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Ex. 280-US-437

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R2 Resource Consultants

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SP-5



"Put it in the Rain"

ALL-WEATHER
LEVEL BOOK

No. 310 F

8/17/04

10/18/01

SP-5 Loop Flow Level Loop SP-5 Level Loop 8/17/04

STA	BS	HT	FS	Elev
B.M.	5.32			100.00
TR-1		105.32	4.50	100.82
TR-2			4.54	100.78
TR-3			3.50	101.82
TR-3			3.47	100.82
TR-2		105.29	4.51	100.78
TR-1			4.47	100.82
B.M.			5.29	100.00
TR-3			3.47	
B.M.				

In	Out
2.45	5.30
5.6	0.0

Chris M. Gayman
ben

Equipment: Minolta Pictor SN 2005083
Leica (L) SN 8918

Photo Log (#9 looking w/5 (in TR-1)
 (#10 " " 24-7-04 TR-1)
 (#12 " " 11-7-04 TR-2
 (#13 " " 11-7-04 TR-3
 (#14 " " 11-7-04 TR-3
 d/s for TR-3

SP-5 WSE 08/17/04

STA BS HI FS Eleva

105.29

TR-3
LT 11.03 94.26
RT 11.05 94.24

TR-2
LT 11.07 94.22
RT 11.15 94.14

TR-1
LT 11.23 94.06
RT 11.25 94.04

BM 5.29 105.00

SP-5 TR-1 0 & V

STA Depth Vel Notes

LWE 60.4 0.0 0.0 *LWP=1.0 /RWP=260.7 *

63 0.3 0.0 AQ VEG.

73 0.83 -0.04 "

83 1.00 -0.04 "

93 1.00 -0.06 "

103 1.15 0.0 "

111 1.60 ~~0.84~~ ^{0.074} "

119 2.42 0.38 "

127 2.69 ~~0.74~~ ^{-0.02} "

135 2.80 ~~0.77~~ ^{0.02} "

143 2.90 ~~0.63~~ ^{-0.07} "

151 2.95 0.72 ^{-0.01} "

159 2.85 0.73 ^{0.14} "

167 3.10 0.82 ^{0.0} "

175 3.05 0.84 ^{0.0} "

183 3.10 0.94 ^{0.0} "

191 2.92 0.91 ^{-0.03} "

199 2.55 0.67 ^{-0.04} "

207 1.55 0.35 "

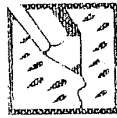
208 0.90 0.62 "

209 0.40 0.13 "

209.4 0.0 0.0 RWD

SP-5	TR-3	DEV	OS/STATION	DEV	TR-3	DEV	Notes	Notes	STA	Depth	Vel	LWE	LWE	VEG. DEPT.
STA	Depth	Vel	Notes	Notes	Depth	Vel	Notes	Notes	STA	Depth	Vel	LWE	LWE	VEG. DEPT.
63.50	0.0	0.0	LWE		60.0	0.0	0.0		60.0	0.0	0.0	0.0	0.0	0.50
66.0	0.5	0.0	AQ VEG		67	1.05	0.12	0.02	67	1.05	0.12	0.02	0.02	
68	0.7	0.0	"		75	2.00	0.21		75	2.00	0.21	0.0	0.0	
76	1.10	0.05	"		83	2.55	0.23		83	2.55	0.23	0.0	0.0	
84	1.57	0.14	"		91	3.0	0.04	-0.03	91	3.0	0.04	0.0	0.0	2.0
92	1.70	0.32	"		99	3.32	0.0	0.0	99	3.32	0.0	0.0	0.0	2.8
100	2.25	0.31	"	VEG DEPT: 1.20	107	3.82	0.10	0.0	107	3.82	0.10	0.0	0.0	2.8
108	2.55	0.04	"	1.00	115	3.80	0.43	0.0	115	3.80	0.43	0.0	0.0	2.5
116	2.80	0.16	"	2.50	123	3.63	0.03	0.0	123	3.63	0.03	0.0	0.0	2.0
124	3.10	0.21	"	2.50	131	4.10	0.54	0.0	131	4.10	0.54	0.0	0.0	2.7
132	3.10	0.40	"	2.50	139	3.80	0.21	0.0	139	3.80	0.21	0.0	0.0	2.7
140	3.15	0.56	"	2.00	147	4.50	0.49	0.0	147	4.50	0.49	0.0	0.0	2.5
148	3.15	0.45	"	1.80	155	4.50	0.18	0.21	155	4.50	0.18	0.21	0.21	
156	3.05	0.62	"	2.50	163	4.40	0.96	0.24	163	4.40	0.96	0.24	0.24	
164	3.00	0.36	"	1.70	171	4.20	0.61	0.52	171	4.20	0.61	0.52	0.52	
172	3.10	0.73	"	2.20	179	3.80	0.36	0.0	179	3.80	0.36	0.0	0.0	
180	3.05	0.66	"	1.50	187	3.35	0.85	0.0	187	3.35	0.85	0.0	0.0	
188	2.80	0.77	"	1.00	195	0.60	-0.01		195	0.60	-0.01			1.7
196	2.50	0.74	"	1.50	198	N/A			198	N/A				3.3
204	1.70	0.67	"	1.60										AQ VEG.
207	1.90	0.60	"	1.40										
208	1.75	0.37	OBS COVER	OBS COVER	197.4	0.0	0.0		197.4	0.0	0.0			RWE
208.8	0.0	0.0	EDGE COVER	EDGE COVER										
			RWE	RWE										

SP-5



"Kite in the Rain"

ALL-WEATHER
LEVEL BOOK

No. 310 F

6/26/64

SP-5 Sprague R @ Sprague R. Town
06/26/04

	In	Out
Time	9:00	1:00
SLG	4.0	4.0

Crew: M. Gagner
C. McBrella

Equipment: MARSY McBURNEY
MODEL 2000

	LWE	RWE	LWS	RWS	USE X USE
TR-2	44.0	210.7	94.83	94.88	94.75
TR-1	52.8	210.7	94.64	94.59	94.62
TR-3	44.4	199.3	94.78	94.72	94.78

06/26/04

Photo Log

Photo #	Description
27	TR-2 RUN L-R
28	TR-1
29	LOOKING 1/5 RUN
30	TR-3 RUN
31	LOOKING D/S
32	

SP-5	Run	Level	Loop	06/26/04	TR-2	Bank Survey	WSE
STA	BS	HI	FS	Eleva	FS	Subst.	% Dam. Rod
B.M.	3.61 5.39	105.39		100.00	4.27	grass/sage	60
TR-3			3.61	101.78	4.46	"	"
TR-2			4.59	100.80	5.89	dirt/veg	"
TR-1			4.68	100.71	7.26	grass/soil	80
TR-1	4.09				9.01	"	"
TR-2		104.80			9.91	veg/silt	70 ^{use}
TR-3		4.00			11.30	(94.83)	(94.75) 1.33
B.M.		3.02			10.92	(94.68)	0.80
		4.80			10.22	silt/veg	60
					8.52	veg/soil	80
					7.81	"	"
					4.54	sage/soil	70
					4.70	sage/soil	60
					"	"	60
					225.0		
					237.0		
					251.0		
					260.2		
					260.3 RWP		

06/26/04

SP-5	TR-3	Bank Survey	WSE	SP-5	TR-2	VEG/ST	6/26/04
STA	HI	Substr.	% Dom.	STA	TR-2	VEG	SOB
104.80							% DOM
246.0	RWP	slope/soil	70	44.0	∅	∅	80
235.5		"	"	52.0	0.05	∅	"
225.5		grass/soil	90	60.0	0.22	∅	"
210.0		"	"	68.0	1.40	0.05	"
199.3	RWE	grass/soil	80	76.0	1.64	0.16	"
194.8	RWS	(94.72)	1.485	84.0	2.30	0.18	VEG
66.5	LWS	(94.78) VEG	1.789	92.0	2.28	0.36	ST/SG
44.4	LWE	veg/soil	60	100.0	2.90	0.00	SG/SD
20.4		veg/soil	70	108.0	3.20	0.03	"
12.8		slope/soil	70	116.0	3.28	0.15	SG/SD
4.0	LWP	"	60	124.0	3.50	0.65	"
				132.0	2.65	0.08	"
				140.0	3.82	0.66	"
				148.0	3.80	0.13	"
				156.0	3.80	1.06	"
				164.0	3.65	0.10	"
				172.0	3.70	0.87	"
				180.0	3.80	0.30	"
				188.0	3.35	0.91	"
				196.0	3.00	0.55	"
				204.0	2.20	0.03	"
				207.5	2.28	0.02	"
				208.0	0.80	0.01	"
				210.76	∅	∅	"

should be 3.65
some 4/40/04

SP-5 STA	D	V	COVER	SUB	%DOM	SP-5 STA	Bank Prof. FS	WSE Subst.	%Dom	Read
210.7	∅	∅		VEG/ST	70	1.0	104.80			
209.0	0.40	-0.04		"	"	8.0	4.23	sage/soil	60	
208.0	0.93	0.84		ST/VEG	80	14.0	4.68	"	"	
207.0	1.20	0.93		"	"	37.0	6.42	sage/soil	80	
199.0	2.95	0.01/0.42	VEG	ST/SD	60	52.8	9.71	"	90	
191.0	3.58	0.87/0.17		ST/SG	60	66.0	10.28	veg/soil	70	
183.0	3.60	0.96/0.81		"	"		11.49	veg/soil	(94.64)	1.33
175.0	3.65	0.83		SG/SD	70		(10.16)			
167.0	3.55	0.78/0.17		ST/SD	60		12.12		(94.59)	1.91
159.0	3.50	0.09/0.40		SP/ST	70		(10.21)			
151.0	3.50	0.63/1.11	VEG	"	"					
143.0	3.50	0.15/0.03	VEG	MT/SD	60		10.37	veg/soil	70	
135.0	3.40	1.06/0.19	"	SG/SD	70		9.62	veg/soil	90	
127.0	3.20	0.15/0.76	"	SG/SD	60		6.61	sage/soil	60	
119.0	3.00	0.19/0.07		"	"		5.34	"	60	
111.0	2.25	0.61		ST/SG	80		4.92	"	70	
103.0	1.80	0.07	VEG	"	70					
93.0	1.55	0.08		ST/SG	80					
83.0	1.65	-0.01		"	"					
73.0	1.43	0.17		ST/SG	70					
63.0	1.05	∅	VEG	ST/VEG	70					
56.0	0.35	∅	"	VEG/ST	70					
WE 52.8	∅	∅		"	70					

TR-1

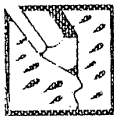
6/26/04

06/26/04

6/26/04 TR-3 Run. SP-5

STA	D	V	COVER	SUB	%SAND
44.4	φ	φ	VEG	VEG/SILT	70
55.0	0.10	φ	"	"	"
60.0	0.60	-0.03	"	"	"
67.0	1.71	0.53	SD/SC		70
75.0	2.55	0.47	ST/SG		60
83.0	3.25	0.04	ST/SD		60
		0.13	VEG		
91.0	3.50	0.9	VEG		60
		0.02	VEG		
99.0	3.95	0.0	"	"	"
		0.0	"	"	"
107.0	4.40	0/0	"	"	"
115.0	4.35	"	"	"	"
123.0	4.20	0.0102	"	"	"
131.0	4.57	0.0101	"	"	"
139.0	4.50	0.12	"	"	60
		0.33	SC/SD		
147.0	5.00	0.69	"	"	"
		0.65	"	"	
155.0	5.00	0.35	SC/SD		70
		0.84	"	"	"
163.0	5.00	1.01	"	"	"
		0.79	"	"	"
171.0	4.75	0.61	VEG		"
		0.99	"	"	"
179.0	4.36	0.16	"	"	"
		0.35	ST/SD		60
187.0	4.00	0.07	"	"	"
		0.02	ST/VEG		60
195.0	1.20	0.06	VEG/ST		70
198.0	0.50	φ	"	"	"
199.3	φ	φ	"	"	80

SP-5



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

Adler

4/10/04

(Handwritten notes, partially illegible)
E R M
107
M
K

SP-5 High Flow 04/10/04

Crew: M. Gagner
M. Appy

Weather: clear & warm ~75°F
no precip in past 7 days

	In	Out
Time	3:45	4:45
S.G	2.00	2.00
4/11	9:00	12:00
S.G	2.00	1.99 (N 100 th of a foot change)

Equipment: Nikon Level SR:
Marsh Mc Birney Model 2500
SR: 2005068

SP-5 High Flow 04/10/04

Directions: From Chilgwin head to east on Sprague R Highway to town of Sprague R. After crossing Sprague R. (E just before town) look for right hand turn onto Skeen Ranch Rd. Follow for 1/2 mile to blue gate & college road. Access the site through wire gate that intersects college road fence. Follow trail through pasture to river. Call Tim Kirk or Don Gouby before accessing site.

Notes: this site was habitat mapped in September 2003 by M. Gagner & M. Appy. The site contains only run/ride habitat. The reach length is approximately 2,367'. We will randomly select a start location and then place 4 transects ~25-150' apart. The channel & fish habitat in this section of the Sprague R. is very broad/variable.

SP-5 Photo Log, 04/10/04
Roll # 4

Photo # Description

- # 25 - SP-5 Books on trash barge
- # 24 - looking L → RT across TR-2
- # 23 - Bench Mark
- # 21 - TR-1 looking L → RT
- # 20 - TR-3 " "
- # 19 - looking w/s from TR-3
- # 18 - " " d/s from TR-3

SP-5 Transect Placement

04/10/04

Random # for transect placement is 6.

Reach length
2,367' X 0.6 = 1,420'

First transect

will measure down 1,420' from upper extent of mapped reach & place first transect. Each subsequent transect will be placed ~125' - 150' d/s from that point

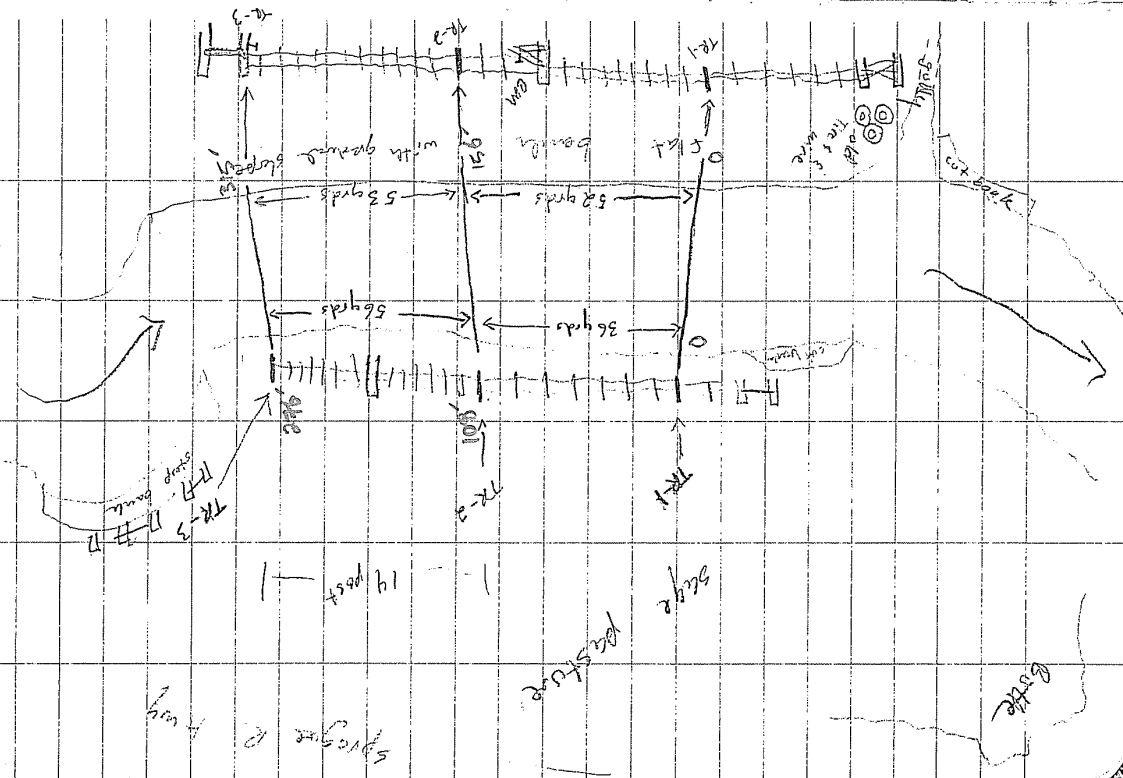
Existing steel fence post used as working pins. Rebar HPs placed on TR-1 & TR-2. Spike/nail used as HP for TR-3 and B.M.

* remove orange caps before shooting elevations on TR-1 & 2 HPs *

Level loop SP-5				4/11/04
STA	BS	HT	FS	Eleva
B/M	5.50			100.00
TR-1		105.50	4.68	100.82
TR-2			4.74	100.76
TR-3			3.69	101.81
TR-3	3.59			101.81
TR-2		105.40	4.65	100.75
TR-1			4.59	100.81
B/M			5.41	99.99

SP-5 WSE				04/11/04
STA	BS	HT	FS	Eleva
		105.40		
TR-1			9.95	95.74
LWS				0.29
RWS			10.05	95.71
				0.36
TR-2				
LWS			10.15	95.78
RWS			10.29	95.71
				0.63
TR-3				
LWS			10.03	95.80
RWS			9.98	95.78
				0.36
B/M			5.41	99.99
B/M			5.41	99.99

SP-5 Site Map 04/11/04



SP-5 Discharge 04/11/04

STA	Depth	Vel.	Notes
2200	0	0	
218	.75	1.01	Sod
213	1.05	1.13	soil/silk
207	1.07	1.39	"
200	1.35	1.55	"
193	2.4	1.02	"
186	2.65	1.14	"
179	3.2	1.11	"
171	3.6	1.26	"
161	4.15	1.24	"
151	3.8	1.88	"
141	4.5	1.83	"
131	4.3	1.67	"
121	5.1	1.78	"
111	4.8	1.51	"
101	4.5	1.72	"
91	4.8	1.86	"
81	4.3	1.61	"
71	4.8	1.73	"
61	4.8	1.81	"
51	4.4	1.81	"
41	4.4	1.55	"
31	4.8	1.81	"
21	4.8	1.81	"
11	4.4	1.81	"
01	4.8	1.81	"
18	4.4	1.81	"

STA	Depth	Vel	Note	04/11/04
74	4.3	1.09 1.98		
67	3.9	.93 1.69		
60	3.8	.71 1.81	silt	
53	2.60	.57 1.11	silt/sand	
50	1	.17		
47	.85	0		
43.7	0	0		