

12-4-2009

Ex. 280-US-445

Mike Gagner
R2 Resource Consultants

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SP-7



"Rite in the Rain"

ALL-WEATHER
LEVEL BOOK

No. 310 F

Book 13

High Flow Sampling 04/10/04

SP-7

Crew: Mike Gagner
Marcus Appy

weather: sunny & warm, no
precip. in past 24 hrs

	In	Out
Time	9:30	3:00
S.G	2.0	2.0

no change

Equipment: Nikon level SW:
Marsh McBirney Model 2000
SW: 2005068

04/10/04

SP-7 High Flow

Directions: From K-Falls trail

NE on Hwy 140 toward Heath. Stop on Hwy 140 heading east of out of Beatty. A piece of miles outside of Beatty look for small dirt turnout on left side of Hwy just past small house/shack. The transects are located ~1000 ft S of this turnout/parking area.

Notes: This site was habitat

mapped on 10/23/03 by M. Gagner & M. Appy. The site contains

only 3% glide habitat - no other habitat types were present within the 1500' mapping reach.

Will randomly select a start location and place the transects ~75' apart. For this sampling

we will establish transects, survey HP & water surface elevation, and measure discharge at one location

SP-7 Photo Log 04/10/04

Photo #	Description
R11 #3	looking Lt - 7Rt across TR-4
#11	u/s from TR-4
#10	d/s from TR-4
#9	@ SP-7 data bank
#8	across TR-3
#7	across TR-2
#6	d/s from TR-2
#5	@ BM-1 willow stump/branch
#4	

SP-7 04/10/04

Random #s for placement of first transect (1-10)
 (* use fraction)
 Random # 0.6 X 1500 = 900
 Unit Length
 Location of first transect

Will measure u/s from start of habitat mapping breach

Transect #	Distance u/s
1	900
2	975
3	1050
4	1125

measured u/s from start of habitat mapping

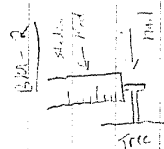
SP-7 High Flow 01/10/04

SP-7 WSE 04/10/04

Level Loop

STA BS HI FS Eleva

BM-1	4.08	+	100.00		
BM-2	104.08	0.51	103.57		
TR-1 w/ post	0.46	0.46	103.62		
TR-1 w/ post	104.37	+	103.62		
BM-2	0.75	0.79	103.58		
BM-1	4.37	100.00			



STA	BS	HI	FS	Eleva	Rod
TR-4	LWS	104.37	(7.27) 7.89	97.10	0.62
	RWS	7.99 WSE	7.70 (7.20)	97.08 97.10	0.50
TR-3	LWS	7.31 WSE	(7.26) 7.85	97.11	0.59
	RWS		7.83 (7.27)	97.10	0.56
TR-2	LWS	7.91 WSE	(7.25) 8.09	97.08	0.80
	RWS		7.90 (7.35)	97.04	0.57
TR-1	LWS		(7.33) 8.23	97.04	0.90
	RWS		8.30 (7.20)	97.17	1.10
TR-1	WSP		0.75	103.62	

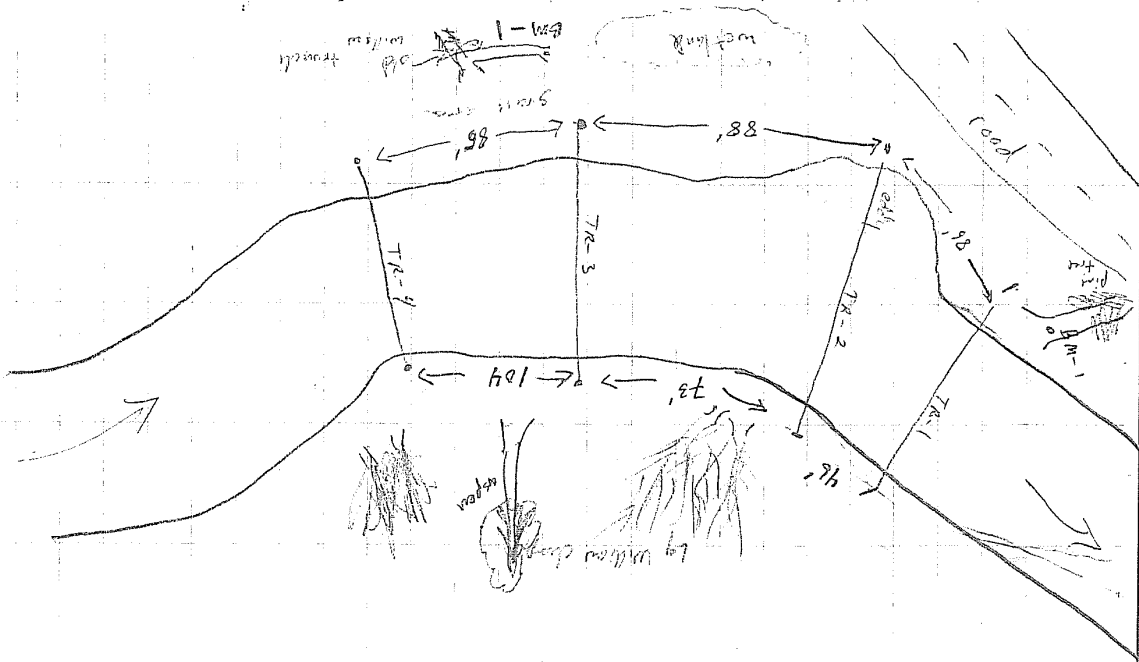
* No HPS were placed at this site - unable to find firm location to place pins *

* Use BMS for site elevations *

* Left & Right Designations and made looking p/s *

* Mud channel bottom & banks make it difficult to find secure locations for sheet WSES

SP-7 Site Map - 07/10/04



SP-7 Discharge STA Depth Vel. Notes 04/10/04

Discharge of	measured	~ 150	kts	dis	
WE 77.8	0	0			st
76	.82	-.06			st
77	1.87	.40			st
71	3.6	.05			st
68	4.4	1.49			st
65	5.2	1.57			st
62	5.7	1.87			st
59	5.6	1.78			st
56	5.5	1.91			st
53	5.0	2.00			st
50	5.1	2.00			st
47	5.3	2.40			st
44	5.8	2.40			st
41	6.9	2.01			st
38	5.5	2.19			st
35	6.2	1.91			st
32	6.4	1.87			st
29	6.2	1.91			st
26	3.15	1.13			st
23					st

150 kts dis
 7R-1
 150 kts dis
 7R-2
 150 kts dis
 7R-3
 150 kts dis
 7R-4
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 7R-100
 150 kts dis

STA	SRT Dep	Dist Vel	410104 Notes	Continued
70	2.9	-.03	"	upstream velocity
17	1.65	-.14	"	Break - continued
14	1.8	-.19	"	"
RWE 110	0	0	SD	

SP-7 Sprague R. 06/27/04

	In	Out
Time	7:00	12:30
S.G.	1.0	1.0

Crew: M. Gagnon
C. Movelto

Equipment: Lietz B1 SN: 8918
Marsh M.B. Survey Model 2000
SN: 2605068

Photo Log:

- 7 TR-4 R-L
- 8 Looking d/s
- 9 TR-3 R-L
- 10 d/s thru TR-3
- 11 TR-2 R-L
- 12 d/s thru TR-2
- 13 TR-1 R → L
- 14 Looking d/s thru TR-1
- 15

SP-7 Level Loop 06/27/04

STA	BS	HI	FS	Elev
BM-1	5.32	105.32		100.00 * has moved BM-1 ≠ 100.00
BM-2			1.87	103.45
TR-1 wp			1.83	103.49
(TP)				
TR-1 wp	1.69			103.49
BM-2		105.18	1.74	103.44
BM-1		5.18		100.00
BM-2	1.66			103.57 use
TR-1 wp		105.23	1.61	103.62
TR-2 wp			3.78	101.45 ^{new} _{survey point}

* BM-1 elevation has changed
use BM-2 elevation of 103.57 to calculate
HI for all measurements during this survey

06/27/04

SP-7 STA	TR-4 HI	FS	Bank Survey & WSE	Subst.	% Dam.	Rad	TR-3 HI	FS	Bank Survey & WSE	Subst.	% Dam.	Rad
1.0 LWP	105.23	5.05		grass/sand	80		105.23	4.09		veg/sand	80	
5.0		5.27		"				4.36		"	60	
8.0		6.66		"	70			8.24		sand/silt	60	
12.0		7.55		"	60					"	"	
15.5		7.72		sand/silt	90			11.36		(94.51)		0.64
18.0		7.47		"	"			10.90		(94.54)		0.21
24.0		8.18		"	"					silt/sand	60	
31.1 AWE		10.73		"	"			9.48		silt/veg	70	
36.7 LWS		10.94		(94.60)				8.64		veg/silt	70	
73.8 RWS		11.07		(94.68)				7.03		"	80	
74.9 RWE		10.76		sand/silt	60			6.06		"	"	
76.5		6.48		veg/silt	70			6.48		"	"	
87.0 RWP		5.06						5.52		"	90	
TR-1	78.1	1.0		RWS	LWS							
TR-2	161.10	1.0		94.38	94.34							
				94.44	94.44							
TR-3	83.9	1.0		94.81	94.54							
TR-4	87.0	1.0		94.61	94.60							

06/27/04

SP-7 TR-2 Bank Survey E WSE

STA HI FS Substr. of Dam. Rod

105.23			
101.10 RWP	5.28	veg/soil	90
89.0	6.52	"	90
78.0	8.65	"	70
76.3	9.76	"	60
75.5 RWE	10.78	soil/veg	70
	11.02	(94.94)	0.24
15.8 RWS	12.60	(94.94)	1.81
14.3 LWS	10.60	veg/soil	70
11.0 LWE	8.60	veg/sand	80
7.2	8.40	"	90
5.5	6.38	"	"
1.0 LWP	6.43	"	"

SP-7 TR-1 Bank Survey E WSE

STA HI FS Substr. of Dam. Rod

105.23			
78.1 RWP	5.62	veg/soil	90
68.0	5.51	"	"
66.7	8.57	soil/veg	90
63.7	9.93	"	"
62.5 RWE	10.88	"	90
	10.88	(94.38)	0.0
14.3 LWS	12.09	(94.34)	1.20
12.1 LWE	10.72	(road fill)	70
50 ft of TR-1	13.51	(94.28)	2.56
7.8	7.77	veg/soil	70
4.3	5.30	veg/soil	90
1.0 LWP	4.25	veg/duff	70

SP-7	TR-4	RUN	COVER	%DOM
STA	D	V	SUB	
31.0	0.70	φ	SP/ST	90
33.0	0.70	-0.04	"	80
35.0	1.05	-0.08	ST/SD	70
37.0	1.50	-0.10	"	"
39.0	2.13	0.06	"	"
41.0	2.24	0.31	"	"
43.0	2.40	0.56	"	"
45.0	2.43	0.62	ST/SD	"
47.0	2.50	0.62	SP/ST	70
49.0	2.68	0.65	"	"
51.0	3.10	0.62	"	70
53.0	3.60	0.89	SP/SD	"
55.0	3.55	0.88	SG/SD	"
57.0	3.58	0.88	"	"
59.0	3.70	0.76	"	"
61.0	3.70	0.99	LG/SD	"
63.0	4.10	0.82	"	"
65.0	4.15	0.92	"	"
67.0	4.10	0.70	ST/SD	60
69.0	3.50	0.65	"	80
71.0	0.30	0.26	"	"
73.0	0.40	0.01	"	"
74.9	φ	φ	"	"

SP-7	TR-3	RUN	COVER	%DOM
STA	D	V	SUB	
21.0	φ	φ	ST/SD	60
23.0	0.35	0.00	ST/SD	60
25.0	1.06	0.01	"	"
27.0	2.00	0.12	"	"
29.0	1.96	0.72	SP/ST	70
31.0	2.45	0.30	"	"
33.0	2.10	0.68	"	"
35.0	2.07	0.89	"	"
37.0	2.00	0.87	"	80
39.0	1.82	0.87	SP/SG	70
41.0	1.63	0.94	"	"
43.0	1.60	0.91	SG/SD	60
45.0	1.53	1.04	"	"
47.0	1.50	0.99	"	70
49.0	1.52	0.94	SG/SD	60
51.0	1.61	1.00	"	"
53.0	1.77	0.92	SG/SD	60
55.0	2.00	0.97	SP/SG	60
57.0	2.20	0.98	SG/SD	70
59.0	2.45	1.00	"	70
61.0	2.70	0.73	SG/SD	"
63.0	2.98	0.87	ST/SG	60
65.0	3.45	0.18	"	70

SP-7		CONT.		TR-3		TR-2		SP-7		TR-2		6/26/01			
STA	D	V	SUB	COVER	% DOM	D	V	SUB	COVER	% DOM	D	V	SUB	COVER	% DOM
67.0	3.44	0.68	ST/SD	LWD	70	∅	∅	NEC/ST			1.00	0.00	ST/VEG	VEG	60
69.0	2.40	0.25	ST/SD	VEG	80	1.00	0.00	ST/VEG			2.37	-0.06	ST/SD		80
71.0	2.30	0.26	ST/SD		"	2.55	-0.08	"			3.30	-0.10	"		80
72.2	0.98	0.34	ST/SD		90	3.30	-0.05	"			4.00	-0.02	ST/BD		"
72.9	∅	∅	"		"	4.38	0.05	CB/ST			4.30	0.05	SD/ST		60
						4.30	0.04	SD/ST			3.85	0.07	"		60
						3.70	0.15	"			3.70	0.15	"		"
						3.38	0.72	"			3.38	0.72	"		"
						3.08	0.83	"			3.08	0.83	"		"
						2.80	1.03	"			2.80	1.03	"		"
						2.90	0.75	"			2.90	0.75	"		"
						3.10	0.93	"			3.10	0.93	"		"
						2.80	0.66	"			2.80	0.66	"		"
						2.50	0.87	SE/SD			2.50	0.87	SE/SD		60
						1.96	0.68	SC/ST			1.96	0.68	SC/ST		60
						1.70	0.66	"			1.70	0.66	"		"
						1.94	0.36	ST/SE			1.94	0.36	ST/SE		70
						1.54	-1.03	ST/SD			1.54	-1.03	ST/SD	VEG	80
						0.40	-1.05	ST/VEG			0.40	-1.05	ST/VEG	"	60
						∅	∅	"			∅	∅	"	"	60

BOUNDRIES SOOUBLE IN THIS SITE OF SITE 1 MAY BE FROM ROAD CONSTRUCTION

TR-1	SP-7	- BEST Q -		6/26/04	COVER %	DOM
STA	A	V	SOG	COVER	%	DOM
63.1	0.84	0.05	ST/VEG	80		
61.0	1.32	0.26	"	"		
59.0	1.65	0.46	ST/SD	60		
57.0	1.50	0.76	SD/ST	60		
55.0	1.74	0.80	"	70		
53.0	1.78	0.31	"	"		
51.0	2.22	0.84	"	"		
49.0	2.40	0.91	SD/ST	80		
47.0	2.70	0.71	SD/SG	60		
45.0	2.65	1.07	SG/SD	60		
43.0	2.50	0.90	SG/SD	60		
41.0	2.45	1.06	LG/CB	80		
39.0	2.50	0.92	LG/SG	70		
37.0	2.50	1.13	LG/SG	60		
35.0	2.45	1.12	LG/SG	70		
33.0	2.30	0.86	LG/SG	60		
31.0	2.10	0.81	LG/SG	60		
29.0	1.92	0.87	CS/LG	60		
27.0	1.87	0.86	LG/SG	80		
25.0	1.70	0.87	LG/SG	80		
23.0	1.68	0.78	SG/CB	"		
21.0	1.40	0.62	LG/SG	70		
19.0	1.47	0.67	"	"		
17.0	1.15	0.03	CS/BLD	80		
15.0	0.60	0.21	BLD/CB	"		
13.5	0.16	0.16	"	60		
12.1	0.60	0.16	"	70		
12.1	WE	φ	CS/BLD	70		

SP-17 low flow 08/17/04

Time	In	Out
9:30		12:30
5:15	0.0	0.0

Crew: M. Coombs
B. Nelson

Equipment: Lietz B1 SN 8918
M.M. 2050 SN 205568

Photo log: #1 looking up/s LT bench TR-4
2 " " RT " TR-4
3 " " LT → RT " TR-3
4 " " " " TR-2
5 " " " " TR-1
6 " " " " " "
7 " " up/s from below " "
8 " " " " " "

SP-17 8/17/04

STA	BS	HT	FS	Eleva	Notes
BM-1	4.83	104.83		100.00	101.10 Lead tree
BM-2		104.74	1.22	103.61	(101.10) (100.00)
TR-1 wip			1.187	103.65	103.67 ✓
TR-1 wip	1.09	104.74		103.65	103.62 ✓
BM-2			1.13	103.61	103.58 ✓
BM-1			4.74	100.00	
TR-3 wip			3.43		
TR-4 LT		104.74	10.65	94.09	
RT			10.64	94.10	
TR-3 LT			10.66	94.08	
RT			10.65	94.09	
TR-2 LT			10.69	94.05	
RT			10.69	94.05	
TR-1 LT			10.70	94.04	
RT			10.71	94.03	

08/17/04

O & V

Notes

TR-4

Depth Vel.

SP-17

STA

LWE

32.0	0.0	0.0	0.0	LWE
33	0.32	0.05		
35	0.70	-0.04		
37	1.22	0.0		AQ. VEG.
39	1.76	0.0		"
41	1.92	0.05		"
43	2.08	0.17		
45	2.16	0.29		
47	2.27	0.37		
49	2.38	0.41		
51	2.82	0.47 0.45		
53	3.20	0.42 0.42		
55	3.32	0.41 0.46		
57	3.20	0.46 0.53		
59	3.47	0.52 0.51		
61	3.47	0.49 0.60		
63	4.70	0.49 0.60		
65	4.80	0.67 0.59		
67	3.80	0.57 0.34		
69	3.20	0.47 0.33		
71	2.90	0.10 0.05		
73	0.40	-0.04		
74.3	0.0	0.0		RWF

08/17/04

O & V

Notes

TR-3

Depth Vel.

SP-17

STA

LWE

22.7	0.0	0.0		LWE
23	0.05	0.0		
25	0.90	0.0		AQ. VEG.
27	1.50	0.03		"
29	1.83	0.38		"
31	2.00	0.34		
33	1.70	0.22		
35	1.65	0.67		
37	0.65	0.64		
39	1.50	0.71		
41	1.30	0.74		
43	1.28	0.73		
45	1.20	0.66		
47	1.20	0.73		
49	1.20	0.71		
51	1.26	0.69		
53	1.42	0.68		
55	1.68	0.66		
57	1.90	0.61		
59	2.12	0.62		
61	2.40	0.64		
63	2.70	0.66 0.43		
65	2.90	0.58 0.12		

SP-17	TR-3	Dev	Conti	08/17/04	SP-17	TR-2	Dev	Notes
STA	Depth	Vel	Notes	STA	Depth	Vel	Notes	
67	3.10	0.11		15.30	0.0	0.0	LWE	
69	2.08	0.05	OBST. COVER	16	0.95	0.02		
71	1.70	0.20	AQ. VEG.	19	2.10	-0.09		
72.2	0.70	0.08		22	2.32	-0.09		
72.6	0.0	0.0	RWE	25	3.12	-0.01		
				28	3.75	-0.04		
				31	4.00	0.0		
				34	4.00	0.07		
				37	3.44	0.37		
				40	3.75	0.58		
				43	2.90	0.71		
				46	2.65	0.74		
				49	2.43	0.74		
				52	2.50	0.66		
				55	2.65	0.59		
				58	2.60	0.55		
				61	2.07	0.50		
				64	1.60	0.40		
				67	1.35	0.35		
				70	1.45	0.15		
				72	0.90	0.05	AQ. VEG.	
				74.5	0.25	-0.05		
				74.6	0.0	0.0	RWE	

08/17/04

DEV Notes

TR-1
Depth Vel

LWE

SP-17 STA	Depth	TR-1 Vel
12.5	0.0	0.0
13.5	0.20	0.0
15	0.72	0.06
17	1.18	-0.05
19	1.22	0.34
21	1.20	0.37
23	1.48	0.58
25	1.57	0.46
27	1.60	0.51
29	1.82	0.51
31	2.02	0.27
33	2.00	0.61
35	2.16	0.51
37	2.0	0.59
39	2.16	0.58
41	2.20	0.65
43	2.30	0.65
45	2.30	0.63
47	2.00	0.68
49	1.60	0.70
51	1.50	0.60
53	1.45	0.55
55	1.20	0.45

BLD COVER

08/17/04

DEV Notes

TR-1
Depth Vel

AG. VEG.

SP-17 STA	Depth	TR-1 Vel
57	1.18	0.23
59	1.0	0.05
61	0.45	-0.02
61.4	0.0	0.0

RWE