12-4-2009

Ex. 281-US-417

Mike Gagner
R2 Resource Consultants

May 14, 2004

Survey

1442.01

WD-2

WD-2

"Rite in the Rain"
ALL-WEATHER
LEVEL BOOK
No. 310

CONTENTS

PAGE	REFERENCE	DATE

WD-2 Wood R. 05/14/04
@ Day Use Area

Crew: M. Gagner
A. Waybright
M. Appy
C. Yoder

	In	Out
Time	8:30	3:45
S.G	8.00	8.00

Equipment: Nikon Level SN:
Marsh McBirney SN: 2005068

Directions: From K-Falls travel N on Hwy 97 toward Chiloquin. After ~20 miles you'll cross over Williamson R. look for left hand turn ~1/4 after crossing river & turn west on Hwy 62. Follow for ~11 miles and turn right onto Rd 623 (Kimball Rd) and follow for ~ 1 mile & turn left at sign for Wood R. Day Use Area. Park near pit toilets & follow paved walking path to transects.

05/14/04

WD-2 Unit selection

	#Units	total length
Ripple/Riffle:	10	1353'
Pool:	11	1029'
Total	21	2382'

Random #s:

Due to access restrictions and private ownership on west side of stream, sample units were hand picked. Habitat units 10 & 11 appear to be representative of the pool/riffle pattern that this stream presents. Water surface elevations for both units will be survey to a common datum to "tie" the units together. Combining the units represents ~450' of stream

Transect Placement

Pool = 63' long (1, 5, 8)

.1 x 63 = 6'

.5 x 63 = 31.5'

.8 x 63 = 50.4'

Riffle = 378' (3, 5, 7)

.3 x 378 = 113.4'

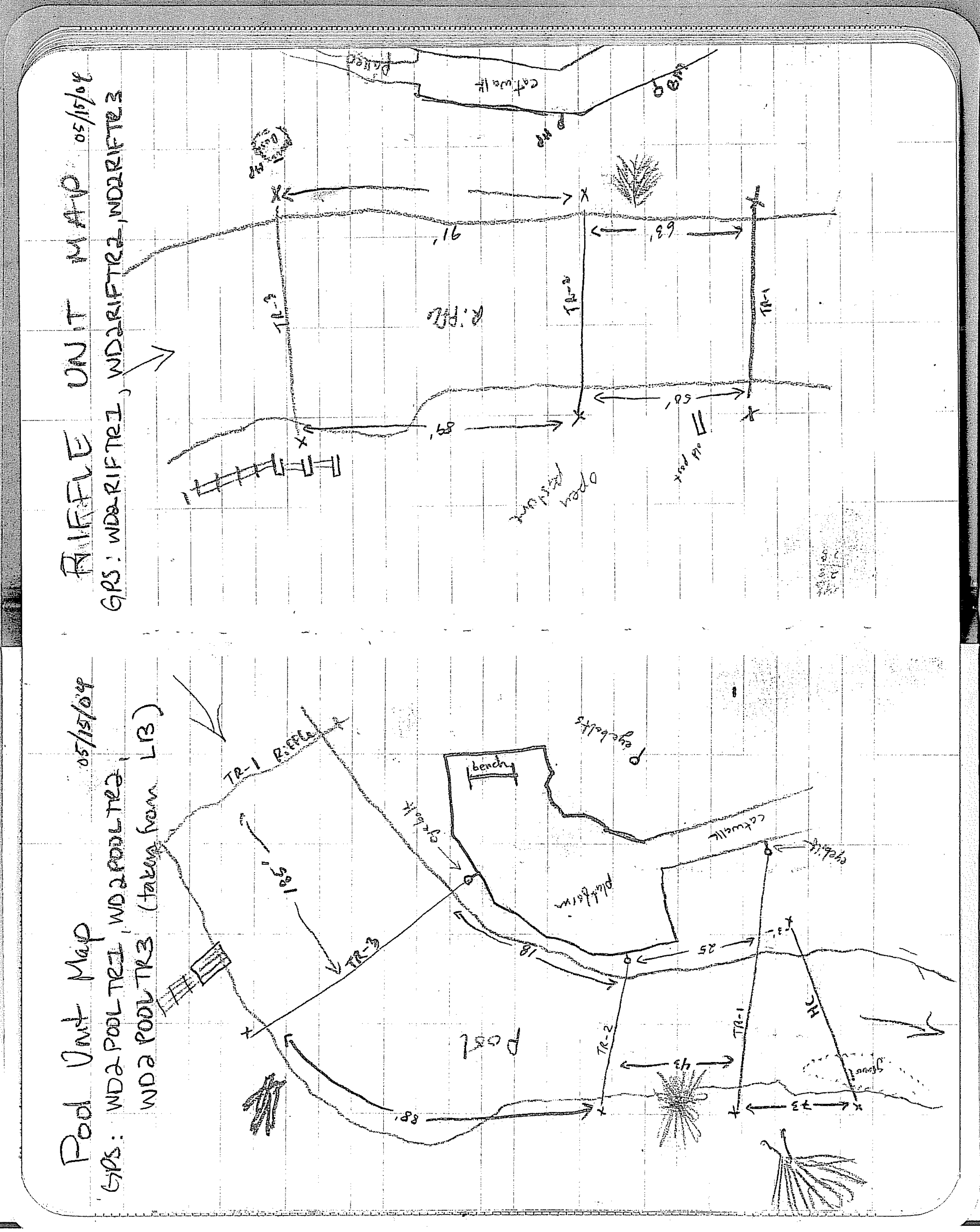
.5 x 378 = 189'

.7 x 378 = 265'

WD-2 Wood R. 05/14/04

Photo Log.

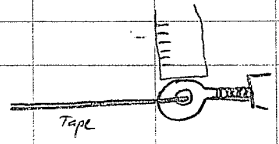
Photo #	Description
MG ROLL 4	
10.	WD-2 TR1 LB to RB Pool
9.	WD-2 TR1 RB to LB Pool
8.	WD-2 HC RB to LB
7	WD2 HC LB to RB
6.	WD2 Pool TR1 Upstream
5.	WD2 Pool TR2 Downstream
4.	WD2 Pool TR2 Upstream
3.	WD2 Pool TR2 LB to RB
2	WD2 Pool TR2 RB to LB
MG ROLL 5	
25.	WD2 Pool TR3 LB -> RB
24.	WD2 Pool TR3 downstream
23.	WD2 Pool TR3 upstream
22.	WD2 Pool TR3 upstream
21	WD2 Pool TR3 RB -> LB
20.	WD2 Riffle TR1 LB -> RB
19.	WD2 Riffle TR1 RB -> LB
18.	WD2 Riffle TR1 upstream
17.	WD2 Riffle TR1 downstream
16.	WD2 Riffle TR2 LB to RB


Pool Unit Map 05/15/09
GPS: WD2POOLTR1, WD2POOLTR2, WD2POOLTR3 (taken from LB)
RIFFLE UNIT MAP 05/15/09
GPS: WD2RIFFTR1, WD2RIFFTR2, WD2RIFFTR3

Pool Level Loop 05/14/04

STA	BS	HI	FS	ELV
BM-P	3.70	103.70		100.00
TR1 HP			3.53	100.17
TR2 HP			4.02	99.68
TR3 HP			3.97	99.73
FP	~~3.56~~	~~99.73~~		
TR3 HP	3.56	103.29		99.73
TR2 HP	~~3.61~~		3.61	99.68
TR1 HP	~~3.11~~		3.11	100.18
BM-P			3.29	100.01

* All three transect HPs are eyebolts place stadia rod on highest part of eye



Pool WSE survey — 05/14/04

STA	BS	HI	FS	ELV	ROD
		103.29			
TR3-L			6.88	97.14	0.73
TR2-L (surface)			6.20 6.2	97.09 97.09	
TR1-L			7.11 ~~7.09~~	97.11 ~~97.10~~	0.93 0.90
TR1-R (surface)			6.23 ~~6.2~~	~~97.09~~ 97.06	← good
TR2-R			6.19	97.1	
TR3-R			6.13	97.16	
Pool 50' below TR1 surface			~~6.40~~ 6.25	~~97.11~~ 97.04	~~2.72~~
Pool 50' abv TR3			6.06	97.23	
HC-L			6.24	97.05	
HC-R			6.25	97.04	

5/18/04

RIFFLE LEVEL LOOP

STA	BS	HI	FS	ELV
~~TR3 Pool 4.98~~				99.73
~~BM Riffle~~				
BM Riff. 3.35	~~3.35~~			100.00
		103.35		
TR-1			4.11	99.24
TR-2			2.97	100.38
TR-3			3.62	99.73
(TP)				
TR-3	3.37			99.73
		103.10		
TR-2			2.73	100.37
TR-1			3.87	99.23
BM			3.11	99.99 ✓

WD-2 Riffle WSE 05/14/04

STA	BS	HI	FS	Elevation	Remarks
TR-3 pool HP	4.85			99.73	
		104.58			
TR-1 R.F. HP			4.72	99.86	
				-	
TR-2 R.F. HP			3.58	101.00	
TR-1	Riffle				
LWS			7.35		
RWS			7.34	97.24	
TR-2					
LWS			7.31	97.27	
RWS			7.31	97.27	
TR-3					
LWS			7.17	97.41	
RWS			7.19	97.39	
~50' u/s from TR-3			7.10	97.48	surface
			8.80	95.78	bed
BM Riffle				3.96	

5/14/04

WD2 RIFFLE TR1 DISCHARGE SURVEY

STA	DEPTH	VELOCITY	COMMENTS
1.0	Marsh McBirney SN: 2005068		RWP
8.9	0	0	RWE
9.3	1.55	0.66	Undercut bank = 0.5'
10.0	1.35	1.16	
12.0	1.85	1.93	
14.0	2.4	1.95	
15.0	2.55	2.11/2.73	
16.0	2.35	2.29	
18.0	2.35	2.58	
20.0	2.25	2.45	
22.0	1.9	2.32	
24.0	1.75	2.35	
26.0	1.75	2.01	
28.0	1.75	1.99	
30.0	1.80	1.97	
32.0	1.85	2.05	
34.0	1.87	2.12	
36.0	1.65	1.99	
38.0	1.55	1.61	
40.0	1.45	1.38	
42.0	1.25	0.99	
43.5	1.32	0.49	
45.0	0.70	0.07	Aq. veg.
47.0	0.43	~.04	
48.6	0	0	LWE
59.4			LWP

March McBirney 5/14/04

Riffle TR2 Discharge 05/14/04

STA	DEPTH	VELOCITY	COMMENTS
1.0			RWE RWP undercut bank
11.6	1.42	1.03	RWE 0.8'
13.0	1.4	0.99	
15.0	1.45	1.20	
17.0	1.9	2.58	
19.0	1.9	2.93	
21.0	1.95	2.98	
23.0	1.9	2.80	
25.0	1.75	2.64	
27.0	1.6	2.55	
29.0	1.55	2.38	
31.0	1.5	2.54	
33.0	1.45	2.01	
35.0	1.35	2.30	
37.0	1.25	2.63	
39.0	1.65	1.16	Boulder Up. Stream vel. Shelter
41.0	1.65	1.93	" "
43.0	1.10	2.41	
45.0	0.95	2.20	
47.0	0.77	2.31	
49.0	0.55	2.33	
51.0	0.40	2.09	
52.3	0.4	1.78	

Continued →

PHOTO LOG:

MG ROLL 5

15. WD2 Riffle TR2 RB to LB
14. WD2 Riffle TR2 Downstream
13 WD2 Riffle TR2 Upstream
12 WD2 Riffle TR3 LB to RB
11. WD2 Riffle TR3 RB to LB
10. WD2 Riffle TR3 Downstream
9. WD2 Riffle TR3 Upstream

WD2 Riffle TR2 (CONTD) 05/14/04

STA	DEPTH	VELOCITY	COMMENTS
53.5	1.05	0.71	
55.0	0.95	0.21	vel. shelter
57.0	1.3	0.24	
59.0	0.9	0.45	
61.0	0.6	0.4	
62.0	0.65	0.48	
63.6	0	0	LWE
74.3			LWP

5/14/04

WD2 RIFFLE TR3 DISCHARGE

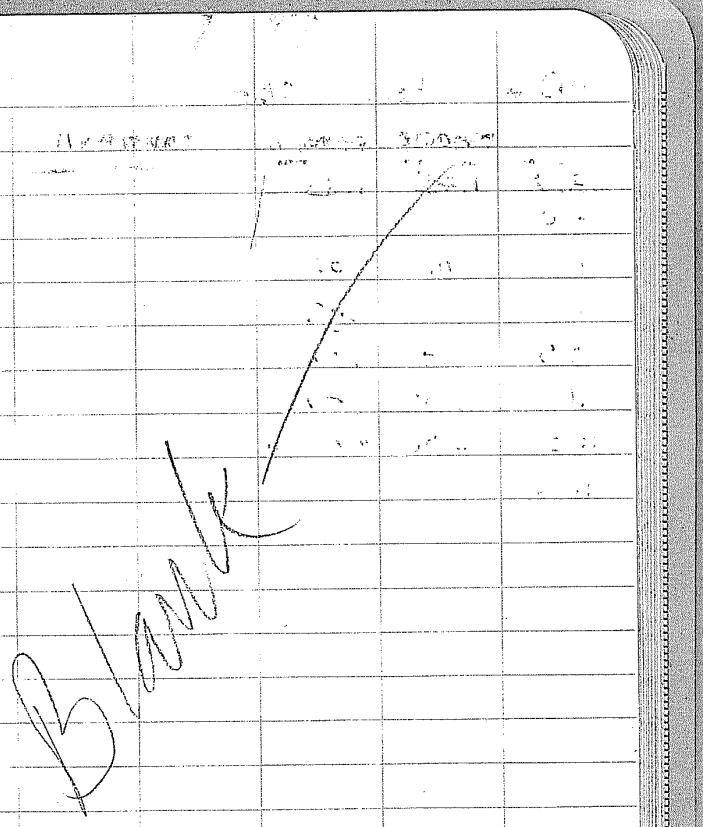
Marsh McBirney SN: 2005068

STA	DEPTH	VELOCITY	COMMENTS
1.0			RWP
20.6	0	0	RWE
21.0	0.33	0.17	
22.0	0.65	0.50	
23.0	0.83	0.42	
24.0	0.77	-0.12	woody debris up. stream vel shelter
25.0	0.72	0.99	upstream vel shelter
26.0	0.90	0.31	upstream vel shelter
28.0	1.25	1.76	
30.5	1.35	2.29	
33.0	1.30	2.52	
35.5	1.40	2.73	
38.0	1.40	2.68	
40.5	1.45	2.80	
43.0	1.45	2.69	
45.5	1.35	2.53	
48.0	1.25	2.44	
50.5	1.30	2.16	
53.0	1.35	1.85	upstream boulder
55.5	1.0	2.15	
58.0	1.30	1.93	
60.5	1.50	1.81	

(continued)

WD 2 Riffle TR3

STA	DEPTH	VELOCITY	COMMENTS
63.0	1.75	1.83	
65.5	1.60	1.80	
68.0	1.45	1.79	
70.0	1.1	1.83	
72.0	0.92	1.23	
74.0	0.55	0.58	
75.2	0.35	0.1	est LWE, undercut bank 0.5
90.5			LWP



WA-2 Pool TR-1 05/19/04

Marsh McBirney SN: 2005068

STA	Depth	Vel	comments
1.0			RWP
6.2	0.0	0.0	RWE
7	3.85	.01 / .13	alge rel. shelter
8.5	3.75	.75 / 1.16	
10	3.60	1.05 / 1.75	
11.5	3.50	1.55 / 1.53	
13.5	3.85	1.54 / 2.14	
15.5	3.70	1.66 / 2.00	
17.5	3.40	1.69 / 2.02	
19.5	3.05	1.50 / 1.95	
21.5	2.70	1.72 / 1.86	
23.5	2.35	1.8	
25.5	1.95	1.89	
27.5	1.65	1.93	
29.5	1.45	1.91	
31.5	1.50	1.86	
33.5	1.25	1.36	
34.5	0.80	1.39	
36.5	1.05	.96	
38.0	.85	.82	
40.0	.55	.50	
41.5	.30	.02	

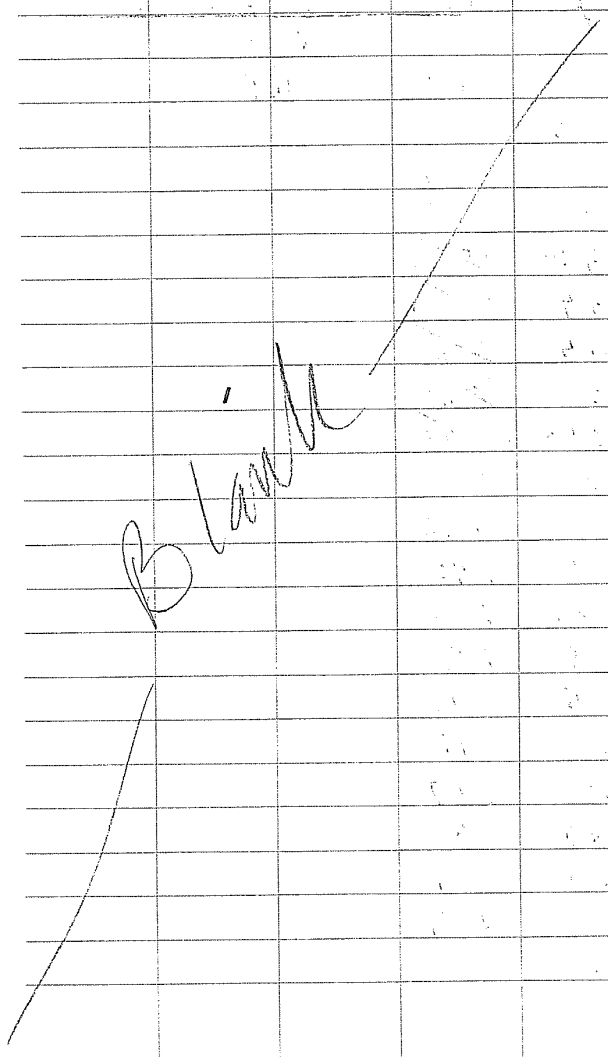
Pool TR-1 conti. 05/14/04

STA	Depth	Vel.	Comments
42.5	.20	-.04	
42.7	0.0	0.0	LWE (.20' ucB/0.0 vel.)
53.1			LWP

WR-2 Pool TR-2 05/14/04

Marsh McBirney SN: 2005068

STA	Depth	Vel.	Comments
1.0			RWP
4.8	0.0	0.0	RWE
5	.5	.26	
6.5	1.1	.36	
8	1.7	.18	
9	3.75	.47 / .58	
10	3.4	.92 / .62	
11	3.6	1.66 / 1.24	
13	4.55	1.92 / 1.95	
15	4.65	2.42 / 2.83	
17	5	2.15 / 1.69	
19	4.95	2.04 / .68	
21	4.4	1.18 / .96	
23	3.85	1.87 / 1.15	
25	2.9	1.88 / 1.57	
27	2.4	1.42	
29	2.1	1.12	
31	1.95	0.52	
32.5	1.25	0.02	
34	0.4	-0.11	
37	0.3	-0.18	
38.3	0.0	0.0	LWE
46.1			LWP



WD-2 Pool TR-3 05/14/04

Marsh McBirney SN: 2005068

STA	Depth	Vel	Comments
1.0			RWP
8.1	0.0	0.0	RWE (1.2' ucb)
8.3	3.3	-.28 / -.22	
9.0	3.3	0.1 / -.23	
11.0	3.55	.89 / -.016	
13.0	4.15	1.67 / 0.49	
15.0	4.45	1.97 / 2.14	
17.0	4.40	1.96 / 1.65	
19.0	3.9	1.65 / 1.65	
20.0	3.55	1.30 / 1.68	
22	2.9	1.10 / 2.16	
24	2.45	1.56	
26	1.85	1.46	
28	1.25	1.86	
30	.85	1.85	
32	.65	1.75	
34	.55	1.94	
36	.50	2.07	
38	.47	1.85	
40	.55	1.97	
42	.60	2.07	
44	.63	1.99	

Pool TR-3 cont:

STA	Depth	Vel.	Comments
46	.75	1.97	
48	.80	1.93	
50	.83	1.92	
52	.85	1.83	
54	.90	1.73	
56	.85	1.5	
58	.82	.49	u/s vel. shelter
59	.75	.27	edge of sand/veg bar/vel. shelter
60	.45	.52	Ag veg / top of bar
61	.45	.76	Ag veg / vel. break
62	.65	1.02	
63	.13	0.0	veg/grass
63.2	0.0	0.0	LWE
69.0			LWP

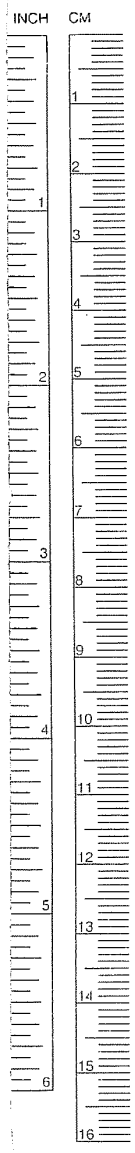
WD-2 Pool Hydraulic Control 05/14/04

STA	Depth	comments
1.3		LWP
7.1	0	LWE
8	.35	
9.6	.1	
10.9	.85	
12.0	.90	
13	.50	
14	.50	
15.6	.70	
17	.80	
19.5	.65	
21	.70	
22	1.35	
24	1.4	
25.5	1.8	
27.5	2.35	
28	2.55	
30	2.60	
32	2.50	
34	2.35	
36	2.35	
38	2.40	
40	2.45	

Pool HC conti 05/14/04

STA	Depth	comments
42	2.35	
45	2.15	
47	1.85	
50	1.70	
52	1.55	
55	1.1	
57	0.85	
59	.60	
61	.50	
63	0.35	
65	0.20	
67	0.10	
71	0.0	RWE
94.5'		RWP

* hydraulic control channel profile



MEASUREMENT CONVERSIONS

IF YOU KNOW	MULTIPLY BY	TO FIND
LENGTH		
inches	2.540	centimeters
feet	30.480	centimeters
yards	0.914	meters
miles	1.609	kilometers
millimeters	0.039	inches
centimeters	0.393	inches
meters	3.280	feet
meters	1.093	yards
kilometers	0.621	miles
WEIGHT		
ounces	28.350	grams
pounds	0.453	kilograms
grams	0.035	ounces
kilograms	2.204	pounds
VOLUME		
fluid ounces	29.573	milliliters
pints	0.473	liters
quarts	0.946	liters
gallons (U.S.)	3.785	liters
milliliters	0.033	fluid ounces
liters	1.056	quarts
liters	0.264	gallons (U.S.)
TEMPERATURE		

°C = (°F - 32) x .555
°F = (°C x 1.8) + 32

Inches	Decimals of foot	Milli-meters
1/16	.0052	1.5875
1/8	.0104	3.1750
3/16	.0156	4.7625
1/4	.0208	6.3500
5/16	.0260	7.9350
3/8	.0313	9.5250
1/2	.0417	12.700
5/8	.0521	15.875
3/4	.0625	19.050
7/8	.0729	22.225
1"	.0833	25.400
2"	.1667	50.800
3"	.2500	76.200
4"	.3333	101.60
5"	.4167	127.00
6"	.5000	152.40
7"	.5833	177.80
8"	.6667	203.20
9"	.7500	228.60
10"	.8333	254.00
11"	.9167	279.40
1 foot	1.0000	304.80

425/681-6048

"Rite in the Rain®"
ALL-WEATHER WRITING PAPER

WD-2A

Name Mike Gagner
R2 Resource Consultants
Address 15250 NE 95th
Redmond, WA 98052
Phone 425/556-1288
Project 1442.01 PHABSIM Data

1450.01
1448.02

"Rite in the Rain" - a unique all-weather writing surface created to shed water and to enhance the written image. Makes it possible to write sharp, legible field data in any kind of weather.

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J. L. DARLING CORPORATION
TACOMA, WA 98424-1017 USA
www.riteintherain.com

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A. Waybright
M. Appy
C. Yoder

	In	Out
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Equipment: Nikon Level SN:
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MG ROLL 5	
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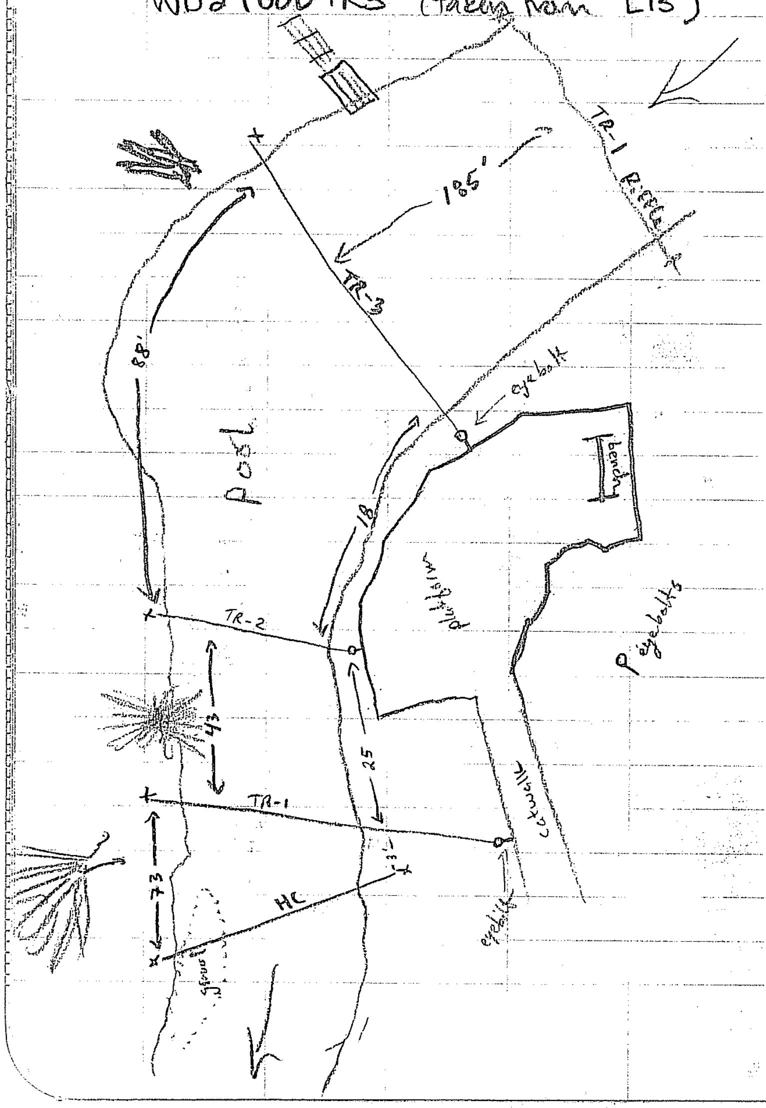
24.	- WD2 Pool TR3 downstream
23.	- WD2 Pool TR3 upstream
22	- WD2 Pool TR3 upstream
21	- WD2 Pool TR3 RB -> LB
20.	- WD2 Riffle TR1 LB -> RB
19.	- WD2 Riffle TR1 RB -> LB
18.	- WD2 Riffle TR1 upstream
17.	- WD2 Riffle TR1 downstream
16.	WD2 Riffle TR2 LB to RB

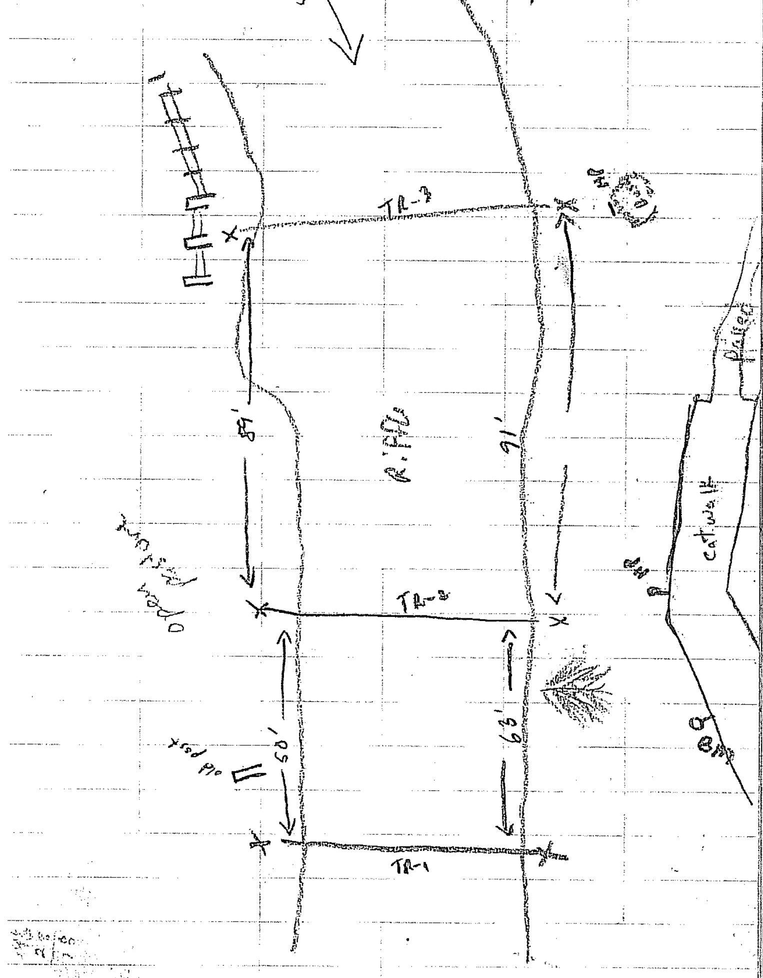
Pool Unit Map 05/15/04

GPS: WD2POOLTR1, WD2POOLTR2, WD2POOLTR3 (taken from LB)



RIFFLE UNIT MAP 05/15/04

GPS: WD2RIFTR1, WD2RIFTR2, WD2RIFTR3



Pool Level Loop 05/14/04

STA	BS	HI	FS	ELV
BM-P	3.70	103.70		100.00
TR1 HP			3.53	100.17
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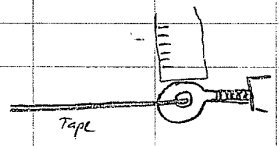
TR3 HP			3.97	99.73
(TP)	~~3.56~~	~~99.73~~		
TR3 HP	3.56	103.29		99.73
TR2 HP	~~3.61~~		3.61	99.68
TR1 HP	~~3.41~~		3.11	100.18
BM-P			3.29	100.01

* All three transect HPs are eye bolts place stadia rod on highest part of eye



POOL WSE survey 05/14/04

STA	BS	HI	FS	ELV	ROD
		103.29			
TR3-L			6.88	97.14	0.73
TR2-L (surface)			6.20 6.2	97.09 97.09	
TR1-L			7.11 7.09	97.11 97.10	0.93 0.90
TR1-R (surface)			6.2 6.23	97.09 97.06	← good
TR2-R			6.19	97.1	
TR3-R			6.13	97.16	
Pool 50' below TR2 surface			~~8.40~~ 6.25	~~97.11~~ 97.04	~~2.72~~
Pool 50' abv TR3			6.06	97.23	
HC-L			6.24	97.05	
HC-R			6.25	97.04	

5/18/04

RIFFLE LEVEL LOOP

STA	BS	HI	FS	ELV
~~TR3 Pool 4.88~~				99.73
~~BM Riffle~~				
BM Riffle 3.35	~~3.35~~			100.00
		103.35		
TR-1			4.11	99.24
TR-2			2.97	100.38
TR-3			3.62	99.73
(TP)				
TR-3	3.37			99.73
		103.10		
TR-2			2.73	100.37
TR-1			3.87	99.23
BM			3.11	99.99 ✓

WD-2 Riffle WSE 05/14/04

STA	BS	HI	FS	Elevation	Remarks
TR-3, HP pool	4.85			99.73	
		104.58			
TR-1 R.F. HP		(103.96)	4.72	99.86	(99.24)
TR-2 Riff HP		(103.94)	3.58	101.00	(100.38)
TR-1	Riffle				
LWS			7.35		
RWS			7.34	97.24	
TR-2					
LWS			7.31	97.27	
RWS			7.31	97.27	
TR-3					
LWS			7.17	97.41	
RWS			7.19	97.39	
~50' u/s from TR-3			7.10	97.48	surface
			8.80	95.78	bed
BM Riffle				3.96	

5/14/04

WD2 RIFFLE TR1 DISCHARGE SURVEY

STA	DEPTH	VELOCITY	COMMENTS
1.0	Marsh McBirney SN: 2005068		RWP
8.9	0	0	RWE
9.3	1.55	0.66	undercut bank -0.5'
10.0	1.35	1.16	
12.0	1.85	1.93	assumed
14.0	2.4	1.95	sta. 9.3 is
15.0	2.55	2.11/2.73	edge of bank
16.0	2.35	2.29	∴ UCB @ sta.
18.0	2.35	2.58	9.3-0.5=8.8
20.0	2.25	2.45	
22.0	1.9	2.32	
24.0	1.75	2.35	
26.0	1.75	2.01	
28.0	1.75	1.99	
30.0	1.80	1.97	
32.0	1.85	2.05	
34.0	1.87	2.12	
36.0	1.65	1.99	
38.0	1.55	1.61	
40.0	1.45	1.38	
42.0	1.25	0.99	
43.5	1.32	0.49	
45.0	0.70	0.07	Aq. veg.
47.0	0.43	~.04	
48.6	0	0	LWE
59.4			LWP

Marsh McBirney 5/14/04

Riffle TR2 Discharge 05/14/04

STA	DEPTH	VELOCITY	COMMENTS
1.0			~~RWE~~ RWP
11.6	1.42	1.03	RWE undercut bank 0.8'
13.0	1.4	0.99	
15.0	1.45	1.20	
17.0	1.9	2.58	
19.0	1.9	2.93	
21.0	1.95	2.98	
23.0	1.9	2.80	
25.0	1.75	2.64	
27.0	1.6	2.55	
29.0	1.55	2.38	
31.0	1.5	2.54	
33.0	1.45	2.01	
35.0	1.35	2.30	
37.0	1.25	2.63	
39.0	1.65	1.16	Boulder Up. Stream vel. Shelter " "
41.0	1.65	1.93	
43.0	1.10	2.41	
45.0	0.95	2.20	
47.0	0.77	2.31	
49.0	0.55	2.33	
51.0	0.40	2.09	
52.3	0.4	1.78	

Continued →

PHOTO LOG:

MG ROLL 5

- 15. WD2 Riffle TR2 RB to LB
- 14. WD2 Riffle TR2 Downstream
- 13 WD2 Riffle TR2 Upstream
- 12 WD2 Riffle TR3 LB to RB
- 11. WD2 Riffle TR3 RB to LB
- 10. WD2 Riffle TR3 Downstream
- 9. WD2 Riffle TR3 Upstream

WD2 Riffle TR2 (CONTD) 05/14/04

STA	DEPTH	Velocity	COMMENTS
53.5	1.05	0.71	
55.0	0.95	0.21	vel: shelter
57.0	1.3	0.24	
59.0	0.9	0.45	
61.0	0.6	0.4	
62.0	0.65	0.48	
63.6	0	0	LWE
74.3			LWP

5/14/04

WD2 RIFFLE TR3 DISCHARGE

Marsh McBirney SN: 2005068

STA	DEPTH	VELOCITY	COMMENTS
1.0			RWP
20.6	0	0	RWE
21.0	0.33	0.17	
22.0	0.65	0.50	
23.0	0.83	0.42	
24.0	0.77	-0.12	woody debris up. stream vel shelter
25.0	0.72	0.99	upstream vel shelter
26.0	0.90	0.31	upstream vel shelter
28.0	1.25	1.76	
30.5	1.35	2.29	
33.0	1.30	2.52	
35.5	1.40	2.73	
38.0	1.40	2.68	
40.5	1.45	2.80	
43.0	1.45	2.69	
45.5	1.35	2.53	
48.0	1.25	2.44	
50.5	1.30	2.16	
53.0	1.35	1.85	upstream boulder
55.5	1.0	2.15	
58.0	1.30	1.93	
60.5	1.50	1.81	

(Continued)

WD 2 Riffle TR3

STA	DEPTH	VELOCITY	COMMENTS
63.0	1.75	1.83	
65.5	1.60	1.80	
68.0	1.45	1.79	
70.0	1.1	1.83	
72.0	0.92	1.23	
74.0	0.55	0.58	
75.2	0.35	0.1 est	LWE, undercut bank 0.5
90.5			LWP

WA-2 Pool TR-1 05/14/04

Marsh McBirney SN; 2005068

STA	Depth	Vel	comments
1.0			RWP
6.2	0.0	0.0	RWE
7	3.85	.01 / .13	edge vel. shelter
8.5	3.75	.75 / 1.16	
10	3.60	1.05 / 1.75	
11.5	3.50	1.55 / 1.53	
13.5	3.85	1.54 / 2.14	
15.5	3.70	1.66 / 2.00	
17.5	3.40	1.69 / 2.02	
19.5	3.05	1.50 / 1.95	
21.5	2.70	1.72 / 1.86	
23.5	2.35	1.8	
25.5	1.95	1.89	
27.5	1.65	1.93	
29.5	1.45	1.91	
31.5	1.50	1.86	
33.5	1.25	1.36	
34.5	0.80	1.39	
36.5	1.05	.96	
38.0	.85	.82	
40.0	.55	.50	
41.5	.30	.02	

Pool TR-1 conti. 05/14/04

STA	Depth	Vel.	Comments
42.5	.20	-.04	
42.7	0.0	0.0	LWE (.20' ucB/0.0 vel.)
53.1			LWP

WA-2 Pool TR-2 05/14/04

Marsh McBirney SN: 2005068

STA	Depth	Vel.	Comments
1.0			RWP
4.8	0.0	0.0	RWE
5	.5	.26	
6.5	1.1	.36	
8	1.7	.18	
9	3.75	.47 / .58	
10	3.4	.92 / .62	
11	3.6	1.66 / 1.24	
13	4.55	1.92 / 1.95	
15	4.65	2.42 / 2.83	
17	5	2.15 / 1.69	
19	4.95	2.04 / .68	
21	4.4	1.18 / .96	
23	3.85	1.87 / 1.15	
25	2.9	1.88 / 1.57	
27	2.4	1.42	
29	2.1	1.12	
31	1.95	0.52	
32.5	1.25	0.02	
34	0.4	-0.11	
37	0.3	-0.18	
38.3	0.0	0.0	LWE
46.1			LWP

Blank

WD-2 Pool TR-3 05/14/04

Marsh McBirney SN: 2005068

STA	Depth	Vel	Comments
1.0			RWP
8.1	0.0	0.0	RWE (1.2' ucb)
8.3	3.3	-.28 / -.22	
9.0	3.3	6.1 / -.23	
11.0	3.55	.89 / -.016	— Meter Does not Read to the 100th Place — Assume ∴ -0.16 — Check and compare w/ 6/28/04 bed profile - May have depth > 0. KD
13.0	4.15	1.67 / 0.49	
15.0	4.45	1.97 / 2.14	
17.0	4.40	1.96 / 1.65	
19.0	3.9	1.65 / 1.65	
20.0	3.55	1.30 / 1.68	
22	2.9	1.10 / 2.16	
24	2.45	1.56	
26	1.85	1.46	
28	1.25	1.86	
30	.85	1.85	
32	.65	1.75	
34	.55	1.94	
36	.50	2.07	
38	.47	1.85	
40	.55	1.97	
42	.60	2.07	
44	.63	1.99	

Pool TR-3 cont.

STA	Depth	Vel.	Comments
46	.75	1.97	
48	.80	1.93	
50	.83	1.92	
52	.85	1.83	
54	.90	1.73	
56	.85	1.5	
58	.82	.49	u/s vel. shelter
59	.75	.27	edge of sand/veg bar/vel. shelter
60	.45	.52	Aq veg /top of bar
61	.45	.76	Aq veg /vel. break
62	.65	1.02	
63	.13	0.0	veg/grass
63.2	0.0	0.0	LWE
69.0			LWP

WD-2 Pool Hydraulic Control 05/14/04

STA	Depth ~~Tot.~~	comments
1.3		LWP
7.1	0	LWE
8	.35	
9.6	.1	
10.9	.85	
12.0	.90	
13	.50	
14	.50	
15.6	.70	
17	.80	
19.5	.65	
21	.70	
22	1.35	
24	1.4	
25.5	1.8	
27.5	2.35	
28	2.55	
30	2.60	
32	2.50	
34	2.35	
36	2.35	
38	2.40	
40	2.45	

Pool HC conti 05/14/04

STA	Depth	comments
42	2.35	
45	2.15	
47	1.85	
50	1.70	
52	1.55	
55	1.1	
57	0.85	
59	.60	
61	.50	
63	0.35	
65	0.20	
67	0.10	
71	0.0	RWE
94.5'		RWP

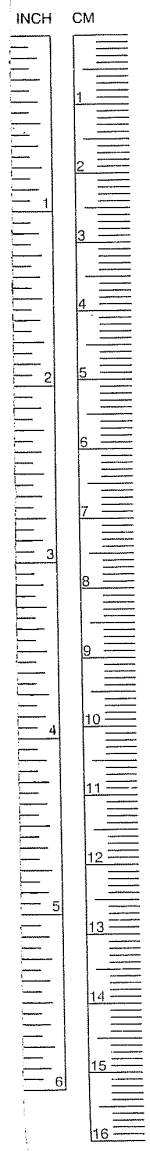
* hydraulic control channel profile

WD-2

"Rite in the Rain"
ALL-WEATHER
LEVEL BOOK
No. 310

June 28, 2004

Survey



MEASUREMENT CONVERSIONS

IF YOU KNOW	MULTIPLY BY	TO FIND
LENGTH		
inches	2.540	centimeters
feet	30.480	centimeters
yards	0.914	meters
miles	1.609	kilometers
millimeters	0.039	inches
centimeters	0.393	inches
meters	3.280	feet
meters	1.093	yards
kilometers	0.621	miles
WEIGHT		
ounces	28.350	grams
pounds	0.453	kilograms
grams	0.035	ounces
kilograms	2.204	pounds
VOLUME		
fluid ounces	29.573	milliliters
pints	0.473	liters
quarts	0.946	liters
gallons (U.S.)	3.785	liters
milliliters	0.033	fluid ounces
liters	1.056	quarts
liters	0.264	gallons (U.S.)
TEMPERATURE		

°C = (°F - 32) x .555
°F = (°C x 1.8) + 32

inches	Decimals of foot	Milli-meters
1/16	.0052	1.5875
1/8	.0104	3.1750
3/16	.0156	4.7625
1/4	.0208	6.3500
5/16	.0260	7.9350
3/8	.0313	9.5250
1/2	.0417	12.700
5/8	.0521	15.875
3/4	.0625	19.050
7/8	.0729	22.225
1"	.0833	25.400
2"	.1667	50.800
3"	.2500	76.200
4"	.3333	101.60
5"	.4167	127.00
6"	.5000	152.40
7"	.5833	177.80
8"	.6667	203.20
9"	.7500	228.60
10"	.8333	254.00
11"	.9167	279.40
1 foot	1.0000	304.80

425/631-6048

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

Name Mike Gagner
R2 Resource Consultants
Address 15250 NE 95th
Redmond, WA 98052
Phone 425/556-1289
Project 1442.01 PHABSIM Data

"Rite in the Rain" - a unique all-weather writing surface created to shed water and to enhance the written image. Makes it possible to write sharp, legible field data in any kind of weather.

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J. L. DARLING CORPORATION
TACOMA, WA 98424-1017 USA
www.riteintherain.com

WD-2 Wood River 6/28/04

	IN	OUT
TIME	9:00am	3:45pm
S.G.	0.70	0.65

CREW: C. Yoder, C. Morello, M. Appy

nice sunny day, few clouds

Equipment: SWOffer #3602 Prop 3a

TYPE	TR	RWP	LWP	RWE	LWE
Pool	1	1.0			
Pool	2	1.0			
Pool	3	1.0			
Riffle	1	1.0			
Riffle	2	1.0			
Riffle	3	1.0			

Photo Log: CFY #5

⑦ WD2 POOL TR3 LB to RB
⑥ WD2 POOL TR2 LB to RB
⑤ WD2 Pool TR1 LB to RB
④ " " MARCUS Q PHOTO "COUPLE SHOT"
③ WD2 Pool TR1 RB to LB
② WD2 Pool HC RB to LB
① WD2 Pool HC LB to RB

CFY #6

㉗ WD2 Pool looking upstream
㉖ WD2 Pool looking downstream
㉕ WD2 Pool TR3 RB to LB
㉔ WD2 Pool TR2 RB to LB

LEVEL LOOP POOL

STA	BS	HI	FS	ELV	POOL
BM (Pool)	5.10	105.10		100.00	
TR1			4.92	100.18	
TR2			5.41	99.69	
TR3			5.36	99.74	
(TP)					
TR3	5.21	104.95	~~5.21~~	99.74	
TR2			5.26	99.69	
TR1			4.76	100.19	
BM (Pool)			4.94	100.01	
downstream TR7 Pool			10.23	97.35	2.63
~60' HC - Rt. channel			7.85	97.25	0.15
HC - Rt side			7.74	97.23	0.02
HC - L side			7.64	97.32	.01

POOL TR3

CROSS SECTIONAL PROFILE

6/28/04

STA	BS	HI	FS	ELV	ROD	DOM	SUB	%	COMMENTS
69.0		104.95	6.40	98.55		Veg		100	LWP
64.1			6.71	98.24		Veg		100	
63.5			7.68	97.27		silt	Veg	60	LWE
62.0			8.51	97.35	0.91	Sand	sm. gravel	60	LWSE
			10.89	97.52	3.46				RWSE
			10.87	97.5	3.42				RWSE
			8.54	97.37	0.95				LWSE
7.0			7.46	97.49		Veg		100	
11.0			6.40	98.55		Veg		100	RWP
-4.0			6.14	98.81		Veg		100	RWP-5
			8.39	97.54	0.98				WSE - Center
			7.59	97.36					WSE - Center
			11.18	97.49	3.72				WSE - Right

→ good reading for right

Big eddy on right side

POOL TR 2

CROSS SECTIONAL PROFILE

STA	BS	HI	FS	ELV	REM
-4.0		104.95	5.87	99.08	
1.0			5.66	99.29	
4.2			5.76	99.19	
5.0			8.69	97.41	1.15
7.5			10.20	97.39	2.64
39.0			7.56	97.39	0
41.8			7.03	97.92	
40.1			6.53	98.42	

DOM	SUB	%	COMMENTS
Veg		100	RWP-S
Veg		100	RWP
Veg		100	overhanging bank
Silt	Sand	60	RWE
			RWSE
Sand	Silt	70	LWSE
Veg		100	
Veg		100	LWP

POOL TR 1

CROSS SECTIONAL PROFILE

6/28/04

STA	BS	HI	FS	ELV	ROD	DOM	SUB	%	COMMENTS
-4.0		104.95	6.04	98.91		Veg		100	RWP -
1.0			6.10	98.85		Veg		100	RWP
3.5			6.66	98.29		Veg		100	
6.0			7.69	97.26		Veg		100	
6.8			11.72	97.4	4.17	Sand	Silt	70	RWSE
41.5			8.21	97.36	0.62	Sand	Silt	60	LWSE
42.5			8.03	97.37	0.45	Sand	Silt	60	
43.1			6.69	98.26		Veg		100	
53.1			6.29	98.66		Veg		100	
58.6			6.51	98.44		Veg		100	LWP +5.5'

POOL TR2 #3602 Prop 2A

DISCHARGE SURVEY 6/28/04

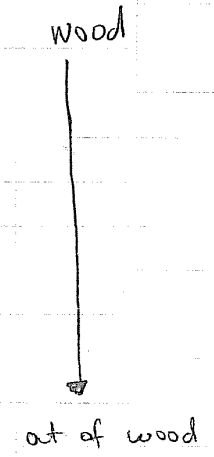
STA	DEPTH	VEL	DOM	SUB	%	COM
1.0						RWP
4.8	0	0	silt	Org	80	RWE overhead cover
5.0	0.30	0.1	silt	Org	80	overhead cover
6.5	1.25	0.28	silt	Sand	80	
8	2.40	0.39	silt	Sand	80	
9	3.90	0.762/0.51	Silt	Sand	80	
10	4.3	1.12/0.81	sm. gravel	Sand	70	
11	3.8	1.76/1.3	silt	Sand	80	
13	4.8	2.26/2.24	sm. gravel	Sand	70	
15	5.1	2.28/2.46	sm. gravel	Sand	70	
17	5.3	2.24/2.31	sm. gravel	Sand	70	
19	5.3	2.78/2.26	sm. gravel	Sand	70	
21	4.5	1.39/2.03	Sand	sm. gravel	70	
23	4.1	1.97/1.72	sand	sm. gravel	70	
25	3.30	2.19/6.73	sand	sm. gravel	70	
27	3.65	1.43/.86	sand	silt	80	
29	2.35	1.53	Sand	silt	80	
31	1.95	0.70	sand	silt	80	
32.5	1.45	0.21	sand	silt	80	
34	0.65	-0.08	Sand	silt	70	
37	0.50	-0.53	sand	silt	70	
38.7	0	0	1.2		70	LWE
46.1						LWP
38.3	0.20	-0.1	1.2		70	

* Pool TR1 & TR2 data located in separate data book

6/28/04

HYDRAULIC CONTROL - POOL

STA	DEPTH	COMMENTS
1.3		LWP
6.6	0	LWE
7.1	0.20	
8	0.46	
9.6	0.44	
10.9	0.95	
12.0	1.15	
13	1.0	
14	0.95	
15.6	0.93	
17	1.10	
19.5	0.83	
21	1.06	
22	1.52	
24	1.67	
25.5	2.04	
27.5	2.72	
28	2.79	
30	2.88	
32	2.96	
34	3.07	
36	2.68	
38	2.67	
40	2.76	



STA	DEPTH	COMMENTS
42	2.63	
45	2.30	
47	2.12	
50	1.95	
52	1.75	
55	1.37	
57	1.09	
59	1.94	
61	1.75	
63	0.63	
65	0.45	
67	0.32	
71	0.25	
94.5		RWP
69	0.29	
72.9	0	RWE
82.5	0	LWE right channel
85.5	0.20	
87.7	0	RWE right channel

* Note Data at of order

RIFFLE

LEVEL LOOP

STA	BS	HI	FS	ELV	ROD
BM	2.94	102.94		100.00	
TR1			3.70	99.24	
TR2			2.56	100.38	
TR3			3.19	99.75	
(TP)	BS	102.96		~~99.75~~	
TR3	3.21	102.96		99.75	
TR2			2.56	100.4	
TR1			3.70	99.26	
BM			2.94	100.02	
Upstream of TR3		106.3	11.99	97.10	2.79

TR1 RIFFLE

CROSS SECTIONAL PROFILE

STA	BS	HI	FS	ELV	ROD
59.4		102.96	4.10	98.86	
56.0			4.67	98.29	
55.3			5.14	97.82	
55.0			5.68	97.28	
52.0			5.53	97.43	
51.6			5.84	97.12	
47.0			6.08	96.88	
10.0			6.06	96.90	
8.7			5.71	97.25	
8.0			5.12	97.84	
5.5			5.48	97.48	
1.0			5.05	97.91	
-19.0			4.47	98.49	
-16.0			5.0	97.96	
		106.3	11.46	96.85	2.01

6/28/04

DOM	SUB	%	COMMENTS
Veg		100	LWP
Veg		100	
Veg		100	
Veg		100	
Veg		100	
Veg		100	
			LWSE
			RWSE
Veg		100	
Veg		100	
Veg		100	
			RWP
			RWP - 20
			RWP - 17
		good	RWSE

RIFFLE TR2

CROSS SECTIONAL PROFILE

6/28/04

STA	BS	HI	FS	ELV	ROD	DOM	SUB	%	COMMENTS
88.2		106.3	7.31			Veg		100	OK ~~LWP/RWP~~
77.0			7.07	100.62		Veg		100	OK
74.0			7.16	100.53		Veg		100	
71.0			8.05	99.64		Veg		100	
69.6			8.88	98.81		Veg		100	
67.0			8.74	98.95					
64.3									
74.3			7.26	100.43		Veg		100	
73.1			7.69	100.00		Veg		100	
70.4			7.94	99.75		Veg		100	
69.7			8.55	99.14		Veg		100	
68.0			8.66	99.03		Veg		100	
64.5			8.76	98.93		Veg		100	
64.1			9.04	98.65		Veg		100	
			9.41	98.28	96.89				LWSE
			9.40	98.29	96.9				RWSE
11.3			9.14			Veg		100	
9.7			8.27			Veg		100	
8.0			8.24			Veg		100	
5.3			8.59			Veg		100	
2.0			8.61			Veg		100	
1.0			8.16			↓		↓	RWP
-7.5			8.40						RWP-8.5
-11.5			7.43						RWP-12.5

RIFFLE TR3

CROSS SECTIONAL PROFILE

6/28/24

STA	BS	HI	FS	ELV	ROD
1.0		106.3	7.30		
14.5			7.28		
16.0			7.96		
19.4			7.97		
20.0			8.94		
20.5			8.97		
			9.36	96.94	
			9.32	96.98	
75.3			8.69		
76.1			8.13		
79.0			7.82		
86.0			7.58		
90.5			7.03		
101.5			6.25		
107.5			4.54		

BM

TR2 5.92 106.3 100.38

DOM	SUB	%	COMMENTS
Veg		100	RWP
			RWSE
			LWSE
Veg		100	
			LWP
			LWP +11
			LWP +17

WD-2 TR-1 Riffle 6/28/04

STA	D	V	Subst.	%Dom	Cover
8.9 RWE	~~0~~	~~0~~	veg/ST	70	
9.3	1.92	0.29	SD/SG	"	edge
10	2.05	1.23	SD/LG	80	—
12	2.45	1.94	"	"	—
14	2.48	2.15	SD/SG	70	—
15	2.6	1.95 / 2.99	"	"	—
16	2.55	2.18 / 3.19	"	"	—
18	2.40	2.97	"	"	—
20	2.45	2.88	"	"	—
22	2.10	2.75	"	60	—
24	2.0	2.55	"	"	—
26	1.97	2.68	"	"	—
28	1.97	2.57	"	"	—
30	2.07	2.34	"	"	—
32	2.10	2.53	"	"	—
34	2.07	2.57	"	"	—
36	1.90	2.43	"	"	—
38	1.78	1.87	"	"	—
40	1.67	1.96	SG/SD	"	—
42	1.60	1.07	SD/SG	"	—
43.5	1.32	.23	ST/veg	60	veg.
45.0	0.82	0.26	"	"	"
47.0	.52	.28	ST/veg	90	—
48.6	.35	*.03	"	"	veg
51.4 LWE	~~0~~	~~0~~	"	60	"

Blank

WD-2 TR-2 Riffle 06/28/04

STA	D	V	Subst.	% Dom	Cover/Notes
11.5 RWE	ø	ø	veg/ST	90	veg
11.6	1.67	1.35	SD/SG	70	"
13	1.65	1.34	LG/SG	60	—
15	1.75	1.73	SD/LG	"	LWD
17	2.17	2.67	SD/SG	60	—
19	2.15	2.89	"	60	—
21	2.17	2.51	"	"	—
23	2.15	2.86	SG/SD	"	—
25	2.0	2.88	"	"	—
27	1.85	2.84	"	"	—
29	1.72	2.78	"	"	—
31	1.70	2.74	"	"	—
33	1.7	2.77	"	"	—
35	1.6	2.8	"	"	—
37	1.43	2.38	"	"	—
39	1.65	2.37	"	"	—
41	1.82	2.33	"	"	—
43	1.28	2.64	"	"	—
45	1.15	2.51	"	80	—
47	1.05	2.46	"	"	—
49	0.88	2.37	"	"	—
51	0.63	2.28	"	"	—
52.3	0.65	1.99	"	"	—

WD-2 TR-2 Riffle Cont.

STA	D	V	Subst.	% Dom	Cover/Notes
53.5	1.2	1.42	SG/LG	80	
55	1.25	0.28	SG/SD	70	veg
57	1.45	.08	SD/SG	"	"
59	1.12	0.74	SG/SD	70	—
61	0.95	0.48	ST/SD	"	—
62	0.88	0.54	ST/SD	"	—
63.6	0.20	0.0	"	"	—
64.0	.15	0.0	"	"	edge
64.1 LWE	ø	ø	"	"	veg

WD-2 TR-3 Riffle 06/28/04

STA	Depth	Vel	Subst.	%Dom	Cover/notes
75.3 LWE	ø	ø	ST/veg	60	wCB (.6')
75.2	0.6	0.0	ST/veg	60	veg
74	.93	1.01	SD/SG	80	—
72	1.0	1.57	SG/SD	60	LWD
70	1.35	2.31	"	"	—
68	1.65	2.10	SG/SD	70	—
65.5	1.80	1.85	"	"	—
63	1.95	1.97	"	"	—
60.5	1.70	1.95	"	"	—
58	1.4	2.43	SG/SD	"	—
55.5	1.2	2.54	"	"	—
53.0	1.4	2.45	"	"	—
50.5	1.3	2.68	"	"	—
48	1.41	2.75	SG/LG	80	—
45.5	1.60	2.83	"	"	—
43	1.15	3.04	"	"	—
40.5	1.55	2.99	"	"	—
38	1.55	2.88	SG SD/SD	60	—
35.5	1.55	2.74	SD/SG	60	—
33	1.6	2.95	"	"	—
30.5	1.55	2.49	SG/SD	70	—
28	1.4	1.74	LG/SD	70	—
26	1.02	1.05	ST/CB	60	bl2

TR-3 Riffle Continue

STA	D	V	Subst.	%Dom	Notes
25	.91	1.2	ST/CB	60	
24	1.01	0.02	ST/org	60	u/s veh cover
23	1.01	0.24	ST/SG	70	u/s veg cover
22	0.92	1.04	"	70	—
21	0.38	0.1	ST/veg	60	OVH cover
20.6 RWE	0.0	0.0	"	60	—

WD-2

Copied From

WM-2

Spawning

Data Book

Sykes; 3602 0181

WD-2 Riffle #1 TR-1

STA	Depth	Vel	Substr.	% Dom	Cover
8.9 RWE	0.0	0.0	veg/silt	70	edge
9.3	1.92	.29	sand/sm g	"	"
10.0	2.05	1.23	sand/lg gr	80	—
12	2.45	1.94	"	"	—
14	2.48	2.15	sand/sm g	70	—
15	2.60	1.95/2.99	"	"	—
16	2.55	2.18/3.19	"	"	—
18	2.40	2.97	"	"	—
20	2.45	2.88	"	"	—
22	2.10	2.75	"	60	—
24	2.00	2.55	"	"	—
26	1.97	2.68	"	"	—
28	1.97	2.57	"	"	—
30	2.07	2.34	"	"	—
32	2.10	2.53	"	"	—
34	2.07	2.57	"	"	—
36	1.90	2.43	"	"	
38	1.78	1.87	"	"	—
40	1.67	1.96	sm gr/sand	"	—
42	1.60	1.07	sand/sm g	"	—
43.5	1.32	.23	silt/veg	60	veg.
45.0	0.82	0.26	"	"	"

WD-2 TR-1 cont. Riffle

STA	Depth	Vel.	Substr.	% Dom	Cover
47.0	.52	.28	silt/veg	90	
48.6	.35	.03	"	"	veg
51.4	0.0	0.0	"	60	"

CY #6 camera

Photo # ~~2022~~ TR-1 Riffle L→R

~~2023~~ " " R→L

~~2024~~ looking u/s thru TR-1 Riffle

19 TR-2 L→R riffle

18 TR-3 R→L riffle

17 looking d/s thru TR-3

16 TR-3 L→R riffle

R. Fitz

WB-2 TR-2 06/28/04

STA	Depth	Vel	Substr.	%Dom	Cover
RWE 11.5	0.0	0.0	veg/silt	90	veg
11.6	1.67	1.35	sand/sm gr	70	veg
13.0	1.65	1.34	Lg gr/sm gr	60	
15	1.75	1.73	sand/Lg gr	"	LWD
17	2.17	2.67	"/sm gr	60	—
19	2.15	2.89	"	60	—
21	2.17	2.51	"	"	—
23	2.15	2.86	sm g/sand	"	—
25	2.00	2.88	"	"	—
27	1.85	2.84	"	"	—
29	1.72	2.78	"	"	—
31	1.70	2.74	"	"	—
33	1.70	2.77	"	"	—
35	1.60	2.80	"	"	—
37	1.48	2.38	"	"	—
39	1.65	2.37	"	"	—
41	1.82	2.33	"	"	—
43	1.28	2.64	"	"	—
45	1.15	2.51	"	80	—
47	1.05	2.46	"	"	—
49	0.88	2.37	"	"	—
51	0.63	2.28	"	"	—
52.3	0.65	1.99	"	"	—

WB-2 TR-2 contin. 06/28/04

STA	Depth	Vel	Substr.	%Dom	Cover
53.5	1.20	1.42	sm gr/Lg gr	80	
55	1.25	0.28	sm g/sand	70	veg
57	1.45	0.08	sand/sm gr	"	"
59	1.12	0.74	sm gr/sand	70	—
61	0.95	0.48	silt/sand	"	—
62	0.88	0.54	"	"	—
63.6	0.20	0.0	"		—
LWE 64.0	.15	0.0	"		edge
↳ 64.1	0.0	0.0	"		veg

WD-2 Riffle

06/28/04 TR-3

Sta	Depth	Vel	Subst	% Dom	Notes
75.3	0.0	0.0			
75.2	0.6	0.1	silt/veg overhd cov	.6	u/c 0.6' 0.3 depth
74.0	0.93	1.01	sand/sg instrm cov	.8	
72.0	1.0	1.57	sg/sand cov	.6	3" diam rock
70.0	1.35	2.31	"	"	
68.0	1.65	2.10	sg/sand	.7	
65.5	1.80	1.85	"	"	
63.0	1.95	1.97	"	"	
60.5	1.70	1.95	"	"	
58.0	1.40	2.43	sg/sand	.7	
55.5	1.20	2.54	"	"	
53.0	1.40	2.45	"	.7	
50.5	1.30	2.68	"	"	
48.0	1.41	2.75	sg/lg	.8	
45.5	1.66	2.83	sg/lg	.8	
43.0	1.65	3.04	sg/lg	.8	
40.5	1.55	2.99	"	"	
38.0	1.55	2.88	sg/sand	.6	
35.5	1.55	2.74	sand/sg	.6	
33.0	1.60	2.95	"	"	
30.5	1.55	2.49	sg/sand	0.7	
28.0	1.40	1.74	lg/sand	.7	
26.0	1.02	1.05	silt/cobble	0.6	behind cobble
25.0	0.91	1.20	silt/cobble		

WD-2 Riffle

Sta.	Dep	Vel	Subst.	% Dom	Notes
24.0	1.01	0.02	silt/org. instrm cov	0.6	u/s veg shelter (wood)
23.0	1.01	0.24	silt/sg	0.7	u/s veg
22.0	0.92	1.04	"	"	
21.0	0.38	0.1	silt/veg overhd cov	6	
20.6	0.0	0.0	"	6	

WD-2

"Rite in the Rain"
ALL-WEATHER
LEVEL BOOK
No. 310

Aug. 17, 2004

Survey

WD-2 Wood R. 8/17/04

a day use area

Glen Anderson
Marcus Appy

	IN	OUT	(staff from last day) IN	OUT
Time	9:45	1:20	9:45	1:20
SG	2.0	2.0	4.5	4.5

Equip Swoffer 5750
prop. 2A
Level Zeiss Ni 40 (Geoline)

☼ Sun & warm

WD-2

Pool Level Loop 8/17/04

STA	BS	HI	FS	ELEV.	
BM-P	5.10	105.10		100.00	
HP1			4.92	100.18	
HP2			5.42	99.68	
HP3			5.37	99.73	
TP					
HP3	5.45	105.18		99.73	
HP2			5.50	99.68	✓
HP1			5.00	100.18	✓
BM-P			5.19	99.99	✓
		105.18			Depth
TR1	LWSE		8.08	97.10	⊖
	RWSE		8.09	97.09	⊖
TR2	LWSE		8.40	97.10	0.32
	RWSE		8.06	97.12	⊖
TR3	LWSE		8.07	97.11	⊖
	RWSE		8.01	97.17	⊖
HC	LWSE		8.09	97.09	⊖
	RWSE		8.18	97.00	⊖

WD-2 8/17/02

Pool TR 1

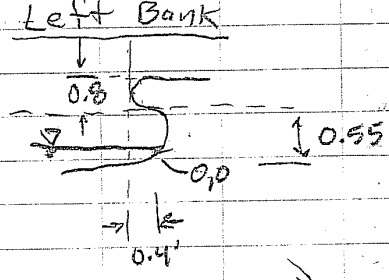
LWP= 53.1 $-2/.8$

STA	D	V	Comments
42.5	0.12	0.10	L-Bank edge
41.5	0.32	0.24	
40	0.55	0.37	small woody debris
38	0.86	0.75	
36.5	1.03	0.88	
34.5	1.23	1.43	
33.5	1.38	1.57	
31.5	1.63	1.76	
29.5	1.70	1.82	
27.5	1.84	1.95	
25.5	2.07	1.78	
23.5	2.30	1.77	
21.5	2.56	1.59 / 1.98	
19.5	2.90	1.64 / 2.20	
17.5	3.30	1.99 / 2.20	
15.5	3.60	1.61 / 1.98	
13.5	3.65	1.29 / 1.88	
11.5	3.50	1.37 / 1.41	
10	3.70	1.18 / 1.47	
8.5	3.75	0.95 / 1.29	
7	3.68	0.05 / 0.29	
6.5	⊖	⊖	RWE
1.0			RWP

disposable camera 1

Photo Log

	Shot #	
↑	27	TR1 L-R
pool	26	TR2 L-R
↓	25	Pool u/s
	24	TR3 L-R
↑	23	TR1 L-R
	22	TR2 L-R
Riffle	21	TR3 L-R

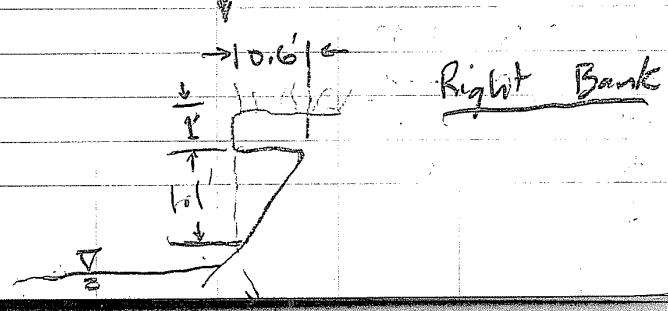


WO-2 8/17/04

Pool TR 2

STA	D	V	Comments
46.1	—	—	LWP
38.3	~~0~~	~~0~~	LWE
37	0.35	-0.46	
34	0.34	-0.50	∢ 30°
32.5	0.41	-0.34	∢ 30°
31	0.90	-0.15	∢ 80°
29	2.10	+0.16	∢ 70°
27	2.85	0.79 / 0.92	
25	3.10	1.70 / 1.74	
23	4.00	1.06 / 2.36	
21	4.40	0.76 / 0.78	
19	4.91	1.38 / 2.56	
17	4.95	1.98 / 2.36	
15	4.68	2.03 / 2.03	
13	4.60	1.78 / 1.15	
11	3.90	1.17 / 1.49	eroding bank, bed elev may have changed → due to clumps of bank, that fall in and then erode away.
10	4.05	0.83 / 0.80	
9	3.71	0.66 / 0.47	
8	2.05	0.36	
6.5	0.98	0.30	
5	0.60	0.30	
4.8	—	—	R-Bank edge
4.85	~~0~~	~~0~~	RWE
1.0			RWP

Note: Mobile bed substrates in Pool reach, TR-1, TR2 & 3. So bed elevation changes are to be expected.

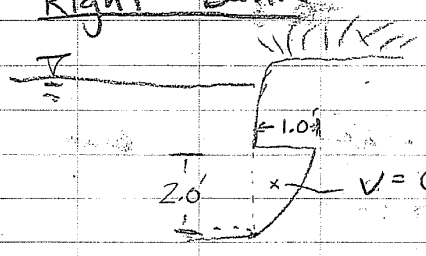


WO-2 8/17/04

Pool TR 3

	D	V	Comments
1.0	—	—	RWP
8.1	3.15	-0.19 / 0.27	Right Bank Edge
8.3	3.20	-0.46 / 0.20	
9.0	3.20	-0.54 / 0.40	
11	3.54	-0.20 / 0.97	
13	3.98	-0.10 / 1.80	
15	4.22	1.83 / 2.42	
17	4.15	2.28 / 2.16	
19	3.75	1.66 / 1.50	
20	3.20	1.95 / 1.37	
22	2.55	2.27 / 0.81	
24	2.25	1.49	
26	1.55	1.71	
28	1.10	2.15	
30	0.87	2.05	
32	0.70	2.07	
34	0.55	2.31	
36	0.55	1.97	
38	0.60	2.19	
40	0.62	1.99	
42	0.70	2.00	
44	0.77	1.94	
46	0.80	1.96	
48	0.82	2.03	

Right Bank



Pool TR3 (continued)

STA	D	V	
50	0.85	1.84	
52	0.88	1.85	
54	0.90	1.94	
56	0.85	1.88	
58	0.70	0.01	u/s vel. shelter - AQ veg.
59	0.60	0.16	AQ veg. - vel. difficult to measure.
60	0.30	0.79	"
61	0.51	0.97	
62	0.65	1.10	
63	0.01	⌀	
63.3	⌀	⌀	LWE
69			LWP

Riffle

	IN	OUT
Time	1:40	4:50
SG	2.0	2.0

3.78
.34
4.12

3.13
.39
4.7

103.85
7.23
96.62

4.27
.34
4.61

103.85
7.06
96.79

WD-2 Riffle 8/17/04

Level Loop

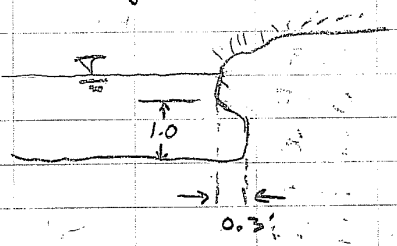
STA	BS	HI	FS	ELEV
BM	3.51	103.51		100.00
TR1 - HP			4.27	99.24
TR2 - HP			3.13	100.38
TR3 - HP			3.78	99.73
TP				
TR3 - HP	4.12	103.85		99.73
TR2 - HP			3.47	100.38
TR1 - HP			4.62	99.23
BM			3.85	100.00
TR1	LWSE	103.85	7.23	96.62
	RWSE		7.21	96.64
TR2	LWSE		7.19	96.66
	RWSE		7.20	96.65
TR3	LWSE		7.06	96.79
	RWSE		7.11	96.74

WD-2 8/17/04

Riffle TR 1 (Good Q)

STA	D	V	Comments
1.0	—	—	RWP
8.9	1.55	0.38	RBE (UCB)
9.3	1.63	0.25	
10	1.87	1.18	
12	2.15	1.64	
14	2.20	2.13	
15	2.40	2.25	
16	2.25	2.58	
18	2.25	2.33	
20	2.20	2.50	
22	2.00	2.34	
24	1.77	2.35	
26	1.75	2.38	
28	1.75	2.23	
30	1.77	2.09	
32	1.82	2.17	
34	1.83	2.16	
36	1.71	2.24	
38	1.55	1.75	
40	1.42	1.53	
42	1.40	0.78	
43.5	1.15	0.49	Aq Veg - Vel. cover
45	0.65	0.10	"
47	0.32	0.02	Woody debris
48.6	0.10	⊖	
48.9	⊖	⊖	LWE

Right Bank

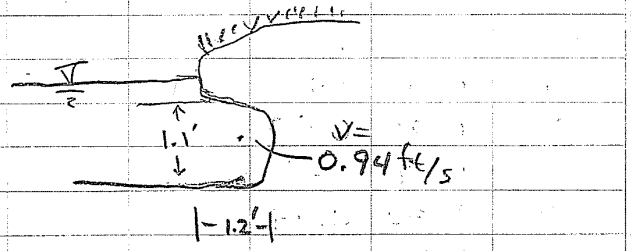


Riffle TR 2 WD-2 8/17/04

RWP @ 1.0'

STA	D	V	Comments
11.6	1.42	1.10	RBE (UCB)
13	1.51	1.09	
15	1.71	0.99	
17	1.92	2.62	
19	1.90	2.71	
21	1.92	2.64	
23	1.90	2.77	
25	1.80	2.91	
27	1.70	2.58	
29	1.52	2.59	
31	1.50	2.36	
33	1.50	2.51	
35	1.41	2.66	
37	1.32	2.42	
39	1.55	2.05	
41	1.58	1.88	
43	1.08	2.48	
45	0.95	2.40	
47	0.82	2.22	
49	0.70	2.17	
51	0.42	2.14	
52.3	0.44	1.75	
53.5	0.97	1.03	
55	1.00	-.18	* Vel Shelter Ag. Veg mat

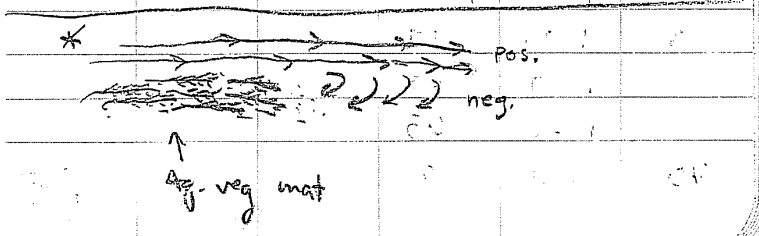
Right Bank



Riffle TR 2 (continued)

STA	D	V	Comments
57	1.30	0.01	* Vel. Shelter Ag. veg
59	0.87	0.43	
61	0.67	0.54	
62	0.63	0.50	
63.6	~~0~~	~~0~~	
63.9	0.05	~~0~~	
64.0	~~0~~	~~0~~	LWE

64.1



WD-2 Riffle TR3 8/17/04 (Good Q)

STA	D	V	comments
1.0	—	—	RWP (LWP 90.45)
20.5	⊖	⊖	
21	0.36	0.44	
23	0.70	0.57	
24	0.70	⊖	Vel. Shelter
25	0.90	0.95	
26	0.85	0.21	Vel Shelter (bolder)
28	1.25	1.64	
30.5	1.38	1.93	
33	1.40	2.53	
35.5	1.48	2.55	
38	1.45	2.81	
40.5	1.40	2.93	
43	1.40	2.71	
45.5	1.40	2.57	
48	1.20	2.53	
50.5	1.15	2.47	
53	1.18	2.02	
55.5	1.05	2.21	
58	1.20	1.86	
60.5	1.55	1.78	
63	1.72	1.93	
65.5	1.60	1.48	
68	1.40	1.65	
70	1.20	1.55	

Riffle TR3 (continued)

STA	D	V	Comments
72	0.80	1.15	Woody debris
74	0.70	0.97	
75.2	0.40	0.10	L-Bank (UCB)