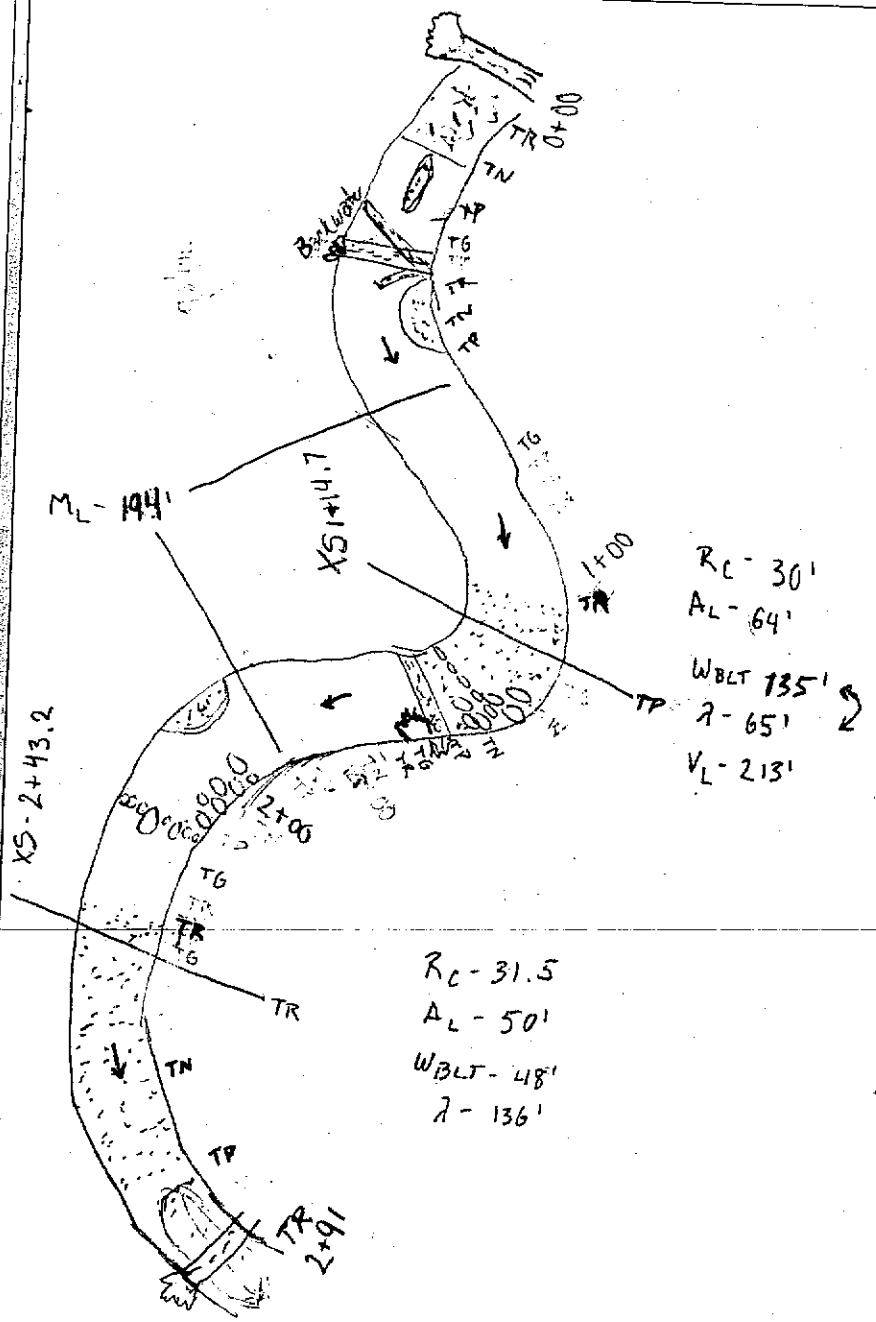
AREA-SITE LOCATION....REACH MAP

Stream: Sweet Run Reach: One

Drawn By: _____ Date: _____



R_C - 30'
A_L - 64'
W_{BLT} 135'
λ - 65'
V_L - 213'

1. $\frac{30'}{20.4} = 1.47$

R_C - 31.5
A_L - 50'
W_{BLT} - 48'
λ - 136'

2. $\frac{31.5}{20.4} = 1.54$

$K = \frac{291}{213} = \boxed{1.37} > 1.0$

Moderate Sinuosity

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SURVEY DATA → **CROSS - SECTION 1**

SITE: Pool Date:

Location: ~~[illegible]~~ 114.7

Party / Notes: HUC:

Item	Distance, Point, or STATION ft	Back-Sight BS ft	Height of Instrument HI ft	Fore-Sight FS ft	Elevation ft	REMARKS / COMMENTS / NOTES
1	TBM 1	3.97	100		103.97	Rebar w/ green flags
2	0			3.72		LBM on top of mon.
3	2			~~[illegible]~~ ←4.5		GS
4	4			4.63		LToB left top of Bank
5	5			6.08		middle of left bank
6	6.9			6.87		left water surface/edge
7	11.8			8.11		Stream Shot
8	12.5			8.16		Thalweg
9	14.4			8.06		Stream shot
10	16.6			7.51		Stream shot
11	18.7			6.96		R waters edge
12	21.6			6.15		R Mid Slope
13	26.7			5.06		R Top of Slope
14	~~32~~			~~4.61~~		~~Ground at mon~~
15	32			3.90		Right top of mon
16	TBM1	3.96			103.96	Rebar w/green Flags Benchmark close
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						

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SURVEY DATA ⟹ **CROSS - SECTION 1**

SITE: 1 Date:

X - John

Location: 245.2ft on Long Pro

Party / Notes: HUC:

- Mayhew
- Nick

Item	Distance, Point, or STATION ft	Back-Sight B S ft	Height of Instrument H I ft	Fore-Sight F S ft	Elevation ft	NOTES / COMMENTS / REMARKS
1		2.12	102.12			Bench mark
2	0			4.09		Left Monument (Dont Enter)
3	1			~~3~~4.75		Ground Shot
4	5.9			5.46		Top of LBank TLB
5	6.7			7.20		LEW
6	7.3			7.42		~~Edge~~ CS
7	8.7			7.51		CS
8	11.9			7.18		~~CS~~ C Bar
9	15.0			7.22		CS
10	17.8			7.35		CS
11	20.7			7.355		Thalywag
12	23.2			7.18		CS
13	25.1			7.04		REW
14	25.9			~~6.02~~ 6.02		BF Front
15	26.55			6.11		BF Back
16	28.6			5.72		GS
17	32.6			5.25		PGS Monument
18	33.8			~~4~~4.13		Top of Monument Right (Dont Enter)
19	33.8			4.56		GS
20	=	2.14				Close Survey
21						
22						
23						
24						
25						
26						
27						
28						

1.245
× 2
2.48

7.35
− 2.48
4.87 ⇒

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SURVEY DATA → **LONGITUDINAL PROFILE 1**

SITE:

Location: Date:

Party / Notes:

HUC:

	Distance, Point, or STATION ft	Back-Sight BS ft	Height of Instrument HI ft	Thalweg Fore-Sight FS ft	Thalweg Elevation Elev. ft	Water Surface Fore-Sight FS ft	Water Surface Elevation Elev. ft	Bankfull Fore-Sight FS ft	Bankfull Elevation Elev. ft	Low Bank HI Fore-Sight FS ft	Low Bank HI Elevation Elev. ft	NOTES e.g. Riffle Run Pool Glide
1	BM	4.14	104.14		100							
2	0+00			6.01		5.74				5.19		TR
3	0+19			6.87		6.11				3.95		TN
4	0+25			7.10		6.16				4.05		TP
5	0+55			7.89		6.9				4.19		TG
6	0+67.5			7.55		6.88				↓		MG
7	0+61			7.50		6.9				↑ 5.66		TR
8	0+64			7.88		6.95				5.68		TN
9	0+66			8.55		7.10				↓ 5.66		TP
10	0+85			8.04		7.01		6.20		4.98		MP - BNF
11	1+21.6			8.21		7.01				4.78		TG
12	1+27			8.22		7.18				4.78		MG
13	1+31			7.8		7.06				5.00		TR
14	1+41			8.44		7.58				5.43		TN
15	1+46			9.2		7.62				5.43		TP
16	1+51			9.02		7.62				5.43		TG
17	1+56			8.59		7.64				4.88		MG
18	1+60.4			8.41		7.68				4.88		TR
19	1+72			8.70		8.0				5.01		MR
20												
21	BM	4.12										
22												Close Survey
23												
24												
25												
26												
27												

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SURVEY DATA → **LONGITUDINAL PROFILE 2**

SITE: Date:

Location:

Party / Notes: HUC:

	Distance, Point, or STATION (ft)	Back-Sight BS (ft)	Height of Instrument HI (ft)	Thalweg Fore-Sight FS (ft)	Thalweg Elevation Elev. (ft)	Water Surface Fore-Sight FS (ft)	Water Surface Elevation Elev. (ft)	Bankfull Fore-Sight FS (ft)	Bankfull Elevation Elev. (ft)	Low Bank HI Fore-Sight FS (ft)	Low Bank HI Elevation Elev. (ft)	NOTES e.g. Riffle Run Pool Glide	
TN 28			104.14		100								
29	291			10.02								TW	
30													
31	276			10.08		9.43				8.40		TP	L Bank
TP 32	~~276~~			~~9.43~~								~~LEW~~	~~(surface)~~
33	~~276~~			~~8.40~~								~~TOB~~	~~(1)~~
TN 34	265.6			9.66		9.19		8.37		8.37		TN	LB
35	~~262.5~~			~~8.37~~								~~BKF~~	
36	~~265.6~~			~~9.19~~								~~LEW~~	~~(S)~~
37	~~265.6~~			~~8.37~~								~~TOB~~	(1) 1 bank
38	~~245~~			~~9.17~~								~~LEW~~	~~(surface)~~
39	245			9.38		9.17		7.94		7.07		TR	
TR 40	~~245~~			~~8.95~~								~~LEW~~	
41	~~245~~			~~7.94~~								~~BKF~~	RB
42	~~245~~			~~7.07~~								~~TOB~~	(left bank)
* 43	228			9.25		8.85						TR	
TR 44	~~228~~			~~8.85~~								~~LEW~~	
REW TG 45	219			9.34		8.76		8.07		6.33		TG	
46	214			9.34		8.78				5.89		Bottom of Step	
47	213			9.04		8.56				5.87		Top of Step	
48	200			8.88		8.46				5.58		TR	
49	188			9.12		8.41				5.55		MR	
104.14 50	245			6.11	98.03							TP1	
6.11 51		4.72			4.72 101.75							TP1	
~~98.03~~ * 52	291			8.60		7.94				7.56		TR	
* 53	228			7.85		7.47				4.84		TR	
54	245	4.72										Close loop	

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6.11

ROSGEN REPRESENTATIVE REACH PEBBLE COUNT

STREAM: Swift Run | **DATE:** 3/28/18

REACH: #1 | **CREW:** Team 1

PARTICLE TALLY COUNTS BY TRANSECT

ft	PARTICLE	mm		13 1	52 B 2	106 3	145 4 B	150 5	176 B 6	181 7	221 8	222 9	265 10	Tot Pool	Tot Riff	Comb Tot	%CUM
	Silt/Clay	< .062	S/C		III		I		I								
	Very Fine	.062 - .125	S			I		I									
	Fine	.125 - .25	A	I		II											
	Medium	.25 - .50	N		II			IIII	I								
	Coarse	.50 - 1.0	D	I	I	I	II	II	I								
	Vry Coarse	1.0 - 2	S														
	Very Fine	2 - 4			I												
	Fine	4 - 6	G														
	Fine	6 - 8	R		I												
	Medium	8 - 12	A						I								
	Medium	12 - 16	V	II			I										
	Coarse	16 - 24	E	III				I									
	Coarse	24 - 32	L														
	Vry Coarse	32 - 48	S	I				I									
	Vry Coarse	48 - 64				IIII			II								
0.21-0.31	Small	64 - 96	C														
0.31-0.42	Small	96 - 128	O	I				I	I								
0.42-0.63	Large	128 - 192	B	I	II	II			I								
0.63-0.84	Large	192 - 256	L			II	I		I								
0.84-1.26	Small	256 - 384	B				III		I								
1.26-1.68	Small	384 - 512	L				II										
1.68-3.36	Medium	512 - 1024	D														
3.36-6.72	Lrg	1024 - 2048	R														
6.72-13.43	Vry Lrg	2048-4096															
	Bedrock	>4096	BDRK														

FEATURE SAMPLED

	Length	Proportion	No. Units	Sampled
REACH				
POOL				
RIFFLE				
RUN				

Transect	Feature	Length	Width
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

RIFFLE PEBBLE COUNT AND LARGEST PARTICLE ON BAR COUNT

221 222 265

STREAM:

DATE: 3/26/18

REACH: 1 (161 - 213)

CREW: TEAM 1

XS No.:

Riffle Location (also mark on reach sketch):

ft	PARTICLE	mm		1	2	3	4	5	6	7	8	9	10	TOTALS Tot #	TOTALS % Cum
				Particle Count 181						221	222		265		
164	Silt/Clay	< .062	S/C												
169	Very Fine	.062 - .125	S												
174	Fine	.125 - .25	A												
179	Medium	.25 - .50	N												
185	Coarse	.50 - 1.0	D												
190	Vry Coarse	1.0 - 2	S												
	Very Fine	2 - 4													
	Fine	4 - 6	G												
	Fine	6 - 8	R												
	Medium	8 - 12	A												
	Medium	12 - 16	V												
	Coarse	16 - 24	E												
	Coarse	24 - 32	L												
	Vry Coarse	32 - 48	S												
	Vry Coarse	48 - 64													
0.21-0.31	Small	64 - 96	C												
0.31-0.42	Small	96 - 128	O												
0.42-0.63	Large	128 - 192	B												
0.63-0.84	Large	192 - 256	L												
0.84-1.26	Small	256 - 384	B												
1.26-1.68	Small	384 - 512	L												
1.68-3.36	Medium	512 - 1024	D												
3.36-6.72	Lrg	1024 - 2048	R												
6.72-13.43	Vry Lrg	2048-4096													
	Bedrock	>4096	BDRK												

LARGEST PARTICLES ON BAR

Bar Location (also mark on reach sketch):

Bar Length:

Bar Width (Thalweg - BF):

Sketch bar profile (Thalweg - BF)

Part. #	mm	Part. #	mm	Part. #	mm
1		6		11	
2		7		12	
3		8		13	
4		9		14	
5		10		15	

Worksheet 26. Bar sample form

Point / Side BAR-BULK MATERIALS SAMPLE DATA: Size Distribution Analysis

Party:

Location:

Date:

Notes:

SUB SAMPLES	Sieve SIZE 63mm		Sieve SIZE 31.5mm		Sieve SIZE 16mm		Sieve SIZE 8mm		Sieve SIZE 4mm		Sieve SIZE 2mm		Sieve SIZE		Sieve SIZE		Sieve SIZE	
	Tare Weight 1575g		Tare Weight 1650g		Tare Weight 1720g		Tare Weight 1575g		Tare Weight 1550g		Tare Weight 1420g		Tare Weight		Tare Weight		Tare Weight	
	Sample Weights		Sample Weights		Sample Weights		Sample Weights		Sample Weights		Sample Weights		Sample Weights		Sample Weights		Sample Weights	
	Total	Net	Total	Net	Total	Net	Total	Net	Total	Net	Total	Net	Total	Net	Total	Net	Total	Net
no tray 1	7350g		2210g		2350g		2050g		1975g		1725g							
2	1750g		2950g		2650g		2700g		2550g		2300g							
3	1825g		2275g		2650g		2550g		2525g		2250g							
4	2000g																	
5																		
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
Net Wt. Total																		
% Grand Tot.																		
Accum. % =<																		

SURFACE MATERIALS DATA
(Two Largest Particles)

No.	Dia.	WT.
1	171	4150g
2	110	1300g

Bucket + Materials Weight 76650g

Bucket Tare Weight 9000g

Materials Weight 6650g fines
(Materials less than: _____mm.)

Be Sure to Add Separate Material Weights to Grand Total

GRAND TOTAL SAMPLE WEIGHT

NOTES

Riffle #1

Riffle Stability Index

Material	Size Range (mm)		Pebble Counts		% in Class	Cumulative
silt/clay	0	0.062				
very fine sand	0.062	0.13	I	1		
fine sand	0.13	0.25	III	3		
medium sand	0.25	0.5	II	2		
coarse sand	0.5	1	II	2		
very coarse sand	1	2	I	1		
very fine gravel	2	4	I	1		
fine gravel	4	6		0		
fine gravel	6	8	IIII	4		
medium gravel	8	11	IIII	4		
medium gravel	11	16	~~IIII~~ II	7		
coarse gravel	16	22	~~IIII~~	5		
coarse gravel	22	32	~~IIII~~ II	7		
very coarse gravel	32	45		0		
very coarse gravel	45	64	II	2		
small cobble	64	90	II	2		
medium cobble	90	128	II	2		
large cobble	128	180	II	2		
very large cobble	180	256		0		
small boulder	256	362		0		
small boulder	362	512		0		
medium boulder	512	1024		0		
large boulder	1024	2048		0		
very large boulder	2048	4096	~~IIII~~	5		

Total Particles =

Enter intermediate diameters (mm) of 10 – 30 particles on bar:

1	62	11	47	21	
2	55	12	54	22	
3	57	13	40	23	
4	78	14	50	24	
5	50	15	74	25	
6	65	16	35	26	
7	58	17	53	27	
8	57	18	103	28	
9	69	19		29	
10	48	20		30	

Geometric Mean Grain Size (mm) =

Riffle #2

Riffle Stability Index

52'

Material	Size Range (mm)		Pebble Counts	% in Class	Cumulative
silt/clay	0	0.062	II		
very fine sand	0.062	0.13			
fine sand	0.13	0.25	II		
medium sand	0.25	0.5	I		
coarse sand	0.5	1	~~IIII~~ IIII		
very coarse sand	1	2			
very fine gravel	2	4			
fine gravel	4	6	I		
fine gravel	6	8	II		
medium gravel	8	11	I		
medium gravel	11	16	II		
coarse gravel	16	22			
coarse gravel	22	32	IIII II		
very coarse gravel	32	45			
very coarse gravel	45	64	II		
small cobble	64	90	III		
medium cobble	90	128	IIII II		
large cobble	128	180	I		
very large cobble	180	256	IIII		
small boulder	256	362	III		
small boulder	362	512	II		
medium boulder	512	1024			
large boulder	1024	2048			
very large boulder	2048	4096			

Total Particles =

Enter intermediate diameters (mm) of 10 – 30 particles on bar:

1	62	11	47	21	
2	55	12	54	22	
3	57	13	40	23	
4	78	14	50	24	
5	50	15	74	25	
6	65	16	35	26	
7	58	17	53	27	
8	57	18	103	28	
9	59	19		29	
10	48	20		30	

Geometric Mean Grain Size (mm) =

2.5
4.5
6.5
8.5
10.5
12.5
14.5
16.5
18.5
20.5

8.75
10.25
11.75 ST1
13.25
14.75
16.25
17.75
19.25

4.6
6.5
8.4
10.3
12.2 ST2
14.1
16.0
17.9
19.8
21.7

3

Worksheet 6-2. Bank profile and bank erosion summary data form.

Stream: Sweet Run	Observers:
Location: Overhang Bank	Date:
Cross-section:	BEHI adjective:
Bank:	NBS adjective:
Toe pin station (ft):	Predicted erosion (ft):
Toe pin elevation (ft):	Measured erosion (ft):

0.3

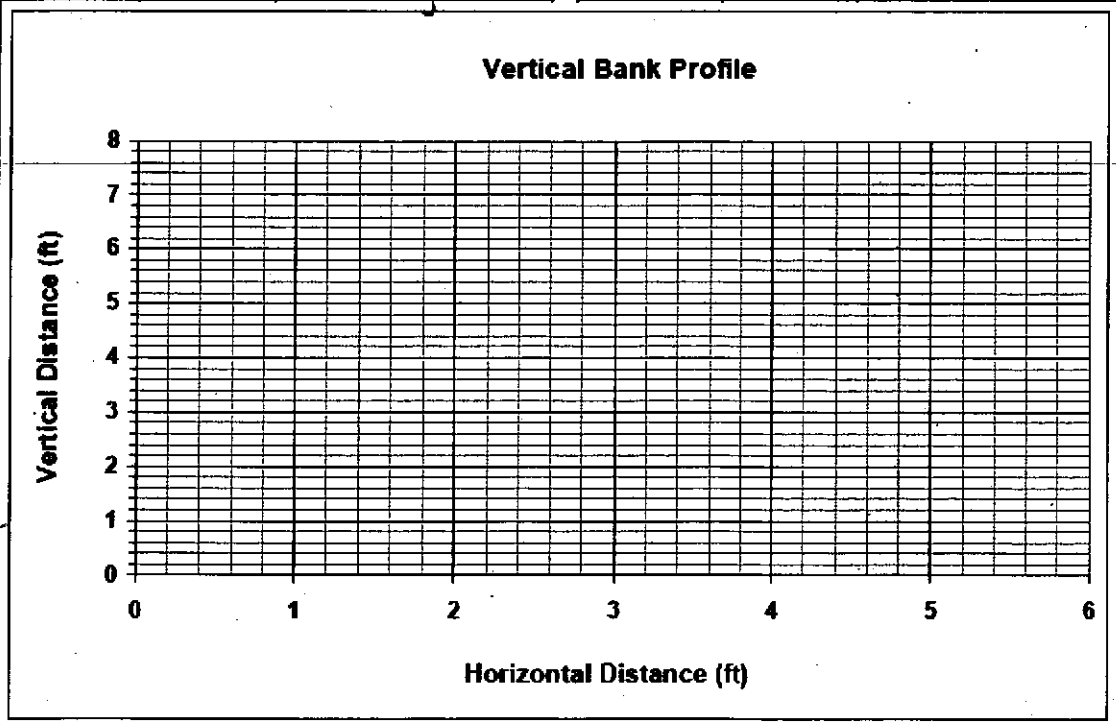
Date:			Date:		
1	0	Toe	.95	3.25	
1.65	0.4	WS	1.24	4	
2.02	1		1.8	4.8	
2.20	1.5		2.25	5.13	Top
2.40	1.8				
2.65	2.15				
2.84	2.5				
2.85	3				
2.35	3.47	Ceiling			
2.55	3.57	Ceiling			
2.75	3.62	Ceiling			
2.95	3.64	Ceiling			
3.65	3.50	Ceiling			
3.85	3.27	Ceiling			
4.15	2.97	Ceiling			

1.97
1.5
3.47

1
1.97
1.65
3.62

1
1.97
1.67
3.64

1
1.97
1.53
3.50



1.97
1.2
3.27

1.5
+ 2.65
5.15

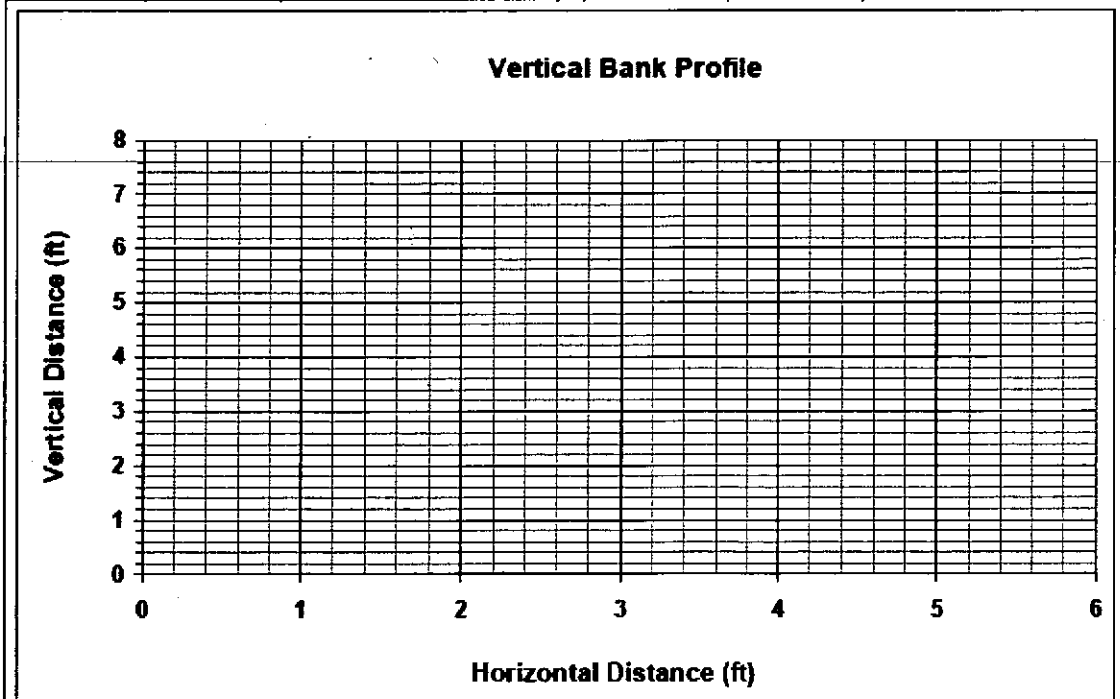
1.97
+ 1.8
97

Worksheet 6-2. Bank profile and bank erosion summary data form.

Stream: Sweet Run	Observers:
Location: Regular Bank	Date:
Cross-section:	BEHI adjective:
Bank:	NBS adjective:
Toe pin station (ft):	Predicted erosion (ft):
Toe pin elevation (ft):	Measured erosion (ft):

Inches

Date: ↓10ths			Date:		
3 in	0	Left W.S	3.5 in	.1	Right Bank
10.25	.5		5	.5	
16.25	.9		7.75	.7	
19.5	1		13.25	1.2	
18	1.4		15.5	1.8	
20.75	1.8				
23	1.9				
31.25	2.5				



Worksheet 6-2. Bank profile and bank erosion summary data form.

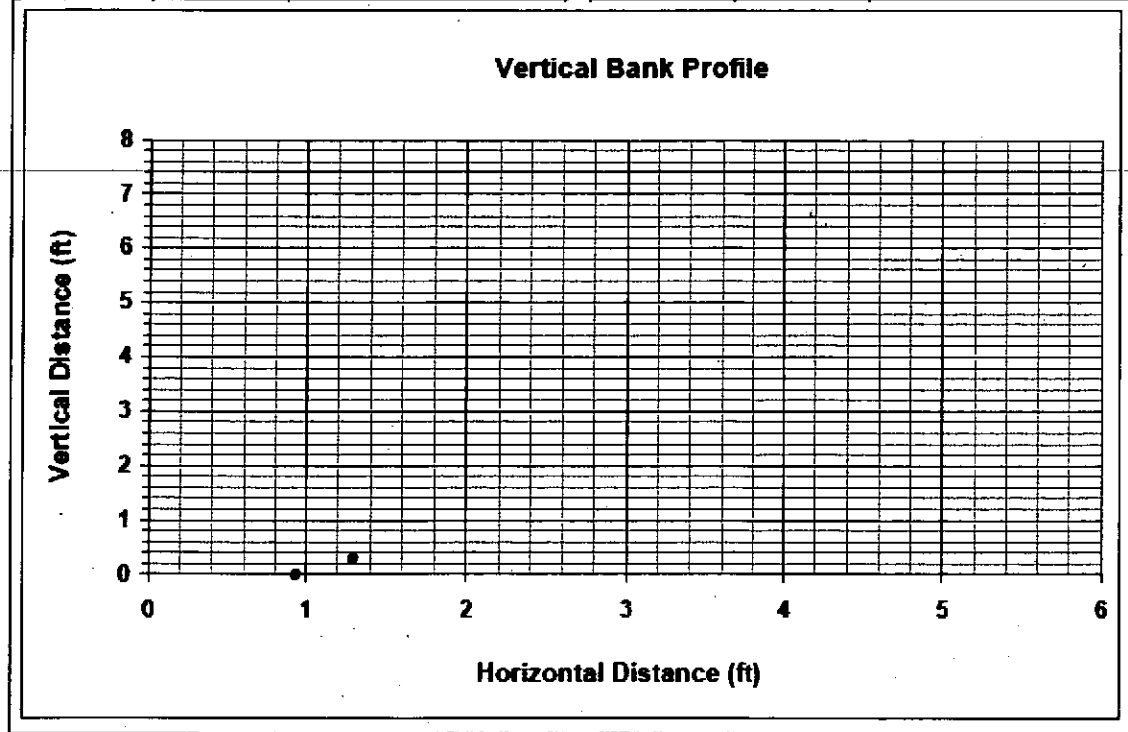
Stream:	Observers:
Location:	Date:
Cross-section:	BEHI adjective:
Bank:	NBS adjective:
Toe pin station (ft):	Predicted erosion (ft):
Toe pin elevation (ft):	Measured erosion (ft):

Overhang

1.72 + V
2.2 − H

Date:		
.96	0	
1.25	.28	
1.55	.4	
1.85	.9	
2.3	1.78	
2.64	2.22	
2.0	3.66	
1.9	3.73	
1.8	3.66	
1.7	3.66	
1.6	3.64	
1.5	3.64	
1.4	3.6	
1.3	3.46	
1.2	3.43	

Date:		
1.1	3.28	
2.51	2.0	
2.72	2.39	
2.83	2.69	
2.78	3.14	
.85	3.41	
1.29	4.20	
1.89	4.85	

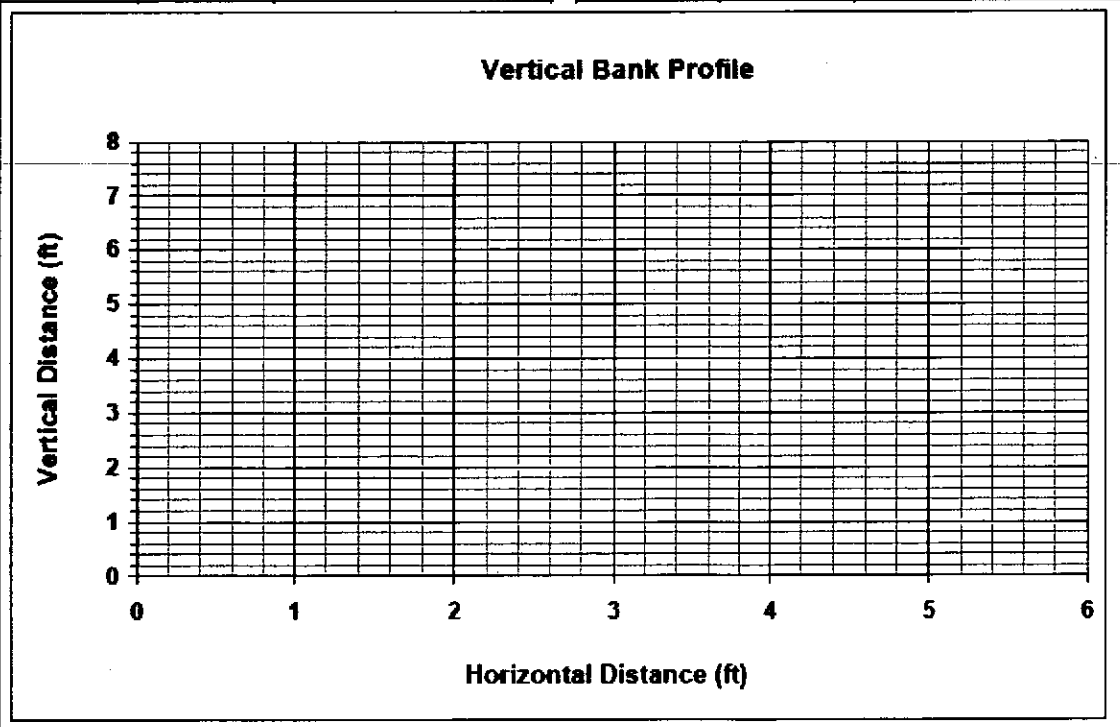


Worksheet 6-2. Bank profile and bank erosion summary data form.

Stream:	Observers:
Location: Straight Bank	Date:
Cross-section:	BEHI adjective:
Bank:	NBS adjective:
Toe pin station (ft):	Predicted erosion (ft):
Toe pin elevation (ft):	Measured erosion (ft):

Left Bank

Date:			Date:		
.04	0				
.32	~~.10~~ .10				
.86	.5				
1.04	.8				
1.5	1.2				
1.47	1.5				
1.62	1.8				
1.94	2.1				
2.71	2.43				



Field Data Sheet for Discharge Measurements

Stream Discharge Measurement Sheet

Site ID #: _____
Name and Location: _____
Date: _____ Crew: _____

County: _____
Weather: _____
Cross-section Location: _____
Meter: 10.8ft wet to wet

Station	Width	Depth	Area (Width x Depth)	Run Length	Secs	Velocity (fs)	Average Velocity Use with 2pt method (0.2+0.8)/2	Discharge (Area x Velocity) (cfs)
1.23	0.5	.15	.075	20	20	0		0
1.73		.25	.125			0.05		.00625
2.23		.40	.20			0.15		.03
2.73		.60	.3			0.36		.108
3.23		.70	.35			0.52		.182
3.73		.80	.40			0.62		.248
4.23		.80	.40			0.76		.304
4.73		.82	.41			0.89		.3649
5.23		.90	.45			1.00		.45
5.73		.80	.40			1.03		.412
6.23		.75	.375			.81		.303
6.73		.72	.36			.63		.23
7.23		.62	.31			.43		.13
7.73		.55	.275			.34		.09
8.23		.60	.30			.37		.11
8.73		.52	.26			.42		.11
9.23		.50	.25			.49		.12
9.73		.55	.275			.37		.10
10.23		.40	.20			.43		.01
10.73		.32	.16			.26		.04
2.5		.74				0		
5		.95				.29		
7.5		1.27				.57		

Total Discharge: 3.35 CFS (oMeasured, o Estimated)

Comments:

2.5	5	7.5
.74		

Field Data Sheet for Discharge Measurements

Stream Discharge Measurement Sheet

Site ID #: _____
Name and Location: _____
Date: _____ Crew: _____

County: _____
Weather: _____
Cross-section Location: _____
Meter: _____

Station	Width	Depth	Area (Width x Depth)	Run Length	Secs	Velocity (fs)	Average Velocity Use with 2pt method (0.2+0.8)/2	Discharge (Area x Velocity) (cfs)
1.3	.4	.3	.12			.75		.09
1.8	.4	.31	.124			1.01		.125
2.1		.275	.11			1.25		.137
2.6		.275	.11			1.41		.155
3		.25	.10			1.41		.14
3.5		.25	.10			1.41		.14
3.10		.20	.08			1.11		.088
4.2		.26	.08			1.28		~~1.03~~ .103
4.7		.15	.06			1.10		.066
5		.3	.12			1.18		.142
5.5		.4	.16			1.42		.227
5.10		.4	.16			1.05		.168
6.3		.4	.16			~~1.46~~ 1.02		.163
6.8		.4	.16			~~1.46~~ 1.46		.234
7.1		.4	.16			1.25		.20
7.6		.35	.14			.96		.134
7.11		.3	.12			.93		.112
8.4		.3	.12			.68		.082
8.9		.3	.12			.36		.043
9.2		2.9	.116			.28		.032

Total Discharge: 2.6 CFS (oMeasured, o Estimated)

Comments:

Transect location (feet)	Wetted Width	Velocity (ft/sec)	Depth (in)	Substrate	Embedded	Mesohabitat Type (riffle, run, pool, glide)	Instream Cover	Bank angle L	Bank angle R	Canopy Cover	Rip density L	Rip density R	Stem density	Basal area
Pool XS 114.6	13.2							92°	11°	P A 100%	P 16 94% A 1	P 12 70% A 5	LB 7.2/sqft RB 3.8/sqft	630 sqft /acre

00111110

Transect location (feet)	Wetted Width	Velocity (ft/sec)	Depth (in)	Substrate	Embedded	Mesohabitat Type (riffle, run, pool, glide)	Instream Cover	Bank angle L	Bank angle R	Canopy Cover	Rip density L	Rip density R	Stem density	Basal area
244.5 RIFFLE	19'			.37		RIFFLE		30°	11°	.70 = 70%	13/17 76%	16/17 94%	1	90 ft²

Large Woody Debris Measurement

Three types of LWD: logs, rootwads, and jams

Criteria:
Logs: dead, 5 cm minimum diameter at mid-point, 2 meters minimum length, 10 cm minimum within bankfull channel.
Rootwads: dead root system fully detached from original position, 20 cm minimum diameter, less than 2 meters length, 5 cm minimum within bankfull channel
Jams: accumulation of 3 or more qualifying logs physically touching at one or more points, 5 cm minimum within bankfull channel; (data- count number of jams and number of logs within a jam)

Length:
Logs: from end to end, include root system if present
Rootwads: from end to end

Diameter:
Logs: measure diameter to nearest cm at the log midpoint (if branches occur at the midpoint of length, measure diameter just below)
Rootwads: measure diameter to nearest cm at the point where the trunk (bole) meets the roots

Conduct a count of all large woody debris and root wads within the reach that meet dimensions described above. Assign to class categories.

Size classes of LWD (logs and rootwads)

	Diameter (centimeters)			
Length (meters)	5-10	11-50	>50	Rootwad
2-5	Class 1	Class 2	Class 3	Class 7
>5	Class 4	Class 5	Class 6	

Data (counts)

Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7 (RW)	Jam*
11	111	1		1			1 (3) 1 (4)

*Count the number of jams and the number of logs per jam (count rootwads as rootwads, even if associated)

Example:
Basinwide Visual Estimation Technique (Dolloff, D.C. et al. 1993. Basinwide Estimation of Habitat and Fish Populations in Streams. Gen. Tech. Rep. SE-83. Asheville, NC, U.S. Department of Agriculture, Forest Service.

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Data (counts)

Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7 (RW)	Jam*
I	II	I			I	I	1-3L 2-4L

*Count the number of jams and the number of logs per jam (count rootwads as rootwads, even if associated)

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