i eim		DATA		
	2 3	Inlet Weir	1	2	3	TEST	DATA		
F	Low	Water Depth, in		18.00					
Weir width (ft) = 4	C = 0.00	Water Velocity, ft/s		4.50					
0 ft A	в с	Flow Rate, cfs	0.00	27.00	0.00				
;		Cross-section 1	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
		To original Surface Elev, cm	31	31	30		14		60.0
		To eroded Surface Elev, cm	30.5	31	30	Vavg (fps) =	14.00	Pod May Shoor	
		Soil Loss / Gain, cm	-0.5	0	0	navg =	0.057		Water Depth (in)
		Clopper Soil Loss, cm	-0.5	0	0	Flow (cfs) =	27.10		11.61
2 ft				Avg Bottom I	Loss/Gain, in	-0.07	Avg Cl	lopper Soil Loss, in	-0.07
		Cross-section 2	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
		To original Surface Elev, cm	31	30	31		14		59.0
1		To eroded Surface Elev, cm	30.5	30	30.5	Vavg (fps) =	14.00	Red May Shear	
		Soil Loss / Gain, cm	-0.5	0	-0.5	navg =	0.056	Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	-0.5	0	-0.5	Flow (cfs) =	26.33	17.34	11.29
4 ft	<u></u>			Avg Bottom I	Loss/Gain, in	-0.13	Avg Cl	lopper Soil Loss, in	-0.13
		Cross-section 3	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
		To original Surface Elev, cm	30	30	31.5		14.5		57.5
		To eroded Surface Elev, cm	29	29.5	31	Vavg (fps) =	14.50	Red May Shoot	
		Soil Loss / Gain, cm	-1	-0.5	-0.5	navg =	0.053	Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	-1	-0.5	-0.5	Flow (cfs) =	26.32	16.74	10.89
6 ft		<u> </u>		Avg Bottom I		-0.26		/g Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 16.64 /g Clopper Soil Loss, in	-0.26
		Cross-section 4	Α	В	С	V @ 0.2d	V @ 0.6d	1	To Water Surf, cm
		To original Surface Elev, cm	32	32	32		14.5		59.5
	1 (To eroded Surface Elev, cm	32	32	32	Vavg (fps) =	14.50	Red May Char	
		Soil Loss / Gain, cm	0	0	0	navg =	0.052		Water Depth (in)
		Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	26.16	16.64	10.83
8 ft				Avg Bottom I	Loss/Gain, in	0.00	Avg Cl	6.16 16.64 Avg Clopper Soil Loss, in 0.6d V @ 0.8d To	0.00
		Cross-section 5	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
		To original Surface Elev, cm	32	32	32		14.5		59.0
		To eroded Surface Elev, cm	32	31.5	32	Vavg (fps) =	14.50	Red May Shear	
		Soil Loss / Gain, cm	0	-0.5	0	navg =	0.052	Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	0	-0.5	0	Flow (cfs) =	25.85	16.44	10.70
10 ft				Avg Bottom I	Loss/Gain, in	-0.07	Avg Cl	lopper Soil Loss, in	-0.07
		Cross-section 6	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
		To original Surface Elev, cm	32	32	33		15		58.0
		To eroded Surface Elev, cm	32	31.5	32	Vavg (fps) =	15.00	Pod May Shoor	
		Soil Loss / Gain, cm	0	-0.5	-1	navg =	0.049	Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	0	-0.5	-1	Flow (cfs) =	25.75	15.83	10.30
12 ft				Avg Bottom I	Loss/Gain, in	-0.20	Avg Cl	lopper Soil Loss, in	-0.20
1		Cross-section 7	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
		To original Surface Elev, cm	33	31	32		15		58.5
		To eroded Surface Elev, cm	32	31	32	Vavg (fps) =	15.00	Red May Shear	
		Soil Loss / Gain, cm	-1	0	0	navg =	0.050	Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	-1	0	0	Flow (cfs) =	26.41	16.23	10.56
14 ft				Avg Bottom I	Loss/Gain, in	-0.13			
		Cross-section 8	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
		To original Surface Elev, cm	32	32	32		15		58.0
		To eroded Surface Elev, cm	32	32	32	Vavg (fps) =	15.00	Red May Shear	
		Soil Loss / Gain, cm	0	0	0	navg =	0.049	Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	25.59	15.73	10.24
16 ft				Avg Bottom I	Loss/Gain, in	0.00	Avg Cl	Bed Max Shear Stress (psf) 17.85 Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 17.34 Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 16.74 Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 16.64 Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 16.84 Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 15.83 Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 15.83 Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 15.83 Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 16.23 Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 16.23 Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 16.23 Clopper Soil Loss, in V @ 0.8d	0.00
		Cross-section 9	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
		To original Surface Elev, cm	31	30.5	31.5		15.5		56.5
		To eroded Surface Elev, cm	31	30.5	31	Vavg (fps) =	15.50	Bed May Sheer	
		Soil Loss / Gain, cm	0	0	-0.5	navg =	0.047		Water Depth (in)
		Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	26.10	15.53	10.10
18 ft				Avg Bottom I	Loss/Gain, in	-0.07	Avg Cl	lopper Soil Loss, in	-0.07
		Cross-section 10	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
		To original Surface Elev, cm	30	30	30		15.5		55.5
		To eroded Surface Elev, cm	29	30	30	Vavg (fps) =	15.50	Bed Max Shear	
		Soil Loss / Gain, cm	-1	0	0	navg =	0.047	Stress (psf)	Water Depth (in)
	\perp	Clopper Soil Loss, cm	-1	0	0	Flow (cfs) =	26.27	15.63	10.17
20 ft				Avg Bottom I	Loss/Gain, in	-0.13		lopper Soil Loss, in	
	 _	Cross-section 11	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
		To original Surface Elev, cm	30	31	30.5		15.5		56.0
		To eroded Surface Elev, cm	30	31	30.5	Vavg (fps) =	15.50	Bed Max Shear	
		Soil Loss / Gain, cm	0	0	0	navg =	0.047	Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	25.94	15.43	10.04
		Г		Ava Bottom I	Loss/Gain, in	0.00	Avg Cl	lopper Soil Loss, in	0.00
				9					
		Soil Loss / Gain, in	-0.14	-0.05	-0.09	Avg Bottom Loss	/Gain per Cross-	Section =	-0.10

CHANNEL 3 - S	SHEAR STRESS 1	Date:	2/14/09		Start Time:	12:00 PM	End Time:		•
40 61	00 444	Soil:	Loam		Shear (psf):	6.00	Slope:	30%	
ft long flume	20 ft test section 2 ft wide flume			Fle	examat Perma	anent Channel Lin	_		
rpms 1	2 3	Outlet Weir	1	2	3	TEST	DATA		
	_OW	Water Depth, in	<u> </u>	12.00	3				
Weir width (ft) = 4		Water Velocity, ft/s		3.50					
0 ft A B	c —	Flow Rate, cfs	0.00	14.00	0.00				
<u> </u>		Cross-section 1	A	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf,
		To original Surface Elev, cm	28	28	28	V @ 0.2u	6	V @ 0.00	38.0
	· : 1	To eroded Surface Elev, cm	28	28	27.5	Vavg (fps) =	6.00	5 114 01	33.3
l i		Soil Loss / Gain, cm	0	0	-0.5	navg =	0.065		Water Depth (
		Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	4.00	6.15	4.00
2 ft				Avg Bottom	Loss/Gain, in	-0.07	Avg Cl	lopper Soil Loss, in	-0.07
1		Cross-section 2	А	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf,
		To original Surface Elev, cm	30	30	30		6		39.5
		To eroded Surface Elev, cm	30	30	30	Vavg (fps) =	6.00	Bed Max Shear	
1 1		Soil Loss / Gain, cm	0	0	0	navg =	0.062	Stress (psf)	Water Depth (
		Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	3.74	5.75	3.74
4 ft	<u> </u>			Avg Bottom	Loss/Gain, in	0.00	Avg Cl	opper Soil Loss, in	0.00
1 1	:	Cross-section 3	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf,
		To original Surface Elev, cm	30	29	30		6		39.0
		To eroded Surface Elev, cm	30	29	29.5	Vavg (fps) =	6.00	Bed Max Shear	
		Soil Loss / Gain, cm	0	0	-0.5	navg =	0.062		Water Depth (
.		Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	3.74	5.75	3.74
6 ft	 	_			_oss/Gain, in	-0.07		Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.75 Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.75 Clopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 5.85	-0.07
		Cross-section 4	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf,
	1 1 1	To original Surface Elev, cm	28	28	29	V (/)	6		38.0
		To eroded Surface Elev, cm	28	28	29	Vavg (fps) =	6.00		Woter David
1 1		Soil Loss / Gain, cm	0	0	0	navg =	0.063		Water Depth (
8 ft		Clopper Soil Loss, cm	0		Loss/Gain, in	Flow (cfs) = 0.00		3.81 5.85 Avg Clopper Soil Loss, in	3.81 0.00
0 11	 	Cross-section 5	A	B B	C	V @ 0.2d	V @ 0.6d		To Water Surf,
10 ft		To original Surface Elev, cm	31	30.5	31	V @ 0.2u	6.5	V @ 0.00	39.0
	: i I	To eroded Surface Elev, cm	30.5	30.5	31	Vavg (fps) =	6.50		00.0
		Soil Loss / Gain, cm	-0.5	0	0	navg =	0.053		Water Depth (
		Clopper Soil Loss, cm	-0.5	0	0	Flow (cfs) =	3.55		3.28
		0.00000 00.1 2000, 0.11	0.0		Loss/Gain, in	-0.07			-0.07
		Cross-section 6	А	В	С	V @ 0.2d	V @ 0.6d		To Water Surf,
		To original Surface Elev, cm	31	32	33		6.5		40.0
		To eroded Surface Elev, cm	31	32	32.5	Vavg (fps) =	6.50	Red May Shear	
1 1		Soil Loss / Gain, cm	0	0	-0.5	navg =	0.052		Water Depth (
		Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	3.48	4.94	3.22
12 ft	<u> </u>			Avg Bottom	Loss/Gain, in	-0.07	Avg Cl	lopper Soil Loss, in	-0.07
		Cross-section 7	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf,
	· : 1	To original Surface Elev, cm	34	33.5	33		6.5		41.5
		To eroded Surface Elev, cm	34	33	33	Vavg (fps) =	6.50		
		Soil Loss / Gain, cm	0	-0.5	0	navg =	0.052		Water Depth (
44.6		Clopper Soil Loss, cm	0	-0.5	0	Flow (cfs) =	3.48		3.22
14 ft	 				Loss/Gain, in	-0.07			-0.07
	—	Cross-section 8	A	B	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf,
	1 1	To original Surface Elev, cm	33	33	34	Vov. (6-)	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		41.5
		To eroded Surface Elev, cm	33	33	34	Vavg (fps) =	7.00	Bed Max Shear	Woter David
1 :	1 i I	Soil Loss / Gain, cm	0	0	0	navg =	0.048 3.75		Water Depth
1)	Clopper Soil Loop am	0		0	Flow (ofc)		V @ 0.8d Bed Max Shear Stress (psf) 5.75 [Clopper Soil Loss, ir V @ 0.8d Bed Max Shear Stress (psf) 5.75 [Clopper Soil Loss, ir V @ 0.8d Bed Max Shear Stress (psf) 5.85 [Clopper Soil Loss, ir V @ 0.8d Bed Max Shear Stress (psf) 5.04 [Clopper Soil Loss, ir V @ 0.8d Bed Max Shear Stress (psf) 5.04 [Clopper Soil Loss, ir V @ 0.8d Bed Max Shear Stress (psf) 4.94 [Clopper Soil Loss, ir V @ 0.8d Bed Max Shear Stress (psf) 4.94 [Clopper Soil Loss, ir V @ 0.8d	3.22
16 ft		Clopper Soil Loss, cm	0	0	0 Loss/Gain in	Flow (cfs) =		lonner Soil Loss in	0.00
16 ft				0 Avg Bottom	Loss/Gain, in	0.00	Avg Cl	1	0.00 To Water Surf.
16 ft	_	Cross-section 9	А	0 Avg Bottom B	Loss/Gain, in		Avg Cl V @ 0.6d	1	To Water Surf,
16 ft			A 33	0 Avg Bottom B 33	C 33.5	0.00 V @ 0.2d	Avg Cl V @ 0.6d 7	V @ 0.8d	
16 ft		Cross-section 9 To original Surface Elev, cm	А	0 Avg Bottom B	Loss/Gain, in	0.00 V @ 0.2d Vavg (fps) =	Avg Cl V @ 0.6d	V @ 0.8d Bed Max Shear	To Water Surf, 41.0
16 ft		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm	A 33 32.5	0 Avg Bottom B 33 33	C 33.5 33.5	0.00 V @ 0.2d	Avg Cl V @ 0.6d 7 7.00	V @ 0.8d Bed Max Shear Stress (psf)	To Water Surf,
16 ft		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	A 33 32.5 -0.5	0 Avg Bottom B 33 30 0	C 33.5 33.5	0.00 V @ 0.2d Vavg (fps) = navg =	Avg Cl V @ 0.6d 7 7.00 0.048 3.67	V @ 0.8d Bed Max Shear Stress (psf)	To Water Surf, 41.0 Water Depth
		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	A 33 32.5 -0.5	0 Avg Bottom B 33 30 0	C 33.5 33.5 0	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) =	Avg Cl V @ 0.6d 7 7.00 0.048 3.67	V @ 0.8d Bed Max Shear Stress (psf) 4.84	To Water Surf, 41.0 Water Depth 3.15 -0.07
		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	A 33 32.5 -0.5 -0.5	0 Avg Bottom B 33 33 0 0 Avg Bottom	C 33.5 33.5 0 0 Loss/Gain, in	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07	Avg Cl V @ 0.6d 7 7.00 0.048 3.67 Avg Cl	V @ 0.8d Bed Max Shear Stress (psf) 4.84 Opper Soil Loss, in	To Water Surf, 41.0 Water Depth 3.15 -0.07
		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10	A 33 32.5 -0.5 -0.5	0 Avg Bottom B 33 33 0 0 Avg Bottom B	C 33.5 33.5 0 0 Loss/Gain, in C	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07	Avg Cl V @ 0.6d 7 7.00 0.048 3.67 Avg Cl V @ 0.6d	V @ 0.8d Bed Max Shear Stress (psf) 4.84 Opper Soil Loss, in	To Water Surf, 41.0 Water Depth (3.15 -0.07 To Water Surf,
		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 To original Surface Elev, cm	A 33 32.5 -0.5 -0.5 A 33.5	0 Avg Bottom B 33 33 0 0 Avg Bottom B 34	Loss/Gain, in C 33.5 33.5 0 Loss/Gain, in C 35.5	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d	Avg Cl V @ 0.6d 7 7.00 0.048 3.67 Avg Cl V @ 0.6d 7.5	V @ 0.8d Bed Max Shear Stress (psf) 4.84 lopper Soil Loss, in V @ 0.8d	Vater Surf, 41.0 Water Depth 3.15 -0.07 To Water Surf,
		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 To original Surface Elev, cm To eroded Surface Elev, cm	A 33 32.5 -0.5 -0.5 A 33.5 33	0 Avg Bottom B 33 33 0 0 Avg Bottom B 34 34	Loss/Gain, in C 33.5 33.5 0 0 Loss/Gain, in C 35.5 35.5	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) =	Avg Cl V @ 0.6d 7 7.00 0.048 3.67 Avg Cl V @ 0.6d 7.5 7.50	V @ 0.8d Bed Max Shear Stress (psf) 4.84 lopper Soil Loss, in V @ 0.8d Bed Max Shear	To Water Surf, 41.0 Water Depth (3.15 -0.07 To Water Surf, 42.0
		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	A 33 32.5 -0.5 -0.5 -0.5 A 33.5 33 -0.5	0 Avg Bottom B 33 33 0 0 Avg Bottom B 34 34 0 0	Loss/Gain, in C 33.5 33.5 0 0 Loss/Gain, in C 35.5 35.5 0	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg =	Avg Cl V @ 0.6d 7 7.00 0.048 3.67 Avg Cl V @ 0.6d 7.5 7.50 0.044 3.85	V @ 0.8d Bed Max Shear Stress (psf) 4.84 lopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	To Water Surf, 41.0 Water Depth I 3.15 -0.07 To Water Surf, 42.0 Water Depth I
18 ft		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	A 33 32.5 -0.5 -0.5 -0.5 A 33.5 33 -0.5	0 Avg Bottom B 33 33 0 0 Avg Bottom B 34 34 0 0	Coss/Gain, in C 33.5 0 0 C C C C C C C C C C C C C C C C C	0.00 V@ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V@ 0.2d Vavg (fps) = navg = Flow (cfs) =	Avg Cl V @ 0.6d 7 7.00 0.048 3.67 Avg Cl V @ 0.6d 7.5 7.50 0.044 3.85	V @ 0.8d Bed Max Shear Stress (psf) 4.84 lopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 4.74	To Water Surf, 41.0 Water Depth (3.15 -0.07 To Water Surf, 42.0 Water Depth (3.08 -0.07
18 ft		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	A 33 32.5 -0.5 -0.5 A 33.5 33 -0.5 -0.5	0 Avg Bottom B 33 33 0 0 Avg Bottom B 34 34 0 0 Avg Bottom	Loss/Gain, in C 33.5 33.5 0 Loss/Gain, in C 35.5 35.5 0 Loss/Gain, in	0.00 V@ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V@ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07	Avg Cl V @ 0.6d 7 7.00 0.048 3.67 Avg Cl V @ 0.6d 7.5 7.50 0.044 3.85 Avg Cl	V @ 0.8d Bed Max Shear Stress (psf) 4.84 lopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 4.74 lopper Soil Loss, in	To Water Surf. 41.0 Water Depth 3.15 -0.07 To Water Surf. 42.0 Water Depth 3.08 -0.07
18 ft		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	A 33 32.5 -0.5 -0.5 A 33.5 33 -0.5 -0.5	0 Avg Bottom B 33 0 0 Avg Bottom B 34 34 0 0 Avg Bottom B B B B B B B B B B B B B B B B B B B	Loss/Gain, in C 33.5 33.5 0 0 Loss/Gain, in C 35.5 35.5 0 0 Loss/Gain, in C C	0.00 V@ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V@ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07	Avg Cl V @ 0.6d 7 7.00 0.048 3.67 Avg Cl V @ 0.6d 7.5 7.50 0.044 3.85 Avg Cl V @ 0.6d	V @ 0.8d Bed Max Shear Stress (psf) 4.84 lopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 4.74 lopper Soil Loss, in	To Water Surf. 41.0 Water Depth 3.15 -0.07 To Water Surf. 42.0 Water Depth 3.08 -0.07 To Water Surf. 42.0
18 ft		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 11 To original Surface Elev, cm Soil Loss / Gain, cm Cross-section 11 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	A 33 32.5 -0.5 -0.5 -0.5 A 33.5 -0.5 -0.5 A 34.5	0 Avg Bottom B 33 0 0 Avg Bottom B 34 34 0 0 Avg Bottom B 34 34 34 34 34 34 34 34 34 34 34 34 34	Loss/Gain, in C 33.5 33.5 0 0 Loss/Gain, in C 35.5 35.5 0 0 Loss/Gain, in C 34 34	0.00 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d	Avg Cl V @ 0.6d 7 7.00 0.048 3.67 Avg Cl V @ 0.6d 7.5 0.044 3.85 Avg Cl V @ 0.6d 7.5	V @ 0.8d Bed Max Shear Stress (psf) 4.84 lopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 4.74 lopper Soil Loss, in V @ 0.8d	To Water Surf, 41.0 Water Depth 3.15 -0.07 To Water Surf, 42.0 Water Depth 3.08 -0.07 To Water Surf, 42.0
18 ft		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 To original Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm Cross-section 11 To original Surface Elev, cm To eroded Surface Elev, cm Cross-section 11 To original Surface Elev, cm To eroded Surface Elev, cm	A 33 32.5 -0.5 -0.5 -0.5 A 33.5 -0.5 -0.5 A 34.5 34	0 Avg Bottom B 33 33 0 0 Avg Bottom B 34 34 34 0 0 Avg Bottom B 34 34 0 0 0 Avg Bottom	Loss/Gain, in C 33.5 33.5 0 0 Loss/Gain, in C 35.5 35.5 0 Loss/Gain, in C 34 34 0 0	0.00 V@ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V@ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V@ 0.2d Vavg (fps) = navg = Flow (cfs) = Flow (cfs) = Flow (cfs) =	Avg Cl V @ 0.6d 7 7.00 0.048 3.67 Avg Cl V @ 0.6d 7.5 7.50 0.044 3.85 Avg Cl V @ 0.6d 7.5 7.50 0.044 3.94	V @ 0.8d Bed Max Shear Stress (psf) 4.84 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 4.74 opper Soil Loss, in V @ 0.8d	To Water Surf, 41.0 Water Depth 3.15 -0.07 To Water Surf, 42.0 Water Depth 3.08 -0.07 To Water Surf, 42.0 Water Depth 3.15
18 ft		Cross-section 9 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 10 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 11 To original Surface Elev, cm Soil Loss / Gain, cm Cross-section 11 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	A 33 32.5 -0.5 -0.5 -0.5 A 33.5 -0.5 -0.5 A 34.5 34 -0.5	0 Avg Bottom B 33 33 0 0 Avg Bottom B 34 34 34 0 0 Avg Bottom B 34 34 0 0 0 Avg Bottom	Loss/Gain, in C 33.5 33.5 0 0 Loss/Gain, in C 35.5 35.5 0 Loss/Gain, in C 34 34 0 0 Loss/Gain, in	0.00 V@ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V@ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V@ 0.2d Vavg (fps) = navg = Vavg (fps) = navg =	Avg Cl V @ 0.6d 7 7.00 0.048 3.67 Avg Cl V @ 0.6d 7.5 7.50 0.044 3.85 Avg Cl V @ 0.6d 7.5 Avg Cl Avg Cl Avg Cl	V @ 0.8d Bed Max Shear Stress (psf) 4.84 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 4.74 opper Soil Loss, in V @ 0.8d	To Water Surf, 41.0 Water Depth 3.15 -0.07 To Water Surf, 42.0 Water Depth 3.08 -0.07 To Water Surf, 42.0 Water Depth

## A ft ## A f	C	Inlet Weir Water Depth, in Water Velocity, ff/s Flow Rate, cfs Cross-section 1 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	1 0.00 A 28 28 0 0 0 A 30 0 0 0 A 30 0 0 A 28 28 28 0 0 0 0 A 30 30 0 0 0 0 A 30 0 0 0 0 A 28 28	2 15.00 4.50 22.50 B 28 28 0 0 Avg Bottom B 30 0 0	3 0.00 C 27.5 -0.5 -0.5 Loss/Gain, in C 29.5 29 -0.5 -0.5	10.00 anent Channel Lin TEST V @ 0.2d Vavg (fps) =	V @ 0.6d 8 8.00 0.062 7.52 Avg Cl V @ 0.6d 8.5 8.50 0.056 7.53	V @ 0.8d Bed Max Shear Stress (psf) 8.67 lopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 8.17 lopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) Bed Max Shear Stress (psf)	To Water Surf, cm 42.0 Water Depth (in) 5.64 -0.07 To Water Surf, cm 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cm 43.0 Water Depth (in) 5.38
rpms 1 2 FLOW Weir width (ff) = 4 0 ft A B 2 ft 4 ft	2 ft wide flume 3 C	Water Depth, in Water Velocity, ft/s Flow Rate, cfs Cross-section 1 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 2 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Cross-section 4	0.00 A 28 28 0 0 A 30 0 A 30 0 A A 30 0 A 30 A 30 A	2 15.00 4.50 22.50 B 28 28 0 0 Avg Bottom B 30 30 0 Avg Bottom B 29 29 0 Avg Bottom	3 0.00 C 27.5 27 -0.5 -0.5 Loss/Gain, in C 30 0 0 Loss/Gain, in C 29.5 29 -0.5	V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 Vavg (fps) = 0.00 V @ 0.2d	V @ 0.6d 8 8.00 0.062 7.52 Avg Cl V @ 0.6d 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.50 0.056	Bed Max Shear Stress (psf) 8.67 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d	Water Depth (in) 5.64 -0.07 To Water Surf, cm 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cm 43.0
1 2 FLOW Weir width (ft) = 4 0 ft A B 2 ft 4 ft	3 C	Water Depth, in Water Velocity, ft/s Flow Rate, cfs Cross-section 1 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 2 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Cross-section 4	0.00 A 28 28 0 0 A 30 0 A 30 0 A A 30 0 A 30 A 30 A	15.00 4.50 22.50 B 28 28 0 0 Avg Bottom B 30 0 Avg Bottom B 29 29 0 Avg Bottom	0.00 C 27.5 27 -0.5 -0.5 Loss/Gain, in C 30 0 0 Loss/Gain, in C 29.5 29 -0.5	V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg = navg = 0.00	V @ 0.6d 8 8.00 0.062 7.52 Avg Cl V @ 0.6d 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.50 0.056 0.056	Bed Max Shear Stress (psf) 8.67 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d	Water Depth (in) 5.64 -0.07 To Water Surf, cm 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cm 43.0
FLOW Weir width (ft) = 4 0 ft A B 2 ft 4 ft	C	Water Depth, in Water Velocity, ft/s Flow Rate, cfs Cross-section 1 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 2 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Cross-section 4	0.00 A 28 28 0 0 A 30 0 A 30 0 A A 30 0 A 30 A 30 A	15.00 4.50 22.50 B 28 28 0 0 Avg Bottom B 30 0 Avg Bottom B 29 29 0 Avg Bottom	0.00 C 27.5 27 -0.5 -0.5 Loss/Gain, in C 30 0 0 Loss/Gain, in C 29.5 29 -0.5	Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	8 8.00 0.062 7.52 Avg Cl V @ 0.6d 8.5 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.5	Bed Max Shear Stress (psf) 8.67 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d	Water Depth (in) 5.64 -0.07 To Water Surf, cm 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cm 43.0
2 ft 4 ft 6 ft		Water Velocity, ft/s Flow Rate, cfs Cross-section 1 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 2 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm Corpper Soil Loss, cm Cross-section 4 To original Surface Elev, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	A 28 28 0 0 0 A 30 30 0 0 A 30 0 0 A 28	22.50 B 28 28 0 0 Avg Bottom B 30 0 Avg Bottom B 29 29 0 Avg Bottom	C 27.5 27 -0.5 -0.5 Loss/Gain, in C 30 0 0 Loss/Gain, in C 29.5 29 -0.5	Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	8 8.00 0.062 7.52 Avg Cl V @ 0.6d 8.5 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.5	Bed Max Shear Stress (psf) 8.67 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d	Water Depth (in) 5.64 -0.07 To Water Surf, cm 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cm 43.0
2 ft 4 ft 6 ft		Flow Rate, cfs Cross-section 1 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 2 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm To eroded Surface Elev, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	A 28 28 0 0 0 A 30 30 0 0 A 30 0 0 A 28	22.50 B 28 28 0 0 Avg Bottom B 30 0 Avg Bottom B 29 29 0 Avg Bottom	C 27.5 27 -0.5 -0.5 Loss/Gain, in C 30 0 0 Loss/Gain, in C 29.5 29 -0.5	Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	8 8.00 0.062 7.52 Avg Cl V @ 0.6d 8.5 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.5	Bed Max Shear Stress (psf) 8.67 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d	Water Depth (in) 5.64 -0.07 To Water Surf, cm 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cm 43.0
2 ft 4 ft 6 ft		Cross-section 1 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 2 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Cross-section 4	A 28 28 0 0 0 A 30 30 0 0 A 30 0 0 A 28	B 28 28 0 0 0 Avg Bottom B 30 0 0 Avg Bottom B 29 29 0 0 Avg Bottom B Avg Bottom B 29 29 0 0 0 Avg Bottom	C 27.5 27 -0.5 -0.5 Loss/Gain, in C 30 0 0 Loss/Gain, in C 29.5 29 -0.5	Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	8 8.00 0.062 7.52 Avg Cl V @ 0.6d 8.5 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.5	Bed Max Shear Stress (psf) 8.67 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d	Water Depth (in) 5.64 -0.07 To Water Surf, cm 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cm 43.0
4 ft 6 ft		To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 2 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	28 28 0 0 A 30 30 0 0 A 30 30 0 0 A 30 0 0 0	28 28 0 0 0 Avg Bottom B 30 0 0 Avg Bottom B 29 0 0 Avg Bottom B 29 0 0 Avg Bottom	27.5 27 -0.5 -0.5 -0.5 Loss/Gain, in C 30 0 0 Loss/Gain, in C 29.5 29 -0.5	Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	8 8.00 0.062 7.52 Avg Cl V @ 0.6d 8.5 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.5	Bed Max Shear Stress (psf) 8.67 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d	Water Depth (in) 5.64 -0.07 To Water Surf, cm 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cm 43.0
4 ft 6 ft		To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 2 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	28 0 0 A 30 30 0 0 A 30 30 0 0 A 30 0 0 0	28 0 0 Avg Bottom B 30 30 0 Avg Bottom B 29 29 0 Avg Bottom	27 -0.5 -0.5 -0.5 Loss/Gain, in C 30 30 0 0 Loss/Gain, in C 29.5 29 -0.5	navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	8.00 0.062 7.52 Avg Cl V @ 0.6d 8.5 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.5 8.50 0.056	Stress (psf) 8.67 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	Water Depth (in) 5.64 -0.07 To Water Surf, cn 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cn 43.0 Water Depth (in)
4 ft 6 ft		Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 2 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm	0 0 0 30 30 0 0 A 30 30 0 0 A 30 0 0 A 30 0 0 0	0 0 Avg Bottom B 30 0 0 Avg Bottom B 29 29 0 Avg Bottom	-0.5 -0.5 Loss/Gain, in C 30 30 0 Loss/Gain, in C 29.5 29 -0.5	navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	0.062 7.52 Avg Cl V @ 0.6d 8.5 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.5 8.50 0.056	Stress (psf) 8.67 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	5.64 -0.07 To Water Surf, cn 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cn 43.0
4 ft 6 ft		Clopper Soil Loss, cm Cross-section 2 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Cross-section 4	A 30 0 0 A 30 0 0 0 A A 28	0 Avg Bottom B 30 0 0 Avg Bottom B 29 29 0 Avg Bottom	-0.5 Loss/Gain, in C 30 30 0 Loss/Gain, in C 29.5 29 -0.5	Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	7.52 Avg Cl V @ 0.6d 8.5 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.5 8.50 0.056	8.67 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	5.64 -0.07 To Water Surf, cn 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cn 43.0
4 ft 6 ft		Cross-section 2 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm Cross-section 4 To original Surface Elev, cm Soil Loss / Gain, cm	A 30 30 0 0 A 30 0 0 A 28	Bottom B 30 30 0 0 Avg Bottom B 29 29 0 Avg Bottom	Loss/Gain, in C 30 30 0 Loss/Gain, in C 29.5 29 -0.5	-0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	Avg Cl V @ 0.6d 8.5 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.5 8.50 0.056	opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	-0.07 To Water Surf, cn 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cn 43.0 Water Depth (in)
4 ft 6 ft		To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	30 30 0 0 A 30 30 0 0	B 30 30 0 0 0 Avg Bottom B 29 29 0 0 Avg Bottom	C 30 30 0 0 Loss/Gain, in C 29.5 29 -0.5	V @ 0.2d Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	V @ 0.6d 8.5 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.5 8.50	V @ 0.8d Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	To Water Surf, cn 43.5 Water Depth (in) 5.31 0.00 To Water Surf, cn 43.0 Water Depth (in)
6 ft		To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	30 30 0 0 A 30 30 0 0	30 30 0 0 Avg Bottom B 29 29 0 0	30 30 0 0 Loss/Gain, in C 29.5 29 -0.5	Vavg (fps) = navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	8.5 8.50 0.056 7.53 Avg Cl V @ 0.6d 8.5 8.50 0.056	Bed Max Shear Stress (psf) 8.17 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	43.5 Water Depth (in) 5.31 0.00 To Water Surf, cm 43.0 Water Depth (in)
6 ft		To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	30 0 0 A 30 30 0 0 A 28	30 0 0 Avg Bottom B 29 29 0 0 Avg Bottom	30 0 0 Loss/Gain, in C 29.5 29 -0.5	navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	8.50 0.056 7.53 Avg Cl V @ 0.6d 8.5 8.50 0.056	Stress (psf) 8.17 lopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	Water Depth (in) 5.31 0.00 To Water Surf, cn 43.0 Water Depth (in)
6 ft		Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	0 0 A 30 30 0 0	0 0 Avg Bottom B 29 29 0 Avg Bottom	0 0 Loss/Gain, in C 29.5 29 -0.5	navg = Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	0.056 7.53 Avg Cl V @ 0.6d 8.5 8.50 0.056	Stress (psf) 8.17 lopper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	5.31 0.00 To Water Surf, cm 43.0 Water Depth (in)
6 ft		Clopper Soil Loss, cm Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	0 A 30 30 0 0 A 28	0 Avg Bottom B 29 29 0 Avg Bottom	0 Loss/Gain, in C 29.5 29 -0.5	Flow (cfs) = 0.00 V @ 0.2d Vavg (fps) = navg =	7.53 Avg Cl V @ 0.6d 8.5 8.50 0.056	8.17 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	5.31 0.00 To Water Surf, cn 43.0 Water Depth (in)
6 ft		Cross-section 3 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	A 30 30 0 0 0	Avg Bottom B 29 29 0 Avg Bottom	C 29.5 29 -0.5	0.00 V @ 0.2d Vavg (fps) = navg =	Avg Cl V @ 0.6d 8.5 8.50 0.056	opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	0.00 To Water Surf, cn 43.0 Water Depth (in)
6 ft		To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	30 30 0 0 A 28	B 29 29 0 0 Avg Bottom	C 29.5 29 -0.5	V @ 0.2d Vavg (fps) = navg =	V @ 0.6d 8.5 8.50 0.056	V @ 0.8d Bed Max Shear Stress (psf)	To Water Surf, cn 43.0 Water Depth (in)
		To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	30 30 0 0 A 28	29 29 0 0 Avg Bottom	29.5 29 -0.5	Vavg (fps) = navg =	8.5 8.50 0.056	Bed Max Shear Stress (psf)	43.0 Water Depth (in)
		To eroded Surface Elev, cm Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	30 0 0 A 28	29 0 0 Avg Bottom	29 -0.5	navg =	8.50 0.056	Stress (psf)	Water Depth (in)
		Soil Loss / Gain, cm Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	0 0 A 28	0 0 Avg Bottom	-0.5	navg =	0.056	Stress (psf)	
		Clopper Soil Loss, cm Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	0 A 28	0 Avg Bottom					
		Cross-section 4 To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	A 28	Avg Bottom	-0.5		7.62	8 27	5.38
		To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	28	Ť	Loca/Coin in	Flow (cfs) = -0.07			-0.07
8 ft		To original Surface Elev, cm To eroded Surface Elev, cm Soil Loss / Gain, cm	28	B					
8 ft		To eroded Surface Elev, cm Soil Loss / Gain, cm			C 20	V @ 0.2d	V @ 0.6d	v @ U.8d	To Water Surf, cn
8 ft		Soil Loss / Gain, cm	00	28	29	Variety (free)	8.5		42.0
8 ft	i		28	28	28.5	Vavg (fps) =	8.50	Bed Max Shear	5 4 6 3
8 ft	i	Clopper Call I	0	0	-0.5	navg =	0.057		Water Depth (in)
п	i	Clopper Soil Loss, cm	0	0 Ava Rottom	-0.5	Flow (cfs) =	7.72		5.45 -0.07
	i	Crass =	A		Loss/Gain, in C	-0.07 V @ 0.2d	V @ 0.6d	1	-0.07 To Water Surf, cn
	i	Cross-section 5		B 20.5		V @ 0.2d		V @ 0.80	
		To original Surface Elev, cm	30.5	30.5	31	\(\frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2	8.5		44.0
		To eroded Surface Elev, cm	30	30.5	31	Vavg (fps) =	8.50	Bed Max Shear	Mater Death (in)
1 1 1		Soil Loss / Gain, cm	-0.5	0	0	navg =	0.056		Water Depth (in)
40.6		Clopper Soil Loss, cm	-0.5	0	0	Flow (cfs) =	7.53		5.31
10 ft	 				Loss/Gain, in	-0.07			-0.07
		Cross-section 6	A	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	i I	To original Surface Elev, cm	31	32	32.5		8.5		45.0
		To eroded Surface Elev, cm	31	32	32	Vavg (fps) =	8.50	Bed Max Shear	
		Soil Loss / Gain, cm	0	0	-0.5	navg =	0.055		Water Depth (in)
40.6		Clopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	7.44		5.25
12 ft	 				Loss/Gain, in	-0.07			-0.07
		Cross-section 7	A 24	B	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
	1 1	To original Surface Elev, cm	34	33	33		9		46.0
		To eroded Surface Elev, cm	33.5	33	32.5	Vavg (fps) =	9.00	Bed Max Shear	5
		Soil Loss / Gain, cm	-0.5	0	-0.5	navg =	0.051		Water Depth (in)
14.6		Clopper Soil Loss, cm	-0.5	0 Ava Bettem	-0.5	Flow (cfs) =	7.68		5.12
14 ft	 	Crass	^		Loss/Gain, in	-0.13			-0.13
	—	Cross-section 8	A 22	B 22	C 24	V @ 0.2d	V @ 0.6d	v @ U.8d	To Water Surf, cn
	1	To original Surface Elev, cm	33	33	34	V (f)	9		46.0
		To eroded Surface Elev, cm	33	33	33.5	Vavg (fps) =	9.00	Bed Max Shear	
		Soil Loss / Gain, cm	0	0	-0.5	navg =	0.051		Water Depth (in)
16.6		Clopper Soil Loss, cm	0	0 Ava Bottom	-0.5	Flow (cfs) =	7.58	Bed Max Shear Stress (psf) 8.67 Avg Clopper Soil Loss, ii Sd V @ 0.8d Bed Max Shear Stress (psf) 8.17 Avg Clopper Soil Loss, ii Sd V @ 0.8d Bed Max Shear Stress (psf) 8.27 Avg Clopper Soil Loss, ii Sd V @ 0.8d Bed Max Shear Stress (psf) 8.37 Avg Clopper Soil Loss, ii Sd V @ 0.8d Bed Max Shear Stress (psf) 8.37 Avg Clopper Soil Loss, ii Sd V @ 0.8d Bed Max Shear Stress (psf) 8.17 Avg Clopper Soil Loss, ii Sd V @ 0.8d Bed Max Shear Stress (psf) 8.17 Avg Clopper Soil Loss, ii Sd V @ 0.8d Bed Max Shear Stress (psf) 8.07 Avg Clopper Soil Loss, ii Sd V @ 0.8d Bed Max Shear Stress (psf) 8.07 Avg Clopper Soil Loss, ii Sd V @ 0.8d Bed Max Shear Stress (psf) 8.07 Avg Clopper Soil Loss, ii Sd V @ 0.8d Bed Max Shear Stress (psf) 7.87 Avg Clopper Soil Loss, ii Sd V @ 0.8d Bed Max Shear Stress (psf) 7.87 Avg Clopper Soil Loss, ii Sd V @ 0.8d	5.05
16 ft	 - 	0 " -	^		Loss/Gain, in	-0.07			-0.07
		Cross-section 9	A 22.5	B 22	C 22.5	V @ 0.2d	V @ 0.6d	v @ U.8d	To Water Surf, cn
	1	To original Surface Elev, cm	32.5	33	33.5	Varia (5)	9.5		45.0
		To eroded Surface Elev, cm	32	33	33	Vavg (fps) =	9.50	Bed Max Shear	W-4 5 " " "
		Soil Loss / Gain, cm	-0.5	0	-0.5	navg =	0.047	Stress (psf)	Water Depth (in)
40.6		Clopper Soil Loss, cm	-0.5	0	-0.5	Flow (cfs) =	7.69	7.46	4.86
18 ft	+ + -	C	^		Loss/Gain, in	-0.13		lopper Soil Loss, in	-0.13
		Cross-section 10 To original Surface Elev, cm	A 22	B 24	C 25.5	V @ 0.2d	V @ 0.6d 9.5	V @ 0.8d	To Water Surf, cn 46.0
	i	To eroded Surface Elev, cm	33	34	35.5 35	Vava (foc)			40.0
			33	34		Vavg (fps) =	9.50	Bed Max Shear	Water Death (in)
	I	Soil Loss / Gain, cm	0	0	-0.5 -0.5	navg =	0.046	Stress (psf)	Water Depth (in)
20 ft		Clopper Soil Loss, cm	J		-0.5 Loss/Gain, in	Flow (cfs) = -0.07	7.48 Ava Cl	7.26 lopper Soil Loss, in	-0.07
		Cross-section 11	A	B B	C	-0.07 V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
		To original Surface Elev, cm	34	34	34	v & U.ZU	7 @ 0.6d 10	v & U.OU	45.5
		To eroded Surface Elev, cm	33.5	34	34	Vavg (fps) =	10.00	- 11	40.0
		Soil Loss / Gain, cm	-0.5	0	0	navg (ips) =	0.043	Bed Max Shear Stress (psf)	Water Depth (in)
		Clopper Soil Loss, cm	-0.5	0	0	Flow (cfs) =	7.66	7.06	4.59
		5.5ppci 50ii £033, 0111	0.0		Loss/Gain, in	-0.07		lopper Soil Loss, in	-0.07
	-	Soil Loss / Gain, in	-0.07	0.00		Avg Bottom Loss			-0.07
		Clopper Soil Loss, in	-0.07	0.00		Avg Clopper Soil	=		-0.07

CHANNEL 3 - SHEAR ST	RESS 3	Date:	2/14/09		Start Time:	2:00 PM	End Time:	2:30 PM	
40 ft long flume 20	t toot cootion	Soil:	Loam		Shear (psf):	14.00	Slope:	30%	
	t test section t wide flume	T		FIE	xamat Perm	anent Channel Lin			
·	3	Inlet Weir	1	2	3	IESI	DATA		
FLOW		Water Depth, in	· ·	19.00					
Weir width (ft) = 4		Water Velocity, ft/s		6.00					
0 ft A B C	_	Flow Rate, cfs	0.00	38.00	0.00				
		Cross-section 1	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf
	To origin	nal Surface Elev, cm	28	28	27		10		46.0
	To erod	led Surface Elev, cm	27.5	27.5	27	Vavg (fps) =	10.00	Bed Max Shear	
		Soil Loss / Gain, cm	-0.5	-0.5	0	navg =	0.059	Stress (psf)	Water Depth
	С	lopper Soil Loss, cm	-0.5	-0.5	0	Flow (cfs) =	12.25	11.29	7.35
2 ft				Avg Bottom	Loss/Gain, in	-0.13	Avg Cl	opper Soil Loss, in	-0.13
		Cross-section 2	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Sur
	To origin	nal Surface Elev, cm	30	30	30		10.5		47.5
	To erod	led Surface Elev, cm	30	30	30	Vavg (fps) =	10.50	Bed Max Shear	
		Soil Loss / Gain, cm	0	0	0	navg =	0.054	Stress (psf)	Water Depth
	С	lopper Soil Loss, cm	0	0	0	Flow (cfs) =	12.06	10.59	6.89
4 ft	 				Loss/Gain, in	0.00		opper Soil Loss, in	0.00
		Cross-section 3	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Sur
	_	nal Surface Elev, cm	30	29	29		10.5		47.0
		led Surface Elev, cm	30	29	29	Vavg (fps) =	10.50	Bed Max Shear	10/-: 5
		Soil Loss / Gain, cm	0	0	0	navg =	0.054	Stress (psf)	Water Depth
6 ft	C	lopper Soil Loss, cm	0	0 Ava Bottom	0 Loss/Gain, in	Flow (cfs) = 0.00	12.17 Ava Cl	10.69 opper Soil Loss, in	6.96 0.00
- · · · · · · · · · · · · · · · · · · ·	1	Cross-section 4	A	B B	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Sur
	To origin	nal Surface Elev, cm	28	28	28.5	v ⊜ 0.∠u	10.5	v ⊜ 0.0u	45.5
	_	led Surface Elev, cm	28	28	28	Vavg (fps) =	10.50	5 111	+0.0
		Soil Loss / Gain, cm	0	0	-0.5	navg =	0.054	Bed Max Shear Stress (psf)	Water Depth
		lopper Soil Loss, cm	0	0	-0.5	Flow (cfs) =	12.06	10.59	6.89
8 ft	1				Loss/Gain, in	-0.07		opper Soil Loss, in	-0.07
		Cross-section 5	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Sur
	To origin	nal Surface Elev, cm	30	30.5	31		10.5		48.0
	To erod	led Surface Elev, cm	30	30	31	Vavg (fps) =	10.50	Bed Max Shear	
		Soil Loss / Gain, cm	0	-0.5	0	navg =	0.054	Stress (psf)	Water Depth
	С	lopper Soil Loss, cm	0	-0.5	0	Flow (cfs) =	12.17	10.69	6.96
10 ft				Avg Bottom	Loss/Gain, in	-0.07	Avg Cl	opper Soil Loss, in	-0.07
		Cross-section 6	Α	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf
	To origin	nal Surface Elev, cm	31	32	32		11		48.5
	To erod	led Surface Elev, cm	31	31.5	32	Vavg (fps) =	11.00	Bed Max Shear	
		Soil Loss / Gain, cm	0	-0.5	0	navg =	0.050	Stress (psf)	Water Depth
	С	lopper Soil Loss, cm	0	-0.5	0	Flow (cfs) =	12.27	10.29	6.69
12 ft	_			Ava Bottom	Loss/Gain, in	-0.07	Avg Cl	opper Soil Loss, in	-0.07
					_				To Water Sur
		Cross-section 7	Α	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	
	_	nal Surface Elev, cm	33.5	B 33	32.5		11	V @ 0.8d	49.5
	To erod	nal Surface Elev, cm led Surface Elev, cm	33.5 33	B 33 33	32.5 32	Vavg (fps) =	11 11.00	Bed Max Shear	49.5
	To erod	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm	33.5 33 -0.5	B 33 33 0	32.5 32 -0.5	Vavg (fps) = navg =	11 11.00 0.050	Bed Max Shear Stress (psf)	49.5 Water Depth
14 ft	To erod	nal Surface Elev, cm led Surface Elev, cm	33.5 33	B 33 33 0	32.5 32 -0.5 -0.5	Vavg (fps) = navg = Flow (cfs) =	11 11.00 0.050 12.15	Bed Max Shear Stress (psf) 10.18	49.5 Water Depth 6.63
14 ft	To erod	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm	33.5 33 -0.5 -0.5	B 33 33 0 0 Avg Bottom	32.5 32 -0.5 -0.5 Loss/Gain, in	Vavg (fps) = navg = Flow (cfs) = -0.13	11 11.00 0.050 12.15 Avg Cl	Bed Max Shear Stress (psf) 10.18 opper Soil Loss, in	49.5 Water Depth 6.63 -0.13
14 ft	To erod	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm	33.5 33 -0.5	B 33 33 0 0 0 Avg Bottom B	32.5 32 -0.5 -0.5 Loss/Gain, in	Vavg (fps) = navg = Flow (cfs) =	11 11.00 0.050 12.15 Avg Cl V @ 0.6d	Bed Max Shear Stress (psf) 10.18	Water Depth 6.63 -0.13 To Water Sur
14 ft	To erod C To origin	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 8	33.5 33 -0.5 -0.5	B 33 33 0 0 Avg Bottom	32.5 32 -0.5 -0.5 Loss/Gain, in	Vavg (fps) = navg = Flow (cfs) = -0.13	11 11.00 0.050 12.15 Avg Cl	Bed Max Shear Stress (psf) 10.18 opper Soil Loss, in V @ 0.8d	49.5 Water Depth 6.63 -0.13
14 ft	To erod C To origin	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm clopper Soil Loss, cm Cross-section 8 nal Surface Elev, cm	33.5 33 -0.5 -0.5 A	B 33 33 0 0 0 Avg Bottom B 33	32.5 32 -0.5 -0.5 Loss/Gain, in C 33.5	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d	11 11.00 0.050 12.15 Avg Cl V @ 0.6d	Bed Max Shear Stress (psf) 10.18 opper Soil Loss, in V @ 0.8d	49.5 Water Depth 6.63 -0.13 To Water Sur 50.0
14 ft	To erod To origin To erod	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 8 nal Surface Elev, cm led Surface Elev, cm	33.5 33 -0.5 -0.5 -0.5 A 33 33	B 33 33 0 0 Avg Bottom B 33 33	32.5 32 -0.5 -0.5 Loss/Gain, in C 33.5 33	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) =	11 11.00 0.050 12.15 Avg Cl V @ 0.6d 11 11.00	Bed Max Shear Stress (psf) 10.18 opper Soil Loss, in V @ 0.8d	49.5 Water Depth 6.63 -0.13 To Water Sur 50.0
14 ft	To erod To origin To erod	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 8 nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm	33.5 33 -0.5 -0.5 -0.5 A 33 33	B 33 33 0 0 Avg Bottom B 33 33 0 0 0	32.5 32 -0.5 -0.5 Loss/Gain, in C 33.5 33 -0.5	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg =	11 11.00 0.050 12.15 Avg Cl V @ 0.6d 11 11.00 0.050 12.27	Bed Max Shear Stress (psf) 10.18 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	Water Depth 6.63 -0.13 To Water Sur 50.0
	To erod To origin To erod	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 8 nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm	33.5 33 -0.5 -0.5 -0.5 A 33 33	B 33 33 0 0 Avg Bottom B 33 33 0 0 0	32.5 32 -0.5 -0.5 Loss/Gain, in C 33.5 33 -0.5	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) =	11 11.00 0.050 12.15 Avg Cl V @ 0.6d 11 11.00 0.050 12.27	Bed Max Shear Stress (psf) 10.18 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf)	49.5 Water Depth 6.63 -0.13 To Water Sur 50.0 Water Depth 6.69 -0.07
	To erod C To origin To erod C	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 8 nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm	33.5 33 -0.5 -0.5 -0.5 A 33 33 0	B 33 33 0 0 Avg Bottom B 33 33 0 0 0 Avg Bottom P B 33 33 33 0 0 0 Avg Bottom	32.5 32 -0.5 -0.5 Loss/Gain, in C 33.5 33 -0.5 -0.5 Loss/Gain, in	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07	11 11.00 0.050 12.15 Avg Cl V @ 0.6d 11 11.00 0.050 12.27 Avg Cl	Bed Max Shear Stress (psf) 10.18 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 10.29 opper Soil Loss, in	49.5 Water Depth 6.63 -0.13 To Water Sur 50.0 Water Depth 6.69 -0.07
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16 ft	To erod To origin To erod To origin To erod To origin To erod C	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 8 nal Surface Elev, cm Soil Loss / Gain, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 9 nal Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 10 nal Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 10 nal Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 11 nal Surface Elev, cm Cross-section 11 nal Surface Elev, cm led Surface Elev, cm	33.5 33 -0.5 -0.5 -0.5 A 33 33 0 0 0 A 32 32 0 0 0 A 33 33 0 0 0 0 0 0 0 0 0 0 0 0 0	B 33 33 0 0 0 Avg Bottom B 33 0 0 0 Avg Bottom B 33 32 -1 -1 Avg Bottom B 34 33.5 -0.5 -0.5 Avg Bottom B 34 34 34	32.5 32 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = Navg = Flow (cfs) = -0.13 V @ 0.2d	11 11.00 0.050 12.15 Avg Cl V @ 0.6d 11 11.00 0.050 12.27 Avg Cl V @ 0.6d 11 11.00 0.049 12.03 Avg Cl V @ 0.6d 11.50 0.046 12.20 Avg Cl V @ 0.6d 12.20 Avg Cl V @ 0.6d	Bed Max Shear Stress (psf) 10.18 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 10.29 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 10.08 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 10.08 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 9.78 opper Soil Loss, in V @ 0.8d	49.5 Water Depth 6.63 -0.13 To Water Sur 50.0 Water Depth 6.69 -0.07 To Water Sur 49.0 Water Depth 6.56 -0.13 To Water Sur 50.0 Water Depth 6.36 -0.07 To Water Sur
16 ft	To erod C To origin To erod	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 8 nal Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 9 nal Surface Elev, cm led Surface Elev, cm led Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 10 nal Surface Elev, cm led Surface Elev, cm lopper Soil Loss, cm Cross-section 10 nal Surface Elev, cm lopper Soil Loss, cm Cross-section 11 nal Surface Elev, cm lopper Soil Loss, cm Cross-section 11 nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm	33.5 33 -0.5 -0.5 -0.5 A 33 33 0 0 A 32 32 0 0 0 A 33 33 0 0 0 0 0 0 0 0 0 0 0 0 0	B 33 33 0 0 0 Avg Bottom B 33 33 0 0 0 Avg Bottom B 33 32 -1 -1 Avg Bottom B 34 33.5 -0.5 -0.5 Avg Bottom B 34 34 34 0	32.5 32 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Rlow (cfs) = -0.07 V @ 0.2d	11 11.00 0.050 12.15 Avg Cl V @ 0.6d 11 11.00 0.050 12.27 Avg Cl V @ 0.6d 11 11.00 0.049 12.03 Avg Cl V @ 0.6d 11.50 0.046 12.20 Avg Cl V @ 0.6d 12 12.00 0.045	Bed Max Shear Stress (psf) 10.18 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 10.29 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 10.08 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 9.78 opper Soil Loss, in V @ 0.8d	49.5 Water Depth 6.63 -0.13 To Water Sur 50.0 Water Depth 6.69 -0.07 To Water Sur 49.0 Water Depth 6.56 -0.13 To Water Sur 50.0 Water Depth 6.36 -0.07 To Water Sur 50.0 Water Depth
16 ft	To erod C To origin To erod	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 8 nal Surface Elev, cm Soil Loss / Gain, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 9 nal Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 10 nal Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 10 nal Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 11 nal Surface Elev, cm Cross-section 11 nal Surface Elev, cm led Surface Elev, cm	33.5 33 -0.5 -0.5 -0.5 A 33 33 0 0 0 A 32 32 0 0 0 A 33 33 0 0 0 0 0 0 0 0 0 0 0 0 0	B 33 33 0 0 Avg Bottom B 33 33 0 0 0 Avg Bottom B 33 32 -1 -1 Avg Bottom B 34 33.5 -0.5 -0.5 Avg Bottom B 34 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	32.5 32 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = Flow (cfs) = -0.07 V @ 0.2d	11 11.00 0.050 12.15 Avg Cl V @ 0.6d 11 11.00 0.050 12.27 Avg Cl V @ 0.6d 11 11.00 0.049 12.03 Avg Cl V @ 0.6d 11.5 11.50 0.046 12.20 Avg Cl V @ 0.6d 12.20 Avg Cl V @ 0.6d	Bed Max Shear Stress (psf) 10.18 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 10.29 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 10.08 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 10.08 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 9.78 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 9.78 opper Soil Loss, in V @ 0.8d	49.5 Water Depth 6.63 -0.13 To Water Sur 50.0 Water Depth 6.69 -0.07 To Water Sur 49.0 Water Depth 6.56 -0.13 To Water Sur 50.0 Water Depth 6.36 -0.07 To Water Sur 50.0 Water Depth 6.36 -0.07 To Water Sur 50.0
16 ft	To erod C To origin To erod	nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 8 nal Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 9 nal Surface Elev, cm led Surface Elev, cm led Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm Cross-section 10 nal Surface Elev, cm led Surface Elev, cm lopper Soil Loss, cm Cross-section 10 nal Surface Elev, cm lopper Soil Loss, cm Cross-section 11 nal Surface Elev, cm lopper Soil Loss, cm Cross-section 11 nal Surface Elev, cm led Surface Elev, cm Soil Loss / Gain, cm lopper Soil Loss, cm	33.5 33 -0.5 -0.5 -0.5 A 33 33 0 0 A 32 32 0 0 0 A 33 33 0 0 0 0 0 0 0 0 0 0 0 0 0	B 33 33 0 0 0 Avg Bottom B 33 33 0 0 0 Avg Bottom B 33 32 -1 -1 Avg Bottom B 34 33.5 -0.5 -0.5 Avg Bottom B 34 34 0 0 0 0	32.5 32 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5 -0.5	Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.07 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = -0.13 V @ 0.2d Vavg (fps) = navg = Flow (cfs) = -0.13 V @ 0.2d Vavg (fps) = navg = Rlow (cfs) = -0.07 V @ 0.2d	11 11.00 0.050 12.15 Avg Cl V @ 0.6d 11 11.00 0.050 12.27 Avg Cl V @ 0.6d 11 11.00 0.049 12.03 Avg Cl V @ 0.6d 11.5 11.50 0.046 12.20 Avg Cl V @ 0.6d 12 12.00 0.045 12.86 Avg Cl	Bed Max Shear Stress (psf) 10.18 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 10.29 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 10.08 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 10.08 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 9.78 opper Soil Loss, in V @ 0.8d Bed Max Shear Stress (psf) 9.78 opper Soil Loss, in V @ 0.8d	49.5 Water Depth 6.63 -0.13 To Water Sur 50.0 Water Depth 6.69 -0.07 To Water Sur 49.0 Water Depth 6.56 -0.13 To Water Sur 50.0 Water Depth 6.36 -0.07 To Water Sur 50.0

CHANNEL 3 - SHEAR STRESS 4		2/14/09		Start Time:	5:00 PM 18.00	End Time:		-
40 ft long flume 20 ft test se	Soil:	Loam		Shear (psf):	anent Channel Lir	Slope:	30%	
rpms 2 ft wide ft			FIE	xamat Perm		DATA		
1 2 3	Inlet Weir	1	2	3	IESI	DATA		
FLOW	Water Depth, in		18.00					
Weir width (ft) = 4	Water Velocity, ft/s		4.50					
Oft A B C	Flow Rate, cfs	0.00	27.00	0.00				
	Cross-section 1	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	27.5	27.5	27	V @ 0.20	14.5	V @ 0.00	55.5
	To eroded Surface Elev, cm	27	27	27	Vavg (fps) =	14.50		33.3
	Soil Loss / Gain, cm	-0.5	-0.5	0		0.054	Bed Max Shear	Water Depth (in)
		-0.5	-0.5	0	navg = Flow (cfs) =	27.12	Stress (psf) 17.24	Water Depth (in) 11.22
2 ft	Clopper Soil Loss, cm	-0.5		Loss/Gain, in	-0.13		lopper Soil Loss, in	-0.13
211	0		B B	C			V @ 0.8d	To Water Surf, cm
-	Cross-section 2	A			V @ 0.2d	V @ 0.6d 14.5	V @ 0.60	1
	To original Surface Elev, cm	30	30	30	\/a\/a /faa\			57.5
	To eroded Surface Elev, cm	-1	29 -1	30 0	Vavg (fps) =	14.50	Bed Max Shear	Motor Donth (in)
	Soil Loss / Gain, cm				navg =	0.053	Stress (psf)	Water Depth (in)
4.6	Clopper Soil Loss, cm	-1	-1	0 Loss/Gain, in	Flow (cfs) = -0.26	26.80	17.04	-0.26
4 ft				1			lopper Soil Loss, in	
-	Cross-section 3	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
	To original Surface Elev, cm	30	29	29		14.5		57.0
	To eroded Surface Elev, cm	29	29	28	Vavg (fps) =	14.50	Bed Max Shear	
	Soil Loss / Gain, cm	<u>-1</u>	0	-1	navg =	0.053		Water Depth (in)
6.4	Clopper Soil Loss, cm	-1	0 Aug Bottom	-1	Flow (cfs) =	26.96	Bed Max Shear Stress (psf) 16.94 /g Clopper Soil Loss, in V @ 0.8d Bed Max Shear	11.15
6 ft				Loss/Gain, in	-0.26		T	-0.26
-	Cross-section 4	A	В	C	V @ 0.2d		V @ 0.8d	To Water Surf, cn
	To original Surface Elev, cm	28	28	28				56.0
	To eroded Surface Elev, cm	28	28	28				
	Soil Loss / Gain, cm	0	0	0				Water Depth (in)
	Clopper Soil Loss, cm	0	0	0	15 3	11.02		
8 ft				Loss/Gain, in			1	i e
-	Cross-section 5	A	В	С	V @ 0.2d		V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	30	30	31				57.5
	To eroded Surface Elev, cm	30	30	30				
	Soil Loss / Gain, cm	0	0	-1				Water Depth (in)
	Clopper Soil Loss, cm	0	0	-1				10.83
10 ft			Avg Bottom				1	-0.13
-	Cross-section 6	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cm
	To original Surface Elev, cm	31	31.5	32		15		58.5
	To eroded Surface Elev, cm	31	31	31.5	Vavg (fps) =	15.00	Bed Max Shear	
	Soil Loss / Gain, cm	0	-0.5	-0.5	navg =	0.050	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	0	-0.5	-0.5	Flow (cfs) =	26.90	16.54	10.76
12 ft				Loss/Gain, in	-0.13		lopper Soil Loss, in	-0.13
1 1 -	Cross-section 7	A	В	С	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
	To original Surface Elev, cm	33	33	32		15		59.5
	To eroded Surface Elev, cm	32	33	32	Vavg (fps) =	15.00	Bed Max Shear	
	Soil Loss / Gain, cm	-1	0	0	navg =	0.050	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	-1	0	0	Flow (cfs) =	26.74	16.44	10.70
14 ft				Loss/Gain, in	-0.13		lopper Soil Loss, in	-0.13
	Cross-section 8	A	В	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
	To original Surface Elev, cm	33	33	33		15.5		59.0
	To eroded Surface Elev, cm	33	33	33	Vavg (fps) =	15.50	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	0	navg =	0.047	Stress (psf)	Water Depth (in)
40.6	Clopper Soil Loss, cm	0	0	0	Flow (cfs) =	26.44	15.73	10.24
16 ft				Loss/Gain, in	0.00	-	lopper Soil Loss, in	0.00
-	Cross-section 9	A	B 20	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
	To original Surface Elev, cm	32	32	33		15.5		58.0
	To eroded Surface Elev, cm	32	32	32	Vavg (fps) =	15.50	Bed Max Shear	
	Soil Loss / Gain, cm	0	0	-1	navg =	0.047	Stress (psf)	Water Depth (in)
40.6	Clopper Soil Loss, cm	0	0	-1	Flow (cfs) =	26.44	15.73	10.24
18 ft	_			Loss/Gain, in	-0.13		lopper Soil Loss, in	-0.13
-	Cross-section 10	A	B	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cn
	To original Surface Elev, cm	33	33.5	35	\/ // ·	16		59.0
	To eroded Surface Elev, cm	33	33	35	Vavg (fps) =	16.00	Bed Max Shear	
	Soil Loss / Gain, cm	0	-0.5	0	navg =	0.045	Stress (psf)	Water Depth (in)
20 ft	Clopper Soil Loss, cm	0	-0.5	0	Flow (cfs) =	26.60	15.33	9.97
20 ft	0 "			Loss/Gain, in	-0.07		lopper Soil Loss, in	
-	Cross-section 11	A	B 04	C	V @ 0.2d	V @ 0.6d	V @ 0.8d	To Water Surf, cr
	To original Surface Elev, cm	33	34	34	Vove (fr.)	16		59.0
	To eroded Surface Elev, cm	33	33.5	33.5	Vavg (fps) =	16.00	Bed Max Shear	Water Death (1)
	Soil Loss / Gain, cm	0	-0.5	-0.5	navg =	0.045	Stress (psf)	Water Depth (in)
	Clopper Soil Loss, cm	U	-0.5 Ava Bottom	-0.5 Loss/Gain, in	Flow (cfs) = -0.13	26.95 Ava C	15.53 lopper Soil Loss, in	10.10 -0.13
-	Soil Loss / Gain, in	-0.13	-0.11	-0.14	Avg Bottom Loss			-0.13
	Clopper Soil Loss, in	-0.13	-0.11	-0.14	Avg Clopper Soil	=		-0.13
	C.Oppo. Con 2003, III	5.75	0.71	0	. 5 -10ppoi 00ii	60. 0.003-		×



APPENDIX B – TEST SOIL

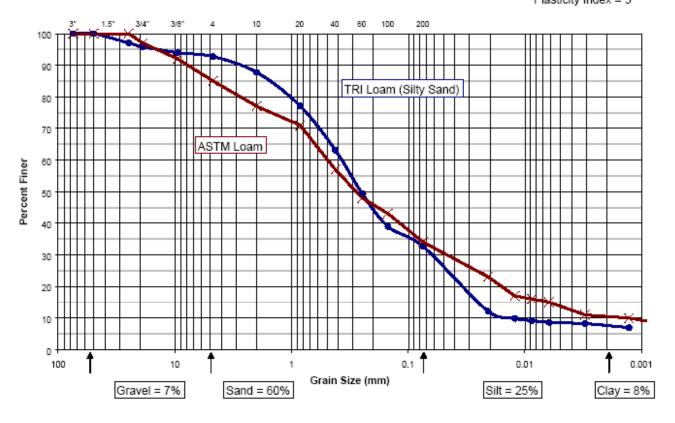
Test Soil Grain Size Distribution Curve Compaction Curves





Grain Size Distribution - DDRF (October 2008)

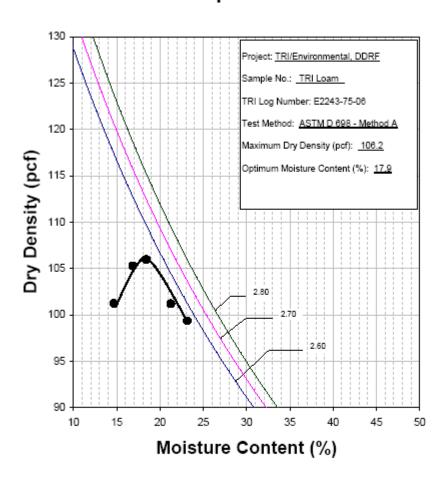
Atterburg Limits Liquid Limit = 32 Plastic Limit = 27 Plasticity Index = 5







Proctor Compaction Test



John M. Allen, E.I.T 10/12/2006 Quality Review/Date

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material.

TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

9063 Bee Caves Road

Austin, TX 78733-6201 (512) 263-2101 (512) 263-2558 11-800-880-TEST



APPENDIX C – LABORATORY QUALIFICATIONS



Testing Expertise

TRI/Environmental (TRI) is a leading, accredited geosynthetic, plastic pipe, and erosion and sediment control product testing laboratory. TRI's large-scale erosion and sediment control testing facility in the upstate of South Carolina at the Denver Downs Research Farm (DDRF) is initially focused on the following full-scale erosion and sediment control performance tests:

- ASTM D 6459: Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Hillslopes from Rainfall-Induced Erosion;
- ASTM D 6460: Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Earthen Channels from Stormwater-Induced Erosion;
- ASTM D 7208: Determination of Temporary Ditch Check Performance in Protecting Earthen Channels from Stormwater-Induced Erosion.
- ASTM D 7351: Determination of Sediment Retention Device Effectiveness In Sheet Flow Applications.

Technical Oversight

Joel Sprague, P.E., TRI's Senior Engineer provides technical oversight of all of TRI's erosion and sediment control testing and can be contacted at:

Mr. C. Joel Sprague, Senior Engineer PO Box 9192, Greenville, SC 29604 Ph: 864/242-2220; Fax 864/242-3107; jsprague@tri-env.com

Mr. Sprague has been involved with the design of erosion and sediment control systems and the research, development, and application of erosion and sediment control products/materials for many years. He was the lead consultant in the development of bench-scale testing procedures for the Erosion Control Technology Council. Mr. Sprague has authored numerous technical papers on his research and is readily available to assist clients with their research and testing needs.

Operations Management

Sam Allen, TRI's Division Vice President provides operational management of all TRI laboratories and can be contacted at:

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Mr. Allen pioneered the laboratory index testing of rolled erosion control products (RECPs) and has been actively involved in the development and standardization of testing protocol and apparatus for more than 10 years. He set up and oversees TRI's erosion and sediment control testing laboratories. His oversight responsibilities include test coordination, reporting, and failure resolution associated with the National Transportation Product Evaluation Program (NTPEP) for RECPs.