#### **APPENDIX C**

Phase 1 (Updated) and Phase 2 Stream Geomorphic Assessment Reach Summary Reports



2

High

0

N.S.

1

Low

0

N.S.

1

Low

1

Low

0

N.S.

1

Low

6

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M01
Topo Maps: Westport, Mount Philo, Hinesburg, Bristol, Monkton

Date Last Edited: Sun, October 18, 2009

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reac	n an i	mpou	ndmer	nt? NO	)		Qι	ıality C	ontrol	Statu	s: <b>Un</b>	know	n			
Step 1.	Read	h Loc	ation													
1.1 Re				D	ownst	ream	-most	1 3 mi	les of	l ewis	: Cree	k iust	ahov	e con	fluend	<u>.</u>
1.2 To		,000,16	J. 1011.		errisb				.00 0.		0.00	nt jaot	asor	0 00		
1.3 Do		eam I	atitud		4.25	g		Ste	p 4. L	and C	over -	Reach	n Hvdr	oloav		
1.3 Do				•.					Wate					37		
Step 2.									storic L		over.		Fo	rest		
2.1 Ele				ç	95				rrent D			nd Cov			60.4	L %
2.1 Ele					94				rrent S				_			70
2.1 ls (				-	No				Corrid		J		u 00.	o		
2.2 Va	llev Le	enath:		5	<b>519</b> fe	et. <b>1</b>	. <b>05</b> Mile	00			`ovor:		e L	h		
2.3 Va						%		ПІЗ	storic L					rub	044	<b>3</b> 0/
2.4.Ch			th:		<b>693</b> fe	et. <b>1</b>	.27 Mile	-5	irrent [							8 %
2.5 Ch				(	0.01	%			rrent S			nt Lan				
2.6 Sir				1	.21				Ripari		ffer				Righ	t Bank
2.7 Wa	atersh	ed Are	ea:		81	Squa	re Mile	_	minan				>10	-	>100	)
2.8 Ch	annel	Width	า:	ç	91		feet.		b-dom				Noi	ne	0-25	
2.9 Va	lley W	/idth:		1	,415		feet.		ngth w				0		552	
2.10 C	onfine	ement	Ratio:		16				Grour					undar	nt	
2.10 C					Very E	Broad			5. Ins							
2.11 R		nce St	tream	Type: I	E			5.1	Flow	Regul	ation -			ne –		
Bed	lform:				Dune-	Rippl	е		oe:			None				
Sub	-class	Slope	э:	I	None			Us								
Bed	l Mate	rial:		,	Sand				Bridge			erts:	0		0 %	6
Step 3. E	Basin	Chara	cterist	tics:				5.3	Bank		_				0.0	
3.1 All					Non	e				_eft <b>0</b> .			ht <b>0.0</b>			
3.2 Gr					Non	-			Chan		-	_	0.0		0.0	
3.3 Do				Mat ·	Allu		65.2	5.5	Dredg	jing H	istory:		Non	е		
3.3 Su			_				Other	Ste	Dredo 6. Flo	podpla	ain Mo	dificat	ions			
3.4 Let				•	at			6.1 E	Berms	and R	oads	U	iu <b>U.U</b>		0.0	
3.4 Rig					illy			_	_				One Si		Both S	Sides
3.5 So	-	ilicy C	iac	• • • • • • • • • • • • • • • • • • • •	iiiy				ad:				0.0	ft. C		ft.
		Crour	· ·	С			<b>E 0</b> 0/		ilroad:				0.0	ft. C		ft.
-	_	Group	J.				55.9 %	De	rm:				0.0	ft. <b>C</b>		ft.
Flood	_	la Da a			equer		2.9 %		proved				0.0	ft. C		ft.
		le Dee		1.			5.3 %		Devel			•	107	ft. <b>C</b>	0.0	ft.
		le Sha	allow:	0.			5.3 %	6.3	Chan	nel Ba	rs:		Non	e		
Eroai	ibility:			SI	ight		6.9 %	6.4	Mean	der M	igratio	n:	Non	e		
7.4 Cor	mmen	ts:						6.5	Mean	der W	idth:		36	<b>9.0</b> Ra	atio:	4.1
Updated	d Octo	her 2	∩∩a r	alvina	on 200	اما 1⁄4	Ч	6.6	Wave	length	n:		71	4.0 Ra	atio:	7.9
•			•	, ,				Step	7. Wii	ndsħie	ld Sur	rvey				
observa			_		• `		-	7.1	Bank	Erosio	n:	<u>.</u>	(	).00 ft		
not app	•						na		Bank					00 ft.		
backwa	ter eff	ects f	rom La	ake Ch	ampla	in.			Ice/De	U		otentia				
	1							7.0	.55,5	22.10	J (					<del></del> _
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M02

Topo Maps: Westport, Mount, Philo, Hinesburg, Bristol, Monkon

Date Last Edited: Mon, October 19, 2009

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

2

High

2

High

0

N.S.

0

N.S.

0

N.S.

2

0

High N.S.

0

N.S.

2

High

0

N.S.

0

N.S.

2

0

N.S.

2

High | High |

1

Low

1

Low

14

15 1160	CII all I	mpou	Hulliel	11: 140	<b>'</b>		Qt	лапту с	ontroi	Statu	s: Un	Know	n			
Step 1	. Read	h Loc	ation													
	each D			E	ctends	sthree	e-quar	ters o	f a mi	le dov	vnstre	am fr	om th	e Ver	mont	
1.2 To		7000.16			errisb		y qua.						• • • • • • • • • • • • • • • • • • • •			
	ownstr	eam I	atitude	_	4.24	9		Ste	ep 4. L	and C	over -	Reacl	h Hvdi	roloav		
	ownstr				73.27				Wate					37		
Step 2									storic L		over.		Fc	rest		
	levatio			Ç	96				irrent [			nd Cov			60.6	3 %
	levatio				)5				irrent S							, 70
	Gradi	_			No				Corrie		J	iii Laii	u 001	O	,iu	
	alley L					et. <b>0</b> .	. <b>59</b> Mile						0			
	alley S					%		1 113	storic L					op		• • •
	hannel		th:		<b>092</b> fe		. <b>78</b> Mil	14	urrent							0 %
	hannel					%		Cı	ırrent S	Sub-D	omina	nt Lan	d Cov	er: Fie	eld	
	inuosit		•		.32			4.3	Ripar	ian Βι	ıffer		Left	Bank	Righ	t Bank
	atersh		ea:		80	Squar	e Mile	s Do	minan	t:			0-2	5	>100	)
	hannel				90	•	eet.	Su	ıb-dom				>10	00	0-25	
	alley W				519		eet.		ngth w				193	35	797	
	Confine		Ratio:		6	•			Grour					undar	nt	
	Confine				<b>Narro</b> v	N		Step	5. Ins	tream	Chan	nel Mo	odifica	tions		
	Refere			Type: I	Ε			5.1	Flow	Regul	ation -	(old):	Nor	ne		
	dform:				Dune-	Ripple	<del>)</del>	Ty	pe:	•		None	<u> </u>			
Sul	b-class	Slope	<del>3</del> :		None	• •		Ús								
	d Mate	•	-		Sand			5.2	Bridge	es and	d Culv	erts:	1		2 %	6
Step 3.			ctarist		Jana			5.3	Bank	Armo	ring:				0.0	
			icicrist	103.	Nan	_				_eft <b>0</b>		Rig	ht <b>0.0</b>			
	lluvial I		_		Non	_		5.4	Chan	nel St	raighte	ening:	158	5	38 %	
	rade C				Non		04.6	5.5	Dred	ging H	istory:		Non	е		
	omina		_		Allu		01.4	<sup>′</sup> %Ste	Dredo p 6. Fl	oodpla	ain Mo	dificat	ions			
	ub-don			•		GI	acial		Berms					9.3 ft	21 %	
	eft Vall			FI									One Si		Both S	
	ight Va	alley S	ide	Hi	illy			Ro	ad:				0.0	ft. <b>(</b>		
3.5 S									ilroad:				0.0	ft. (		ft.
Hydr	rologic	Group	<b>)</b> :	С		7	9.3 %		rm:				0.0	ft. (		ft.
Floo	ding:			Fr	equer	nt 7	<b>4.4</b> %		proved	l Path			869.3	ft. (		ft.
Wate	er Tab	le Dee	ep:	1.	5	6	<b>8.2</b> %		Deve				0.0	ft. 3		ft.
Wat	er Tab	le Sha	allow:	0.	0	6	8.2 %		Chan	•		·	Nor			ft.
Eroc	dibility:			sl	ight	ç	<b>).7</b> %		Mean			n.	Nor			
7.4 Co	•	to:			•				Mean		_	'11.			atio: 1	10.2
									Wave							
Update	ed Octo	ober 2	009, re	elying	on fiel	d				_		rvov.	20	<b>5.0</b> Ra	alio:	2.3
observ	ations	from 2	2004.	Mean	der ge	ometry	<i>y</i> (6.5,		7. Wi			ıvey				
6.6) lik	ely not	appro	priate	due to	o wetla	and			Bank				•	270.59	) ft.	
condition	•		•						Bank	_				67 ft.		
						Lanc		7.3	Ice/D	ebris .	lam P	otentia	al: Mu	ıltiple		
11	4.2	4.2	<b>5</b> 1	<b>5</b> 2	<b>5</b> 2	E 1	5.5	6 1	6.2	6.2	6.4	6.5	6.6	7 1	7 2	Total
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

2

High

2

High

1

Low

1

Low

1

Low

1

Low

0

N.S.

0

N.S.

2

High

1

Low

1

Low

1

Low

1

Low

1

Low

0

N.S.

1

Low

16

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M03
Topo Maps: Westport, Mount Philo, Hinesburg, Bristol, Monkton

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundme	ent? No	)		Qι	ality (	Control	Statu	s: <b>Un</b>	know	n			
Step 1. Reach Location													
1.1 Reach Description:	G	reenb	ush R	d dow	nstre	am to	railro	ad bri	dae.				
1.2 Towns:		errisb							3				
1.3 Downstream Latitud		4.24			Ste	ep 4. L	and C	over -	Reach	n Hydr	ology		
1.3 Downstream Longit		73.26			4.1	Wate	rshed						
Step 2. Stream Type					His	storic L	and C	over:		Fo	rest		
2.1 Elevation Upstream	n: <b>9</b>	98			Cu	ırrent [	Domina	ant lar	nd Cov	er: Fo	rest	60.8	3 %
2.1 Elevation Downstre	am: \$	96			Cı	irrent S	Sub-Do	omina	nt Lan	d Cov	er: Fie	eld	
2.1 Is Gradient Gentle?	' I	No			4.2	Corric	dor						
2.2 Valley Length:	3	<b>794</b> fe	et. <b>0</b> .	. <b>72</b> Mile	es. Hi	storic L	and C	over.		Cr	ор		
2.3 Valley Slope:	•	0.00	, 0		$\sim$	urrent I	Domin	ant la	nd Cov		•	27	0 %
2.4.Channel Length:		<b>471</b> fe		<b>.04</b> Mile		irrent S					-		0 70
2.5 Channel Slope:			%						iii Lan		Bank		t Rank
2.6 Sinuosity:		.44	Carre	60 NA:1-	_	Ripar minan		11101		26-		<b>26-5</b>	nt Bank
2.7 Watershed Area:		80 90	•	re Mile	_	ıb-dom				>10		20-3 51-1	
2.8 Channel Width:		,200		eet.		ngth w		than 2	25 ft.:	101		728	00
<ul><li>2.9 Valley Width:</li><li>2.10 Confinement Ratio</li></ul>		,200 13	Т	eet.		Grour					nimal	, 20	
2.10 Confinement Type		Very E	road			5. Ins							
2.11 Reference Stream			Joau			Flow					ation		
Bedform:		Dune-	Ripple	j.		pe:	rtogan	411011		l With			
Sub-class Slope:		None	· · · pp··	-	Us				Other				
Bed Material:		Sand			5.2	Bridge	es and	Culve		2		<b>5</b> %	6
Step 3. Basin Characteris		Sanu				Bank						3 %	
3.1 Alluvial Fan:	<u> </u>	Non	•				_eft 10	_	Rig	ht <b>9.9</b>			
3.2 Grade Control:		Non-	-		5.4	Chan	nel Sti	raighte	ening:	829		<b>15 %</b>	
	Mot :	Allu		68.0	o <sub>4</sub> 5.5	Dredg	ging H	istory:		Non	е		
3.3 Dominant Geologic				acial	′ <sup>∕</sup> °Ste	Dredo p 6. Fl	oodpla	ain Mo	dificat	ions			
3.3 Sub-dominant Geol	•		G	aciai	6.1 I	Berms	and R	oads	0	ld 365	<b>53</b> ft.	66 %	
3.4 Left Valley Side		teep								One Si	de	Both S	Sides
3.4 Right Valley Side 3.5 Soils	F	at				ad:			(	0.0	ft. <b>(</b>	0.0	ft.
	_		4	2.4.0/	Ra	ilroad:				1534	ft. <b>(</b>		ft.
Hydrologic Group:	C			3.4 %	De	rm:				0.0	ft. <b>(</b>	0.0	ft.
Flooding:		requer		<b>6.3</b> %		proved				2119	ft. (		ft.
Water Table Deep:	_	0		4.5 %	0.2	Devel				549	ft. 1	102	ft.
Water Table Shallow:	4.	_		0.2 %		Chan					tiple		
Erodibility:	SI	ight	1	7.3 %	0	Mean		_	n:	Mul	tiple		
7.4 Comments:						Mean					<b>5.0</b> Ra		4.3
Murky, steep grass bank	ne no		Wave	_			56	<b>4.0</b> Ra	atio:	6.3			
problem. Updated using		•		,	Step	7. Wi	ndshie	eld Sui	rvey				
10/02/01 and on 7/22/04	•			77	7.1	Bank	Erosio	n:		74	45.26 ·	ft.	
with additional Phase 2	•	iiou St	ρι 20	JI	7.2	Bank	Heigh	t:		3.	73 ft.		
with additional Phase 2 (	uald.				7.3	Ice/De	ebris J	lam Po	otentia	ıl: <b>M</b> u	ltiple		
44 40 40 54					0.4				0.5		7.4	7.0	Tatal
4.1   4.2   4.3   5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

2

High

1

Low

2

High

0

N.S.

0

N.S.

1

Low

0

N.S.

0

N.S.

0

N.S.

0

N.S.

1

Low

1

Low

0

N.S.

0

N.S.

0

N.S.

1

Low

9

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M04

Topo Maps: Westport, Mount Philo, Hinesburg, Bristol, Monkton

Date Last Edited: Sun, October 18, 2009

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Reach an impoundment?	NO		Qu	iality C	control	Status	s: Un	know	n			
Step 1. Reach Location												
1.1 Reach Description:	Extends	s from	Route	2 7 cro	nssina	near	the 11	nstrea	am en	d to G	reent	nush
1.2 Towns:	Ferrisb		·····	<i>3 1</i> 0. (	9001119	, mou	uio u	ponoc	O	u 10 C		,4011
1.3 Downstream Latitude:	44.25	g		Ste	p 4. L	and C	over -	Reach	n Hvdr	oloav		
1.3 Downstream Longitude:					Wate					37		
Step 2. Stream Type					storic L		over.		Fo	rest		
2.1 Elevation Upstream:	102				rrent [			nd Cov			61.0	%
2.1 Elevation Downstream:	98				rrent S				_			, ,0
2.1 Is Gradient Gentle?	No				Corrid							
2.2 Valley Length:	<b>3489</b> fe	et. <b>0</b> .	. <b>66</b> Mile		storic L		over.		Ei,	eld		
2.3 Valley Slope:		%			irrent I			ad Cas			24	4 %
2.4.Channel Length:	<b>5344</b> fe		<b>.01</b> Mile	76								<b>+</b> 70
2.5 Channel Slope:		%			rrent S			ni Lan				
2.6 Sinuosity:	1.53	_		_	Ripari		πer				_	t Bank
2.7 Watershed Area:	80	•	re Mile	_	minan				>10		>100	
2.8 Channel Width:	54		eet.		b-dom ngth w		than 9	)5 f+ ·	26-		0-25	
2.9 Valley Width:	730	f	eet.		Grour				736	undar	1324	
2.10 Confinement Ratio:	14	\l			5. Ins						ıτ	
2.10 Confinement Type:	Very E	sroad			Flow							
2.11 Reference Stream Typ		Dinnle	_			Regui	aliOH -	None		ie		
Bedform:	Dune-	Kibbie	<b>;</b>	Us	pe:			NOHE				
Sub-class Slope:	None				e. Bridge	e and	l Culv	arte:	0		0 %	<u>/</u>
Bed Material:	Sand				Bank			cits.	U		0.0	O
Step 3. Basin Characteristics:				5.5		_eft <b>0.</b>	_	Ric	ht <b>0.0</b>		0.0	
3.1 Alluvial Fan:	Non			5.4	Chan				992		18 %	
3.2 Grade Control:	Non							_			10 /0	
3.3 Dominant Geologic Mat.			75.2	%Stel	Dredo 6. Flo	ondole	in Mo	dificat	ions	C		
3.3 Sub-dominant Geologica	al Mat.:	GI	acial	6 1 5	Berms	and D	oods	unicat	ld <b>0.0</b>		0.0	
3.4 Left Valley Side	Very St	eep		0. I L	EIIIIS	anu n	uaus		One Si		<b>0.0</b> Both S	idos
3.4 Right Valley Side	Hilly			Ro	ad:				).16 31 0.0	ft. C		
3.5 Soils	-				ilroad:				0.0	ft. C		ft.
Hydrologic Group:	В	7	<b>6.7</b> %		rm:				0.0	ft. C		ft.
Flooding:	Frequei	nt 5	8.7 %	_	proved	l Path			0.0	ft. C		ft.
Water Table Deep:	6.0		6.3 %		Devel				0.0	ft. C		ft.
Water Table Shallow:	4.0	5	6.3 %		Chan	•		`		tiple		ft.
Erodibility:	slight	1	1.5 %		Mean			n·		tiple		
7.4 Comments:	•				Mean		_	• • • • • • • • • • • • • • • • • • • •		9.0 Ra	atio:	5.9
					Wave					5.0 Ra		3. <del>9</del> 8.2
Updated October 2009, relyir	•				7. Wii			Vev	77,	o.o Ra	นเบ. (	J. <b>Z</b>
assessment and 2006 Phase	3 asses	sment	in		Bank			<del>10</del> y	<b>a</b> 4	120 20	. ET	
limited sections. Substituted	measure	ed cha	nnel						-	138.28	IL.	
width in Step 2.8 (which factor	rs in to e	estima	te of		Bank	_		otonti-		02 ft.		
. ,				7.3	Ice/De	edris J	am Po	Jientia	ıı: <b>iviü</b>	itipie	I	
4.1   4.2   4.3   5.1   5.2	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
			ı l		1			1	l		1	1

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M05

Topo Maps: Westport, Hinesburg, Mount Philo, Bristol, Monkton

Date Last Edited: Sun, October 18, 2009

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment?	<b>No</b> Qua	ality Control Status: Unknow	wn
Step 1. Reach Location			
1.1 Reach Description:	Short reach crossed	by VT Route 7.	
1.2 Towns:	Ferrisburg	by viriodic ii	
1.3 Downstream Latitude:	44.25	Step 4. Land Cover - Rea	ch Hydrology
1.3 Downstream Longitude:		4.1 Watershed	<u></u>
Step 2. Stream Type	10120	Historic Land Cover:	Forest
2.1 Elevation Upstream:	108	Current Dominant land Co	
2.1 Elevation Downstream:	102	Current Sub-Dominant La	
2.1 Is Gradient Gentle?	No	4.2 Corridor	and Cover. Fleid
2.2 Valley Length:	<b>1948</b> feet. <b>0.37</b> Miles	_	
2.3 Valley Slope:	<b>0.31</b> %	riisione Land Cover.	Forest
2.4.Channel Length:	<b>2394</b> feet. <b>0.45</b> Mile	Current Dominant land C	
2.5 Channel Slope:	0.25 %	Current Sub-Dominant La	and Cover: <b>Urban</b>
2.6 Sinuosity:	1.23	4.3 Riparian Buffer	Left Bank Right Bank
2.7 Watershed Area:	<b>78</b> Square Miles		>100 >100
2.8 Channel Width:	<b>89</b> feet.	Sub-dominant:	0-25 0-25
2.9 Valley Width:	<b>230</b> feet.	Length w/ less than 25 ft.	
2.10 Confinement Ratio:	3	4.4 Ground Water Inputs:	Minimal
2.10 Confinement Type:	Semi-confined	Step 5. Instream Channel M	Modifications
2.11 Reference Stream Typ	e: <b>C</b>	5.1 Flow Regulation - (old	): None
Bedform:	Riffle-Pool	Type: Nor	ne
Sub-class Slope:	None	Úse:	
Bed Material:	Cobble	5.2 Bridges and Culverts:	1 6 %
Step 3. Basin Characteristics:		5.3 Bank Armoring:	0.0
3.1 Alluvial Fan:	None		light <b>0.0</b>
3.2 Grade Control:	Multiple	5.4 Channel Straightening	g: <b>0.0 0.0</b>
3.3 Dominant Geologic Mat.	: Alluvial 52.2°	5.5 Dredging History:	None
3.3 Sub-dominant Geologic	al Mat.: Glacial	5.5 Dredging History:  Step 6. Floodplain Modification	ations
•		6.1 Berms and Roads	old <b>1570</b> ft. <b>65</b> %
3.4 Left Valley Side	Extremely Steep		One Side Both Sides
3.4 Right Valley Side 3.5 Soils	Very Steep	Road:	1058 ft. 512.8 ft.
	D 44.4.07	Railroad:	0.0 π. 0.0 <sub>ft</sub>
Hydrologic Group:	B 44.1 %	Berm:	0.0 ft. 0.0 ft.
Flooding:	None/Rare 47.8 %	Improved Path:	0.0 ft. 0.0 ft.
Water Table Deep:	3.0 64.2 %	6.2 Development:	414 ft. 156 ft.
Water Table Shallow:	1.0 43.9 %	6.3 Channel Bars:	Multiple "".
Erodibility:	Moderate 44.2 %	6.4 Meander Migration:	None
7.4 Comments:		6.5 Meander Width:	<b>N/A</b> Ratio: <b>0.0</b>
Updated October 2009, relyir	ng on 2004 Phase 2	6.6 Wavelength:	<b>N/A</b> Ratio: <b>0.0</b>
assessment. Steps 6.5/6.6 (r	•	Step 7. Windshield Survey	
not applicable due to bedrock	• • • • • • • • • • • • • • • • • • • •	7.1 Bank Erosion:	154.74 ft.
not applicable add to bearder	COOTHIOIO.	7.2 Bank Height:	4.00 ft.
		7.3 Ice/Debris Jam Potent	tial: <b>Multiple</b>
			<del></del> ,

4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
2	2	1	0	1	0	0	0	2	2	1	0	0	0	0	1	12
High	High	Low	N.S.	Low	N.S.	N.S.	N.S.	High	High	Low	N.S.	N/A	N/A	N.S.	Low	

2

High

0

N.S.

0

N.S.

0

N.S.

0

N.S.

2

0

High N.S.

0

N.S.

0

N.S.

2

High

2

High

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M06

Topo Maps: Westport, Hinesburg, Mount Philo, Bristol, Monkton

Date Last Edited: Mon, October 19, 2009

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

	Is Rea	ch an	Impou	ndmer	nt? No	)		Qu	ality C	ontrol	Statu	s: <b>Un</b>	know	n				_
	Step 1	. Read	ch Loc	ation														
	<del>_</del>		Descrip		Fr	om O	ld Ho	llow R	d cros	sing i	n Nor	th Fer	rrisbu	rg vill	age to	the F	Route	
		owns:	•			errisb				J				•	J			
	1.3 D	ownsti	ream L	.atitude	_	4.25	•		Ste	p 4. La	and C	over -	Reach	n Hydr	ology			
	1.3 D	ownsti	ream L	.ongitu	ide: <b>-</b> 7	73.23			4.1	Water	rshed							
	Step 2	2. Strea	am Typ	е					His	storic L	and C	over:		Fo	rest			
	2.1 E	levatio	n Upst	ream:	1	50			Cu	rrent D	Domina	ant lar	nd Cov	er: Fc	rest	62.0	) %	
	2.1 E	levatio	n Dow	nstrea	ım: <b>1</b>	80			Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: Fie	eld		
			ent Ge	entle?		No			4.2	Corric	dor							
		alley L				<b>401</b> fe	et. 1	<b>.02</b> Mile	s. His	storic L	and C	over:		Cr	ор			
		alley S		_			, 0		$\sim$	ırrent [	Oomin	ant la	nd Cov		•	43	1 %	
			l Lengt			<b>831</b> fe		<b>.10</b> Mile	<b>-</b>	rrent S							. /0	
			I Slope	<del>)</del> :			%			Ripari			iii Laii			•	nt Bank	,
		inuosit Iotorok		201		.08	Sauc	ro Milo	_	minan		1101		>10		>100		
			ned Are I Width			77 39	•	re Mile: feet.	_	b-dom				Noi	-	None		
		nanne alley V		1.		772				ngth w		than 2	25 ft.:	0		0		
			ement	Ratio:		9	ļ	feet.		Ğrour				-	undar	•		
			ement			3 Broad				5. Ins								
			nce St							Flow				Nor				
		dform:		oa		Riffle-	Pool		Ty		- 9		None					
			s Slope	۶.		None			Üs									
		d Mate	•			Cobbl	Δ		5.2	Bridge	es and	Culve	erts:	0		0 9	6	
c	Step 3.			cterist		CODDI	C		5.3	Bank	Armoi	ing:				2 %		
-		Iluvial		.0.01101		Non	^				_eft <b>0</b> .			ht <b>162</b>				
			can. Control			Ledg			5.4	Chani	nel Sti	aighte	ening:	183	8	31 %		
			nt Geo		Mat :	Allu	_	6/ 2	<sub>%</sub> 5.5	Dredg	ging H	istory:		Non	е			
				_				lacial	<sup>76</sup> Ste∣	Dredg o 6. Flo	oodpla	ain Mo	dificat	ions				
			ninant		_				6.1 E	Berms	and R	oads	U	ıu <b>U.U</b>		0.0		
			ley Sid alley S			xtreme ery Ste	-	eep						One Si	de l	Both S	Sides	
	3.5 S		alley O	ide	V	ery Su	eeh			ad:				0.0	ft. <b>C</b>		ft.	
			Crour		В		5	<b>1.8</b> %		ilroad:				0.0	ft. C		ft.	
	•	iding:	Group	J.		ono/D		5.8 %		rm:				0.0	ft. <b>(</b>		ft.	
			le Dee	vn:	3.	_				proved				0.0	ft. C		ft.	
			ole Sha		ა. 1.	•		9.5 %		Devel			•	128	ft. <b>(</b>	0.0	ft.	
				illOW.		อ odera		3.9 % 3.0 %		Chan					tiple			
		dibility:			IVI	ouera	ie s	<b>3.0</b> /0		Mean		_	n:		tiple			
	7.4 Cc	ommer	nts:							Mean					<b>2.0</b> Ra		3.6	
	Update	ed Oct	ober 2	009, re	elying	on 200	)4 Ph	ase 2		Wave	_			65	<b>4.0</b> Ra	atio:	7.4	
	assess			•	, ,					7. Wii			rvey					
	section								7.1	Bank	Erosio	n:		3,0	014.96	ft.		
		••							7.2	Bank	Heigh	t:		4.	27 ft.			
									7.3	Ice/De	ebris J	am Po	otentia	l: <b>M</b> u	ltiple			
	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total	Ì
	7.1	7.4	т.5	5.1	٥.۷	0.0	J. <del>T</del>	0.0	0.1	0.2	0.5	U. <del>T</del>	0.5	0.0	' · '	1.2	IJI	

1

Low

1

Low

1

Low

0

N.S.

1

Low

12

2

High

1

Low

1

Low

0

N.S.

0

N.S.

0

N.S.

0

N.S.

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M07
Topo Maps: Bristol, Hinesburg, Mount Philo, Monkton, Westport

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

is Reach an impoundment?	NO		Qu	ality C	control	Statu	s: Un	know	n			
Step 1. Reach Location												
1.1 Reach Description:	Largely	fores	ted re:	ach fr	om vid	rinity	(sout	h of) S	Snear	Street	and	
1.2 Towns:	Charlot				OIII VIC	Jiiiity	(South	11 01) C	pear	Otilee	ana	
1.3 Downstream Latitude:	44.26	,	i i i obai		p 4. L	and C	over -	Reach	n Hydr	ology		
1.3 Downstream Longitude:	_				Wate		<del></del>			0.097		
Step 2. Stream Type					storic L		over.		Fo	rest		
2.1 Elevation Upstream:	215				rrent E			nd Cov			63 (	0 %
2.1 Elevation Downstream:	150				rrent S				_			70
2.1 Is Gradient Gentle?	No				Corrid		J	iii Laii	u 001	O I IC	,14	
2.2 Valley Length:	<b>8554</b> fe	et. <b>1</b> .	. <b>62</b> Mile	<i>ع.د</i> ء:د S. د:د	torio I	and C	٠		Г-			
2.3 Valley Slope:		%		ПІ	SIONE L	and C	over.			rest	<b>5</b> 0	• 0/
2.4.Channel Length:	<b>9124</b> fe	et. 1	. <b>73</b> Mile	76	ırrent [							0 %
2.5 Channel Slope:	0.71	%			rrent S			nt Lan				
2.6 Sinuosity:	1.07				Ripari		ffer					nt Bank
2.7 Watershed Area:	75	Squa	re Mile	_	minan				>10		>100	
2.8 Channel Width:	88	f	eet.		b-dom		41	· ·	Nor	_	Non	е
2.9 Valley Width:	255	f	eet.		ngth w				217		279	
2.10 Confinement Ratio:	3		_		Grour					imal		
2.10 Confinement Type:	Semi-	confin	ed		5. Ins				odifica	tions		
2.11 Reference Stream Typ					Flow	Regula	ation -					
Bedform:	Riffle-	Pool			pe:			None				
Sub-class Slope:	С			Us								
Bed Material:	Grave	l			Bridge			erts:	1			%
Step 3. Basin Characteristics:				5.3	Bank		_	D:-	L 4 007	,	2 %	
3.1 Alluvial Fan:	Non	е		E 1		_eft <b>0</b> .			ht <b>227</b>		0.0	
3.2 Grade Control:	Wate	erfall			Chan		_	_	0.0		0.0	
3.3 Dominant Geologic Mat	:: Glac	ial La	ke92.9		Dredo				Non	е		
3.3 Sub-dominant Geologic		ΑI	luvial		6. Fl					_		
3.4 Left Valley Side	Very St	eep		6.1 E	Berms	and R	oads		ld <b>74</b> 4		8 %	S: 1
3.4 Right Valley Side	Very St	-		D-					One Si		Both S	sides
3.5 Soils		ООР			ad:				744	ft. <b>(</b>		ft.
Hydrologic Group:	D	9	2.3 %	_	ilroad:				0.0	ft. <b>(</b>		ft.
Flooding:	None/R				rm:	l Dath			0.0	ft. <b>(</b>		ft.
Water Table Deep:	3.0		3.5 %		proved				0.0	ft. C		ft.
Water Table Shallow:	1.0		3.5 %		Devel	•			1541		75.3	ft.
Erodibility:	Severe		4.1 %		Chan					tiple		
•	001010	·	<b>4.1</b> /0		Mean		_	n:		iding		
7.4 Comments:					Mean					I/A Ra		0.0
Bedrock grade control, shallo	ow and w	ide. U	pdated		Wave				l,	I/A Ra	atio:	0.0
using Phase 2 data on 10/02				Step	7. Wii			rvey				
Updated with additional Phas					Bank					34.41	ft.	
2007. Meander geometry me				7.2	Bank	Heigh	t:		2.	50 ft.		
2007. Wearider geometry III	casui tille	5111 IS	INUL	7.3	Ice/De	ebris J	am Po	otentia	ıl: <b>No</b>	ne		
44 40 40 54 5	0 50			0.4	0.0	0.0	0.4	0.5	0.0	<b>7</b> 4	7.0	
4.1   4.2   4.3   5.1   5.	2   5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

0

N.S.

1

Low

1

Low

1

Low

0

N/A

0

N/A

0

N.S.

0

N.S.

0

N.S.

7

4.2

2

High

4.1

2

High

4.3

2

High

5.1

0

N.S.

5.2

0

N.S.

5.3

0

N.S.

5.4

0

N.S.

5.5

2

High

6.1

2

High

6.2

0

N.S.

6.3

1

Low

6.4

1

Low

## **Phase 1 - Reach Summary Report**

6.5

1

Low

6.6

1

Low

7.1

0

N.S.

7.2

2

High

Total

16

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M08

Topo Maps: Westport, Bristol, Mount Philo, Hinesburg, Monkton

Date Last Edited: Mon, August 17, 2009

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Reach an impoundment?	Qi	iality Control Status: Unkno	wn
Step 1. Reach Location			
1.1 Reach Description:	Extends from 1/4 m	nile upstream of the Quinla	Covered Bridge to
1.2 Towns:	Charlotte	ine upstream of the wullia	Tovered Bridge to
1.3 Downstream Latitude:	44.27	Step 4. Land Cover - Rea	ach Hydrology
1.3 Downstream Longitude:		4.1 Watershed	ich i fydrology
Step 2. Stream Type	-73.13		Forest
2.1 Elevation Upstream:	225	Historic Land Cover: Current Dominant land C	Forest C2 F 0/
2.1 Elevation Downstream:	215 215		
2.1 Is Gradient Gentle?	No	Current Sub-Dominant La	and Cover: Fleid
2.2 Valley Length:	<b>4990</b> feet. <b>0.95</b> Mile	4.2 Corridor	_
2.3 Valley Slope:	0.20 %	es. Historic Land Cover:	Crop
2.4.Channel Length:	<b>6484</b> feet. <b>1.23</b> Mil	Current Dominant land C	over: <b>Forest 38.5</b> %
2.5 Channel Slope:	0.15 %	Current Sub-Dominant La	and Cover: <b>Field</b>
2.6 Sinuosity:	1.30	4.3 Riparian Buffer	Left Bank Right Bank
2.7 Watershed Area:	<b>74</b> Square Mile		>100 >100
2.8 Channel Width:	<b>87</b> feet.	Sub-dominant:	0-25 0-25
2.9 Valley Width:	900 feet.	Length w/ less than 25 ft.	905 535
2.10 Confinement Ratio:	10	4.4 Ground Water Inputs:	Abundant
2.10 Confinement Type:	Very Broad	Step 5. Instream Channel I	Modifications
2.11 Reference Stream Typ		5.1 Flow Regulation - (old	l):
Bedform:	Riffle-Pool	Type: Nor	
Sub-class Slope:	None	Úse:	
Bed Material:	Gravel	5.2 Bridges and Culverts:	1 5 %
Step 3. Basin Characteristics:		5.3 Bank Armoring:	4 %
	=		light <b>82</b>
3.1 Alluvial Fan:	None	5.4 Channel Straightening	
3.2 Grade Control:	Ledge	5.5 Dredging History:	Dredging
3.3 Dominant Geologic Mat		5.5 Dredging History: Step 6. Floodplain Modific	ations
3.3 Sub-dominant Geologic		6.1 Berms and Roads	old <b>1640.0</b> ft. <b>25</b> %
3.4 Left Valley Side	Steep		One Side Both Sides
3.4 Right Valley Side	Steep	Road:	35 ft 1/10
3.5 Soils		Railroad:	$\Omega$ $\Omega$ $\Omega$ $\Omega$ $\Pi$ .
Hydrologic Group:	D 59.7 %	Dellii.	104 ft 0.0 Il.
Flooding:	Occasional 53.8 %	Improved Path:	00 #00 <sup>IL.</sup>
Water Table Deep:	3.0 50.2 %	6.2 Development:	222 # 0.0 <sup>II.</sup>
Water Table Shallow:	1.0 35.6 %		Multiple
Erodibility:	Moderate 39.0 %	6.4 Meander Migration:	Multiple
7.4 Comments:		6.5 Meander Width:	<b>359.0</b> Ratio: <b>4.1</b>
		6.6 Wavelength:	566.0 Ratio: 6.5
Updated August 2009 relying		Sten 7 Windshield Survey	000.0 Mailo. 0.0
data. Landowners and CRR	REL ice jam database		2 455 24 #
reports repeated ice jam rela	ted flooding at	7.1 Bank Erosion:	2,455.34 ft.
Quinlan Covered Bridge.	-	7.2 Bank Height:	5.21 ft.
		7.3 Ice/Debris Jam Poten	tiai: Multipie
			-   0 0   7 4   7 0   T-1-1

2

High

2

High

2

High

1

Low

0

N.S.

2

0

N.S.

0

High N.S.

2

High

2

High

0

N.S.

0

N/A

0

N.S.

0

N/A

1

Low

1

Low

15

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M09
Topo Maps: Westport,Bristol,Monkton,Hinesburg,Mount Philo

Date Last Edited: Sun, August 16, 2009

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Rea	ich an	Impou	ndmer	nt? <b>No</b>	)		Qι	ality (	Control	Statu	s: <b>Un</b>	know	n			
Step 1	1. Read	ch Loc	ation													
		Descrip		SI	hort re	each a	along I	_ewis	Creek	Road	l inclu	iding :	Scott	Pond	Dam	
1.2 T	owns:	•		C	harlot		•									
		ream L		٠.	4.28				ep 4. L		over -	Reacl	า Hydi	ology		
		ream L		ude: <b>-</b> 7	73.18				Wate							
		am Typ		_					storic <u>L</u>					rest		
		n Upst			30				ırrent [							<b>6</b> %
		on Dow			25				irrent S		omina	nt Lan	d Cov	er: Fie	eld	
		ient Ge .ength:		1 1	No non fo	ot N	24 Mil	4.2	? Corrid	dor						
	alley S			,	).46	%	. <b>21</b> Mile							eld		
		l Lengi	th:		<b>305</b> fe		. <b>25</b> Mil		urrent							4 %
		l Slope				%		Cı	irrent S			nt Lan				
	inuosit			1	.20			_	Ripar		ıffer				_	nt Bank
		ned Are			71	•	re Mile	_	minan				0-2		>100	
		l Width	า:		35		eet.		ıb-dom ngth w		than 3	)5 ft ·	26-		Non	е
	alley V		D		270	f	eet.		Grour				774	i nimal	0	
		ement			3 Semi-	oonfin	and		5. Ins							
		ement		Type: I		COIIIII	ieu		Flow					ound	ment	
	dform:		licaiii		Riffle-	Pool			pe:	rtogui	ation			of Riv		
		s Slope	٥.		C			Us				Othe				
	ed Mate	•	J.		Cobbl	Δ		5.2	Bridge	es and	d Culv	erts:	0		0 %	%
Step 3.			cteris					5.3	Bank	Armo	ring:				0.0	
	Iluvial			<u></u>	Non	Δ				_eft 0			ht <b>0.0</b>			
		Control			Mult				Chan		-	_	487		37 %	
		int Geo		Mat.:	Till		55.7	, <sub>%</sub> 5.5	Dredo	ging H	istory:		Non	е		
			_	ogical N		ΑI	luvial	Ste	p 6. Fl	oodpla	ain Mo	dificat	ions			
		ley Sid		_	ery St			6.1 E	Berms	and R	oads	O	iu 130		100 %	
		alley S			ktrem	-	еер	De	od:				One Si		Both S	sides
3.5 S		•				. ,	•		oad: nilroad:				1305 0.0	ft. <b>C</b> ft. <b>C</b>	-	ft.
Hyd	rologic	Group	<b>)</b> :	С		3	8.3 %		rm:				0.0	ft. C		ft.
Floc	ding:			N	one/R	are 7	1.5 %		proved	l Path	•		0.0	ft. C		ft.
Wat	ter Tab	le Dee	ep:	6.	0	5	<b>5.7</b> %		Deve				614	ft. 2		ft.
		ole Sha	allow:	6.	_		<b>5.7</b> %	6.3	Chan					-chan		ft.
Ero	dibility:	:		Se	evere	7	1.5 %		Mean			n:	Nor			
7.4 Cd	ommer	nts:				Mean		_		1	<b>V/A</b> Ra	atio:	0.0			
Undat	ad in A	uauet	2000	relying	on 20	∩⁄ Ph	250 2	6.6	Wave	length	1:		1	<b>V/A</b> Ra	atio:	0.0
field of		•						Step	7. Wi	ndsħie	eld Su	rvey				
			•	linear				7.1	Bank	Erosio	on:		(	0.00 ft		
				ess tha	•	•	IU	7.2	Bank	Heigh	t:		0.	00 ft.		
Decau	०८ १६८	on ien(	jui is i	<b>८</b> २२ เมล	ali IIIC	anuer		7.3	Ice/D	ebris .	lam Po	otentia	ıl: <b>M</b> u	ltiple		
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7 1	7.2	Total
4.1	4.2	4.3	5.1	5.2	ა.ა	5.4	5.5	0.1	0.2	0.3	0.4	0.5	0.0	7.1	1.2	Total

1

Low

1

Low

0

N.S.

0

N.S.

1

Low

0

N.S.

0

N.S.

1

Low

0

N.S.

1

Low

1

Low

0

N/A

0

N/A

0

N.S.

1

Low

9

2

High

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M10
Topo Maps: Westport,Bristol,Mount Philo,Hinesburg,Monkton

Date Last Edited: Mon, August 24, 2009

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment?	NO		Qι	ıality C	Control	Status	s: <b>Un</b>	know	n			
Step 1. Reach Location												
1.1 Reach Description:	From co	woro	d bride	no at E	20000	o Boo	d cros	ccina	down	etroor	n to S	cott
•	Charlot		ı bilaç	ge at r	10500	e Nua	u Cros	ssilig	uowii	su <del>c</del> ai	11 10 3	COLL
1.2 Towns:	44.28	ıe		C+c	n 4 L	and C	ovor	Doool	. Uvdr	ology		
1.3 Downstream Latitude:	_				p 4. L		ovei -	Readi	т пуш	ology		
1.3 Downstream Longitude:	-73.10				Wate				_	_		
Step 2. Stream Type	000				storic L					rest		
2.1 Elevation Upstream:	298				rrent [				_		64.6	%
2.1 Elevation Downstream:	230				rrent S		omina	nt Lan	d Cov	er: Fie	eld	
2.1 Is Gradient Gentle?	No			4.2	Corrid	dor						
2.2 Valley Length:	11834 fe	et. 2	. <b>24</b> Mile	<sup>98.</sup> His	storic L	and C	over:		Fo	rest		
2.3 valley Slope.	0.57	/0		$\sim$	ırrent l	Oomin	ant la	nd Cov	/er· <b>Fo</b>	rest	55.0	<b>)</b> %
2.4.Channel Length:	<b>13833</b> fe		<b>.62</b> Mile		rrent S							, ,
2.5 Channel Slope:		%						iii Laii			•	+ Doole
2.6 Sinuosity:	1.17	_		_	Ripar		nei				_	t Bank
2.7 Watershed Area:	71	•	re Mile	_	minan				>10	-	>100	1
2.8 Channel Width:	85		eet.		b-dom ngth w		than G	05 f+ ·	0-2		0-25	
2.9 Valley Width:	400	f	eet.		•				844		1225	
2.10 Confinement Ratio:	5				Grour					undar	It	
2.10 Confinement Type:	Narro	N			5. Ins				odifica	tions		
2.11 Reference Stream Typ		_			Flow	Regula	ation -					
Bedform:	Riffle-	Pool			pe:			None				
Sub-class Slope:	None			Us								
Bed Material:	Grave	I			Bridge			erts:	1		1 %	0
Step 3. Basin Characteristics:				5.3	Bank		_				1 %	
3.1 Alluvial Fan:	Non	_				_eft _ <b>1</b> 4			ht <b>43</b>			
3.2 Grade Control:	Mult				Chan		_	_	178	7	12 %	
		ipic	39 5	5.5	Dredo	ging Hi	istory:		Non	е		
3.3 Dominant Geologic Mat		G	acial	′ <sup>∕</sup> °Ste∣	Dredo p 6. Fl	oodpla	ain Mo	dificat	ions			
3.3 Sub-dominant Geologic			aciai	6.1 E	Berms	and R	oads	0	ld <b>2</b> 38	31.3ft.	17 %	
3.4 Left Valley Side	Very St	-							One Si		Both S	ides
3.4 Right Valley Side	Very St	eep		Ro	ad:				2059	ft. C		
3.5 Soils					ilroad:				0.0	ft. C		ft.
Hydrologic Group:	D		<b>2.6</b> %		rm:				321	ft. C		ft.
Flooding:	None/Ra	are 7	1.9 %		proved	l Path:			0.0	ft. C		ft.
Water Table Deep:	6.0	4	3.9 %		Devel				537	ft. 5		ft.
Water Table Shallow:	6.0	3	6.5 %		Chan	•				tiple	•	ft.
Erodibility:	Severe		<b>6.9</b> %		Mean			n·		tiple		
•					Mean		_	11.		-		0.0
7.4 Comments:										I/A Ra		0.0
Updated using Phase 2 data	on 10/02	2/01 ar	nd on		Wave	_		a	N	I/A Ra	atio: (	0.0
7/22/04. Updated with additi	onal Pha	se 2 d	ata in		7. Wi			vey		_	_	
Sept 2007 based on Nov 200					Bank					387.74	ft.	
Meander geometry measurer				7.2	Bank	Heigh	t:		3.	41 ft.		
Meanuer geometry measurer	HEIRS IN	Οί		7.3	Ice/Do	ebris J	am Po	otentia	l: <b>M</b> u	ltiple		
44 40 40 -				0 1		0.0	0.4		0.0			
4.1   4.2   4.3   5.1   5.	2   5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

2

High

2

High

2

High

0

N.S.

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M11
Topo Maps: Bristol,Monkton,Hinesburg,Mount Philo,Westport

Date Last Edited: Sun, October 18, 2009

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

is Reach an impoundment?	NO		Qu	ality C	control	Statu	s: Un	know	n			
Step 1. Reach Location												
1.1 Reach Description:	From C	edar F	Brook	conflu	ience	down	streai	n to C	harlo	tte to	wn lin	e iust
1.2 Towns:	Hinesbu		J. OOK	0011110	.01100	<b>40</b> 1111	oti cai		711a110			o juot
1.3 Downstream Latitude:	44.29	g		Ste	p 4. L	and C	over -	Reach	n Hvdr	oloav		
1.3 Downstream Longitude:					Wate					<u> </u>		
Step 2. Stream Type					storic L		over.		Fo	rest		
2.1 Elevation Upstream:	310				rrent D			nd Cov			66.0	) %
2.1 Elevation Downstream:	298				rrent S				_			, ,0
2.1 Is Gradient Gentle?	No				Corrid		J	iii Laii	u 001	O1. I IC	,,,,	
2.2 Valley Length:	<b>2272</b> fe	et. <b>0</b> .	. <b>43</b> Mile	<i>ع.د</i> ء:د S. د:د	torio I	201 201	٠		<b>~</b> -			
2.3 Valley Slope:	0.53	%								ор	07	4 0/
2.4.Channel Length:	<b>3341</b> fe	et. <b>0</b>	. <b>63</b> Mile	76	ırrent l							1 %
2.5 Channel Slope:	0.36	%			rrent S			nt Lan				
2.6 Sinuosity:	1.47				Ripari		ffer				_	t Bank
2.7 Watershed Area:	66	Squai	re Mile	_	minan				>10		0-25	
2.8 Channel Width:	83	f	eet.		b-dom		م د جانا	\_ £	_	100	>100	
2.9 Valley Width:	500	f	eet.		ngth w				0	_	1574	•
2.10 Confinement Ratio:	6				Grour					imal		
2.10 Confinement Type:	Broad				5. Ins							
2.11 Reference Stream Typ					Flow	Regula	ation -			ıe		
Bedform:	Dune-	Ripple	9		pe:			None				
Sub-class Slope:	None			Us					_		•	,
Bed Material:	Grave				Bridge			erts:	0		0 %	6
Step 3. Basin Characteristics:				5.3	Bank		_	Б.			0.0	
3.1 Alluvial Fan:	None	е		_ 4		_eft <b>0</b> .			ht <b>0.0</b>			
3.2 Grade Control:	Ledg				Chan		_	_	0.0		0.0	
3.3 Dominant Geologic Mat.			ke44.4		Dredo				Non	е		
3.3 Sub-dominant Geologica			luvial	Sie	o 6. Fl							
3.4 Left Valley Side	Very Sto			6.1 E	Berms	and R	oads		ld <b>0.0</b>		0.0	
3.4 Right Valley Side	Hilly	Т		_					One Si		Both S	sides
3.5 Soils					ad:				0.0	ft. C		ft.
Hydrologic Group:	D	5	6.5 %		ilroad:				0.0	ft. C		ft.
Flooding:	None/Ra			_	rm:	I D - 41- 1			0.0	ft. C		ft.
Water Table Deep:	3.0		0.5 % 0.1 %		proved				0.0	ft. C		ft.
Water Table Shallow:	1.0		2.8 %		Devel	•		(	0.0	ft. <b>C</b>	0.0	ft.
Erodibility:	Severe		4.9 %		Chan					tiple		
•	Severe	3	4.9 /0		Mean		_	n:	Non	e		
7.4 Comments:					Mean					Ra	atio:	0.0
Updated October 2009, relyir	na on 200	)4 Pha	ase 2		Wave					Ra	atio:	0.0
assessment. Predicted chan	-			Step	7. Wii	ndshie	ld Su	rvey				
is likely higher than actual (ar			•	7.1	Bank	Erosio	n:		1,3	351.95	ft.	
confinement, Step 2.10, is lik			vaney	7.2	Bank	Heigh	t:		7.	29 ft.		
commentent, step 2.10, is lik	ery lower	uidii		7.3	Ice/De	ebris J	am Po	otentia	l: <b>M</b> u	ltiple		
			_ [									
4.1   4.2   4.3   5.1   5.2	2   5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

1

Low

0

N.D.

0

N.S.

1

Low

0

N.D.

1

Low

9

2

High

1

Low

1

Low

0

N.S.

0

N.S.

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M12

Topo Maps: 314 (Mount Philo), 414 (Hinesburg)

Date Last Edited: Sun, October 18, 2009

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

1

Low

0

N.S.

0

Unk.

0

N.S.

0

N.S.

1

Low

1

Low

0

N.D.

0

N.D.

1

Low

8

0

N.S.

is Reach an impoun	ament? NC	,		Qu	ality C	ontrol	Statu	s: Un	know	n			
Step 1. Reach Loca	tion												
1.1 Reach Descript		rom Po	ond B	rook c	onflu	ence d	downs	strean	to Co	edar E	Brook		
1.2 Towns:		inesbu		or ook o	oa			ou ou .		Juu	51 00K		
1.3 Downstream La		4.29	<u>g</u>		Ste	p 4. L	and C	over -	Reach	n Hvdr	oloav		
1.3 Downstream Lo						Wate				<u> </u>	- 37		
Step 2. Stream Type						storic L		cover.					
2.1 Elevation Upstr	_	35							nd Cov	er: <b>F</b> o	rest	68.0	%
2.1 Elevation Down		10							nt Lan	_			, ,0
2.1 Is Gradient Ger		No				Corrid		J		u 00.	O		
2.2 Valley Length:		<b>423</b> fe	et. 1	. <b>78</b> Mile		storic L		`ovor:					
2.3 Valley Slope:			%		1 113					– .		45	• 0/
2.4.Channel Length	: 14	<b>294</b> fe	et. 2	. <b>71</b> Mile	78				nd Cov				2 %
2.5 Channel Slope:		0.17 '	%						nt Lan				
2.6 Sinuosity:		.52				Ripari		ıffer				_	t Bank
2.7 Watershed Area	a:	59	Squa	re Miles	_	minan				>10		>100	)
2.8 Channel Width:	7	79	1	feet.		b-dom				0-2		0-25	
2.9 Valley Width:	!	537	1	feet.		ngth w				437		1902	
2.10 Confinement F		7				Grour					undar	nt	
2.10 Confinement 7	<i>7</i> .	Broad							nel Mo		tions		
2.11 Reference Str							Regul	ation -	(old):				
Bedform:		Dune-	Ripple	е	Туј				None				
Sub-class Slope:		None			Us					_			
Bed Material:		Grave				Bridge			erts:	1		1 %	6
Step 3. Basin Charac	teristics:				5.3	Bank		_	Б.			1 %	
3.1 Alluvial Fan:		Non	е		- A		_eft <b>7</b> ′			ht <b>87</b>		<b>F</b> 0/	
3.2 Grade Control:		Non	е					_	ening:			5 %	
3.3 Dominant Geol	ogic Mat.:	Glac	ial La	ke48.7 Iuvial	%5.5	Dredo	ing H	istory:	1161	Non	е		
3.3 Sub-dominant (	-	Mat.:	Αl	luvial	Step	0 6. FI	poable	ain ivio	dificat	ions			
3.4 Left Valley Side	•	ery Sto			6.1 E	Berms	and R	oads	O	ia <b>0.0</b>		0.0	
3.4 Right Valley Sid		teep	Т		_					One Si		Both S	ides
3.5 Soils	•	.oop				ad:				0.0	ft. C		ft.
Hydrologic Group:	D		Δ	6.4 %		ilroad:				0.0	ft. C		ft.
Flooding:				<b>2.0</b> %		rm:				0.0	ft. C		ft.
Water Table Deep				8.0 %		oroved				0.0	ft. C		ft.
Water Table Shall				4.2 %		Devel	•		(	0.0	ft. 7	75	ft.
Erodibility:		o odera		6.3 %		Chan					tiple		
•	IVI	ouera	le 4	· <b>0.3</b> /0		Mean		_	n:	Mul	tiple		
7.4 Comments:						Mean					Ra	atio:	0.0
Updated October 20	09. relvina	on 200	)4 Pha	ase 2		Wave					Ra	atio: (	0.0
assessment. Predic					Step	7. Wii	ndshie	eld Sui	rvey				
is likely higher than a				•	7.1	Bank	Erosio	n:		4,8	373.72	2 ft.	
				vaney	7.2	Bank	Heigh	t:		7.	03 ft.		
confinement, Step 2	io, is likely	lower	แเสท				_		otentia	ıl: <b>M</b> u	ltiple		
41 42 42	5 1   F 2	F 2	E 1	<sub>5.5</sub>	6.1	6.2	6.2	6.4	6.5	6.6	7 1	7.0	Total
4.1   4.2   4.3	5.1 5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

2

High

2

High

2

High

0

N.S.

0

N.S.

2

0

N.S.

0

High N.S.

0

N.S.

0

N.S.

1

Low

1

Low

1

Low

2

High N.S.

0

### **Phase 1 - Reach Summary Report**

1

Low

14

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M13
Topo Maps: Bristol,Monkton,Hinesburg,Mount Philo,Westport

Date Last Edited: Mon, October 19, 2009

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Rea	ich an	Impou	ndmer	nt? <b>Nc</b>	)		Qι	uality (	Control	Statu	s: Un	know	n			
Step 1	I. Read	ch Loc	ation													
		Descrip		E	xtends	s from	Lewi	s Cree	k Rd	to the	confl	uence	of Po	ond B	rook,	
	owns:				inesb										,	
		ream L	atitud		4.28	J		Ste	ep 4. L	and C	over -	Reacl	h Hydi	rology		
1.3 D	ownst	ream L	ongitu	ude: <b>-</b> 7	73.12			4.1	Wate	rshed						
		am Typ						His	storic L	and C	Cover:		Fo	rest		
		n Ups		3	50				irrent [			nd Cov	/er: <b>Fc</b>	rest	74.9	%
		n Dow			35				ırrent S						_	, , ,
2.1 ls	Gradi	ent Ge	entle?	1	No			4.2	Corric	dor						
2.2 V	alley L	ength:		6	<b>072</b> fe	et. <b>1</b>	.15Mile	es. <sub>Hi</sub>	storic I	and C	OVET.		Fi	eld		
2.3 V	alley S	Slope:		(	0.25	, 0		$\sim$	urrent l	Domin	ant la	nd Co			25	1 %
		I Lengi			<b>'844</b> fe		. <b>49</b> Mil		irrent S					-		I /0
		l Slope	e:			%						III Laii				4 D = l -
	inuosit				.29	_		_	Ripar		mer				_	it Bank
		ned Are			39	•	re Mile	_	minan ıb-dom				>10		>100	
		l Width	า:		66		eet.		ngth w			05 ft ·	0-2 117		0-25 1788	
	alley V		D		<b>416</b>	1	eet.		Grour					าง nimal	1700	)
		ement			6 Braad	ı			5. Ins							
		ement ence St			Broad				Flow							
	dform:		lieaiii		c Riffle-	Pool			pe:	rvegui	alion	None		ic		
		s Slope	٠.		None	1 001		Us				110110	•			
		•	ᠸ.						Bridg	es and	d Culv	erts:	1		3 %	6
	d Mate				Grave	1			Bank			0.10.	•		3 %	Ü
Step 3.			clens	1165.	N1					_eft 1	_	Ric	ht <b>99</b>			
	lluvial				Non	-		5.4	Chan				232	7	29 %	
		Control			Non		40.4	5 5	Dredg		_	_	Non	е		
		int Geo	_		Allu		42.4		p 6. Fl				ions			
		minant		•			ther	6.1 E	3erms	and R	oads	0	ld <b>0.0</b>	ft.	0.0	
		ley Sid			ery St	eep							One Si		Both S	Sides
		alley S	iae	Н	illy			Ro	oad:				0.0	ft. <b>(</b>	0.0	4
3.5 S		0		_			• • • • • •	Ra	ilroad:			(	0.0	ft. <b>(</b>	0.0	ft. ft.
•	_	Group	o:	В			0.8 %	סם	erm:			(	0.0	ft. <b>(</b>	0.0	ft.
	ding:						3.6 %		proved				0.0	ft. <b>(</b>		ft.
		le Dee	•	3.	•		3.0 %	0.2	Deve			9	92.6	ft. <b>8</b>	38	ft.
		ole Sha	allow:	1.			3.0 %	6.3	Chan	nel Ba	ırs:			tiple		16.
Ero	dibility:	:		IVI	odera	te 2	8.7 %	6.4	Mean	der M	igratio	n:	Mul	tiple		
7.4 Co	ommer	nts:							Mean					<b>1.0</b> Ra		3.4
Update	ed Oct	ober 2	009. r	elvina	on 200	04 & 2	005		Wave	_			34	<b>9.0</b> Ra	atio:	5.3
•		essme		0.79	oo.	<u> </u>		Step	7. Wi	ndshie	eld Su	rvey				
THASC	Z 433	CSSITIC	110.					7.1	Bank	Erosio	on:		1,6	604.00	) ft.	
								7.2	Bank	Heigh	ıt:		6.	88 ft.		
									Ice/D			otentia	al: <b>M</b> u	Itiple		
1 1	4.0	4.2	E 4	F 2	F 2	E 1	EE	6.4	6.0	6.2	6.4	6.5	6.6	7.4	7.2	Total
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

2

High

2

High

2

High

1

Low

1

Low

1

Low

0

N.S.

0

N.S.

2

High

2

High

1

Low

0

N/A

0

N.S.

0

N/A

0

N.S.

1

Low

15

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M14
Topo Maps: Bristol,Monkton,Hinesburg,Mount Philo,Westport

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Rea	ich an	impou	namer	ון אינו	,		Qι	ıalıty (	control	Statu	s: Un	know	n			
Step 1	1. Rea	ch Loc	ation													
		Descrip		R	each i	s nara	allel to	l ewi	s Cree	k Ros	nd ea	st of i	nterse	ection	with 9	Silver
	owns:	200011	30111		inesbu	-			0.00		ia, oa	J. J	110.00	,		J V O.
		ream I	atitude		4.29	g		Ste	ep 4. L	and C	over -	Reach	n Hvdi	oloav		
			ongitu						Wate				<u> </u>			
		am Typ							storic L		cover.		Fo	rest		
		n Ups		3	60				rrent [			nd Cov			75.7	7 %
			nstrea		50				irrent S						_	70
		ient Ge			No				Corrie		J		u 00.	O		
2.2 V	alley L	ength:		2	<b>863</b> fe	et. <b>0</b>	. <b>54</b> Mile		storic L		`ovor		Ec	rest		
	'alley S			(	0.35	%						- d C - o			25	4 0/
		I Leng	th:	3	<b>003</b> fe	et. <b>0</b>	.57 Mile	<u> </u>	urrent l							4 %
		l Slope		(	0.33	%			irrent S			nt Lan				
2.6 S	inuosit	ty:		1	.05				Ripar		ıffer				_	t Bank
2.7 V	Vatersh	ned Are	ea:		38	Squa	re Mile	_	minan				>10		51-1	
2.8 C	hanne	l Width	า:	6	<b>3</b> 5	f	eet.		b-dom				No	-	26-5	
2.9 V	'alley V	Vidth:		1	188	f	eet.		ngth w				141		1175	i
2.10	Confin	ement	Ratio:		3				Grour					nimal		
			Type:		Semi-	confir	red		5. Ins							
2.11	Refere	ence St	tream <sup>-</sup>					5.1	Flow	Regul	ation -			gation		
Be	edform:			l	Riffle-	Pool			pe:					drawa	al	
Su	b-clas	s Slope	e:						e:			Othe				
Be	ed Mate	erial:			Cobbl	е			Bridge			erts:	1		<b>10</b> %	6
Step 3.			cterist					5.3	Bank		_				5 %	
	lluvial				Non	6				_eft_ <b>4</b>			ht 125	5		
		Control			Lode	30			Chan				0.0		0.0	
			ologic N	Mat ·	Glac	ial I a	ke63.1 Till	<sub>%</sub> 5.5	Dredo	ging H	istory:		Non	е		
			Geolo		Mot :	iai La	KCOO. 1 Till	′°Ste	p 6. Fl	oodpla	ain Mo	dificat	ions			
				_			• • • • • • • • • • • • • • • • • • • •	6.1 E	Berms	and R	oads	0	ld 300	<b>)2</b> ft.	99 %	
		ley Sid			ery Sto	-							One Si		Both S	Sides
3.4 N		alley S	iue	V	ery Sto	eep		Ro	ad:			;	3002	ft. <b>(</b>	0.0	ft.
		•		_		_	<b></b> 0/	Ra	ilroad:				0.0	ft. <b>(</b>	0.0	ft.
-	_	Group	o:	D	-		5.5 %	De	rm:				0.0	ft. <b>(</b>	0.0	ft.
	oding:						4.8 %	lm	proved	l Path:	:		0.0	ft. <b>(</b>	0.0	ft.
		ole Dee		2.			2.5 %	6.2	Deve	lopme	nt:	(	645	ft. 4	19	ft.
		ole Sha	allow:	0.			<b>7.8</b> %	6.3	Chan	nel Ba	rs:		Mul	tiple		IL.
Ero	dibility:	:		Ve	ery Se	vere8	4.8 %	6.4	Mean	der M	igratio	n:	Bra	iding		
7.4 C	ommer	nts:							Mean		_			NA Ra	atio.	0.0
_			h:£			£  -			Wave					<b>I/A</b> Ra		0.0
_			bifurca	-			_		7. Wi	_		rvev	•	1 (0		
•		•	1 Phas						Bank			<u> </u>		0.00 ft		
Updat	ed with	n additi	ional P	hase 2	2 data	in Se <sub>l</sub>	ot								•	
2007.	Mean	der ge	ometry	/ "Not	Applic	able"	due to		Bank	_		otomt:-		00 ft.		
					 			7.3	Ice/D	ะมเรา	aiii P	บเษาเเล	ıı. <b>ivi</b> ü	uupie	ı	
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
ļ						<u> </u>	0.0		ļ <u>.</u>					ļ	· · <u>~</u>	

1

Low

1

Low

1

Low

0

N.S.

0

N.S.

2

High

0

N.S.

1

Low

1

Low

2

High

2

High

## **Phase 1 - Reach Summary Report**

1

Low

2

High

0

N.S.

2

High

1

Low

17

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M15
Topo Maps: Bristol,Monkton,Hinesburg,Mount Philo,Westport

Date Last Edited: Wed, March 03, 2010

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

io readir air impoditament.			QU	anty C	,OHILI OI	Statu	o. Uli	KIIOW	11			
Step 1. Reach Location												
1.1 Reach Description:	From co	onflue	nce of	Hollo	w Bro	ook (T	4) dov	wnstre	eam. ı	ınder	Tvler	
1.2 Towns:	Hinesbu								Juiii, 1		. ,	
1.3 Downstream Latitude:	44.29	<b>3</b> ,			p 4. L			Reacl	h Hydr	ology		
1.3 Downstream Longitude	-73.10				Wate							
Step 2. Stream Type					storic L		cover:		Fo	rest		
2.1 Elevation Upstream:	376				rrent [			nd Cov			75.8	<b>8</b> %
2.1 Elevation Downstream:					rrent S						_	, ,
2.1 Is Gradient Gentle?	No				Corrid							
2.2 Valley Length:	<b>7337</b> fe	et. 1	. <b>39</b> Mile		storic L		'over		Fo	rest		
2.3 Valley Slope:	0.22	%						nd Car			<b>5</b> 2	<b>E</b> 0/
2.4.Channel Length:	<b>10151</b> fe		<b>.92</b> Mile	76	irrent [							5 %
2.5 Channel Slope:		%			rrent S			nı Lan				
2.6 Sinuosity:	1.38			_	Ripari		itter					nt Bank
2.7 Watershed Area:	38	•	re Mile	_	minan				>10		>100	
2.8 Channel Width:	65		eet.		b-dom			)5 ft ·	No		Non	е
2.9 Valley Width:	1,145	f	eet.		ngth w						258	
2.10 Confinement Ratio:	.18				Grour					undaı	nt	
2.10 Confinement Type:	Very E	Broad			5. Ins							
2.11 Reference Stream Typ					Flow	Regul	ation -			gation		
Bedform:	Riffle-	Pool			pe:				I With	arawa	aı	
Sub-class Slope:	None			Us				Othe	_			
Bed Material:	Grave				Bridge			erts:	1			%
Step 3. Basin Characteristics	:			5.3	Bank		_	D:-	-l- 4 000		3 %	
3.1 Alluvial Fan:	Non	е		E 1		_eft <b>0</b> .	-		tht 326		20.0/	
3.2 Grade Control:	Non	е		5.4	Chan	nei Sii	aignie	ening:	403		39 %	
3.3 Dominant Geologic Mat	t.: Alluv	/ial	84.5	%Ct-	Dredo 6. Flo	jing H	istory:	-I:¢: 4	Non	е		
3.3 Sub-dominant Geologic		G	acial									
3.4 Left Valley Side	Steep			6.1 E	Berms	and R	oads		ld 769	-	7 %	
3.4 Right Valley Side	Steep			_					One Si		Both S	sides
3.5 Soils	Олоор				ad:				769	ft. (		ft.
Hydrologic Group:	В	6	1.0 %		ilroad:				0.0	ft. (		ft.
Flooding:	Frequer		1.3 %		rm:				0.0	ft. (		ft.
Water Table Deep:	6.0		0.4 %		proved				0.0	ft. (		ft.
•			5.4 %		Devel	•		;	592	ft. (	54	ft.
Water Table Shallow:	4.0		2.4 %		Chan					tiple		
Erodibility:	slight		<b>Z.I</b> /0		Mean		_	n:		tiple		
7.4 Comments:					Mean					<b>2.0</b> Ra		3.4
Updated using Phase 2 data	on 10/02	/01 ar	nd on		Wave	_			27	9.0 Ra	atio:	4.3
7/22/04. Updated with addit				Step	7. Wii	ndshie	eld Sui	rvey				
Sept 2007.	ionan ma	3C Z G	ata iii	7.1	Bank	Erosio	n:		5,1	148.88	3 ft.	
<del>σερί 2007.</del>				7.2	Bank	Heigh	t:		3.	11 ft.		
					Ice/De	_		otentia	al: Mu	ltiple		
	_		_							<u> </u>		
4.1   4.2   4.3   5.1   5.	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

### **Phase 1 - Reach Summary Report**

1

Low

2

High N.S.

0

2

High

1

Low

13

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M16
Topo Maps: Bristol,Monkton,Hinesburg,Mount Philo,Westport

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

2

High

0

N.S.

0

N.S.

1

Low

0

N.S.

0

N.S.

0

N.S.

0

N.S.

1

Low

2

High

1

Low

Is Rea	ich an	Impou	ndmer	nt? No	)		Qι	ality C	Control	Statu	s: <b>Un</b>	know	n			
Step 1	I. Read	ch Loc	ation													
	each [			R	each d	on we	st side	of R	t 116 I	etwe	en M.	Kelly	farm	and T	vler B	ridae
	owns:	, , , , , , , , , , , , , , , , , , ,			tarksb		0. 0. 0.				•				J.C	90
	ownsti	ream L	atitud		4.27			Ste	p 4. L	and C	over -	Reacl	n Hydr	ology		
	ownsti				73.08				Wate							
	2. Strea								storic L		cover:		Fo	rest		
	levatio			3	80				rrent [			nd Cov			77.5	5 %
	levatio				76				rrent S						_	,,,
	Gradi				No				Corrid							
2.2 V	alley L	ength:		4	<b>303</b> fe	et. <b>0</b>	<b>.81</b> Mile		storic L		'over		Cr	ор		
2.3 V	alley S	Slope:		(	0.09	%						ad Ca		•	25	<b>o</b> 0/
2.4.C	hanne	l Lengt	th:	6	<b>559</b> fe	et. 1	.24Mile	78	ırrent l							<b>8</b> %
2.5 C	hanne	I Slope	<del>)</del> :	(	0.06	%			rrent S			nt Lan			•	
2.6 S	inuosit	y:		1	.52			_	Ripar		itter			Bank	_	t Bank
	/atersh				27	Squa	re Mile	_	minan				26-		26-5	
	hanne		า:		55	1	eet.		b-dom		م ما ما <u>د</u>	· ·	0-2		0-25	
	alley V				300	1	eet.		ngth w				196		2514	•
	Confin				14	_			Grour					nimal		
	Confin				Very E	Broad			5. Ins					tions		
	Refere		ream						Flow	Regul	ation -					
	dform:				Riffle-	Pool			pe:			None	!			
Su	b-class	s Slope	e:		None			Us					•		• •	,
Be	d Mate	erial:		(	Grave	l			Bridge			erts:	0		0 %	o
Step 3.	Basin	Chara	cteris	tics:				5.3	Bank		_	Dia	.b. 025	-	18 %	
3.1 A	lluvial	Fan:			Non	е		<b>5</b> 1	Chan	_eft <b>3</b> '	-	Rig Spina:	ht <b>835</b> <b>0.0</b>	•	0.0	
3.2 G	rade C	Control	:		Non	е						_		_	0.0	
3.3 D	omina	nt Ged	ologic	Mat.:	Allu	/ial	81.1	%a.	Dredo p 6. Flores			dificat	Non	е		
	ub-dor		_		Mat.:	Ice-0	Contac		р <b>б.</b> гі	ooupia		unicai	111 2	٠.		
	eft Vall			•	illy			6. I E	serms	ana R	oaas	U	14 <b>U.U</b>		0.0	\: al = =
	ight Va	•		Hi	illy			Do	ad:				One Si		Both S	lues
3.5 S	-	•			•			-	au. ilroad:				0.0	ft. <b>(</b>		ft.
Hvd	rologic	Groun	o:	В		6	2.2 %		ili oau. rm:				0.0 0.0	ft. <b>(</b> ft. <b>(</b>		ft.
	ding:			0	ccasio		8.9 %	De	proved	l Dath				ft. <b>(</b>		ft.
	er Tab	le Dee	ep:	3.			8.9 %		Devel				0.0 0.0	ft. <b>(</b>		ft.
	ter Tab		•	1.			9.2 %		Chan			'		tiple	J.U	ft.
	dibility:				ight		4.9 %					n.		•		
	•			<b>J.</b>	- <del>3</del> - • •	•	,,,	0.4	Mean		_	11.		tiple	-4! -	4.0
7.4 C	ommer	າເຣ:							Mean					5.0 Ra		4.2
Select	update	es usir	ng Pha	ase 2 c	lata or	10/02	2/01		Wave	_		0.40\.4	<b>2</b> 1	3.0 Ra	atio: 3	3.8
and 7/	22/04	to then	curre	nt prot	tocols	(SMR	C,		7. Wi			vey	_			
2004).	Upda	ited in	Jan 20	008 to	2007	orotoc	ols		Bank				•	104.87	ft.	
relying	-								Bank	_		_		96 ft.		
		I III						7.3	Ice/D	ebris J	lam Po	otentia	ıl: <b>M</b> u	ltiple		
11	12	12	51	5.2	5.2	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7 1	7.2	Total
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	0.1	0.2	0.3	6.4	0.5	0.0	7.1	1.2	Total

1

Low

2

High

0

N.S.

0

N.S.

1

Low

0

N.S.

0

N.S.

1

Low

0

N.S.

0

N.S.

0

N.S.

2

High

0

N.S.

0

N.S.

2

High

11

2

High

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Lewis Creek Reach M16S1.01

Topo Maps: 414

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Reach an impoundment?	NO		Qυ	iality C	control	Statu	s: Un	know	n			
Step 1. Reach Location												
1.1 Reach Description:	Flows a	lonas	ide an	d thro	nuah a	aricu	ltural	fields	cros	ses R	oute 1	16 to
1.2 Towns:	Starksb		nac an	ia tili c	ougii e	griou	itaiai	iicias	, 0.03	303 IX	outc	1010
1.3 Downstream Latitude:	44.26	010		Ste	p 4. L	and C	over -	Read	h Hvdr	ology		
1.3 Downstream Longitude:					Wate		010.	rtodol	i i i y ai	<del>ology</del>		
Step 2. Stream Type	. 0.0.				storic L		over.		Fo	rest		
2.1 Elevation Upstream:	440				rrent [			nd Cov	_		73.6	%
2.1 Elevation Downstream:	380				rrent S							70
2.1 Is Gradient Gentle?	No				Corrid		J	iii Laii	u 001	O1. I IC	,,,,	
2.2 Valley Length:	<b>2520</b> fe	et. <b>0</b>	. <b>48</b> Mile		storic L	-	`ovor		Fa	. root		
2.3 Valley Slope:		%		1 113					_	rest	25.	<b>-</b> 0/
2.4.Channel Length:	<b>3208</b> fe	et. <b>0</b>	.61 Mile	76	ırrent l							5 %
2.5 Channel Slope:	1.87	%			rrent S			nt Lan				
2.6 Sinuosity:	1.27			_	Ripar		ffer					t Bank
2.7 Watershed Area:	1	Squa	re Mile	_	minan					100	51-10	
2.8 Channel Width:	13	f	eet.		b-dom		4h a n C	) F 44 .	26-		>100	
2.9 Valley Width:	65	f	eet.		ngth w				647		434	
2.10 Confinement Ratio:	. 5				Grour					undar	nt	
2.10 Confinement Type:	Narro	N			5. Ins					tions		
2.11 Reference Stream Typ					Flow	Regula	ation -					
Bedform:	Riffle-	Pool			pe:			None	)			
Sub-class Slope:	None			Us					_		• •	,
Bed Material:	Grave	I			Bridge			erts:	1		2 %	o
Step 3. Basin Characteristics:	•			5.3	Bank		_	D:-	.b. 0 0		0.0	
3.1 Alluvial Fan:	Non	е		E 1		_eft <b>0</b> .			ht <b>0.0</b>		19 %	
3.2 Grade Control:	Non	е			Chan			_			19 70	
3.3 Dominant Geologic Mat	:: Alluv	/ial	48.6	5.5 Step	Dredo	Jing m	isiory.	dificat	Non	е		
3.3 Sub-dominant Geologic		Ice-0	Contac	et Sie	5 6. FI	boabis	ain ivio	unicai	ions III -			
3.4 Left Valley Side	Steep			6. I E	Berms	and R	oaas	U	nu 45:		14 %	
3.4 Right Valley Side	Very St	eep		Do	ad.				One Si		Both S	laes
3.5 Soils	,				ad:				455	ft. C		ft.
Hydrologic Group:	С	5	0.1 %		ilroad: rm:				0.0 0.0	ft. <b>C</b> ft. <b>C</b>		ft.
Flooding:	None/R			DE		l Dath						ft.
Water Table Deep:	1.5		8.3 %		proved Devel				0.0 0.0	ft. <b>C</b> ft. 1		ft.
Water Table Shallow:	0.0		8.3 %			•		'			103	ft.
Erodibility:	Modera		5.8 %		Chan				Non	ie		
•			<b>0.0</b> /0		Mean		_	m.	•			
7.4 Comments:					Mean					8.0 Ra		2.9
While 1974 photos indicate a	a land cov	er sin	nilar to		Wave			n (0) (	17	4. <b>U</b> Ka	atio: 1	3.1
present day (see Historic Wa	itershed a	and Hi	storic		7. Wi			vey				
Corridor land cover, Steps 4.					Bank					0.00 ft		
photos of the region show fo					Bank	_		_		00 ft.		
				7.3	Ice/D	ebris J	am Po	otentia	il: <b>M</b> u	Itiple		
4.1 4.2 4.3 5.1 5.	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
4.1   4.2   4.3   5.1   5.	٥.٥ ع	0.4	0.5	0.1	0.2	0.3	0.4	0.5	0.0	/.	1.2	Total

1

Low

2

High

1

Low

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

1

Low

1

Low

0

N.S.

0

N.S.

0

N/A

0

N/A

0

N.S.

0

N.S.

6

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Lewis Creek Reach M16S1.02

Topo Maps: 414

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Rea	ich an	Impou	ndmer	nt? No	)		Qι	ality (	Control	Statu	s: Un	know	n			
Step '	1. Read	ch Loc	ation													
<u>.</u>		Descrip		Fo	oreste	d val	ley bet	ween	agricu	ıltura	l field:	s, cros	ssed b	y priv	vate, g	ated
	owns:	•			arksb		•		J			•		, .	,	•
1.3 D	ownst	ream L	atitude	e: <b>4</b>	4.26			St	ep 4. L	and C	over -	Reacl	h Hydi	rology		
1.3 D	ownst	ream L	ongitu.	ide: <b>-7</b>	73.06			4.	1 Wate	rshed						
Step 2	2. Strea	am Typ	e					Hi	storic L	and C	Cover:		Fo	rest		
		n Upst			40			Cı	urrent [	Domin	ant lar	nd Cov	/er: <b>Fc</b>	rest	77.7	7 %
2.1 E	levatio	n Dow	nstrea	ım: <b>4</b>	40			Cı	urrent S	Sub-D	omina	nt Lan	d Cov	er: Fie	eld	
2.1 ls	Gradi	ient Ge	entle?	N	10			4.2	2 Corrie	dor						
	-	.ength:		2	<b>100</b> fe	et. 0	. <b>40</b> Mile	es. Hi	storic I	and (	lover.		Fc	rest		
	alley S			-	F. 7 O	70		$\sim$	urrent						37	6 %
		I Lengi			<b>304</b> fe		<b>.44</b> Mil		urrent S							0 /0
		l Slope	e:			%						III Laii				+ Donk
	inuosit			1	.10	0	NA:1.	_	3 Ripar ominan		illei				<b>51-1</b>	t Bank
		ned Are			1	•	re Mile	_	ıb-dom				>10 No:		>100	
		el Width	า:		3		feet.		ngth w			25 ft ·	144		232	,
	alley V	viain: ement	Datio		19 1		feet.		l Groui					r nimal	232	
						why C	onfine									
		ement ence St				wiy C	Omme	u <u>510</u>	Flow	Regul	ation -	· (Old)·	Jamoa			
	dform:		licaiii	<i>-</i> .	¬ Step-F	Pool			pe:	rtogui	ation	None				
		s Slope	٠.		None	001			se:							
	ed Mate	•	J.	_	Cobbl	^			2 Bridg	es and	d Culv	erts:	2		3 %	6
			otorict			e			Bank				_		0.0	-
Step 3.			clensi	.105.	NI					_eft 0	_	Ric	ht <b>0.0</b>			
	lluvial				Non			5.4	l Chan	nel St	raighte		0.0		0.0	
		Control			Non	e }	-4 00 4	o, 5.5	5 Dred	ging H	istory:		Non	е		
		int Geo	_		ice-C	onta	ct 89.1 Till	%Ste	p 6. Fl	oodpla	ain Mo	dificat	ions			
		minant		_			11111	6.1	Berms	and R	oads	0	ld <b>22</b>	<b>1</b> ft.	9 %	
		ley Sid			ery St	-							One Si		Both S	Sides
		alley S	iae	Ve	ery St	eep		R	oad:			2	221	ft. <b>(</b>	0.0	4
3.5 S				_		_		Ra	ailroad:			(	0.0	ft. <b>(</b>	0.0	ft. ft.
•	_	Group	<b>D</b> :	A	-		89.1 %	יש	erm:			(	0.0	ft. <b>(</b>	0.0	ft.
	oding:						00. %		proved			(	0.0	ft. <b>(</b>	0.0	ft.
		ole Dee	•	6.	•		9.1 %	6.2	2 Deve	lopme	nt:	(	0.0	ft. 1	120	ft.
		ole Sha	allow:	6.			9.1 %	6.3	3 Chan	nel Ba	ars:		No	Data		11.
Ero	dibility:			Ve	ery Se	veres	9.6 %	6.4	l Mean	der M	igratio	n:				
7.4 Cd	ommer	nts:						6.5	Mean	der W	idth:		1	<b>V/A</b> Ra	atio:	0.0
Small	tributa	ry to th	nis read	ch ie ir	nnalin	ded h	W	6.6	8 Wave	length	า:			<b>V/A</b> Ra		0.0
		Road c			•		У	Ste	7. Wi	ndsħie	eld Su	rvey				
	•				•			7.	Bank	Erosio	on:			0.00 ft		
pona/\	weuand	d upst	ream C	וו ות (חוו	JUSSIF	ıg.			2 Bank					00 ft.		
									lce/D			otentia				
											l .	<u> </u>				T 1
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
-							1		+		-	1		1	-	

1

Low

1

Low

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

2

High

0

N.S.

0

N.S.

0

N.S.

0

N/A

0

N/A

0

N.S.

0

N.S.

5

1

Low

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Lewis Creek Reach M16S1.03

Topo Maps: 414

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment?	NO		Qι	ıality C	Control	Statu	s: <b>Un</b>	know	n			
Step 1. Reach Location												
1.1 Reach Description:	Foreste	d vall	ov hot	woon	aaria	ıltıral	fiolds	s and	rocido	ntial	nrono	rtios
•	Starksb		ey bet	ween	ayrıcı	ılturai	Heius	anu	eside	iillai	prope	เนธอ
1.2 Towns:	44.26	010		Sto	n 4 L	and C	ovor	Doool	. Uvdr	ology		
1.3 Downstream Latitude:					p 4. L		over -	Readi	і пуш	ology		
1.3 Downstream Longitude:	-73.05				Wate				_			
Step 2. Stream Type					storic L					rest		
2.1 Elevation Upstream:	700				rrent [						86.6	<b>6</b> %
2.1 Elevation Downstream:	540			Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Cr</b>	op	
2.1 Is Gradient Gentle?	No			4.2	Corrid	dor						
2.2 Valley Length:	<b>2400</b> fe	et. <b>0</b> .	. <b>45</b> Mile	es. His	storic I	and C	over.		Fo	rest		
2.3 Valley Slope:	0.07	/0		$\sim$	ırrent l	Domin	ant la	nd Cov	_		56 (	9 %
2.4.Channel Length:	<b>2602</b> fe		<b>.49</b> Mile		rrent S							<b>9</b> 70
2.5 Channel Slope:		%						III Laii				
2.6 Sinuosity:	1.08			_	Ripar		tter			Bank	_	t Bank
2.7 Watershed Area:	1	Squai	re Mile	_	minan				>10	-	>100	
2.8 Channel Width:	10	f	eet.		b-dom		u	·- ·	Noi		None	9
2.9 Valley Width:	15	f	eet.		ngth w				238		0	
2.10 Confinement Ratio:	2				Grour				No			
2.10 Confinement Type:	Narrov	wly Co	onfine	<b>d</b> Step	5. Ins	tream	Chan	nel Mo	odifica	tions		
2.11 Reference Stream Typ		-		5.1	Flow	Regula	ation -	(old):				
Bedform:	Step-F	Pool			pe:	•		None				
Sub-class Slope:	None			Ús								
Bed Material:	Cobble	۵		5.2	Bridge	es and	Culve	erts:	0		0 %	6
Step 3. Basin Characteristics:		<b>G</b>			Bank						0.0	
	-	_				_eft <b>0</b> .	_	Rio	ht <b>0.0</b>			
3.1 Alluvial Fan:	Non	-		5.4	Chan	nel Str	aighte		0.0		0.0	
3.2 Grade Control:	Ledo	ge					_	_	Non	e		
3.3 Dominant Geologic Mat	.: Ice-C	contac	ct 68.0 Till	%Stei	n 6 Fl	nodnia	ain Mo	dificat	ions	•		
3.3 Sub-dominant Geologic	al Mat.:		Till	6 1 5	Berms	and D	oods	-	ld <b>63</b> 8	. 4	24.0/	
3.4 Left Valley Side	Very Sto	еер		0. I L	EIIIIS	anu n	uaus		One Si		<b>24 %</b> Both S	idoc
3.4 Right Valley Side	Very Sto	eep		Po	ad:							nues
3.5 Soils	•	•			au. ilroad:				538	ft. C		ft.
Hydrologic Group:	Α	6	8.0 %						0.0	ft. C		ft.
Flooding:	None/Ra		00. %		rm:	I D-41-			0.0	ft. C		ft.
Water Table Deep:	6.0		00. % 00. %		proved				0.0	ft. C	_	ft.
•					Devel	•		(	0.0	ft. <b>C</b>	0.0	ft.
Water Table Shallow:	6.0		00. %		Chan				No l	Data		
Erodibility:	Very Se	vere9	<i>1</i> .1 %		Mean		_	n:				
7.4 Comments:				6.5	Mean	der W	idth:		N	I/A Ra	atio:	0.0
Presence of channel-spannir	na hedroo	r (3 3	١	6.6	Wave	length	ı:		N	I/A Ra	atio: (	0.0
	-		•	Stan	7. Wi	_		rvey				
suggested by Thompson, et	•			71	Bank				(	).00 ft		
photos indicate a land cover		•	•	7 2	Bank					00 ft.	•	
(see Historic Watershed and	Historic (	Corrid	or land			_						
				7.3	Ice/D	UIIS J	am P	Jientia	II. NO	שמנמ	ı	
4.1 4.2 4.3 5.1 5.	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
7.1   7.2   7.3   3.1   3.	_   0.0	J. <del>T</del>	0.0	0.1	0.2	0.5	U. <del>T</del>	0.5	0.0	' · '	۷.۷	Iolai

4.2

2

High

4.1

1

Low

4.3

1

Low

5.1

0

N.S.

5.2

0

N.S.

5.3

0

N.S.

5.4

0

N.S.

6.1

2

High

5.5

0

N.S.

6.2

0

N.S.

6.3

0

N.S.

6.4

0

N.S.

6.5

0

N/A

6.6

0

N/A

7.1

0

N.S.

### **Phase 1 - Reach Summary Report**

Total

6

7.2

0

N.S.

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Lewis Creek Reach M16S1.04

Topo Maps: 413, 414

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

io readir air impoditament.		Q	uan	ty Control Status. Un	IKIIOW			
Step 1. Reach Location				_				
1.1 Reach Description:	Remote, f	orested i	reac	:h				
1.2 Towns:	Starksbo							
1.3 Downstream Latitude:	44.25			Step 4. Land Cover -	Reacl	n Hydro	ology	
1.3 Downstream Longitude:	-73.05			4.1 Watershed				
Step 2. Stream Type				Historic Land Cover:		Foi	est	
2.1 Elevation Upstream:	1290			Current Dominant la				<b>).1</b> %
2.1 Elevation Downstream:	700			<b>Current Sub-Domina</b>		_		,,,
2.1 Is Gradient Gentle?	No			4.2 Corridor			•	
2.2 Valley Length:	<b>4000</b> feet	. <b>0.76</b> Mi	les.			For	est	
2.3 Valley Slope:	14.75 %			Current Dominant la		_		9.0 %
2.4.Channel Length:	<b>4135</b> feet		les.					9.0 %
2.5 Channel Slope:	<b>14.27</b> %			Current Sub-Domina	ını Lan			
2.6 Sinuosity:	1.03			4.3 Riparian Buffer				ght Bank
2.7 Watershed Area:		quare Mil	es	Dominant:		>100		
2.8 Channel Width:	9	feet.		Sub-dominant:	OE #4 .	Non		ne
2.9 Valley Width:	13	feet.		Length w/ less than 2		360	0	
2.10 Confinement Ratio:	1			4.4 Ground Water Inp		Mini		
2.10 Confinement Type:		y Confine	ed ≥	Step 5. Instream Char	inei ivid	odificati	ons	
2.11 Reference Stream Typ				5.1 Flow Regulation				
Bedform:	Cascado	9		Type:	None			
Sub-class Slope:	None			Use:			•	0.4
Bed Material:	Bedrock	(		5.2 Bridges and Culv	erts:	1	0	%
Step 3. Basin Characteristics:				5.3 Bank Armoring:	Б.		0.0	
3.1 Alluvial Fan:	None			Left <b>0.0</b>		ht <b>0.0</b>	0.0	
3.2 Grade Control:	Ledge	)		5.4 Channel Straight		0.0	0.0	
3.3 Dominant Geologic Mat	_	100	). %	5.5 Dredging History: Step 6. Floodplain Mo	!! <b>.¢</b> ! 4	None	•	
3.3 Sub-dominant Geologica								
3.4 Left Valley Side	Extremely	/ Steen	6	.1 Berms and Roads		ld <b>983</b>	ft. <b>23</b> '	
3.4 Right Valley Side	Extremely	•		D 1		One Sic		Sides
3.5 Soils	=Xt. 00.	, Groop		Road:		983	ft. <b>0.0</b>	ft.
Hydrologic Group:	D	<b>100.</b> %	<u>′</u>	Railroad:		0.0	ft. <b>0.0</b>	ft.
Flooding:	None/Rar			Berm:		0.0	ft. <b>0.0</b>	ft.
Water Table Deep:	6.0	100. %	,	Improved Path:		0.0	ft. <b>0.0</b>	ft.
			,	6.2 Development:		0.0	ft. <b>0.0</b>	ft.
Water Table Shallow:	6.0	100. %	,	6.3 Channel Bars:		No D	ata	
Erodibility:	Very Seve	ere ruu. 7		6.4 Meander Migration	n:			
7.4 Comments:				6.5 Meander Width:		N.	<b>/A</b> Ratio:	0.0
Presence of channel-spanning	a bedrock	(3.2)		6.6 Wavelength:		N	A Ratio:	0.0
suggested by Thompson, et a	-	(3)	S	Step 7. Windshield Su	rvey			
Suggested by Thompson, et a	۵۱., ۲۰۰۰			7.1 Bank Erosion:		0	.00 ft.	
				7.2 Bank Height:		0.0	0 ft.	
				7.3 Ice/Debris Jam P	otentia			
			Τ		T			

1

Low

2

High

2

High

0

N.S.

0

N.S.

1

Low

1

Low

0

N.S.

1

Low

0

N.S.

2

High

### **Phase 1 - Reach Summary Report**

1

Low

2

High N.S.

0

2

High

17

2

High

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M17
Topo Maps: Bristol,Monkton,Hinesburg,Westport,Mount Philo

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment?	No		Qu	ality C	ontrol	Status	s: <b>Un</b>	know	n			
Step 1. Reach Location												
	Dooch f	lowo i	10 1ho	n a #4 h	alana	the w	t	ido of	D4 44	e tron	State	_
1.1 Reach Description:	Reach f Starksb		to the	north	along	tile w	est s	ide oi	KUII	6 11 011	ı Stati	<del>.</del>
1.2 Towns:	44.27	010		Sto	n 4 L	and C	over	Reach	. Uvdr	ology		
1.3 Downstream Latitude:					•		over -	Readi	т пуш	ology		
1.3 Downstream Longitude:	-73.07				Water				_	_		
Step 2. Stream Type	445				toric L					rest		
2.1 Elevation Upstream:	415							nd Cov	_		. 78.8	8 %
2.1 Elevation Downstream:	380						omina	nt Lan	d Cov	er: Fie	eld	
2.1 Is Gradient Gentle?	No			4.2	Corric	lor						
2.2 Valley Length:	8315 fe	et. 1.	. <b>57</b> IVIIIE	<sup>98.</sup> His	toric L	and C	over:		Cr	ор		
2.3 Valley Slope:	0.42	/0		$\sim$				nd Cov	/er: <b>Fc</b>	rest	30.8	<b>3</b> %
2.4.Channel Length:	<b>14003</b> fe		<b>.65</b> Mile	<b>-</b> 4				nt Lan				
2.5 Channel Slope:		%			Ripari						•	t Bank
2.6 Sinuosity:	1.68	Carre	ro Mila	_	minan		1101		>10		>100	
2.7 Watershed Area:	23	•	re Mile	_	b-dom				0-2		>100 0-25	1
2.8 Channel Width:	52 605		eet.		ngth w		than 2	25 ft ·	238		3172	
2.9 Valley Width:	625	t	eet.		Grour					undar	-	
2.10 Confinement Ratio:	12	\l						nel Mo			IL	
2.10 Confinement Type:	Very E	sroad							Julica	110115		
2.11 Reference Stream Typ		D I				Reguia	auon -	(old):				
Bedform:	Riffle-	Pool		Тур				None				
Sub-class Slope:	None			Us					•		•	,
Bed Material:	Grave				Bridge			erts:	3		2 %	o
Step 3. Basin Characteristics:				5.3	Bank		_	Б.			6 %	
3.1 Alluvial Fan:	Yes			_ 1		_eft 27	_		ht <b>645</b>		45 0/	
3.2 Grade Control:	Non	е			Chan		. •	•	214		15 %	
3.3 Dominant Geologic Mat	.: Alluv	/ial	62.9	%5.5	Dredg	Jing Hi	story:		Non	е		
3.3 Sub-dominant Geologic			acial	Step	6. Fl	podpla	in Mo	dificat	ions			
3.4 Left Valley Side	Very St		aoiai	6.1 E	Berms	and R	oads	U	iu <b>24</b> 4		17 %	
3.4 Right Valley Side	Very St	-						(	One Si	de l	Both S	ides
3.5 Soils	very Su	eeb			ad:			9	924	ft. <b>8</b>	<b>371</b>	ft.
	_	^	<b>0 7</b> 0/	Ra	ilroad:			(	0.0	ft. C	0.0	ft.
Hydrologic Group:	В	_	3.7 %	Ве	rm:			;	310	ft. 3	34	ft.
Flooding:	Occasio				oroved			(	0.0	ft. C	0.0	ft.
Water Table Deep:	3.0		5.9 %	6.2	Devel	opmei	nt:	;	394	ft. 1	45.3	ft.
Water Table Shallow:	1.5		2.5 %		Chani				Mul	tiple		IL.
Erodibility:	Modera	te 3	2.9 %	6.4	Mean	der Mi	aratio	n:		tiple		
7.4 Comments:					Mean		_			<b>0.0</b> Ra	atio:	4.0
					Wave					9.0 Ra		4.0
Beaver activity. Cows in stream					7. Wii	_		rvev	_5	110		7.0
third. Updated using 2002 P	hase 2 da	ata on						voy	4.	40.00	EL	
7/22/04. Updated with addition	nal Phas	se 2 da	ata in		Bank					340.82	π.	
Sept 2007. "Alluvial fan" was					Bank	_				20 ft.		
1			-	7.3	Ice/De	ebris J	am Po	otentia	i: Mu	Itiple		
4.1 4.2 4.3 5.1 5.	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

1

Low

2

High

2

High

0

N.S.

1

Low

0

N.S.

0

N.S.

0

N.S.

2

High

2

High

0

N.S.

0

N/A

0

N.S.

1

Low

0

N/A

1

Low

12

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M18
Topo Maps: Bristol,Monkton,Hinesburg,Mount Philo,Westport

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is iteach an impoundment:	140		QU	iality C	ontroi	Status	<u>s: Un</u>	Know	n			
Step 1. Reach Location												
1.1 Reach Description:	Reach f	lows	throug	ıh bed	rock (	aorae	alono	the n	orth s	side o	f Stat	es
1.2 Towns:	Starksb		oag	,J.J.J.		JO. 90	u.og	,		J. 40 0	· Otat	00
1.3 Downstream Latitude:	44.24			Ste	p 4. L	and C	over -	Reach	n Hydr	ology		
1.3 Downstream Longitude:	-73.07				Wate				<u> </u>	- 37		
Step 2. Stream Type					storic L		over:		Fo	rest		
2.1 Elevation Upstream:	515							nd Cov			80.6	6 %
2.1 Elevation Downstream:	415							nt Lan	_			,,
2.1 Is Gradient Gentle?	No			42	Corrid	dor						
2.2 Valley Length:	1398 fe	et. <b>0</b>	. <b>26</b> Mile	 es. ⊔:	torio I	and C	'ovor		Ea	rest		
2.3 Valley Slope:	7.15	%						ad Ca			20	<b>4</b> 0/
2.4.Channel Length:	<b>1446</b> fe	et. <b>0</b>	.27 Mile	76				nd Cov				4 %
2.5 Channel Slope:	6.92	%						nt Lan				
2.6 Sinuosity:	1.03			_	Ripari		tter				_	nt Bank
2.7 Watershed Area:		•	re Mile		minan					100	>100	
2.8 Channel Width:	47	f	eet.		b-dom		than C	)E f+ .	0-2		0-25	
2.9 Valley Width:	120	f	eet.		ngth w				324		148	
2.10 Confinement Ratio:	3		_		Grour					nimal		
2.10 Confinement Type:	Semi-	confin	ed					nel Mo	odifica	tions		
2.11 Reference Stream Typ					Flow	Regula	ation -					
Bedform:	Step-F	ool		Ty				None				
Sub-class Slope:	а			Us	-				•		44 0	.,
Bed Material:	Bould	er			Bridge			erts:	2		11 9	%
Step 3. Basin Characteristics:				5.3	Bank		_	D:-	.l. ( <b>0 0</b>		4 %	
3.1 Alluvial Fan:	Non	е		E 1		_eft <b>6</b> 9			ht <b>0.0</b>		0.0	
3.2 Grade Control:	Wate	erfall			Chan		. •	•	0.0		0.0	
3.3 Dominant Geologic Mat	.: Till		97.6	70~.	Dredo			-I:¢: ¢	Non	е		
3.3 Sub-dominant Geologica		Ice-0	Contac eep	5.5 Step t 6 1 5	0 6. FI	poable	ain ivio	airicat	ions			
3.4 Left Valley Side	Extreme	elv Sto		6.1 E	Berms	and R	oads	U	10 15/		109 %	
3.4 Right Valley Side	Steep	J., C.	JOP						One Si		Both S	sides
3.5 Soils	Oloop				ad:				1397	ft. 4		ft.
Hydrologic Group:	В	5	7.3 %		ilroad:				0.0	ft. C		ft.
Flooding:	None/R				rm:				139	ft. C		ft.
Water Table Deep:	6.0		9.5 %		oroved				0.0	ft. C		ft.
Water Table Shallow:	2.0		7.3 %		Devel	•		7	217	ft. 2	241	ft.
	Very Se				Chan				Isla			
Erodibility:	very se	veres	<b>O. I</b> /0		Mean		_	n:		tiple		
7.4 Comments:					Mean					I/A Ra		0.0
Updated using 2002 Phase 2	data on	7/22/0	)4 to		Wave				N	<b>I/A</b> Ra	atio:	0.0
then current protocols (SMR)				Step	7. Wii	ndshie	ld Su	rvey				
2007 protocols in Jan 2008 b	•	•		7.1	Bank	Erosic	n:		19	3.54	ft.	
•	•	•	ig on	7.2	Bank	Heigh	t:		3.	00 ft.		
2002 Ph2 data and limited ob	servatioi	ns on				_		otentia				
4.1   4.2   4.3   5.1   5.1	2   5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

2

High

1

Low

1

Low

1

Low

0

N.S.

2

High

2

High

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M19
Topo Maps: Bristol,Monkton,Hinesburg,Mount Philo, Westport

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

	is itea	cii aii	iiiipou	Hulliel	it: ITC			QU	лапту С	ontroi	Statu	<u>s: Un</u>	Know	n			
	Step 1	I. Read	ch Loc	ation													
	<u>-</u> _				R	each e	extend	ds aloi	na the	west	side d	of Rt 1	16 - b	eains	at far	m bri	dae
														- 9			3-
			ream L	atitud	e: <b>4</b>	4.24			Ste	p 4. L	and C	over -	Reacl	h Hydr	ology		
						73.07			4.1	Wate	rshed						
	Step 2	2. Strea	am Typ	oe -					His	storic L	and C	over:		Fo	rest		
	2.1 E	levatio	n Upst	 tream:	5	50							nd Cov	er: Fo	rest	80.6	<b>3</b> %
						15			Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: Fie	eld	
	2.1 ls	Gradi	ent Ge	entle?	1	No			4.2	Corrid	dor						
	2.2 V	alley L	ength:		7	<b>996</b> fe	et. 1	. <b>51</b> Mile	es. <sub>Hi</sub>	storic I	and C	over.		Fi	eld		
					•	J.++	/0		$\sim$	irrant l	Comin	ant la	nd Co			26	9 0/2
								<b>.06</b> Mil	15								<b>2</b> /0
				<del>)</del> :			%						III Laii			•	4 Danle
							_		_			mer				_	
							•										
				า:								than 2	95 ft ·				
		•		D			f	eet.								1150	•
						_	<b></b>										
							sroad										
				iream			Dool				Regui	auon -					
						_	Pooi								urawa	ai	
			•	e:			_				oc onc	1 Culv				<b>5</b> 0	/.
_						Grave	l			_			eris.	3			0
<u>S</u>	Step 3.	Basin	Chara	acterist	ics:				5.5				Dic	ht 165	:2	<b>ZZ</b> 70	
	3.1 A	lluvial	Fan:			Non	е		5.4							62 %	
	3.2 G	rade C	Control	:		Non	е										
	3.3 D	Reach Location Reach Description: Towns: Downstream Latitude: Downstream Longitude: 2. Stream Type Elevation Upstream: Elevation Downstream Is Gradient Gentle? Valley Length: Valley Slope: Channel Length: Channel Slope: Sinuosity: Watershed Area: Channel Width: Valley Width: Confinement Ratio: Confinement Type: Reference Stream Tedform: Sub-class Slope: Bed Material: Basin Characteristic Alluvial Fan: Grade Control: Dominant Geologic Manual Fan: Grade Control: Dominant Geologic Manual Fan: Grade Control: Comment Type: Coding: Coding: Coding: Coding: Coding: Coding: Comments: Comments: Comments: Comments: Codibility: Comments: Coditater Table Shallow: Coditater Table S		Mat.:	Allu۱	/ial	85.6	3.5 %State	S El	andala	isiory. sin Ma	dificat	Grav ione	ei ivii	ning		
	3.3 S	ub-dor	minant	Geolo	gical I	Mat.:	Ice-0	Contac		0. [	ooupie	2111 1010				00.07	
					-		еер		0.16	serms	ana R	oaas					
						-	-		Do	od:							lues
			•			•	•										ft.
	Hvd	rologic	Grour	o:	С		4	6.5 %									ft.
2.1 Elevation Downstream: 515 No 2.1 Is Gradient Gentle? No 7996 feet. 2.2 Valley Length: 7996 feet. 0.44 % 10885 feet. 2.5 Channel Length: 1.36 1.36				ft.													
2.1 Elevation Downstream: 2.1 Is Gradient Gentle? 2.2 Valley Length: 2.3 Valley Slope: 2.4 Channel Length: 2.5 Channel Slope: 2.6 Sinuosity: 2.7 Watershed Area: 2.8 Channel Width: 2.9 Valley Width: 2.10 Confinement Ratio: 2.10 Confinement Type: 2.11 Reference Stream Type: 2.11 Reference Stream Type: 2.11 Reference Stream Type: 3.1 Alluvial Fan: 3.2 Grade Control: 3.3 Dominant Geological Mat.: 3.4 Left Valley Side 3.5 Soils Hydrologic Group: Flooding: Water Table Deep: Water Table Deep: Water Table Shallow: Current: 4.2 Corrii 4.2 Corrii 4.2 Corrii 4.2 Corrii 4.2 Corrii 4.2 Corrii 4.3 Ripat 5.0 Current: Current: Current: 4.3 Ripat 4.3 Ripat 5.5 Dominar Sub-dominar Sub-dominar 5.1 Flow Type: Use: 5.1 Flow Type: Use: 5.2 Bridg 5.3 Bank 5.4 Chan 5.5 Dred 6.1 Berms 5.5 Dred 6.1 Berms 7.4 Comments: Downstream subreach, E-type. Downstream subreach, E-type. Downstream half fallow (except for ball fields). Updated with 2001 Phase 2 data in 10/01, and with 2002-2003 Phase 3 and training data on  Table Shallow: Updated with 2001 Phase 2 data in 10/01, and with 2002-2003 Phase 3 and training data on  Table Shallow: Type: Use: Step 5. Ins 5.1 Flow Type: Use: 5.2 Bridg 5.3 Bank 5.4 Chan 5.5 Dred 6.1 Berms 7.4 Cohan 8.6 Shaer 6.6 Wave 6.5 Mear 6.6 Wave 7.1 Bank 7.2 Bank 7.3 Ice/D									ft.								
											•		•			2	ft.
				anow.											•		
2.1 ls Gradient Gentle? No 2.2 Valley Length: 7996 feet. 2.3 Valley Slope: 0.44 % 10885 feet. 0.5 Channel Slope: 0.32 % 2.6 Sinuosity: 1.36 1.36 2.7 Watershed Area: 1.8 Square Miles 2.8 Channel Width: 2.9 Valley Width: 2.10 Confinement Ratio: 1.9 2.11 Reference Stream Type: 3.10 Confinement Type: 3.11 Reference Stream Type: 3.12 Grade Control: 3.1 Alluvial Fan: 3.2 Grade Control: 3.3 Dominant Geologic Mat.: 3.1 Alluvial Fan: 3.2 Grade Control: 3.3 Dominant Geologic Mat.: 3.4 Left Valley Side 3.5 Soils 1.5 Hydrologic Group: 3.5 Soils 1.5 Hydrologic Group: 3.6 Frequent 4.6 Feet. 4.7 Feet. 5.7 Hydrologic Group: 4.8 Channel Sub-Dominant Land Cover: Field 4.2 Corridor 4.2 Corridor 4.2 Corridor 4.2 Corridor 4.2 Corridor 4.3 Current Sub-Dominant Land Cover: Field 4.2 Current Sub-Dominant Land Cover: Field 4.3 Current Sub-Dominant Land Cover: Field 4.3 Current Sub-Dominant Land Cover: Field 4.2 Current Sub-Dominant Land Cover: Field 4.3 Current Sub-Dominant Land Cover: Field 4.3 Current Sub-Dominant Land Cover: Field 4.2 Current Sub-Dominant Land Cover: Field 4.3 Current Sub-Dominant Land Cover: Field 4.3 Current Sub-Dominant Land Cover: Field 4.2 Current Sub-Dominant Land Cover: Field 4.3 Current Sub-Dominant Land Cover: Field 4.2 Current Sub-Dominant Sub-dominat Land Cover: Field 4.2 Current Sub-Dominant Land Cover: Field 4.2 Current Sub-Dominant Sub-dominat Land Cover: Field 4.2 Current Sub-Dominant Sub-dominat Land Cover: Field 4.2 Current Sub-Dominant Sub-dominat Land Cover: Field 4.2 Current Sub-Dominate Su																	
	7.4 Cc	ommer	nts:														1.0
I	Downs	stream	subre	ach, E	-type.	Beav	er acti	vity.						4	1.2 Ra	atio:	1.0
I	Downs	stream	half fa	allow (e	except	for ba	II field	s).					vey			_	
				•	•			,						•		2 ft.	
	•										_						
'	vviui Z(	JUZ-ZU	001116	use s	unu ne	an in ig '	uala U	11	7.3	Ice/D	ebris J	lam Po	otentia	ıl: <b>M</b> u	ltiple		
Ī	4.4	4.0	4.0	<sub>E 4</sub>	F 0	F 2	E A	E E	C 4	6.0	6.0	C 4	6.5	6.0	74	7.0	Total
	4.1	4.2	4.3	<b>5.</b> 1	ე.∠	ე.პ	5.4	၂ ၁.၁	0.1	0.2	ნ.პ	0.4	0.5	0.0	7.1	1.2	Total

1

Low

2

High

0

N.S.

1

Low

2

High

2

High

2

High N.S.

0

2

High

21

1

Low

1

Low

2

High

0

N.S.

0

N.S.

1

Low

2

0

High N.S.

1

Low

0

N.S.

1

Low

1

Low

2

2

High | High | N.S.

0

1

Low

15

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M20
Topo Maps: Bristol,Monkton,Hinesburg,Mount Philo,Westport

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Rea	ich an	Impou	ndmer	nt? No	)		ality C	Control	Statu	s: Un	know	n				
Step 1	I. Read	ch Loc	ation													
		Descrip		R	each i	s wes	t of ar	nd par	allel to	o Rou	te 116	- bea	ins iu	st noi	rth of	Tatro
	owns:				tarksb								,			
		ream L	.atitud	e: <b>4</b>	4.23			Ste	p 4. L	and C	over -	Reach	h Hydi	rology		
		ream L			73.06				Wate							
		am Typ						His	storic L	and C	Cover:		Fo	rest		
		n Upst		5	78				rrent [			nd Cov			83.8	3 %
		n Dow			50				rrent S							,,,
		ient Ge		1	No			12	Corri	dor						
2.2 V	alley L	ength:		3	<b>363</b> fe	et. <b>0</b>	<b>.64</b> Mile	es. ⊔¦	etoric I	and (	Over.		C	ор		
2.3 V	alley S	Slope:		(	0.83	%								•	20.4	<b>9</b> 0/
2.4.C	hanne	I Lengt	th:	4	<b>032</b> fe		. <b>76</b> Mil		urrent l							3 %
2.5 C	hanne	l Slope	e:			%			rrent S			nı Lan				
	inuosit				.20			_	Ripar		ıtter				_	t Bank
		ned Are			17	•	re Mile	_	minan				0-2	_	>100	)
		l Width	า:		45		eet.		b-dom			05 ft ·	>10		0-25	
	alley V		_		142	f	eet.		ngth w				602		360	
		ement			_10				Groun		-			nimal		
		ement			Broad				5. Ins					uons		
		ence St	ream			<b>.</b>			Flow	Regui	ation -	` ,				
	dform:				Riffle-	Pool		Ty Us	pe:			None	:			
		s Slope	<b>ə</b> :		None					00 00	4 Culv	orto	4		2 %	/
	d Mate				Grave				Bridge Bank			eris.	1		5 %	0
Step 3.			cteris	tics:				5.5		_eft 2		Dic	ht <b>0.0</b>		5 %	
3.1 A	lluvial	Fan:			Non	е		5.4	Chan				222		<b>55</b> %	
3.2 G	irade C	Control	:		Non	е						_			<b>33</b> /0	
3.3 D	omina)	int Ged	ologic	Mat.:	Allu	vial	52.8	70a.	i			dificat	ione	<b>C</b>		
3.3 S	ub-dor	minant	Geolo	ogical I	Mat.:	Ice-(	Contac	t 610	Ormo	and D	oods	unicat	ld <b>5</b> 7	- 4	440/	
3.4 L	eft Val	ley Sid	le	V	ery St	eep		0.16	eiiis	anu n	oaus	U	One Si	_	<b>14 %</b> Both S	
3.4 R	ight Va	alley S	ide	V	ery St	eep		Ro	ad:				יופ אוני 1 <b>73</b>	ft. <b>(</b>		nues
3.5 S	oils				-				ilroad:				0.0	ft. <b>(</b>	-	ft.
Hyd	rologic	Group	o:	В		5	4.6 %		rm:				0.0	ft. C		ft.
	ding:			N	one/R	are 4	<b>7.2</b> %		proved	l Path			402	ft. C		ft.
Wat	er Tab	le Dee	ep:	6.	0	9	3.3 %		Deve				0.0	ft. 7		ft.
Wat	ter Tab	ole Sha	illow:	4.	0	4	<b>6.2</b> %		Chan			`		tiple		ft.
Ero	dibility:			M	odera	te 4	<b>7.1</b> %		Mean			n.		od Ch	ute	
7 / C	ommer	nte:							Mean		_			<b>5.1</b> Ra		1.0
					,				Wave					5.1 Ra		1.0 1.0
		am (fe			7. Wi	_		rvev	7	V. 1	aliU.	1.0				
		end. (				•			Bank			ıvoy	44	66.73	££	
point b	ar nea	ar dowi	nstrea	m exte	ent of r	each .									ιι.	
Update	ed usir	ng 200	2 Pha	se 2 da	ata on	7/22/0	)4.		Bank	_		otontic		52 ft.		
-			I	I	I	I		7.3	Ice/D	ะมาร์	Jaili P	ULETTE	ii. IVIU	ıııpıe	I	<del></del> 1
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
					<u> </u>											

1

Low

2

High

1

Low

0

N.S.

1

Low

0

N.S.

1

Low

0

N.S.

1

Low

0

N.S.

2

High

2

High

1

Low

2

High

0

N.S.

1

Low

15

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M21
Topo Maps: Monkton, Hinesburg, Bristol, Mount Philo, Westport

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Reach an impoundment?	NO		Qu	ality C	control	Statu	s: Un	know	n			
Step 1. Reach Location				•								
1.1 Reach Description:	Parallel	s RT ′	116 to	the W	est F	Reains	wob a	netres	m of	Mead	owlari	k
1.2 Towns:	Starksb				CSt. L	ogiii	dow	1136166	0.	Micaa	Owian	
1.3 Downstream Latitude:	44.22	0.0		Ste	p 4. L	and C	over -	Reach	n Hydr	ology		
1.3 Downstream Longitude:					Water		<u> </u>	110001	yaı	<u> ciogy</u>		
Step 2. Stream Type	. 0.00				storic L		over.		Fo	rest		
2.1 Elevation Upstream:	599				rrent E			nd Cov			84.5	0/2
2.1 Elevation Downstream:	578				rrent S				_			/0
2.1 Is Gradient Gentle?	No				Corric		Jiiiiiiai	iit Laii	u Cov	C1. <b>C1</b>	OP	
2.2 Valley Length:	<b>3651</b> fe	et. <b>0</b> .	<b>.69</b> Mile						-:	- 1 -1		
2.3 Valley Slope:		%		1 113	toric L					eld		
2.4.Channel Length:	<b>4398</b> fe		<b>.83</b> Mile	45	ırrent [							<b>o</b> %
2.5 Channel Slope:		%		Cu	rrent S			nt Lan			-	
2.6 Sinuosity:	1.20			4.3	Ripari	an Bu	ffer		Left	Bank	Righ	t Bank
2.7 Watershed Area:		Squa	re Mile	_	minan				>10	-	>100	
2.8 Channel Width:	38	f	eet.		b-dom				Noi	ne	None	9
2.9 Valley Width:	409	f	eet.		ngth w				0		543	
2.10 Confinement Ratio:	11				Grour					undar	nt	
2.10 Confinement Type:	Very B	Broad			5. Ins				odifica	tions		
2.11 Reference Stream Typ					Flow	Regula	ation -					
Bedform:	Riffle-	Pool		Ту				None				
Sub-class Slope:	None			Us							• •	,
Bed Material:	Grave				Bridge			erts:	1		2 %	o
Step 3. Basin Characteristics:				5.3	Bank			D:-	L 4 4 0 C		5 %	
3.1 Alluvial Fan:	None	е		E 1		_eft <b>5</b> 7			ht 186 617		14 %	
3.2 Grade Control:	None	е			Chan		~	_			14 70	
3.3 Dominant Geologic Mat.	: Alluv	/ial	63.7	%a.	Dredg 6. Flo			dificat	Non	е		
3.3 Sub-dominant Geologica		Ice-0	Contac	t Sie	) b. Fi	Joupia		unicai	1-1-2-2		- ~ .	
3.4 Left Valley Side	Hilly			6. I E	serms	ana R	oaas	O	iu <b>33</b> 2		7 %	·:-
3.4 Right Valley Side	Hilly				ad:				One Si		Both S	laes
3.5 Soils	•				au. ilroad:				0.0	ft. C		ft.
Hydrologic Group:	В	6	3.8 %	Be					0.0 0.0	ft. <b>C</b> ft. <b>C</b>		ft.
Flooding:	Frequer		4.6 %	_	oroved	l Dath			334	ft. C		ft.
Water Table Deep:	6.0		0.8 %		Devel				101	ft. <b>6</b>		ft.
Water Table Shallow:	4.0		4.6 %		Chan	•				tiple	,0	ft.
Erodibility:	Modera		9.9 %		Mean			n:		•		
·			,,				_	11.		tiple	. 4 !	4.0
7.4 Comments:					Mean					4.0 Ra		4.3
Updated using 2002 Phase 2					Wave	_		3/0)/	.1.1	<b>6.0</b> Ra	สแด: เ	3.1
Updated with additional Phas	e 2 data	in Sep	ot		7. Wii			vey				
2007.					Bank				-	502.99	tt.	
					Bank	_				31 ft.		
				7.3	Ice/De	ebris J	am Po	otentia	l: Mu	Itiple		
4.1 4.2 4.3 5.1 5.2	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
7.1 4.2 4.3 5.1 5.2	_   3.3	5.4	0.5	0.1	0.2	0.3	0.4	0.5	0.0	' · '	' .∠	Iolai

1

Low

2

High

2

High

0

N.S.

1

Low

1

Low

2

High

2

High

1

Low

0

N.S.

2

High

2

High

2

High

2

High

0

N.S.

2

High

22

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M22
Topo Maps: Hinesburg,Bristol,Monkton,Mount Philo,Westport

Date Last Edited: Fri, January 22, 2010

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Reach an Impound	ment? No	)		Qι	uality C	Control	Statu	s: <b>Un</b>	know	n			
Step 1. Reach Locati	on												
1.1 Reach Description		aach d	rocci	e une	ler Hil	lehore	D4 4	hon u	ndor I	D+ 11	S and	ovton	de
-		arksb		55 UIIC	iei mii	SDUIC	, κα, ι	iieii u	illuel i	NL. III	o anu	exten	us
1.2 Towns:		.ai KSD 4.21	010		C+c	n 1 I	and C	ovor	Doool	ام الم	ology		
1.3 Downstream Lat	itaao.					p 4. L		ovei -	Readi	ппуш	ology		
1.3 Downstream Lor	igitude	3.00				Wate				_	_		
Step 2. Stream Type		00				storic L					rest		
2.1 Elevation Upstre		60				rrent [						85.8	8 %
2.1 Elevation Downs		99				rrent S		omina	nt Lan	d Cov	er: Fie	eld	
2.1 Is Gradient Gent	:le? <u> </u>	No.			4.2	Corrid	dor						
2.2 Valley Length:	7	<b>064</b> fe	et. <b>1</b>	.34Mile	es. His	storic L	and C	over:		Fi	eld		
2.3 Valley Slope:	•	J.00	70		$\sim$	ırrent l				ver <b>Fi</b>	ble	22.6	<b>6</b> %
2.4.Channel Length:		<b>944</b> fe		<b>.50</b> Mil		rrent S							, ,
2.5 Channel Slope:			%						iii Laii				+ Donk
2.6 Sinuosity:		.12	_	B 4**	_	Ripar		illei				•	t Bank
2.7 Watershed Area		11		re Mile		minan				0-2	_	0-25	
2.8 Channel Width:		37		eet.		b-dom		than	05 ft ·	26-		>100	
2.9 Valley Width:		,325	f	eet.		ngth w				211	_	2682	
2.10 Confinement R		36	_			Groun					nimal		
2.10 Confinement Ty		Very E	Broad			5. Ins					tions		
2.11 Reference Stre			_			Flow	Regula	ation -					
Bedform:	I	Riffle-	Pool			pe:			None				
Sub-class Slope:	l	None			Us								
Bed Material:		Grave	I			Bridge			erts:	3		6 %	6
Step 3. Basin Charact					5.3	Bank		_				12 %	
3.1 Alluvial Fan:		Yes					_eft_ <b>7</b> 3			tht <b>25</b> 9			
3.2 Grade Control:		Non	Δ			Chan		-	_	390	5	49 %	
	aio Mat :	Allu		78 2	<sub>0/</sub> 5.5	Dredo	ging H	istory:		Dred	dging		
3.3 Dominant Geolo			laa (	7 0.2	2% Ste	p 6. Fl	oodpla	ain Mo	dificat	ions			
3.3 Sub-dominant G	•		ice-(		ct <u>Ste</u> 6.1 E	Berms	and R	oads	0	ld 148	36 ft.	18 %	
3.4 Left Valley Side		ktreme	ely St	eep						One Si		Both S	ides
3.4 Right Valley Side	e St	eep			Ro	ad:				1061	ft. <b>(</b>		
3.5 Soils						ilroad:				0.0	ft. C		ft.
Hydrologic Group:	В		4	<b>3.0</b> %		rm:				425	ft. C		ft.
Flooding:	Fr	equer	nt 4	9.6 %		proved	l Path			0.0	ft. C		ft.
Water Table Deep:		_		8.8 %		Deve				163	ft. 2		ft.
Water Table Shallo	ow: <b>0.</b>	0		2.3 %		Chan					tiple	-10	ft.
Erodibility:		ight		5.1 %	0.0						•		
,	0.	.9		,,	0.4	Mean		_	m.		tiple		
7.4 Comments:						Mean					6.0 Ra		2.9
Updated using 2002 I	Phase 2 da	ata on	7/22/0	04 to		Wave				16	<b>0.0</b> Ra	atio: 4	4.3
then current protocols					Step	7. Wi	ndshie	eld Su	rvey				
2007 protocols by SM		,	•		7.1	Bank	Erosio	n:		3,3	319.82	2 ft.	
•					7.2	Bank	Heigh	t:		3.	17 ft.		
2002 observations ald	ong entire	reach,	and I	imited		Ice/D	_		otentia				
4.1   4.2   4.3   5	5.1 5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

4.2

2

High

4.1

1

Low

4.3

2

High

5.1

0

N.S.

5.2

0

N.S.

5.3

0

N.S.

5.4

0

N.S.

5.5

0

N.S.

6.1

2

High

6.2

1

Low

6.3

1

Low

## **Phase 1 - Reach Summary Report**

6.5

0

N/A

6.6

0

N/A

6.4

1

Low

7.1

0

N.S.

7.2

1

Low

Total

11

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M23
Topo Maps: Bristol, Hinesburg, Monkton, Mount Philo, Westport

Date Last Edited: Fri, January 22, 2010

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Reach an impoundment?	NO	Qual	ity Control Sta	atus: Unknov	wn		
Step 1. Reach Location							
1.1 Reach Description:	Reach starts at	hedro	ck auteranni	ina hetween	Ireland	Rd and	
1.2 Towns:	Bristol, Starksb		ck outeroppi	ing between	iiciana	iva ana	
1.3 Downstream Latitude:	44.19	010	Sten 4 Land	l Cover - Rea	ch Hydr	ology	
1.3 Downstream Longitude:	-		4.1 Watershe		oningan	<u> </u>	
Step 2. Stream Type	7 0.00		Historic Land		Εo	rest	
2.1 Elevation Upstream:	779			ninant land Co			.7 %
2.1 Elevation Downstream:	660			-Dominant La	_		.1 /0
2.1 Is Gradient Gentle?	No		4.2 Corridor	-Dominant La	and Cove	i. Orban	
2.2 Valley Length:	<b>4500</b> feet. <b>0.85</b>	Miles			_		
2.3 Valley Slope:	<b>2.64</b> %	ivilioo.	TIISTOTIC Land			rest	
2.4.Channel Length:		Miles.		ninant land C			.0 %
2.5 Channel Slope:	2.64 %		Current Sub-	-Dominant La	and Cove	er: <b>Urban</b>	
2.6 Sinuosity:	1.00		4.3 Riparian	Buffer	Left	Bank Rig	ht Bank
2.7 Watershed Area:	9 Square I	Miles	Dominant:		26-5	50 >10	10
2.8 Channel Width:	<b>34</b> feet		Sub-dominal		0-25	5 0-2	5
2.9 Valley Width:	<b>290</b> feet	t.		ss than 25 ft.			
2.10 Confinement Ratio:	8		4.4 Ground V			imal	
2.10 Confinement Type:	Narrow	5	Step 5. Instrea			ions	
2.11 Reference Stream Typ	e: C	_	5.1 Flow Reg				
Bedform:	Riffle-Pool		Type:	Nor	ne		
Sub-class Slope:	b		Use:				
Bed Material:	Cobble		5.2 Bridges a	and Culverts:	1		%
Step 3. Basin Characteristics:			5.3 Bank Arm			1 %	
3.1 Alluvial Fan:	Yes		Left		ight <b>0.0</b>		
3.2 Grade Control:	None		5.4 Channel			0.0	
3.3 Dominant Geologic Mat	· Ice-Contact (	3 <b>4 7</b> %	5.5 Dredging	History:	None	<b>3</b>	
3.3 Sub-dominant Geologic		J <b>-1.7</b> /0	Step 6. Flood	plain Modific	ations		
3.4 Left Valley Side	Very Steep	6	6.1 Berms and	l Roads	old 282	3 ft. <b>62</b> %	6
3.4 Right Valley Side	Extremely Steep				One Sid	de Both	Sides
3.5 Soils	Extremely Steep	,	Road:		2113	ft. <b>0.0</b>	ft.
	D 60.0	0/	Railroad:		0.0	ft. <b>0.0</b>	ft.
Hydrologic Group:	B 69.8		Berm:		709	ft. <b>0.0</b>	ft.
Flooding:	None/Rare 94.7		Improved Pa		0.0	ft. <b>0.0</b>	ft.
Water Table Deep:	2.0 46.6		6.2 Developm		315.8	ft. <b>14</b>	ft.
Water Table Shallow:	1.5 53.3		6.3 Channel	Bars:	Mult		14.
Erodibility:	Severe 52.2	%	6.4 Meander	Migration:	Floo	d Chute	
7.4 Comments:			6.5 Meander	Width:	N	/A Ratio:	0.0
Updated Dec 2008, relying o	n some August 20	102	6.6 Waveleng	gth:	N	<b>/A</b> Ratio:	0.0
observations as well as limite	•	,	Step 7. Winds	hield Survey			
		iio -	7.1 Bank Ero	osion:	93	2.86 ft.	
and repeat cross sections fro	JIII July 2008.		7.2 Bank Hei	ght:		27 ft.	
			7.3 Ice/Debri	•			
	_	_   .					
- 44 40 40 54 5	0					/ 4   7 ^	1 4 4 4 4

### **Phase 1 - Reach Summary Report**

1

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M24
Topo Maps: Bristol, Hinesburg, Monkton, Westport, Mount Philo

Date Last Edited:

1

Low

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

is Rea	ch an	Impou	ndmer	nt? No			Qı	uality C	Control	Statu	s: <b>Un</b>	know	n			
Step 1	. Read	ch Loc	ation													
		Descrip		R	t 116 t	ი Hill	sboro	Rd. T	he rea	ach be	eains	at the	first s	sharn	turn d	on the
	owns:	200011	0110111		tarksb		0.00.0				90	ut 1.10	0 .	J. 1. G.		
		ream I	_atitude		4.19			Ste	ep 4. L	and C	over -	Reach	n Hvdr	oloav		
			_ongitu	Ŭ.	_				Wate					-11-97		
Step 2									storic L		lover.		Fo	rest		
			 tream:	10	000				rrent [			nd Cov			89.0	) %
			/nstrea		79				rrent S							, , 0
		ent Ge			No				Corrid		o		u <b>o</b> o.	o <b>o</b>		
2.2 V	alley L	ength:		4	<b>778</b> fe	et. <b>0</b>	<b>.90</b> Mil		storic L		ovor:		Ea	roct		
	alley S					%		1 113						rest	45	4 0/
		I Leng	th:	5	<b>592</b> fe	et. 1	.06 Mil	48	urrent I							4 %
		I Slope		3	3.95	%			rrent S			nt Lan			•	_
2.6 S	inuosit	ty:		1	.17				Ripar		ıffer				_	it Bank
		ned Ar			8	Squa	re Mile	,	minan				>10	-	>100	
		l Width	n:		32	1	feet.		b-dom			)E 44 -		100	51-1	00
	alley V				72	1	feet.		ngth w				0		0	
			Ratio:		2				Grour					nimal		
			Type:		Semi-	confir	ned		5. Ins							
			tream	Type:	A				Flow	Regul	ation -	(old):	No	Data		
	dform:			-					pe:							
Su	b-class	s Slope	e:					Us					_		• •	,
Be	d Mate	erial:							Bridge			erts:	0		0 %	6
Step 3.	Basin	Chara	acterist	tics:				5.3	Bank		rıng:	D:-	.1-4		0.0	
3.1 A	lluvial	Fan:			Non	е		E 1		_eft		Rig	Int		0.0	
3.2 G	rade C	Control	l:		No [	Data			Chan		. •	•	<b>N.</b>	<b>-</b> 1 -	0.0	
3.3 D	omina	int Ged	ologic I	Mat.:	Till		100	. %	Dredo	jiriy n	isiory.	dificat	No I	Jata		
			Geolo		Mat.:			Sie	Dredo p 6. Flo Berms	ooapia	ain ivio	unicai	ions	_		
		ley Sic		_	xtrem	elv St		6.1 E	Berms	and R	oads	U	14 <b>U.U</b>		0.0	N: -I
		alley S			xtrem			Da	d.			(	One Si		Both S	sides
3.5 S	-	,				,	-		ad:					ft.		ft.
		Group	n.	В		1	00. %		ilroad:					ft.		ft.
•	ding:	o o o o o	ρ.		one/R		00. %	DC	rm:	l Dath				ft.		ft.
	_	le Dee	an.	6.			00. %		proved					ft.		ft.
		ole Sha	•	2.			00. %	0.2	Devel			•	0.0	ft. <b>(</b>	).U	ft.
	dibility:		allow.				00. %	0.0	Chan					Data		
	•			ν.	J. y 00	70101	<b>30.</b> /0	0.7	Mean		_	n:	NO I	Data		
7.4 Cd	ommer	nts:							Mean							0.0
									Wave	_				Ra	atio:	0.0
								Step	7. Wi	ndshie	eld Su	rvey				
								7.1	Bank	Erosi	on:					
								7.2	Bank	Heigh	ıt:					
								7.3	Ice/De	ebris .	Jam Po	otentia	ıl:			
		4.0		<b>5</b> ^	<b>.</b> .			0.4			0.4	0.5		7.4	7.0	
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.S.

0

N.D.

0

N.S.

0

N.S.

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M25
Topo Maps: Hinesburg, Monkton, Bristol, Mount Philo, Westport

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

5.3

0

N.D.

5.4

0

N.S.

5.2

0

N.S.

4.2

1

Low

4.1

1

Low

4.3

0

N.S.

5.1

0

N.S.

5.5

0

N.S.

6.1

0

N.S.

6.2

0

N.S.

6.3

0

N.S.

6.5

0

N.D.

6.6

0

N.D.

7.1

1

Low

7.2

1

Low

Total

4

6.4

0

N.S.

Sub-watershed: Lewis Creek

is Reach an impoundment?	Qua	ality Control Status: Unkno	wn
Step 1. Reach Location			
1.1 Reach Description:	Starts where the val	ley sloe decreases and en	ds where Ireland road
1.2 Towns:	Starksboro	icy sloc acorcases and en	as where helana road
1.3 Downstream Latitude:	44.20	Step 4. Land Cover - Rea	ich Hydrology
1.3 Downstream Longitude:		4.1 Watershed	<u></u>
Step 2. Stream Type		Historic Land Cover:	Forest
2.1 Elevation Upstream:	1550	Current Dominant land Co	
2.1 Elevation Downstream:	1000	Current Sub-Dominant La	
2.1 Is Gradient Gentle?	No	4.2 Corridor	and Gover. Giban
2.2 Valley Length:	8448 feet. 1.60 Mile	•	Farant
2.3 Valley Slope:	6.51 %	riistoric Lariu Cover.	Forest
2.4.Channel Length:	<b>9284</b> feet. <b>1.76</b> Mile	s. Current Dominant land C	
2.5 Channel Slope:	<b>5.92</b> %	Current Sub-Dominant La	
2.6 Sinuosity:	1.10	4.3 Riparian Buffer	Left Bank Right Bank
2.7 Watershed Area:	3 Square Miles		>100 >100
2.8 Channel Width:	<b>21</b> feet.	Sub-dominant:	51-100 51-100
2.9 Valley Width:	<b>17</b> feet.	Length w/ less than 25 ft.	
2.10 Confinement Ratio:	1	4.4 Ground Water Inputs:	
2.10 Confinement Type:		Step 5. Instream Channel N	
2.11 Reference Stream Typ	e: A	5.1 Flow Regulation - (old	l): No Data
Bedform:		Type:	
Sub-class Slope:		Use:	4 4 0/
Bed Material:	Boulder	5.2 Bridges and Culverts:	
Step 3. Basin Characteristics:	, , _	5.3 Bank Armoring: Left R	0.0
3.1 Alluvial Fan:	None	5.4 Channel Straightening	tight a: <b>0.0</b>
3.2 Grade Control:	No Data	`	
3.3 Dominant Geologic Mat	.: Till 100.	%Step 6 Floodplain Modific	ations
3.3 Sub-dominant Geologic	al Mat.:	5.5 Dredging History:  Step 6. Floodplain Modific  6.1 Berms and Roads	
3.4 Left Valley Side	Extremely Steep	0.1 Dellis allu Rodus	old <b>0.0</b> ft. <b>0.0</b> One Side Both Sides
3.4 Right Valley Side	Extremely Steep	Road:	ft
3.5 Soils		Railroad:	ft Π.
Hydrologic Group:	B 82.8 %	Berm:	ft Π.
Flooding:	None/Rare 100. %	Improved Path:	ft.
Water Table Deep:	6.0 82.8 %	6.2 Development:	00 #00 <sup>IL.</sup>
Water Table Shallow:	2.0 82.8 %	6.3 Channel Bars:	No Data
Erodibility:	Very Severe100. %	6.4 Meander Migration:	No Data
7.4 Comments:		6.5 Meander Width:	Ratio: <b>0.0</b>
	anatata di la arabra	6.6 Wavelength:	Ratio: <b>0.0</b>
Pond at end of Ireland Rd, ve	•	Step 7. Windshield Survey	Radio. <b>Cio</b>
instream culvert - undercut o	n downstream pool,	7.1 Bank Erosion:	
poor lineup.		7.1 Bank Erosion. 7.2 Bank Height:	Medium (5 - 15 ft.)
		7.2 bank neight. 7.3 lce/Debris Jam Potent	
			uai.

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Lewis Creek Reach M26

Topo Maps: 513 (Mount Ellen)
Date Last Edited: Wed, August 29, 2007

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

is Reach an impoundment?	NO	Qual	ity Control Status: Unkno	wn		
Step 1. Reach Location						
1.1 Reach Description:	Pomoto for	rostod roa	ch			
•	Remote, for Starksboro		CII			
1.2 Towns:	44.20		Stop 4 Land Cover Pos	sch Hydrold	NOV.	
<ul><li>1.3 Downstream Latitude:</li><li>1.3 Downstream Longitude:</li></ul>	-		Step 4. Land Cover - Rea 4.1 Watershed	ich i fydfolc	<u> </u>	
	-73.00					
Step 2. Stream Type	4770		Historic Land Cover:			<b>=</b> 0/
2.1 Elevation Upstream:	1770		Current Dominant land C			.5 %
2.1 Elevation Downstream:	1550		Current Sub-Dominant La	and Cover:	urban	
2.1 Is Gradient Gentle?	No O foot	0.001/1100	4.2 Corridor			
2.2 Valley Length:	<b>0</b> feet. <b>0.00</b> %	0.00 Miles	Historic Land Cover:			
2.3 Valley Slope:	<b>3242</b> feet.	<b>0.61</b> Miles	Current Dominant land C	over: Fore	st 60	.9 %
2.4.Channel Length: 2.5 Channel Slope:	6.79 %	<b>0.01</b> Willes	Current Sub-Dominant La	and Cover:	Urban	
2.6 Sinuosity:	0.79 /0		4.3 Riparian Buffer	Left Ba	ank Rig	ht Bank
2.7 Watershed Area:		uare Miles	Dominant:			,
2.8 Channel Width:	12	feet.	Sub-dominant:			
2.9 Valley Width:	12	feet.	Length w/ less than 25 ft.	:		
2.10 Confinement Ratio:	0	icet.	4.4 Ground Water Inputs:			
2.10 Confinement Type:	Narrowly	Confined	Step 5. Instream Channel I		าร	
2.11 Reference Stream Typ			5.1 Flow Regulation - (old	<del>I</del> ):		
Bedform:	Step-Pool		Type:	-7-		
Sub-class Slope:	None		Use:			
Bed Material:	Boulder		5.2 Bridges and Culverts:	0	0	%
			5.3 Bank Armoring:	_	0.0	
Step 3. Basin Characteristics:	•		9	Right	0.0	
3.1 Alluvial Fan:	None		5.4 Channel Straightening		0.0	
3.2 Grade Control:	None		E E Dradaina History	,		
3.3 Dominant Geologic Mat		100.%	Step 6. Floodplain Modific	ations		
3.3 Sub-dominant Geologica	al Mat.:	e	6.1 Berms and Roads	old <b>0.0</b>	ft. <b>0.0</b>	
3.4 Left Valley Side	Steep	`	5. 1 Defins and 1 todas	One Side		Sides
3.4 Right Valley Side	Steep		Road:		ft.	
3.5 Soils			Railroad:		ft.	ft.
Hydrologic Group:	D	<b>67.2</b> %	Berm:		ft.	ft.
Flooding:	None/Rare	<b>100.</b> %	Improved Path:		ft.	ft.
Water Table Deep:	2.0	<b>67.2</b> %	6.2 Development:		ft.	ft.
Water Table Shallow:	0.0	<b>67.2</b> %	6.3 Channel Bars:	ı		ft.
Erodibility:	Very Sever		6.4 Meander Migration:			
•	-		6.5 Meander Width:		Datio:	0.0
7.4 Comments:			6.6 Wavelength:		Ratio:	0.0
			Step 7. Windshield Survey		Ratio:	0.0
		-	<del>`</del> _			
			7.1 Bank Erosion:			
			7.2 Bank Height:			

4.2 4.3 5.1 5.2 5.3 5.4 6.1 6.2 6.3 6.4 6.5 7.1 7.2 Total 4.1 5.5 6.6 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 N.S. N.S. N.S. N.S. N.S. N.S. N.D. Unk. Unk. N.S. Unk. Unk. N.S. N.D. N.D. Low

7.3 Ice/Debris Jam Potential:

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Prindle Brook Reach T1.01

Topo Maps: 314

2

High

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

2

High

0

N.S.

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

Is Rea	ich an	Impou	ndmer	nt? No	)		Qι	uality (	Control	Statu	s: <b>Un</b>	know	n			
Sten 1	1. Read	ch Loc	ation					•								
	each [			EI	owe e	outh:	to sou	those	t to th	0 0361	of Sr	oor S	troot t	hroug	h	
	owns:	Jescrip	Juori.		harlot		10 300	itiicas	נינט נוו	c casi	. O. O.	Jeai S	ii eet i	ııııouş	J''	
	ownst Iownst	roam I	atitud		4.29	i.C		Ste	ep 4. L	and C	over -	React	h Hydr	ology		
_	ownst			• •	73.18				Wate		OVCI	TCGG	TTIYGI	ology		
	2. Strea		_	ide	3.10				storic L		`ovor:		Ea	roct		
	levatio			2	40				irrent [			od Cov		rest	20.0	• 0/
	levatio				40 45								_		38.9	9 %
	Gradi				45 10				rrent S		omina	nı Lan	a Cov	er. Cr	op	
	alley L			2	10 760 f≏	ot O	52 Mil	4.2	Corrid	יוטג						
	'alley S	_			3.44	%	.52 17111		storic L					eld		
	hanne		th·		<b>968</b> fe		. <b>75</b> Mil	ے С۱	ırrent l	Domin	ant la	nd Co	ver: <b>Fc</b>	rest	65. <sup>-</sup>	1 %
	hanne					%		Cu. Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Fic</b>	eld	
	inuosit		<i>.</i>		.44	, 0		4.3	Ripar	ian Bu	ıffer		Left	Bank	Righ	t Bank
	Vatersh		ea.	•	3	Squa	re Mile	s Do	minan	t:			>10	0	>100	)
	hanne			2	21	•	eet.	Su	b-dom	inant:			Noi	ne	None	е
	'alley V		•	_			eet.	Le	ngth w	/ less	than 2	25 ft.:	482	2	558	
	Confin		Ratio:		0		001.	4.4	Groun	าd Wa	ter Inp	outs:	Mir	nimal		
	Confin				Semi-	confir	ed	Step	5. Ins	tream	Chan	nel Mo	odifica	tions		
	Refere							5.1	Flow	Regul	ation -	(old):				
	dform:				Step-F	Pool			pe:	•		None				
Su	b-clas	s Slope	e:	ı	None			Ús								
	ed Mate	•			Cobbl	6		5.2	Bridge	es and	d Culv	erts:	1		1 %	6
Step 3.			cterist		0000.	•		5.3	Bank	Armo	ring:				0.0	
	lluvial		.0101101		Non	^				_eft <b>0</b> .	-		ht <b>0.0</b>			
	inuviai Grade C				Man	^			Chan				0.0		0.0	
				Mot .	Glac	e ialla	ko70 3	<sub>o/</sub> 5.5	Dredg	ging H	istory:		Non	е		
	omina		-		Mati	iai La	Ke <i>l</i> U Till	<b>'</b> ′°Ste	Dredo p 6. Fl	oodpla	ain Mo	dificat	ions			
	Sub-dor			_				6.1 E	Berms	and R	oads	0	ld <b>9</b> 59	ft.	24 %	
	eft Val	•			xtrem	ely St	eep						One Si		Both S	Sides
	light Va	alley 5	iae	51	teep			Ro	ad:				0.0	ft. C	0.0	£.
3.5 S		_		_		_		Ra	ilroad:				0.0	ft. C	0.0	ft. ft.
	rologic	Group	<b>)</b> :	D	-		0.3 %	סכ	rm:				0.0	ft. C	0.0	ft.
	oding:						0.9 %	1111	proved	l Path	:	9	959	ft. C	0.0	ft.
	ter Tab			1.			<b>6.7</b> %	0.2	Deve	lopme	nt:		0.0	ft. 3	35	ft.
	ter Tab		allow:	0.	-		3.0 %	6.3	Chan				Non	e		IL.
Ero	dibility:	:		M	odera	te 4	<b>4.2</b> %	6.4	Mean	der M	igratio	n:				
7.4 C	ommer	nts:							Mean		_		N	<b>I/A</b> Ra	atio:	0.0
								6.6	Wave	lenath	1:			<b>I/A</b> Ra		0.0
									7. Wi	_		rvey	_			
									Bank				(	0.00 ft		
									Bank					00 ft.	•	
									Ice/D	_		ntantin				
			I		<u> </u>	1	<u> </u>	7.3	100/0	ר פווחם			ıı. <b>iviu</b>	inhie	l	
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

2

High

0

N.S.

0

N.S.

0

N.S.

0

N/A

0

N/A

0

N.S.

0

N.S.

6

2

High

2

High

2

High

0

N.S.

0

N.S.

0

N.S.

2

0

High N.S.

0

Unk.

0

N.S.

0

N.S.

# **Phase 1 - Reach Summary Report**

2

0

N.S.

2

High | High | N.S.

0

0

N.S.

12

Basin: Otter, Little Otter, Lewis

**Prindle Brook** Reach T1.02 Stream Name:

Topo Maps: 314

Date Last Edited: Tue, January 22, 2008

Lewis Creek, Little Otter, Lake Champlain Watershed:

**Lewis Creek** Sub-watershed:

Is Reach an Impoundment?	No		Qι	ality C	ontrol	Statu	s: <b>Un</b>	know	n			
Step 1. Reach Location												
1.1 Reach Description:	Flows s	outhy	vest fr	om th	e vicir	nity of	the F	rindle	Road	d cros	sing	
1.2 Towns:	Charlot					•					J	
1.3 Downstream Latitude:	44.29			Ste	p 4. L	and C	over -	Reacl	n Hydr	rology		
1.3 Downstream Longitude:	-73.18			4.1	Wate	rshed						
Step 2. Stream Type				His	storic L	and C	Cover:		Fo	rest		
2.1 Elevation Upstream:	370			Cu	rrent [	Domin	ant lar	nd Cov	er: Fc	rest	39.6	<b>3</b> %
2.1 Elevation Downstream:	340			Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: Cr	ор	
2.1 Is Gradient Gentle?	No	_			Corrid	dor						
2.2 Valley Length:	<b>5206</b> fe		<b>.99</b> Mile	<sup>es.</sup> His	storic L	and C	Cover:		Fo	rest		
2.3 Valley Slope:		%	40141	. Cı	ırrent l	Domin	ant la	nd Co	ver: <b>Fc</b>	rest	35.	7 %
2.4.Channel Length:	<b>6282</b> fe		<b>.19</b> Mile					nt Lan				
2.5 Channel Slope:	0.48 1.21	%			Ripar							t Bank
<ul><li>2.6 Sinuosity:</li><li>2.7 Watershed Area:</li></ul>	3	Saus	re Mile	_	minan				0-2		0-25	it Dank
2.8 Channel Width:	20	•	eet.	_	b-dom				>10		>100	)
2.9 Valley Width:	1,191		eet.	Le	ngth w	/ less	than 2	25 ft.:	372		3804	
2.10 Confinement Ratio:	59		cci.	4.4	Grour	nd Wa	ter Inp	outs:	Ab	undar	nt	
2.10 Confinement Type:	Very E	Broad		Step	5. Ins	tream	Chan	nel Mo	odifica	tions		
2.11 Reference Stream Typ				5.1	Flow	Regul	ation -	· (old):				
Bedform:	Riffle-	Pool		Ty	pe:			None				
Sub-class Slope:	None			Ús								
Bed Material:	Grave	I			Bridge			erts:	1		0 %	6
Step 3. Basin Characteristics:				5.3	Bank						0.0	
3.1 Alluvial Fan:	Non	е		- 4		_eft <b>0</b> .			ht <b>0.0</b>		040/	
3.2 Grade Control:	Non	^			Chan				408		64 %	
3.3 Dominant Geologic Mat	.: Glac	ial La	ke81.2	5.5	Dreag	ging H	istory:	-I:£: 4	Non	е		
3.3 Sub-dominant Geologic	al Mat.:	Ice-0	ke81.2 Contac	et Ste	0 6. FI	ooapia	ain ivio	ouncat	ions	_		
3.4 Left Valley Side	Hilly			6.1 E	Berms	and R	oads	U	10 <b>U.U</b>		0.0	N: -I
3.4 Right Valley Side	Extrem	elv St	еер	Do	ad.				One Si		Both S	laes
3.5 Soils		.,			ad: ilroad:				0.0	ft. <b>(</b>	_	ft.
Hydrologic Group:	D	8	0.9 %		iii oau. rm:				0.0 0.0	ft. <b>(</b> ft. <b>(</b>		ft.
Flooding:	None/R			De	rovec	l Path			0.0 0.0	ft. <b>(</b>		ft.
Water Table Deep:	1.0		9.0 %		Devel				0.0	ft. <b>(</b>		ft.
Water Table Shallow:	0.0		5.8 %		Chan	-		•	Nor		<b>J. U</b>	ft.
Erodibility:	slight	1	<b>7.6</b> %		Mean			n.	1401			
7.4 Comments:	•				Mean		_	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	2	<b>0.2</b> Ra	atio:	1.0
7.4 Comments.					Wave					0.2 Ra		1.0 1.0
					7. Wi	_		rvev	_	<b>0.2</b> 1\0	alio.	1.0
					Bank			,	•	0.00 ft	i	
										.00 ft.	•	
					Bank			otentia				
				7.3		י פוומים		 	ii. IVIU	Incibie	1	
4.1   4.2   4.3   5.1   5.	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
		_										1.0

1

Low

1

Low

0

N.S.

0

N.S.

0

N.S.

2

0

High N.S.

0

Unk.

0

N.S.

0

N.S.

0

N.S.

0

N/A

0

N/A

0 N.S.

2

High

# **Phase 1 - Reach Summary Report**

1

Low

7

Basin: Otter, Little Otter, Lewis

Stream Name: Prindle Brook Reach T1.03

Topo Maps: 314

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment?	No		Qι	uality C	Control	Statu	s: <b>Un</b>	knowi	n			
Step 1. Reach Location				Ī								
1.1 Reach Description:	Flows t	hroud	h narı	·OW W	haelte	hotw	oon he	adrocl	k knal	lle wo	et of F	Roan
1.2 Towns:	Charlot		II IIaii	OW W	Juana	DCIW	cii be	-ui oci	K KIIOI	IIS WC	31 OI L	Jean
1.3 Downstream Latitude:	44.30			Ste	ep 4. L	and C	over -	Reach	h Hydr	ology		
1.3 Downstream Landue:					Wate		OVCI	rtcaci	TTIYGI	ology		
Step 2. Stream Type	70.17				storic L		'ovor		٠.	on		
2.1 Elevation Upstream:	373				irrent [			od Cov		ор	20.0	<b>)</b> 0/
2.1 Elevation Downstream:	373 370										38.(	<b>)</b> %
2.1 Is Gradient Gentle?	No				rrent S		Jillila	nt Lan	u Cov	ei. Fie	eia	
2.2 Valley Length:	190 1970 fo	ot O	371/il/	4.Z	Corrid	ior						
2.3 Valley Slope:	1970 fe 0.15	%	J IVIII							etland	-	
2.4.Channel Length:	<b>2286</b> fe		. <b>43</b> Mil	ے Сו	ırrent [	Domin	ant laı	nd Cov	ver: W	etland	42.	1 %
2.5 Channel Slope:		%	.4011111	Cu. Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Fo</b>	rest	
2.6 Sinuosity:	1.16	, 0		4.3	Ripari	ian Bu	ffer		Left	Bank	Righ	t Bank
2.7 Watershed Area:	1	Squai	e Mile	_	minan				>10		>100	
2.8 Channel Width:	13	•	eet.	Su	b-dom				No		None	
2.9 Valley Width:	480		eet.	Le	ngth w	/ less	than 2	25 ft.:	82		75	
2.10 Confinement Ratio:	38	•		4.4	Grour	nd Wa	ter Inp	uts:	Ab	undar	nt	
2.10 Confinement Type:	Very E	Broad		Step	5. Ins	tream	Chan	nel Mo	odifica	tions		
2.11 Reference Stream Typ				5.1	Flow	Regula	ation -	(old):				
Bedform:	Dune-	Ripple	•	Ty	pe:			None				
Sub-class Slope:	С			Ús	e:							
Bed Material:	Sand			5.2	Bridge	es and	l Culve	erts:	1		4 %	6
Step 3. Basin Characteristics:				5.3	Bank		_				0.0	
3.1 Alluvial Fan:	Non	_				_eft_ <b>0</b> .	-		ht <b>0.0</b>			
3.2 Grade Control:	Non	^			Chan				138	7	60 %	
3.3 Dominant Geologic Mat	· Glac	o ial I al	ke84 9	$\frac{5.5}{6}$	Dredo	ging H	istory:		Non	е		
3.3 Sub-dominant Geologic	Oluo al Mat :	iai _a	Till	′ ′ <u>Ste</u>	Dredo p 6. Flo	oodpla	ain Mo	dificat	ions			
3.4 Left Valley Side	Very St		• • • • • • • • • • • • • • • • • • • •	6.1 E	Berms	and R	oads	0	ld <b>0.0</b>		0.0	
3.4 Right Valley Side	Hilly	ceb						C	One Si	de l	Both S	Sides
3.5 Soils	ııııy				ad:				0.0	ft. <b>(</b>		ft.
	D	4	00. %		ilroad:				0.0	ft. C		ft.
Hydrologic Group:	None/R			De	rm:				0.0	ft. <b>(</b>		ft.
Flooding:					proved				0.0	ft. C		ft.
Water Table Deep:	1.0		9.9 %	0.2	Devel			(	0.0	ft. 4	Ю	ft.
Water Table Shallow:	0.0		9.9 %	0.0	Chan				Non	ne .		
Erodibility:	slight	2	0.1 %	0.4	Mean		_	n:				
7.4 Comments:					Mean				N	<b>V/A</b> Ra	atio:	0.0
Reach is a wetland. Meande	r deome	trv (St	ens		Wave				N	<b>V/A</b> Ra	atio:	0.0
6.5, 6.6) not applicable. Live	•	• •	•	Step	7. Wii	ndshie	ld Sur	vey				
corridor downstream of Princ	•			7.1	Bank	Erosic	n:	_	(	0.00 ft		
	iie Road	cuivel	L	7.2	Bank	Heigh	t:		0.	00 ft.		
crossing.					Ice/De	_		otentia				
	_											
4.1   4.2   4.3   5.1   5.	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

2

High

1

Low

2

High

0

N.S.

0

N.S.

2

0

N.S.

0

High | N.S.

0

Unk.

0

N.S.

0

N.S.

0

N/A

0

N.S.

0

N/A

0

N.S.

0

N.S.

7

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Prindle Brook Reach T1.04

Topo Maps: 314

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is iteach an impoundment:	10		Qu	anty C	ontroi	Statu	<u>s: Un</u>	Know	Λ			
Step 1. Reach Location												
	Flows tl	hroud	h wetla	and a	lona w	est s	ide Be	ean Ro	oad			
1.2 Towns:	Charlot	_	,									
1.3 Downstream Latitude:	44.31			Ste	p 4. La	and C	over -	Reach	n Hydr	ology		
1.3 Downstream Longitude:	-73.17				Water							
Step 2. Stream Type				His	storic L	and C	over:		Cr	ор		
2.1 Elevation Upstream:	380				rrent D			nd Cov		•	37.5	5 %
2.1 Elevation Downstream:	373				rrent S							
2.1 Is Gradient Gentle?	No			4.2	Corric	dor						
2.2 Valley Length:	<b>3730</b> fe		<b>.71</b> Mile	_	storic L		OVET.		W	etland	1	
2.3 Valley Slope:	0.19	%			irrent [			od Cov				<b>n</b> 0/
2.4.Channel Length:	<b>3899</b> fe		<b>.74</b> Mile									70
2.5 Channel Slope:		%			rrent S			nt Lan				
2.6 Sinuosity:	1.05	_		_	Ripari		tter				_	t Bank
2.7 Watershed Area:		•	re Miles	-	minan				>10		>100	
2.8 Channel Width:	10	1	eet.		b-dom		than C	)E f+ .	Nor		None	9
2.9 Valley Width:	1,085	1	eet.		ngth w				485		370	
2.10 Confinement Ratio:	114	_			Grour					undar	nt	
2.10 Confinement Type:	Very E	Broad			5. Ins				odifica	tions		
2.11 Reference Stream Type					Flow	Regula	ation -					
Bedform:	Dune-	Ripple	е		pe:			None				
Sub-class Slope:	С			Us	-				•		• •	,
Bed Material:	Sand				Bridge			erts:	0		0 %	o
Step 3. Basin Characteristics:				5.3	Bank			Б.			0.0	
3.1 Alluvial Fan:	None	е		_ A		_eft <b>0</b> .			ht <b>0.0</b>		74.0/	
3.2 Grade Control:	None	е			Chan				278		71 %	
3.3 Dominant Geologic Mat.	Glac	ial La	ke98.0	%5.5	Dreag	ling H	istory:		Non	е		
3.3 Sub-dominant Geologica	l Mat.:		ke98.0 Till	Ste	5 6. FIG	ooabis	ain ivio	aificat	ions			
<u> </u>	Very Ste			6.1 E	Berms	and R	oads	U	10 <b>U.U</b>		0.0	
	Hilly	оор		_					One Si		Both S	ides
3.5 Soils	y			_	ad:				0.0	ft. C		ft.
	D	0	8.0 %		ilroad:				0.0	ft. C		ft.
,	None/Ra			_	rm:				0.0	ft. C		ft.
9					proved				0.0	ft. C		ft.
Water Table Deep:	1.0		7.0 %		Devel	-		(	0.0	ft. <b>C</b>	0.0	ft.
	0.0		3.4 %		Chani				Non	e		
Erodibility:	slight	•	3.0 %		Mean		_	n:				
7.4 Comments:				6.5	Mean	der W	idth:		N	I/A Ra	atio:	0.0
Reach is a wetland. Meander	r deomet	trv (St	ens	6.6	Wave	length	1:		N	<b>I/A</b> Ra	atio:	0.0
	goomo	, (0	opo	Step	7. Wii	ndshie	ld Sur	vey				
6.5, 6.6) not applicable.				7.1	Bank	Erosio	n:		(	0.00 ft		
					Bank					00 ft.		
					Ice/De	_		otentia				
				,.0		22.10	J (					
4.1   4.2   4.3   5.1   5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

2

High

2

High

2

High

0

N.S.

0

N.S.

2

0

N.S.

0

High N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

2

2

High | High |

0

N.S.

1

Low

13

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Prindle Brook Reach T1.2S1.01

Topo Maps: 314

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Rea	ch an	ımpou	namer	nt? NC	•		iality C	Control	Statu	<u>s: Un</u>	know	n				
Step 1	. Rea	ch Loc	ation													
		Descrip		w	etland	d-dom	inated	l reac	h cros	sina l	Prindl	e Roa	d nor	thwes	t of P	rindle
	owns:	200011	3110111.		harlot		matoc	. reao	. 0.00	July .		o moa	u		0	illaio
		ream L	atitud		4.30			Ste	p 4. L	and C	over -	Read	h Hvdi	roloav		
		ream L		• •	73.17				Wate			- rougi		0.097		
		am Typ	_						storic L		over.		Fo	rest		
		on Ups		3	77				rrent [			nd Cov			49.2	%
		n Dow			70				rrent S						_	- 70
		ient Ge			No				Corrie		J	iii Laii	u 001	o <b>o.</b>	υp	
2.2 V	allev L	ength:		2	<b>846</b> fe	et. <b>0</b>	<b>.54</b> Mile		storic L		`0\ (0 r:		٥.			
	alley S					%		1 113						op	20	• 0/
		Leng	th:	3	<b>109</b> fe	et. <b>0</b>	. <b>59</b> Mile		ırrent l					-		6 %
		I Slope	э:	(	0.23	%						nt Lan			etland	
2.6 S	inuosit	ty:		1	.09			_	Ripar		itter				_	t Bank
		ned Ar			1	•	re Mile	_	minan				0-2	-	>100	
		el Width	า:		14		eet.		b-dom			DE 44 .	>10		0-25	
	alley V				708	f	eet.		ngth w				132		1174	+
		ement			49				Groun					undar	nτ	
		ement			Very E	Broad			5. Ins					lions		
		ence St	tream			D: I.	_		Flow	Regui	ation -	· (ola): <b>None</b>				
	dform:				Dune-	Kippi	9	Us	pe:			None	•			
		s Slop	e:		None					oc on	1 Culv	orto:	1		<b>5</b> %	/.
	d Mate		_		Sand				Bridge Bank			CITO.	•		0.0	0
Step 3.			acterist	tics:				5.5		_eft 0	_	Ric	ht <b>0.0</b>		0.0	
3.1 A	lluvial	Fan:			Non	-		5.4	Chan				281		90 %	
3.2 G	rade C	Control	:		Non	е					_	_			00 /0	
		ant Geo			Glac	ial La	ke99.5 Till	%Ste	0.6 Fl	oodnis	ain Mo	dificat	ions	C		
3.3 S	ub-dor	minant	Geolo	gical I	Mat.:		Till	6 1 5	Berms	and P	oade	amout	ld <b>8</b> 4	£	2 %	
3.4 L	eft Val	ley Sic	le	St	teep			0.1 L	CIIIIS	anu iv	uaus		One Si		∠ 76 Both S	Sides
3.4 R	ight Va	alley S	ide	V	ery St	eep		Ro	ad:				84	ft. (		
3.5 S	oils								ilroad:				0.0	ft. (		ft.
Hyd	rologic	Group	o:	D		9	<b>7.4</b> %		rm:				0.0	ft. (		ft.
Floo	ding:			N	one/R	are 1	<b>00.</b> %		proved	l Path			0.0	ft. (		ft.
Wat	er Tab	ole Dec	ep:	1.	0	8	7.9 %		Deve				69	ft.		ft.
Wat	er Tab	ole Sha	allow:	0.	0	6	7.1 %		Chan				Nor			ft.
Ero	dibility:			sl	ight	1	0.1 %		Mean			n.		.0		
7.4 Cd	nmer	nte:							Mean		_		1	<b>4.4</b> Ra	atio:	1.0
				. D :					Wave					<b>4.4</b> Ra		1.0
Scour	•	lownsti	ream c	of Princ	dle Ro	ad cul	vert		7. Wi	_		rvev	•	7.7 1	alio.	1.0
crossir	ng.								Bank			,		0.00 ft		
														.00 ft.		
									Bank Ice/D	_		otontic				
	-	<u> </u>			<u> </u>	<u> </u>		7.3	100/10	פווס כ	aiii P		ıı. Cu	IVEIL	1	<del>                                     </del>
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

1

Low

0

N.S.

0

N.S.

0

N.S.

0

N.S.

2

0

High N.S.

0

Unk.

0

N.S.

0

N.S.

0

N.S.

0

N/A

0

N/A

0

N.S.

0

N.S.

5

2

High

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Prindle Brook Reach T1.2S1.02

Topo Maps: 314

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is	s Rea	ch an	Impou	ndmer	nt? No	)		Qı	uality	Control	Statu	s: <b>Un</b>	know	n			
5	Step 1	I. Read	ch Loc	ation													
_		each [			S	hort w	etland	d reac	h dov	vnstrea	am of	Garer	n Road	d cros	sina		
		owns:	- 000p			harlot									9		
		ownst	ream L	atitud	e: <b>4</b>	4.31			St	ep 4. L	and C	over -	Reacl	h Hydr	ology		
	1.3 D	ownst	ream L	ongitu	ide: <b>-</b> 7	73.16			<u>4.</u>	1 Wate	rshed						
S	Step 2	2. Strea	am Typ	oe -					Н	storic L	and C	over:		Fo	rest		
	2.1 E	levatio	n Upst	 tream:	3	90			С	urrent [	Domin	ant lar	nd Cov	er: Fc	rest	51.1	<b>l</b> %
	2.1 E	<b>levatio</b>	n Dow	nstrea	am: <b>3</b>	77			С	urrent S	Sub-Do	omina	nt Lan	d Cov	er: Cr	ор	
		Gradi				No				2 Corrie	dor					-	
		alley L				<b>326</b> fe		. <b>44</b> Mil	es. H	storic L	and C	cover:		W	etland	ł	
		alley S				0.56				urrent			nd Co				<b>7</b> %
		hanne				<b>785</b> fe		<b>.53</b> Mil		urrent S							. 70
		hanne		e:			%			3 Ripar			iii Laii				nt Bank
		inuosit		001	1	.20	Sauce	ro Mila	_	ominan		11101			100	>100	
		/atersh				1 13	•	re Mile	, .	ub-dom				>10		None	
		hanne alley V		1.		,116		eet.		ength w		than 2	25 ft.:	0	,0	0	<b>G</b>
		Confin		Ratio:		86	ı	eet.		4 Groui				•	undar	-	
		Confin				Very E	Rroad			5. Ins							
		Refere				-	oi ouu			1 Flow							
		dform:		oam		– Dune-	Ripple	9		/pe:			None				
		b-class		۵.		C	рр			se:							
		d Mate	•	<b>.</b>		Sand			5.	2 Bridg	es and	Culve	erts:	0		0 9	6
St		Basin		ctariet		Janu				Bank						0.0	
		Iluvial		CCCTIO		Non	_				_eft <b>0</b> .	-		ht <b>0.0</b>			
		irade C				Non	Δ			4 Chan				706		25 %	
		omina			Mat :	Glac	c ialla	ka100	<sub>%</sub> 5.	5 Dredo	ging H	istory:		Non	е		
				-			iai La	KC 100	· <sup>70</sup> Ste	Dredo p 6. Fl	oodpla	ain Mo	dificat	ions			
		ub-dor			•				6.1	Berms	and R	oads	O	ld <b>0.0</b>	ft.	0.0	
		eft Val ight Va	•			teep							(	One Si	de	Both S	Sides
	3.5 S	_	alley O	iue	п	illy				oad:				0.0	ft. <b>(</b>		ft.
			Crour	· ·	D		4	00. %		ailroad:				0.0	ft. (		ft.
		rologic	Group	J.					ים	erm:				0.0	ft. <b>(</b>		ft.
		ding:	lo Doc	.n.		one/R				proved				0.0	ft. <b>(</b>		ft.
		er Tab			1.			00. %	0.	2 Deve			(	0.0	ft. <b>(</b>	0.0	ft.
		ter Tab		allow:	0.		0	4.3 %	0.	3 Chan				Non	ie		
		dibility:			51	ight		%	0.	4 Mean		_	n:				
7	'.4 Cc	ommer	nts:							5 Mean					<b>I/A</b> Ra		0.0
R	each	is a w	etland	. Mea	nder d	geome	try (St	eps		6 Wave	_			N	<b>I/A</b> Ra	atio:	0.0
	6.5. 6.6) not applicable.										ndshie	eld Sui	rvey				
J	oro, oro, not approadion										Erosio	n:		(	0.00 ft		
									7.	2 Bank	Heigh	t:		0.	00 ft.		
									7.3	3 Ice/D	ebris J	lam Po	otentia	al: No	ne		
	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
- 1	т. і	7.2	7.0	J U. 1	0.2	0.0	J.7	0.0	0.1	0.2	0.5	J U.T	0.0	0.0	' · '	۷.۷	I Olai

2

High

2

High

2

High

0

N.S.

0

N.S.

0

N.S.

2

0

High N.S.

0

N.S.

0

N.S.

0

N.S.

# **Phase 1 - Reach Summary Report**

2

0

N.S.

2

High | High | N.S.

0

1

Low

13

Basin: Otter, Little Otter, Lewis

**Unnamed Trib to Prindle Brook** Reach T1.2S1.03 Stream Name:

314 Topo Maps:

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

**Lewis Creek** Sub-watershed:

Is Read	ch an I	Impou	ndmer	nt? No	)		Qι	uality (	Control	Statu	s: <b>Un</b>	know	n			
Step 1.	. Read	ch Loc	ation													
1.1 Re				FI	ows n	orth t	throug	h agri	icultur	al fiel	ds an	d fore	st. cr	ossin	g Gar	en
1.2 To		7000116					nesbu		ouitui	u	ao an	u 1010	J., J.	000111	y Oui	011
		eam L	atitude		4.31	••, •••			ep 4. L	and C	over -	Reacl	h Hvdi	roloav		
		eam L							Wate				<u> </u>	37		
Step 2.									storic L		cover.		Fo	orest		
2.1 El				4	10				irrent [			nd Cov			56.	0 %
2.1 El					90				irrent S							• 70
2.1 ls	Gradi	ent Ge	entle?		No				Corrid							
2.2 Va	alley L	ength:		4	<b>760</b> fe	et. <b>0</b>	.90Mile	20	storic L		`ovor		Ec	orest		
2.3 Va	alley S	lope:		(	0.42	%						nd Co			24	<b>4</b> 0/
2.4.Ch	nannel	Lengt	th:	5	<b>010</b> fe		<b>.95</b> Mil	14	urrent l							4 %
2.5 Ch			e:			%			irrent S			nı Lan				
2.6 Si				1	.05	_		_	Ripar		itter				_	nt Bank
2.7 W					1	•	re Mile	_	minan				0-2		>100	
2.8 Ch			า:		11		feet.		ıb-dom ngth w			05 ft ·	>10 218		0-25	
2.9 Va			D .:		19 <u>4</u>	1	feet.		Grour				-	งอ undai	1997	1
2.10 C					47	) l			5. Ins						IL	
2.10 0					Very E	roau			Flow					110113		
2.11 R	dform:		iream		c Riffle-	Dool				Negui	alion -	None				
						PUUI		Us	pe:			140116	•			
		Slope	ð.		None				Bridge	es and	1 Culv	erte.	2		2 (	%
	d Mate				Grave				Bank			Cito.	_		0.0	70
Step 3.			cterist	ics:				0.0		_eft <b>0</b> .		Ric	ht <b>0.0</b>		0.0	
3.1 All					Non			5.4	Chan				298		<b>59</b> %	1
3.2 Gr					Non	е										
		nt Geo	_		Glac	ial La	ke98.2 Till	%Ste	p 6. Fl	nodpla	ain Mo	dificat	ions			
3.3 Su				•			Till	6 1 F	Berms	and R	nads	0	ld <b>9</b> 6	ft	1 %	
3.4 Le					teep			0.11	3011110	ana n	ouus		One Si		Both S	Sides
3.4 Ri	_	alley S	ide	E	xtrem	ely St	eep	Ro	ad:				96	ft. <b>(</b>		
3.5 Sc								Ra	ilroad:				0.0	ft. (		ft.
		Group	<b>)</b> :	D			<b>6.8</b> %	Be	rm:				0.0	ft. (		ft.
Flood	_						<b>00.</b> %	1111	proved	l Path	:		0.0	ft. (		ft.
		le Dee		1.	0	9	0.8 %		Devel				0.0	ft. 4		ft. ft.
		le Sha	allow:	0.			<b>6.4</b> %	6.3	Chan				Nor	ne		IL.
Erod	libility:			sl	ight		<b>6.1</b> %	6.4	Mean	der M	igratio	n:				
7.4 Co	mmen	nts:							Mean		_		1	<b>0.6</b> Ra	atio:	1.0
			d nana	limma	diatal	, unot	room	6.6	Wave	length	1:			0.6 R		1.0
Appare			•			•			7. Wi	_		rvey			<b></b>	- <del>-</del>
of Gare			ert cro	ossing	near c	owns	tream		Bank				(	0.00 ft	•	
end of	reach.								Bank					.00 ft.	••	
									lce/De	_		ntentis				
	I							7.0					<u>Gu</u>		1	<del>                                     </del>
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Cedar Lake Reach T2.01

Topo Maps: ---

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

is iteach an impoundment:	110	Qui	anty C	ontroi	Statu	<u>s:                                    </u>	Knowi				
Step 1. Reach Location											
1.1 Reach Description:	Forested of	lownstrea	ım-m	ost rea	ach of	Ceda	r Bro	ok wh	ich jo	ins th	1e
1.2 Towns:	Hinesburg								•		
1.3 Downstream Latitude:	44.29		Ste	p 4. La	and C	over -	Reach	n Hydr	ology		
1.3 Downstream Longitude:	-73.14		4.1	Water	rshed						
Step 2. Stream Type			His	storic L	and C	Cover:		Fie	eld		
2.1 Elevation Upstream:	383		Cu	rrent D	omina	ant lar	nd Cov	er: Fc	rest	49.0	0 %
2.1 Elevation Downstream:	310		Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: Fie	blŧ	
2.1 Is Gradient Gentle?	No			Corric	lor						
2.2 Valley Length:	<b>2695</b> feet.	<b>0.51</b> Mile	S. His	storic L	and C	Cover:		Fo	rest		
2.3 Valley Slope:	2.71 %		C	ırrent [			nd Cov			58.	6 %
2.4.Channel Length:	<b>3202</b> feet.	<b>0.61</b> Mile	14	rrent S							<b>J</b> 70
2.5 Channel Slope:	2.28 %			Ripari			in Lain				nt Bank
2.6 Sinuosity:	1.19	uono Milos	_	minan		III <del>C</del> I		>10		>100	
2.7 Watershed Area:		uare Miles	,	b-dom				Noi	_	Non	
2.8 Channel Width: 2.9 Valley Width:	29 65	feet.		ngth w			25 ft.:	0	iiC	0	C
2.10 Confinement Ratio:	2	feet.		Grour				_	nimal	Ū	
2.10 Confinement Type:	Semi-cor	nfined		5. Ins							
2.11 Reference Stream Type		iiiica		Flow I							
Bedform:	Step-Poo	d		pe:	. togui	ation	None				
Sub-class Slope:	None		Us								
Bed Material:	Cobble		5.2	Bridge	es and	d Culve	erts:	0		0 9	%
Step 3. Basin Characteristics:				Bank						0.0	
	•				_eft <b>0</b> .		Rig	ht <b>0.0</b>			
3.1 Alluvial Fan:	None	•	5.4	Chanr	nel Sti	raighte		0.0		0.0	
3.2 Grade Control:	Multiple	t akann a	<sub>0</sub> , 5.5	Dredg	jing H	istory:		Non	е		
3.3 Dominant Geologic Mat	.: Giaciai	Lake99.2 Till	<sup>70</sup> Ste	p 6. Flo	oodpla	ain Mo	dificati	ions			
3.3 Sub-dominant Geologica			6.1 E	Berms	and R	oads	0	ld <b>0.0</b>	ft.	0.0	
3.4 Left Valley Side	Very Steep							One Si		Both S	Sides
3.4 Right Valley Side	Very Steep	)	Ro	ad:			(	0.0	ft. <b>(</b>	0.0	£.
3.5 Soils	_	00 0 0/	Ra	ilroad:			(	0.0	ft. <b>(</b>	).0	ft. ft.
Hydrologic Group:	D /D	99.2 %	Be	rm:			(	0.0	ft. <b>(</b>	).0	ft.
Flooding:	None/Rare		lm	proved	Path:		(	0.0	ft. <b>(</b>	).0	ft.
Water Table Deep:	3.0	80.3 %	6.2	Devel	opme	nt:	(	0.0	ft. <b>(</b>	).0	ft.
Water Table Shallow:	1.0	80.3 %	6.3	Chan	nel Ba	ırs:		Mul	tiple		11.
Erodibility:	Very Seve	re81.1 %	6.4	Mean	der M	igratio	n:	Mul	tiple		
7.4 Comments:			6.5	Mean	der W	idth:		N	N/A Ra	atio:	0.0
Updated using Phase 2 data	on 10/02/01	and on	6.6	Wave	length	1:		N	<b>I/A</b> Ra	atio:	0.0
			Step	7. Wir	ndshie	eld Sur	rvey				
7/22/04. Updated with additional control of the con	Uliai Filase	∠ uala III	7.1	Bank	Erosio	on:		8	8.71 f	t.	
Sept 2007. Beaver dams.				Bank					67 ft.		
				Ice/De	_		otentia				
											$\top$

4.2 5.1 5.2 6.5 7.2 Total 4.1 4.3 5.3 5.4 5.5 6.1 6.2 6.3 6.4 6.6 7.1 0 1 2 0 0 0 0 0 0 0 0 0 0 0 0 0 3 N.S. N/A N/A High Low

4.1

2

High

4.2

1

Low

4.3

2

High

5.1

0

N.S.

5.2

0

Unk.

5.3

0

N.D.

5.4

2

High

5.5

0

N.S.

6.1

0

N.S.

6.2

0

N.S.

6.3

0

N.S.

6.4

0

N.S.

6.5

2

High

7.1

0

N.S.

6.6

2

High

7.2

0

N.S.

Total

11

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Cedar Lake Reach T2.02

Topo Maps: ---

Date Last Edited: Thu, August 30, 2007

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

10 Modern arr Impoditationic.		Quai	ity Control Status. <b>Crikilo</b>	VV 1 1	
Step 1. Reach Location					
1.1 Reach Description:	Walk in fro	m T2.1			
1.2 Towns:	Hinesburg				
1.3 Downstream Latitude:	44.28		Step 4. Land Cover - Rea	ach Hydrolo	gy
1.3 Downstream Longitude:	-73.14		4.1 Watershed	•	<u></u>
Step 2. Stream Type			Historic Land Cover:	Field	
2.1 Elevation Upstream:	398		Current Dominant land C	over: Fores	st 47.7 %
2.1 Elevation Downstream:	383		Current Sub-Dominant La	and Cover: I	Field
2.1 Is Gradient Gentle?	No		4.2 Corridor		
2.2 Valley Length:		<b>0.76</b> Miles.	Historic Land Cover:	Shruk	)
2.3 Valley Slope:	0.37 %		Current Dominant land		
2.4.Channel Length:	<b>4650</b> feet.	0.88Miles	Current Sub-Dominant La		
2.5 Channel Slope:	0.32 %		4.3 Riparian Buffer		nk Right Bank
2.6 Sinuosity:	1.16	uoro Miloo	Dominant:	0-25	0-25
2.7 Watershed Area:		uare Miles	Sub-dominant:	>100	>100
2.8 Channel Width: 2.9 Valley Width:	29 325	feet.	Length w/ less than 25 ft.		3952
2.10 Confinement Ratio:	11	feet.	4.4 Ground Water Inputs:		
2.10 Confinement Type:	Very Broa	ad S	Step 5. Instream Channel		
2.11 Reference Stream Type	•		5.1 Flow Regulation - (old		
Bedform:			Type:	2). 110 2 010	<del>-</del>
Sub-class Slope:			Use:		
Bed Material:			5.2 Bridges and Culverts:	. 0	%
Step 3. Basin Characteristics:	•		5.3 Bank Armoring:		0.0
3.1 Alluvial Fan:	None			Right	
3.2 Grade Control:	No Dote	a	5.4 Channel Straightening		
3.3 Dominant Geologic Mat	· Glacial	l ake100. %	5.5 Dredging History:	No Data	3
3.3 Sub-dominant Geologic	al Mat :		5.5 Dredging History: Step 6. Floodplain Modific	cations	
3.4 Left Valley Side	Very Steep		6.1 Berms and Roads	010 <b>0.0</b>	ft. <b>0.0</b>
3.4 Right Valley Side	Steep	•	5 .	One Side	Both Sides
3.5 Soils	Otoop		Road:	f	II
Hydrologic Group:	D	99.6 %	Railroad:	f	i. ft
Flooding:	Frequent	45.0 %	Berm:	f	П
Water Table Deep:	1.0	65.7 %	Improved Path:	f f	п
Water Table Shallow:	0.0	<b>62.4</b> %	6.2 Development:		t. <b>0.0</b> ft.
Erodibility:	Moderate	31.7 %	6.3 Channel Bars:	No Dat	
•	modorato	7.0	6.4 Meander Migration:	No Dat	
7.4 Comments:			6.5 Meander Width:		Ratio: 0.8
Upstream part of reach has b	been straight	ened. ,	6.6 Wavelength: Step 7. Windshield Survey		Ratio: 0.8
Beaver pond devloping in rea	ach.	_	·	-	
			7.1 Bank Erosion:		
			7.2 Bank Height:		
			7.3 Ice/Debris Jam Poten	itial:	

# **Phase 1 - Reach Summary Report**

2

High

2

High

0

N.S.

0

N.S.

13

2

High

Basin: Otter, Little Otter, Lewis

Stream Name: Cedar Lake Reach T2.03

Topo Maps: ---

Date Last Edited:

1

Low

2

High

0

N.S.

0

Unk.

0

N.D.

2

0

High N.S.

0

N.S.

0

N.S.

0

N.S.

2

High

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Reacr	n an Impou	ındmei	nt? <b>NC</b>	)		Qı	uality C	Control	Statu	s: <b>Un</b>	know	n			
Step 1	Reach Loc	ation													
	ach Descri		D	. 116 +	o Sta	to Dric	on Ho	llow E	94 1 4	ft on	Starks	horo	D4 D	iaht o	n
		puon.		onkto		te Fils	SOII FIC	IIOW F	iu, Le	it Oii .	olai No	bolo	Nu, N	ignit 0	111
1.2 Tov		a 4:4 al	_	4.27	"		C+c	n 4 L	and C	ovor	Doool	. Uvdr	ology		
	wnstream l		Ŭ.					p 4. L		ovei -	Readi	т пуш	ology		
	wnstream l		iue	3.14				Wate							
	Stream Tyl			40				storic L			10		eld		
	vation Ups			18				rrent [				_		39.0	) %
	vation Dow			98				rrent S		omina	nt Lan	d Cov	er: Fie	eld	
	Gradient Ge		7	No (			4.2	Corrid	dor						
	ley Length:		1	<b>260</b> fe	et. <b>0</b>	. <b>24</b> Mil	es. His	storic L	and C	over:		Fie	eld		
	ley Slope:			1.55	/0		$\sim$	ırrent l			nd Cov	/er· <b>Fi</b>	eld	39.3	3 %
	annel Leng			<b>595</b> fe		<b>.30</b> Mil	es	rrent S							,0
	annel Slop	e:			%						iit Laii			•	+ Doole
2.6 Sin			1	.27	_		_	Ripar		nei				-	t Bank
	itershed Ar			2	•	re Mile		minan				0-2		0-25	
	annel Widtl	h:		16	1	eet.		b-dom		than C	)E f+ .	>10		>100	
	ley Width:			362	f	eet.		ngth w				159		1595	1
	onfinement			22				Grour					imal		
	onfinement			Very E	Broad			5. Ins							
	eference S	tream	Type:	C				Flow	Regul	ation -	(old):	No	Data		
Bedf	form:							pe:							
Sub-	class Slop	e:			e:										
Bed	Material:							Bridge			erts:	0		9	6
Step 3. B	Basin Chara	acteris	tics:				5.3	Bank	Armoi	ing:				0.0	
	ıvial Fan:			Non	_				_eft		Rig				
	ade Contro	ı.		No E	-			Chan		_	_	194	8.0	122 %	ó
			Mot :	Glac	ialla	ka100	<sub>%</sub> 5.5	Dredo	ging H	istory:		No [	Data		
	minant Ge			Giac	iai La	K <del>C</del> I UU	5.5 Ste	p 6. Fl	oodpla	ain Mo	dificat	ions			
	o-dominant		-				6.1 E	Berms	and R	oads	0	ld <b>0.0</b>	ft.	0.0	
	t Valley Sid			xtreme	ely St	eep						One Si		Both S	ides
_	ht Valley S	ide	Si	teep			Ro	ad:					ft.		
3.5 Soil	ils						Ra	ilroad:					ft.		ft.
Hydro	logic Grou	p:	D		1	<b>00.</b> %		rm:					ft.		ft.
Floodi	ing:		Fı	equer	nt 9	<b>7.4</b> %		proved	l Path				ft.		ft.
Water	r Table Dee	ep:	1.	_		<b>7.4</b> %		Devel				0.0	ft. C	0.0	ft.
	r Table Sha	•	0.	0		<b>7.4</b> %	0.2	Chan			`	-	Data		ft.
Erodik			_	ight		2.6 %	0.0				<b>n</b> .				
	•			-3			0.4	Mean		_	11.	_	ration		
7.4 Com	nments:							Mean					4.0 Ra		0.9
Reach h	nas been co	omplet	ely stra	aighter	ned.			Wave	_			1	<b>4.0</b> Ra	atio: (	0.9
		•	-	•				7. Wi			vey				
							7.1	Bank	Erosic	n:					
							7.2	Bank	Heigh	t:					
7.3 Ice/Debris Jam Pot											otentia	ıl:			
4.1	4.2   4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

2

High

2

High

2

High

0

N.S.

0

Unk.

0

N.D.

2

0

High N.S.

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

**Cedar Lake** Reach T2.04 Stream Name:

Topo Maps:

Date Last Edited: Thu, August 30, 2007

Watershed: Lewis Creek, Little Otter, Lake Champlain

**Lewis Creek** Sub-watershed:

Is Rea	ch an	Impou	ndmen	t? <b>Nc</b>	)		Qı	uality	Control	Statu	s: Un	know	n			
1.1 R	l. Readeach [				t 116 t lonkto		te Pris	on H	ollow F	₹d, Le	ft on	Starks	sboro	Rd, R	ight c	on
	-	ream I	atitude		4.26			St	ep 4. L	and C	over -	Reacl	h Hvdi	oloav		
			ongitu		_				1 Wate					37		
	2. Strea								storic L		cover.		Fi	eld		
	levatio			4	90				urrent [			nd Cov			40.4	5 %
			nstrea		18				urrent S						_	,0
	Gradi				No				2 Corrie		J	<b>_</b> a	u 00.	O	<b></b>	
	alley L			2	<b>902</b> fe	et. C	. <b>55</b> Mil		storic L		`ovor:		Ec	rest		
	alley S			4	2.48	%						- d C - o			47	<b>3</b> 0/
	hanne		th:	3	<b>378</b> fe	et. <b>(</b>	<b>).64</b> Mil	44	urrent l							3 %
2.5 C	hanne	I Slope	e:	4	2.13	%			urrent S			nt Lan				
2.6 S	inuosit	y:		1	.16			_	3 Ripar		ıffer				_	nt Bank
2.7 W	/atersh	ned Are	ea:		2	Squa	re Mile		ominan				0-2		0-25	
2.8 C	hanne	I Width	า:	•	16		feet.		ub-dom			) T 44 .		100	51-1	
	alley V			2	231		feet.		ength w				216		2161	
			Ratio:		14	_			4 Groui					nimal		
			Type:		Very E	Broad			5. Ins							
			tream 7	ype:	В				1 Flow	Regul	ation -	· (old):	No	Data		
	dform:								/pe:							
Su	b-class	s Slope	e:						se:				_			
Be	d Mate	erial:		(	Cobbl	е			2 Bridg			erts:	2			%
Step 3.	Basin	Chara	acteristi	cs:				5.	3 Bank		rıng:	Б.			0.0	
3.1 A	Iluvial	Fan:			Non	е		E		Left		Rig		^	22.0/	
3.2 G	rade C	Control	•		No E	ata			4 Chan				750		22 %	
			ologic N	/lat.:	Glac	ial La	ke59.0	)%	o Diedá	ging H	istory:	-1:¢: 4	No I	Jata		
			Geolo		Mat.:		Till	516	5 Dredo p 6. Fl	ooapia	ain ivic	olficat	ions	_		
	eft Vall			_	teep			6.1	Berms	and R	oads	U	nu <b>U.U</b>		0.0	
	ight Va				teep			_				(	One Si		Both S	sides
3.5 S	_				ш				oad:					ft.		ft.
	rologic	Grour	٦.	D		ı	<b>59.0</b> %		ailroad:					ft.		ft.
-	ding:	Cloup	J.	_			9.4 %	ים	erm:	ملاء ما ا	_			ft.		ft.
	er Tab	la Dac	an.		.0		9.4 %		proved				0400	ft.		ft.
	ter Tab		-	1.			8.3 %	0.,	2 Deve	-		2	246.0	ft. (	J.U	ft.
	dibility:		allow.		_		9.4 %	0.	3 Chan					Data		
	•			•	cry oc	VCIC	<b>/J.</b> 7 /0	0.	4 Mean		0	n:	No	Data		
7.4 Cc	ommer	nts:							5 Mean							0.0
Very lo	ow flow	<b>/</b> .							3 Wave					Ra	atio:	0.0
,								Ste	p 7. Wi	ndshie	eld Su	rvey				
								7.	1 Bank	Erosio	on:					
								7.	2 Bank	Heigh	ıt:		Lo	w (<5	ft.)	
									3 Ice/D	_		otentia		•	•	
	4.0	4.0		<i>-</i>				C 4			C 4			7.4	7.0	Tatal
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

1

Low

0

N.S.

0

N.S.

0

N.D.

0

N.S.

0

N.D.

1

Low

0

N.S.

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Cedar Lake Reach T2.05

Topo Maps: ---

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

Is Reach an Impoundment?	No			Qι	ıalit	y Control	Statu	s: <b>Un</b>	know	n			
Step 1. Reach Location													
1.1 Reach Description:	Rt '	116 1	o Stat	e Pris	on	<b>Hollow F</b>	Rd, Le	ft on S	Starks	boro	Rd, R	ight o	on
1.2 Towns:	Мо	nkto	n										
1.3 Downstream Latitude:	44	.26				Step 4. La	and C	over -	Reach	n Hydi	rology		
1.3 Downstream Longitude	: -73	3.14				4.1 Water	rshed						
Step 2. Stream Type						Historic L	and C	Cover:		Fi	eld		
2.1 Elevation Upstream:	49	5				Current D	Domin	ant lar	nd Cov	er: Fo	rest	42.	0 %
2.1 Elevation Downstream:	49	0				Current S	Sub-Do	ominai	nt Lan	d Cov	er: Fie	eld	
2.1 Is Gradient Gentle?	No	)				4.2 Corric	dor						
2.2 Valley Length:	60	<b>19</b> fe	et. <b>1</b> .	. <b>14</b> Mile	es.	Historic L	and C	OVET.		Fi	eld		
2.3 Valley Slope:	0.	80	, 0			Current [	Jomin	ant la	ad Cay			1 22	<b>n</b> 9/
2.4.Channel Length:		<b>75</b> fe		<b>.23</b> Mile	es.	Current S							.0 %
2.5 Channel Slope:			%						ni Lan				
2.6 Sinuosity:	1.0		_			4.3 Ripari		ımer				_	ht Bank
2.7 Watershed Area:	1		•	re Mile	_	Dominan				>10		>10	
2.8 Channel Width:	15		f	eet.		Sub-dom		than 3	)	0-2		0-25	
2.9 Valley Width:		55	f	eet.		Length w				168	_	116	5
2.10 Confinement Ratio:		63				4.4 Grour					undar	nt	
2.10 Confinement Type:		ery E	Broad			tep 5. Ins							
2.11 Reference Stream Typ	oe: <b>E</b>					5.1 Flow	Regul	ation -	(old):	No	Data		
Bedform:		•				Type:							
Sub-class Slope:						Use:							0.7
Bed Material:	S	and				5.2 Bridge			erts:	1			%
Step 3. Basin Characteristics	:				;	5.3 Bank		rıng:	Б.			0.0	
3.1 Alluvial Fan:	_	Non	е				_eft		Rig		F 0	20.0/	
3.2 Grade Control:		No I	Data			5.4 Chani		_	_	196		30 %	)
3.3 Dominant Geologic Ma	t.:	Glac	ial La	ke74.5		5.5 Dredg				_	Data		
3.3 Sub-dominant Geologic				ther	_	Step 6. Flo							
3.4 Left Valley Side			ely St	een	6.	1 Berms	and R	oads		ld <b>0.0</b>		0.0	
3.4 Right Valley Side			ely St			Б.			(	One Si		Both (	Sides
3.5 Soils		. 0	o.y o.	оор		Road:					ft.		ft.
Hydrologic Group:	D		9	8.2 %		Railroad:					ft.		ft.
Flooding:		na/R		00. %		Berm:	l D-4-	_			ft.		ft.
Water Table Deep:	0.0	IC/IX		4.4 %		Improved					ft.		ft.
Water Table Shallow:	-1.0			4.4 %	,	6.2 Devel			(	0.0	ft. (	).0	ft.
Erodibility:		, dera		4.4 % <b>2.5</b> %		6.3 Chani	-				Data		
•	IVIO	uera	ie s	<b>2.3</b> /0	,	6.4 Mean		_	n:	_	Data		
7.4 Comments:						6.5 Mean					<b>2.0</b> Ra		8.0
Narrow and deep, may be e	ntren	chec	d. tinv			6.6 Wave				1	<b>2.0</b> Ra	atio:	8.0
stream, culvert too small. La			-	ΔII	<u>S</u>	tep 7. Wii	ndshie	eld Sur	vey				
straightened.	iko pi	A11 O	10001	. / 🚻	•	7.1 Bank	Erosio	on:					
straighteneu.					•	7.2 Bank	Heigh	ıt:		Me	dium	(5 - 1	5 ft.)
						7.3 Ice/De	_		otentia			-	•
4.1 4.2 4.3 5.1 5	2	E 2	E 1	5.5	6.	1 60	6.2	6.4	e e	6.6	7 4	7.2	Total
_ + 4.1 + 4.7 + 4.3 + 5.1 + 5			1 3).4	i 5.5 l	n.	1 10./	0.5	□ O.4	U.O.	D.D	ı /.i	1 / /	⊤ i Ulai I

4.1 4.2 4.3 | 5.1 | 5.2 | 5.3 5.4 5.5 6.1 6.2 | 6.3 6.4 6.5 6.6 7.1 | 7.2 | Total 1 2 2 2 0 2 0 0 0 2 2 0 0 0 0 0 13 High N.S. N.S. High High N.S. Unk. N.D. High N.S. N.S. N.S. High High Low N.S.

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Cedar Lake Reach T2.06

Topo Maps: ---

Date Last Edited:

2

High

2

High

2

High

0

N.S.

0

Unk.

0

N.D.

2

0

High N.S.

0

N.S.

0

N.S.

0

N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

is Rea	cn an	impou	namer	IL! INC	,		Qι	ıalıty (	Control	Statu	s: Un	know	n			
Step 1	. Read	ch Loc	ation													
<u>-</u> _	each D			C	orner	of Bo	ro Rd	and C	onnec	tina F	Rd (Pc	and Ro	4)			
	owns:	2000116	J. 1011.		errisb		io ita	una o	0111100	ing i	(	ila itt	۷,			
	ownstr	ream I	atitude		4.25	a. 9		Ste	ep 4. L	and C	over -	Reacl	h Hvdr	oloav	,	
	ownstr								Wate					0.097	-	
	. Strea								storic L				Fi	eld		
	levatio			6	15				irrent [			nd Cov			43	0 %
	levatio				95				irrent S						_	0 70
	Gradi				No				Corrie		omma	iii Laii	u 00v	C1. <b>C1</b>	Dan	
	alley L					et. 0	<b>.30</b> Mile									
	alley S				7.70			1 113	storic L					eld		
	hannel		th:		<b>009</b> fe		. <b>76</b> Mile	48	urrent l							6 %
	hanne					%		Cı	irrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Cr</b>	ор	
	inuosit				.57			4.3	Ripar	ian Bu	ıffer		Left	Bank	Righ	nt Bank
	/atersh		ea:		0	Squa	re Mile	s Do	minan	t:			0-2	5	0-25	;
2.8 C	hanne	l Width	า:		7	•	feet.		ıb-dom				>10		26-5	0
2.9 V	alley V	Vidth:			51		feet.		ngth w				308		3086	ô
2.10 (	Confin	ement	Ratio:		7				Grour					unda	nt	
2.10 (	Confin	ement	Type:	ı	Broad				5. Ins							
2.11 l	Refere	nce St	ream <sup>-</sup>	Type: 0	C			5.1	Flow	Regul	ation -	(old):	No	Data		
Be	dform:			•					pe:							
Sul	b-class	s Slope	e:					Ús								
Be	d Mate	erial:		,	Sand				Bridge			erts:	1			%
Step 3.	Basin	Chara	cterist	ics:				5.3	Bank		ring:				0.0	
	lluvial				Non	e				_eft		Rig				
	rade C				NοΓ	)ata			Chan						30 %	)
	omina			Mat ·	Glac	ial I a	ke84.4 Till	5.5	Dredg	ging H	istory:		No [	Data		
	ub-dor		•		Mat ·	.aa	Till	′ <u>Ste</u>	p 6. Fl	oodpla	ain Mo	dificat	ions			
	eft Vall			•	eep		• • • • •	6.1 E	3erms	and R	oads	0	ld <b>0.0</b>		0.0	
	ight Va	•			ery St	oon						(	One Si	de	Both S	Sides
3.5 S		ancy C	ide	ν.	ery Su	ceb			ad:					ft.		ft.
		Crour	~•	D		6	3.9 %	Ra	ilroad:					ft.		ft.
-	rologic	Group	J.	_	/D			De	rm:					ft.		ft.
	ding:	I- D					<b>00.</b> %		proved					ft.		ft.
	er Tab		•	0.			1.7 %		Deve	•		(	0.0		0.0	ft.
	er Tab		allow:	0.			2.7 %	6.3	Chan	nel Ba	ırs:		No	Data		
Eroc	dibility:			IVI	odera	te 3	6.1 %	6.4	Mean	der M	igratio	n:	Mig	ratior	า	
7.4 Cc	mmer	nts:						6.5	Mean	der W	idth:		;	<b>5.0</b> R	atio:	0.7
Wetlar	nd nor	nd at h	eadwa	ters c	ırace a	and sh	ruh	6.6	Wave	length	ո:			<b>5.0</b> R	atio:	0.7
	-		Step	7. Wi	ndshie	eld Sui	rvey									
banks. Reach has been completely straightened.  7.1 Bank Erosion:											on:					
									Bank				Lo	w (<5	ft.)	
									Ice/D	_		otentia		•	•	
	I							,.0								<del>                                     </del>
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

1

Low

2

2

High | High | Low

1

0

N.S.

## **Phase 1 - Reach Summary Report**

2

0

N.S.

2

High | High | N.S. |

0

0

N.S.

9

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Tribn to Cedar lake Reach T2.2S1.01

Topo Maps: ---

Date Last Edited:

2

High

1

Low

0

N.S.

0

N.S.

0

Unk.

0

N.D.

2

0

High N.S.

0

N.S.

0

N.S.

0

N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

	ls Rea	ch an	Impou	ndmer	nt? No	)		Qu	ality C	Control	Statu	s: <b>Un</b>	know	n				
	Step 1	I. Read	ch Loc	ation														
	<u>-</u> _		Descrip		Rt	t 116 t	o Sta	te Pris	on Ho	llow F	Rd, Le	ft on	Starks	boro	Rd, R	ight o	n	
		owns:	•			onkto					•				•	•		
	1.3 D	ownst	ream L	atitud	e: <b>4</b>	4.27			Ste	p 4. L	and C	over -	Reach	n Hydr	ology			
	1.3 D	ownst	ream L	ongitu	ıde: <b>-</b> 7	73.14			4.1	Wate	rshed							
	Step 2	2. Strea	am Typ	ре					His	storic L	and C	over:		W	etland	t		
	2.1 E	levatio	n Upst	tream:	4	05			Cu	rrent [	Domina	ant lar	nd Cov	er: Fc	rest	51.7	7 %	
			n Dow		am: <b>4</b>	03			Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: Fie	eld		
			ent Ge			No.			4.2	Corrid	dor							
		alley L	_			<b>938</b> fe	et. <b>0</b>	<b>.56</b> Mile	S. His	storic L	and C	cover:		W	etland	ł		
		alley S				_	, 0		$\sim$	urrent I	Oomin	ant la	nd Cov				8 %	
			I Lengt			<b>352</b> fe		. <b>77</b> Mile	<b>-</b>	rrent S								
			l Slope	<del>)</del> :			%			Ripari			iii Laii				ıt Bank	
		inuosit			3	.18	Cauc	ro Milo	_	minan		IIICI		>10		>100		
			ned Are				•	re Mile	_	b-dom				0-2		0-25	,	
			l Width	1.		23 209		eet.		ngth w		than 2	25 ft.:	93	<b>J</b>	374		
		alley V	ement	Patio:		209 9		eet.		Grour				No	ne	014		
			ement			ਭ Broad				5. Ins								
			nce St							Flow					Data			
		dform:		i Cairi	Type.	<del></del>				pe:	i togui	411011	(GIG).		Dutu			
			s Slope	۵.					Us									
		d Mate	•	<i>J</i> .						Bridge	es and	Culv	erts:	1		9	6	
_				otoriot	tioo:					Bank						0.0		
_			Chara	iciensi		NI	_				_eft	3	Rig	ıht				
		lluvial				Non	-		5.4	Chan	nel Sti	raighte			5.0	21 %		
			Control		N 1 - 4 -	No E		07.0	<sub>0</sub> , 5.5	Dredo	ging H	istory:		No [	Data			
			nt Ged	_		Othe		۰۲.۷ اداددا	<sup>™</sup> Ste	Dredo p 6. Flo	oodpla	ain Mo	dificat	ions				
			minant		•				6.1 E	Berms	and R	oads	0	ld <b>0.0</b>	ft.	0.0		
			ley Sid			ktreme	ely St	eep						One Si		Both S	Sides	
		_	alley S	ide	51	eep			Ro	ad:					ft.		£.	
	3.5 S				_		_	0.0.07	Ra	ilroad:					ft.		ft. ft.	
	-	_	Group	o:	D	/5		8.6 %	Be	rm:					ft.		ft.	
		ding:				_		5.1 %		proved					ft.		ft.	
			le Dee	•	0.	•		7.2 %	6.2	Devel	opme	nt:	(	0.0	ft. <b>(</b>	0.0	ft.	
			ole Sha	allow:		.0		7.2 %	6.3	Chan	nel Ba	rs:		No	Data		16.	
	Eroc	dibility:			SI	ight	•	3.2 %	6.4	Mean	der M	igratio	n:	No l	Data			
	7.4 Cd	ommer	nts:							Mean					<b>6.0</b> Ra		0.7	
ı	Reach	has h	een co	mplet	elv stra	aiahter	ned			Wave				1	<b>6.0</b> Ra	atio:	0.7	
	. todon	1145 5	2011 00	pict	Ciy Gile	21911101			Step	7. Wii	ndshie	ld Su	rvey					
									7.1	Bank	Erosio	n:						
										Bank								
										Ice/De			otentia	ıl:				
ĺ																Ι		Ì
	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total	

# **Phase 1 - Reach Summary Report**

1

Low

10

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Tribn to Cedar lake Reach T2.2S1.02

Topo Maps: ---

2

High

0

N.S.

0

Unk.

2

0

N.D.

0

High N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.D.

1

Low

2

High

2

High

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Rea	<u>ich an</u>	Impou	ndmer	nt? No			Qu	ality C	Control	Statu	s: <u>U</u> n	know	n			
Step 1	I. Rea	ch Loc	ation													
1.1 R	each [	Descrip	otion:	Pa	arallel	s Rot	ex Rd t	o the	south	west	of th	e v no	tch in	the r	oad.	
	owns:			M	onkto	n										
1.3 D	ownst	ream L	atitud	e: <b>4</b>	4.26			Ste	p 4. L	and C	over -	Reacl	h Hydi	rology		
1.3 D	ownst	ream L	ongitu	ıde: <b>-</b> 7	73.16			4.1	Wate	rshed						
Step 2	2. Strea	am Typ	oe -					His	storic L	and C	Cover:		Fo	rest		
2.1 E	levatio	n Ups	 tream:	4	80			Cu	rrent [	Domin	ant lar	nd Cov	er: Fc	rest	45.	<b>l</b> %
2.1 E	levatio	n Dow	nstrea	am: <b>4</b>	03			Cu	rrent S	Sub-D	omina	nt Lan	d Cov	er: Fie	eld	
2.1 ls	Gradi	ient Ge	entle?	1	No			4.2	Corrid	dor						
2.2 V	alley L	ength:		4	<b>737</b> fe	et. <b>0</b>	<b>.90</b> Mile	S. Hi	storic I	and C	OVer.		Fi	eld		
2.3 V	alley S	Slope:		1	1.63	%		- I II.	irrant l	Domin	ont la	nd Co			27	4 %
2.4.C	hanne	I Lengi	th:		<b>380</b> fe		<b>.02</b> Mile	•				nt Lan				4 /0
		l Slope	e:			%						nı Lan				
	inuosi			1	.14	_		_	Ripar		ımer				_	t Bank
		ned Are			1	•	re Miles	-	minan				>10		>100	
		l Width	า:	1	13		feet.		b-dom ngth w			05 ft ·	0-2		0-25	
	alley V		<b>.</b>		_	1	feet.		Grour				156		1560	,
		ement			0	<b>6</b> :	1					nel Mo	No odifica			
		ement			Semi-	contir	1ea							Data		
2.11 Reference Stream Type: <b>C</b> Bedform:   5.1 Flow Reg  Type:											alion -	· (Olu).	NO	Dala		
				•				Us								
		s Slope	e:		_				Bridg	as and	l Culv	orte:	0		o	6
	d Mate				Grave	l			Bank			Cito.	Ū		0.0	0
Step 3.			acteris	tics:				0.0		_eft	ıııg.	Rig	ıht		0.0	
	lluvial				Non			5.4			raighte	ening:		3.0	83 %	
		Control			No E	Jata					•	•				
		int Ged	_		Glac	ıaı La	ke88.2 Other	<sup>%</sup> Ste	p 6. FÌ	oodpla	ain Mc	dificat	ions			
		minant		•		C	other	6.1 F	Berms	and R	oads	0	ld <b>0.0</b>	) ft	0.0	
		ley Sid			teep			•					One Si		Both S	Sides
	_	alley S	ide	St	teep			Ro	ad:					ft.		_
3.5 S								Ra	ilroad:					ft.		ft.
•	_	: Group	o:	D			8.2 %	Ве	rm:					ft.		ft. ft.
	ding:			N	one/R		<b>00.</b> %	lm	proved	d Path				ft.		ft.
		ole Dee		3.	•		<b>5.4</b> %	6.2	Deve	lopme	nt:	(	0.0	ft. <b>(</b>	0.0	it. ft.
		ole Sha	allow:	1.			<b>4.7</b> %		Chan				No	Data		IL.
Ero	dibility:			Se	evere	5	5.4 %	6.4	Mean	der M	igratio	n:	No	Data		
7.4 C	ommer	nts:							Mean		_			Ra	atio:	0.0
			otland	l liko w	/obopr	ad Da	oob	6.6	Wave	length	ո:				atio:	
		ater, w				ici.Re	aun		7. Wi	_		rvey		,	/-	=
nas be	en co	mplete	ıy stra	ignten	ea.				Bank							
									Bank				l م	w (<5	ft.)	
										_		otentia		, , , ,	,	
								,.0					<b>-</b>	1		<del>                                     </del>
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
												1				

## **Phase 1 - Reach Summary Report**

0

N.D.

1

Low

0

N.S.

9

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Tribn to Cedar lake Reach T2.2S1.1S1.01

Topo Maps: ---

Date Last Edited:

1

Low

2

High

2

High

0

N.S.

0

Unk.

0

N.D.

2

0

High N.S.

0

N.S.

0

N.S.

1

Low

0

N.S.

0

N.D.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Reach	an impou	ınamen	( INC	,		Qι	ıalıty C	control	Statu	s: Un	know	n			
Step 1. F	Reach Loc	cation					-								
	ch Descri		P	arallel	s T2 3	3 to the	west	and i	nterse	ects R	otex l	Road			
1.2 Tow		puon.		onkto		, 10 111	, 1100	ana i		,010 11	OLOX I	· · · · ·			
	/nstream l	Latitude	_	4.26	••		Ste	p 4. L	and C	over -	Reacl	h Hvdr	oloav	,	
	/nstream l			_				Wate					0.097	-	
	Stream Ty	_						storic L		over.		Fi	eld		
	ation Ups		4	60				rrent [			nd Cov			44	5 %
	ation Dov			02				rrent S							<b>J</b> /0
	radient G			No				Corrid		Jiiiiia	iii Laii	u Cov	CI. I I	GIU	
	ey Length				et O	<b>.64</b> Mile			-						
	ey Slope:	•			%		1 113	storic L					eld		
	nnel Leng	ıth <sup>.</sup>		<b>319</b> fe		<b>.82</b> Mile	76	ırrent l							<b>3</b> %
	nnel Slop				%		Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: W	etland	l
2.6 Sinu		•		.27			4.3	Ripar	ian Bu	ıffer		Left	Bank	Righ	nt Bank
	ershed Ar	ea:	_	0	Saua	re Mile	s Do	minan	t:			0-2	5	0-25	
	nnel Widt			7	•	eet.	Su	b-dom				>10	0	>100	)
	ey Width:					eet.	Le	ngth w	/ less	than 2	25 ft.:	250	5	2505	5
	nfinemen	t Ratio:		0	•	001.	4.4	Grour	nd Wa	ter Inp	outs:	Ab	undaı	nt	
	nfinemen			Semi-	confir	ned	Step	5. Ins	tream	Chan	nel Mo	odifica	tions		
	ference S	<i>,</i> .					5.1	Flow	Regul	ation -	(old):	No	Data		
Bedfo			٠.				Ty	pe:	•		` ,				
Sub-c	class Slop	e:					Ús								
	Material:	•		Sand			5.2	Bridge	es and	Culve	erts:	2		Q	%
Step 3. Ba		actoristi		Jana				Bank						0.0	
	vial Fan:	actorist		Non	_			l	_eft	Ū	Rig	ght			
		1.		No I	-		5.4	Chan	nel Sti	raighte	ening:	259	8.0	60 %	
	de Contro		1-4-	Clas	Jala ialla	l-04 7	, , 5.5	Dredg	ging H	istory:		No [	Data		
	ninant Ge	_		Giac	іаі ца	ke81.7 Till	%Ste	p 6. Fl	oodpla	ain Mo	dificat	ions			
	-dominan		_			1 1111	6.1 E	Berms	and R	oads	0	ld <b>0.0</b>	ft	0.0	
	Valley Signature			teep								One Si		Both S	Sides
_	nt Valley S	side	S	teep			Ro	ad:					ft.		
3.5 Soils								ilroad:					ft.		ft.
Hydrol	ogic Grou	p:	D		9	9.7 %	_	rm:					ft.		ft.
Floodir	ng:		N	one/R	are 1	<b>00.</b> %		proved	l Path:				ft.		ft.
Water	Table De	ep:	1.	0	5	2.1 %		Devel			(	0.0	ft. (	0.0	ft.
Water	Table Sha	allow:	0.	0	5	2.1 %		Chan	•		·		-chan		ft.
Erodib	ility:		sl	ight		<b>5.1</b> %		Mean			n·		Data		
7.4 Com	monto			•				Mean		_	11.	140		otio:	0.0
															0.0
Shrubby	wetland, s	straight	, very	small.	Reac	h has		Wave			r. (O.) (		K	atio:	0.0
been con	npletely st	traighte	ned.					7. Wi			vey				
				Bank				_							
								Bank	_				w (<5	•	
							7.3	Ice/Do	ebris J	lam Po	otentia	al: Sh	allow		
	10 40		<b>-</b>		A		C 4			C 4			7.4	7.0	Tatal
4.1 4	1.2 4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Tribn to Cedar lake Reach T2.2S1.2S1.01

Topo Maps: ---

Date Last Edited:

2

High

2

High

2

High

0

N.S.

0

Unk.

0

N.D.

2

0

High N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.D.

0

N.S.

0

N.S.

8

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Re	ach an	Impou	ndmer	nt? NC	)		Qι	uality C	Control	Statu	s: <b>Un</b>	know	n			
Step	1. Read	ch Loc	ation													
<u>-</u> _	Reach [			In	tersec	ts Ro	otex R	d abou	ıt 1/3 d	of a m	ile to	the ea	st of	Charl	otte R	d.
	Towns:	, , , , , , , , , , , , , , , , , , ,			onkto				, .	J. G				•······		. • • • • • • • • • • • • • • • • • • •
	Downst	ream I	atitude		4.26			Ste	p 4. L	and C	over -	Reacl	n Hvdr	oloav		
	Downst				73.16				Wate				<u> </u>			
	2. Strea								storic L		cover.		Fi	eld		
	Elevatio			4	80				rrent [			nd Cov			35.8	3 %
	Elevatio				03				rrent S							, , 0
	s Gradi	_			No				Corrid		a		u 00.	o •		
2.2 \	/alley L	ength:		3	<b>362</b> fe	et. 0	. <b>64</b> Mile	~~	storic L		`ovor:		<b>E</b> i.	ald		
	/alley S				2.29			1 113						eld	00	4 0/
	Channe		th:	6	<b>175</b> fe	et. 1	.17Mil	15	ırrent [							4 %
	Channe			•	1.25	%			rrent S			nt Lan			•	
	Sinuosit			1	.84			_	Ripari		ıffer				_	it Bank
2.7 \	<b>Vatersh</b>	ned Are	ea:		1	Squa	re Mile		minan				>10	_	>100	
2.8 (	Channe	l Width	า:	•	11		feet.		b-dom				0-2		0-25	
2.9 \	/alley V	Vidth:					feet.		ngth w				296		2964	
	Confin				0				Grour				No	-		
2.10	Confin	ement	Type:	;	Semi-	confi	ned		5. Ins							
	Refere		tream	Type:	В				Flow	Regul	ation -	(old):	No	Data		
В	edform:	:							pe:							
Sı	ub-class	s Slope	e:					Us					_		_	_
В	ed Mate	erial:							Bridge			erts:	2		9	6
Step 3	. Basin	Chara	acterist	tics:				5.3	Bank		ring:				0.0	
3.1 /	Alluvial	Fan:			Non	е		- 4		_eft		Rig		<b>-</b> 0	44.07	
	Grade C				Νο Γ	)ata			Chan		•	•	253		41 %	
	Domina			Mat.:	Glac	ial La	ke60.6	5.5	Dredo	jing H	istory:		. No [	Data		
	Sub-dor				Mat ·	(	ke60.6 Other	Ste	p 6. Fl	podpla	ain Mo	dificat	ions			
	eft Val			•	teep			6.1 E	Berms	and R	oads	0	ıa <b>0.0</b>		0.0	
	Right Va	•			teep			_				(	One Si		Both S	Sides
	Soils	andy C	140	O.	ССР				ad:					ft.		ft.
	drologic	Crour	٠.	D			<b>52.7</b> %		ilroad:					ft.		ft.
	oding:	, Group	J.				1 <b>00.</b> %	De	rm:					ft.		ft.
	0	lo Doc	.n.						proved					ft.	_	ft.
	ter Tab		•	3.			4.5 %		Devel				0.0	ft. <b>(</b>	0.0	ft.
	ter Tab		allow:	1.			4.5 %		Chan					Data		
	dibility:			30	evere	;	<b>53.0</b> %	0.4	Mean		_	n:	No I	Data		
7.4 C	ommer	nts:							Mean					Ra	atio:	0.0
									Wave	_				Ra	atio:	0.0
								Step	7. Wii	ndshie	eld Su	rvey				
								7.1	Bank	Erosio	on:					
									Bank							
									Ice/De	_		otentia	ıl:			
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Tribn to Cedar lake Reach T2.2S1.2S1.1S1.01

Topo Maps: ---

Date Last Edited:

2

High

2

High

2

High

0

N.S.

0

Unk.

2

High

0

N.D.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.S.

0

N.D.

0

N.S.

0

N.S.

8

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Rea	cn an	impou	namer	ון אינ	,		Qı	ıalıty (	Control	Statu	s: Un	know	n			
Step 1	I. Read	ch Loc	ation					•								
<u>-</u> _		Descrip		P	arallel	s T2.3	8 & Inte	ersect	s Rote	ex Rd	west	of the	unna	med r	road.	
	owns:	2000116	J. 1011.		onkto		Δ	0.000		JX IXG	11001	00	aiiia	iiioa i	ouu.	
		ream I	atitude	_	4.26			Ste	p 4. L	and C	over -	Reacl	h Hvdr	oloav		
			ongitu	<b>-</b> .	_				Wate					<u> </u>		
		am Typ	_						storic L		over.		Fi	eld		
		n Upsi		4	80				rrent [			nd Cov			54.9	%
			nstrea		03				rrent S							, 70
		ent Ge			No				Corrid		Jiiiiia	iii Laii	u Oov	C1. <b>C</b> 1.	Op	
		ength:				et 0	. <b>57</b> Mile									
	alley S					%		1 113	storic L					eld		
		l Lengt	th:		<b>220</b> fe		<b>.61</b> Mil	<u> </u>	ırrent l							4 %
		l Slope				%		Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Cr</b>	ор	
	inuosit				.07			4.3	Ripar	ian Bu	ıffer		Left	Bank	Righ	t Bank
		ned Are	ea:		0	Squa	re Mile	s Do	minan	t:			0-2	5	0-25	
		l Width			8	•	eet.	Su	b-dom				>10	0	>100	)
	alley V						eet.		ngth w				322	20	3220	)
			Ratio:		0	-		4.4	Grour	nd Wa	ter Inp	outs:	No	ne		
			Type:		Semi-	confir	ed	Step	5. Ins	tream	Chan	nel Mo	odifica	tions		
2.11	Refere	nce St	tréam <sup>-</sup>	Туре:	В			5.1	Flow	Regula	ation -	(old):	No	Data		
Be	dform:			٠.				Ty	pe:							
Su	b-class	s Slope	e:					Ús								
	d Mate	•						5.2	Bridge	es and	d Culv	erts:	2		9	6
Step 3.			cterist	ics:				5.3	Bank	Armoi	ring:				0.0	
	Iluvial				Non	_				_eft		Rig				
		Control			No F	)ata			Chan					0.0	97 %	
			ologic N	Mot :	Glac	ial I a	ka00 3	<sub>06</sub> 5.5	Dredo	ging H	istory:		No [	Data		
			_		Viat .	iai La	ke99.3 Till	′ ′°Ste	p 6. Fl	oodpla	ain Mo	dificat	ions			
			Geolo	•				6.1 E	Berms	and R	oads	0	ld <b>0.0</b>	ft.	0.0	
		ley Sid			teep							(	One Si	de l	Both S	Sides
		alley S	ide	5	teep				ad:					ft.		£.
3.5 S		_		_		_		Ra	ilroad:					ft.		ft. ft.
-	-	Group	<b>)</b> :	D			9.3 %	סכ	rm:					ft.		ft.
	ding:						<b>00</b> . %	lm	proved	l Path:				ft.		
		le Dee	•	3.		7	8.9 %	6.2	Devel	opme	nt:	(	0.0	ft. <b>(</b>	0.0	ft.
		ole Sha	allow:	1.			<b>8.2</b> %	6.3	Chan	nel Ba	rs:		No	Data		ft.
Ero	dibility:			V	ery Se	vere7	<b>8.9</b> %		Mean			n:		Data		
7.4 Cc	ommer	nts:							Mean		_				atio:	0.0
7.4 00		113.							Wave							0.0
									7. Wi			rvev		110	alio.	0.0
									Bank							
									Bank	_			.1.			
					1			7.3	Ice/D	edris J	am P	otentia	11:	ı		
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
[ '.' ]	1.2	1.0	5.1	0.2	0.0	0.4	0.0	0.1	0.2	0.0	0.4	0.0	0.0	' · · '	'	1 Stai

2

High

1

Low

0

N.S.

0

N.S.

2

High

1

Low

2

High

1

Low

1

Low

0

N.S.

1

Low

1

Low

2

High

2

High N.S.

0

1

Low

17

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Pond Brook Reach T3.01

Topo Maps: 414

Date Last Edited: Wed, December 31, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment?	No		Qι	iality C	ontrol	Statu	s: <b>Un</b>	knowi	n			
Step 1. Reach Location												
1.1 Reach Description:	Flows t	o tha	north-	north	voet c	roccii	a Silv	vor St	root a	nd on	dina s	at the
1.2 Towns:	Hinesb				vesi c	103311	ig Sii	vei St	i eet a	na <del>e</del> n	unig a	at tile
1.3 Downstream Latitude:	44.28	urg, w	Olikio		p 4. L	and C	over -	Reach	a Hydr	ology		
1.3 Downstream Landude.					Wate		OVEI -	INCACI	TTIYUI	ology		
Step 2. Stream Type	-73.12						'ovor		Fa	root		
	200				storic L rrent E			, d Co		rest	<b>-</b> 0 -	<b>7</b> 0/
<ul><li>2.1 Elevation Upstream:</li><li>2.1 Elevation Downstream:</li></ul>	398 335								_		56.7	%
2.1 Is Gradient Gentle?	No				rrent S		ominai	nt Lan	a Cov	er: Fie	eia	
2.1 is Gradient Gentle?  2.2 Valley Length:	6972 fo	ot 1	20 Mile	4.2	Corrid	or						
2.3 Valley Slope:	6872 fe 0.92	еі. т. %	.SUIVIIIE	35. His	storic L	and C	over:			eld		
2.4.Channel Length:	<b>9402</b> fe	70	. <b>78</b> Mile	$\sim$	ırrent l	Domin	ant lar	nd Cov	ver: <b>Fc</b>	rest	36.	<b>3</b> %
2.5 Channel Slope:		%	. / Olville	cs. Cu	rrent S	Sub-Do	ominai	nt Lan	d Cov	er: We	etland	
2.6 Sinuosity:	1.37	,0		4.3	Ripari	ian Bu	ffer		Left	Bank	Riah	t Bank
2.7 Watershed Area:	1.37	Squar	re Mile	_	minan		-		>10		>100	
2.8 Channel Width:	47	•	eet.	_	b-dom				0-2		0-25	
2.9 Valley Width:	384		eet.	Lei	ngth w	/ less	than 2	25 ft.:	100		642	
2.10 Confinement Ratio:	8		CCI.	4.4	Grour	nd Wa	ter Inp	uts:	Ab	undar	nt	
2.10 Confinement Type:	Broad			Step	5. Ins	tream	Chan	nel Mo	odifica	tions		
2.11 Reference Stream Typ				5.1	Flow	Regul	ation -	(old):	No	Data		
Bedform:	Riffle-	Pool		Ty		5		None				
Sub-class Slope:	None			Ús								
Bed Material:	Grave	ı		5.2	Bridge	es and	l Culve	erts:	3		4 %	6
Step 3. Basin Characteristics		•			Bank						5 %	
	_	_			L	_eft <b>2</b> 4	46 <sup>°</sup>	Rig	ht <b>25</b> 9	9.4		
3.1 Alluvial Fan:	Non Non	^			Chan				152	6	16 %	
3.2 Grade Control:		e ialla	ko 10 7	, , 5.5	Dredg	ging H	story:		Dred	dging		
3.3 Dominant Geologic Mat	Giac	iai La	ke48.7 Iuvial	<sup>7</sup> ⁰Ste <sub>l</sub>	6. Fl	oodpla	in Mo	dificat	ions	•		
3.3 Sub-dominant Geologic		AI	iuviai	6.1 E	Berms	and R	oads	0	ld <b>1</b> 41	15.8ft.	15 %	
3.4 Left Valley Side	Steep								One Si		Both S	
3.4 Right Valley Side	Steep			Ro	ad:				1415.8			
3.5 Soils	_			Ra	ilroad:				0.0	ft. (		ft.
Hydrologic Group:	С		1.9 %	DE	rm:			(	0.0	ft. <b>(</b>		ft.
Flooding:	None/R			Im	oroved	l Path:		(	0.0	ft. <b>(</b>		ft.
Water Table Deep:	1.5	2	6.2 %	6.2	Devel	opme	nt:		280	ft. 1		ft.
Water Table Shallow:	0.0	4:	2.1 %		Chan					tiple		ft.
Erodibility:	Modera	te 4	<b>7.1</b> %		Mean			n:		tiple		
7.4 Comments:					Mean		_			<b>2.0</b> Ra	atio.	3.9
		C . I .	1		Wave					3.0 Ra		5.2
Updated Dec 2008, relying p	•				7. Wii	_		vev	- •	110		·· <b>-</b>
observations and additional					Bank			<u>- J</u>	2 (	987.77	7 ft	
Sept 2008, to supplement or	iginal ass	essm	ent in		Bank				•	28 ft.	11.	
October 2004.						U		atonti a				
		I		7.3	Ice/De	SUID J	aiii P(	วเษาแล	ıı. <b>iviu</b>	Itiple	ı	
4.1   4.2   4.3   5.1   5.	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Pond Brook Reach T3.02

Topo Maps: ---

Date Last Edited:

1

Low

1

Low

0

N.S.

0

Unk.

0

N.S.

0

N.S.

2

High

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

is Rea	cn an	impou	namer	IL! INC	,		Qu	ality C	Control	Statu	s: Un	know	n			
Step 1	. Read	ch Loc	ation													
	each D			R	+ 116 +	o Tyle	er Brid	ae Ra	I Δt th	e enc	l a left	t on T	urkev	IN T	he re	ach is
	owns:	JUSUIT	otioi i.		onkto		oi Dila	ge ite	i, At ti	ic ciic	i a ici	. 011 1	urkey	LI <b>4</b> , I	110 10	acii is
		ream I	atitude		4.27	••		Ste	p 4. L	and C	over -	Read	n Hydr	ology		
			ongitu						Wate			rtodol	1 1 1 y GI	ology		
	. Strea								storic L				Fo	rest		
	levatio			4	30				rrent [			nd Cov			58	0 %
			nstrea		98				rrent S							<b>J</b> /0
	Gradi				No				Corrid		Jiiiiia	iii Laii	u Oov	C1. 1 10	JIG	
	alley L				<b>889</b> fe	et 0	<b>.55</b> Mile						_			
	alley S					%		1 113	storic L					rest		
	hannel		th:		<b>617</b> fe		. <b>69</b> Mile		ırrent İ							3 %
	hanne					%		Cu	rrent S	Sub-Do	omina	nt Lan				
	inuosit				.25			4.3	Ripar	ian Bu	ıffer		Left	Bank	Righ	nt Bank
	/atersh		ea:		17	Squa	re Mile		minan				>10	00	>100	)
2.8 C	hanne	I Width	า:	4	<b>1</b> 5	. 1	feet.		b-dom				51-	100	51-1	00
2.9 V	alley V	Vidth:		2	224	1	feet.		ngth w				0		361	
2.10	Confin	ement	Ratio:		5				Grour					nimal		
2.10	Confin	ement	Type:	I	Narrov	N			5. Ins					tions		
			ream <sup>-</sup>						Flow	Regul	ation -					
Be	dform:			l	Riffle-	Pool			pe:			None	!			
Su	b-class	s Slope	e:					Us					_		_	
Be	d Mate	erial:		(	Grave	l			Bridge			erts:	0			%
Step 3.	Basin	Chara	cterist	ics:				5.3	Bank		ring:	ъ.			0.0	
3.1 A	lluvial	Fan:			Non	е		- 4		_eft		Rig	jht			
	rade C				Nan	_			Chan					_	0.0	
			ologic I	Mat.:	Glac	ial La	ke100.	%5.5	Dreag	ing H	istory:	r.c.	No [	Data		
			Geolo		Mat ·			Ste	p 6. Fl	oodpla	ain Mo	dificat	ions			
	eft Vall			_	ery St			6.1 E	Berms	and R	oads	U	10 <b>U.U</b>		0.0	
	ight Va	•			ery St	-		_				(	One Si		Both S	Sides
3.5 S				•	ory Or	ССР			ad:					ft.		ft.
	rologic	Grour	٠.	В		g	1.6 %		ilroad:					ft.		ft.
	ding:	. Group	<i>J</i> .				00. %	_	rm:					ft.		ft.
	er Tab	lo Doc	'n.	3.			1.6 %		proved					ft.		ft.
	er Tab		•	3. 1.			1.6 %		Devel			(	0.0	ft. <b>(</b>	).0	ft.
	dibility:		allOw.				00. %		Chan				Non	_		
	•			ν.	егу ос	verer	00. /6		Mean		_	n:	Avu	Ilsion		
7.4 Cc	ommer	nts:							Mean							0.0
updat	ed with	n Phas	e2 coll	lected	9/14/0	)1 and	on		Wave					Ra	atio:	0.0
7/22/0									7. Wi			rvey				
.,,	-							7.1	Bank	Erosio	on:					
								7.2	Bank	Heigh	t:		Lo	w (<5	ft.)	
								7.3	Ice/De	ebris J	lam Po	otentia	l: <b>De</b>	bris	-	
	4.5	4.5						<b>0</b> 1		0.0						T
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

0

N.S.

0

N.S.

0

N.S.

0

N.S.

1

Low

0

N.D.

1

Low

0

N.D.

0

N.S.

# **Phase 1 - Reach Summary Report**

1

Low

0

N.S.

0

N.S.

7

Basin: Otter, Little Otter, Lewis

Stream Name: Pond Brook Reach T3.03

Topo Maps: ---

Date Last Edited:

1

Low

2

High

2

High

0

N.S.

0

Unk.

0

N.D.

0

N.S.

0

N.S.

0

Unk.

0

N.S.

1

Low

0

N.S.

0

N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Rea	ich an	Impou	ndmer	nt? No	)		Qu	ality C	Control	Statu	s: <b>Un</b>	know	n			
Step 1	I. Read	ch Loc	ation					•								
	each [			R	t 116 t	o Sta	te Pris	on Ho	llow F	?d Re	ach i	s near	the in	nterse	ction	of
	owns:	200011	otioii.		onkto		10 1 113	011 110	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	tu, itt	aon i	3 iicai		110130	Ction	O.
	ownsti	ream I	atitud		4.26	••		Ste	ep 4. L	and C	over -	Read	n Hydi	rology		
	ownst			• .	73.10				Wate		0101	rtodol	y a.	ology		
	2. Strea				. 0 0				storic L		'over		Fo	rest		
	levatio			1	45				rrent [			nd Cov			50 6	<b>6</b> %
	levatio				30				rrent S							<b>)</b> /0
	Gradi				No				Corrid		Jiiiiia	III Laii	u Cov	CI. I IC	ziu –	
	alley L			5	 311 fe	et 1	<b>.01</b> Mile	4.2	COITIC	101			_			
	alley S			Ĭ	0.28	%	.0	O. His	storic L	and C	cover:			rest		
	hanne		th:		<b>'484</b> fe		.42Mile		ırrent l							0 %
	hanne					%		Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Fo</b>	rest	
	inuosit				.41				Ripar		ıffer		Left	Bank	Righ	nt Bank
	/atersh		ea:		16	Squa	re Mile	_	minan				0-2		0-25	
	hanne			4	<b>45</b>	•	feet.	Su	b-dom			\= (:	>10		>100	
2.9 V	alley V	Vidth:		•	679	1	feet.		ngth w				426	_	4265	5
	Confin				15				Grour					nimal		
2.10	Confin	ement	Type:	'	Very E	3road			5. Ins							
	Refere		ream	Type:	E				Flow	Regul	ation -	(old):	No	Data		
Be	dform:								pe:							
Su	b-class	s Slope	э:					Us					_		_	
Be	d Mate	erial:		;	Sand				Bridge			erts:	4			6
Step 3.	Basin	Chara	cterist	tics:				5.3	Bank		ring:	ъ.			0.0	
3.1 A	lluvial	Fan:			Non	е		- 4		_eft		Rig	jht			
	rade C		:		No [	Data			Chan						0.0	
	omina			Mat.:	Glac	ial La	ke69.8 Other	%5.5	Dreag	Jing H	istory:	r.c.	No [	<b>Data</b>		
	ub-dor		_		Mat.:	C	ther	Ste	p 6. Fi	ooapia	ain ivio	airicat	ions			
	eft Val			•	illy			6.1 E	Berms	and R	oads	U	na <b>U.U</b>		0.0	
	ight Va	•			, xtrem	elv St	een	_				(	One Si		Both S	Sides
3.5 S					ACI 0111	oly Ot	ССР		ad:					ft.		ft.
	rologic	Groun	٦.	D		o	0.0 %		ilroad:					ft.		ft.
	iding:	Cioup	٠.				00. %	_	rm:	المحيا				ft.		ft.
	er Tab	la Dac	'n.	0.			3.8 %		proved				470 0	ft.		ft.
	ter Tab		•		.0		3.8 %		Devel			,		ft. <b>(</b>		ft.
	dibility:		allOW.		.u light		<b>4.1</b> %		Chan					-chan	nei	
	-			31	igiit	'	<b>7.</b> 1 /0		Mean		-	n:		Data		
7.4 Cd	ommer	nts:							Mean					3.0 Ra		7.5
Pastur	ed, ara	ass ba	nks. S	AV.					Wave	_			40	<b>6.0</b> Ra	atio:	9.1
2	, 3.		, -					Step	7. Wi	ndshie	eld Su	rvey				
								7.1	Bank	Erosio	on:					
								7.2	Bank	Heigh	t:		Me	dium	(5 - 1	5 ft.)
								7.3	Ice/De	ebris J	lam Po	otentia		allow	-	-
		4.5						O 1								
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Pond Brook Reach T3.04

Topo Maps: ---

Date Last Edited:

2

High

0

N.S.

0

N.S.

0

Unk.

0

N.S.

2

0

High N.S.

0

N.S.

0

N.S.

0

N.S.

1

Low

0

N.S.

0

N.S.

0

N.S.

0

N.S.

7

2

High

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

-	is Rea	ch an	Impou	ndmer	nt? NC	)		Qι	ıality (	Control	Statu	s: <b>Un</b>	know	n			
	Step 1	. Read	ch Loc	ation													
	<del>`</del>		Descrip		R	uns al	ona t	he wes	stern	side o	f mou	ntain	rd				
		owns:	2000116			onkto	_	110 110	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	olac o	0	····	· u.				
			ream L	atitud		4.25	••		Ste	ер 4. L	and C	over -	Reach	n Hydr	ology		
			ream L							Wate		0101	rtodol	yaı	ology		
			am Typ			00				storic L		'over		Ec	rest		
-			n Upst		1	60				irrent [			nd Cov			55.7	7 0/
			n Dow			45				irrent S							70
			ent Ge			No						Jiiiiia	III Laii	u Cov	ei. Ci	op	
			ength:			<b>343</b> fe	_ot 3	. <b>47</b> Mile		? Corric						_	
		alley S					%	- <b>-</b> 77 IVIIIC	1 113	storic L					etland	t	
			l Lengt	th:		<b>824</b> fe		. <b>70</b> Mile	ے ا	urrent l	Domin	ant la	nd Co	ver: <b>Fc</b>	rest	38.	6 %
			l Slope				%		Cı	ırrent S	Sub-Do	omina	nt Lan	d Cov	er: We	etland	
		inuosit		<i>,</i>		.35	, 0		4.3	Ripar	ian Bu	ıffer		Left	Bank	Righ	t Bank
			ned Are	ea.		15	Squar	re Mile	_	minan				>10		>100	
			l Width			14	•	eet.	Šu	ıb-dom	inant:			51-	100	51-1	00
		alley V		••		,196		eet.	Le	ngth w	/ less	than 2	25 ft.:	0		248	
			ement	Ratio:		27		cci.	4.4	Grour	nd Wa	ter Inp	outs:	Ab	undar	nt	
			ement			Very E	Broad		Step	5. Ins	tream	Chan	nel Mo	odifica	tions		
			nce St						5.1	Flow	Regula	ation -	(old):				
		dform:				Dune-	Ripple	9		pe:	3		None				
	_		s Slope	ے.			-		Ús								
		d Mate	•	J.		Sand			5.2	Bridge	es and	Culve	erts:	0		9	6
c				otoriot		Sanu				Bank						0.0	
_			Chara	iciensi	.105.						_eft	3	Rig	ıht			
		lluvial				Non	-		5.4	Chan	nel Sti	raighte		846	5.0	34 %	
			Control			Non						~	•				
			nt Ged			Othe		62.8	%Ste	p 6. Fl	oodpla	ain Mo	dificat	ions	- u.u		
			minant		_				6 1 1	Berms	and R	nads	0	ld <b>0.0</b>	ft	0.0	
			ley Sid		E	xtreme	ely Sto	еер	0.11	2011113	ana n	oaas		One Si		Both S	Sides
			alley S	ide	St	teep			Ro	ad:			`	J110 01	ft.	Doin C	
	3.5 S	oils								ilroad:					ft.		ft.
	Hyd	rologic	Group	<b>)</b> :	D		8	<b>5.2</b> %		rm:					ft.		ft.
	Floo	ding:			N	one/Ra	are 1	<b>00.</b> %		proved	l Path				ft.		ft.
	Wat	er Tab	le Dee	ep:	0.	0	6	2.8 %		2 Devel				0.0	ft. (	0.0	ft.
	Wat	er Tab	ole Sha	illow:	-1	.0	6	2.8 %		Chan			`	Non		J.0	ft.
	Eroc	dibility:			sl	ight		4.8 %		Mean			n·		lsion		
		•				•			0.7	Mean		_	11.				c c
		ommer								Wave					0.0 Ra		6.6 0.5
١	Wetlar	nd. Up	pdated	l using	Phase	e 2 dat	ta on				_		r. (0) (	41.	3.0 Ra	สแด:	9.5
	10/02/	01 and	d on 7/2	22/04.						7. Wi			vey				
										Bank				No	ne		
										Bank	_						
									7.3	Ice/D	ebris J	lam Po	otentia	ıl: <b>No</b>	ne		
Ī	1 1	4.0	4.0	F 4	F 0	F 2	E A		C 4	6.0	6.0	C 4	6.5	6.0	7.4	7.0	Total
	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

# **Phase 1 - Reach Summary Report**

7

Basin: Otter, Little Otter, Lewis

**Pond Brook** Reach T3.05 Stream Name:

Topo Maps:

1

Low

0

N.S.

0

Unk.

0

0

N.D.

0

N.S. N.S.

0

N.S.

0

N.S.

0

N.S.

1

Low

1

Low

1

Low

1

Low

0

N.S.

2

High

0

N.S.

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

**Lewis Creek** Sub-watershed:

Is Rea	ich an	Impou	ndmer	nt? No	)		Qu	ality C	Control	Statu	s: Un	know	n			
Step 1	I. Rea	ch Loc	ation													
		Descrip		R	uns al	long t	he wes	stern	side o	f mou	ntain	rd jus	t sout	th of E	East	
	owns:				onkto	n						-				
		ream L		Ŭ.	4.21				ep 4. L		over -	Reacl	ո Hydi	rology		
		ream L		ıde: <b>-</b> 7	73.11				Wate		_		_			
		am Typ							storic L					rest		
		on Upsi on Dow			75 60				irrent [							%
		ient Ge			60 Vo				irrent S		omina	nt Lan	a Cov	er: <b>Cr</b>	ор	
		ength:				∆et 1	. <b>73</b> Mile		Corric		_		_			
	alley S					%	., 0101110	ПК	storic L					rest		
		I Leng	th:		<b>625</b> fe		.20Mile	<b>-</b> 1	urrent l							8 %
		l Slope		(	0.13	%			irrent S			nt Lan				
	inuosi			1	.27	_		_	Ripar		ıtter				_	t Bank
		ned Are			7	•	re Mile	_	minan b-dom				>10		>100	
		el Width	า:		30		eet.		ngth w			25 ft ·	26- 930		26-5 348	U
	alley V	viain: ement	Potio		190 16		eet.		Grour					, undar		
		ement			Very E	Rroad			5. Ins							
		ence St			_	Ji Oaa			Flow					Data		
	dform			. , , , ,					pe:	- 3 -		(,				
Su	b-clas	s Slope	e:					Ús								
	d Mate	•		;	Sand				Bridge			erts:	3			6
Step 3.	Basin	Chara	acteris	tics:				5.3	Bank		ring:				0.0	
<u>-</u>	lluvial				Non	е		- 4		_eft		Rig	jht		0.0	
		Control	•		No [				Chan			_	A1 . F		0.0	
3.3 D	omina	int Ged	ologic	Mat.:	Othe	er	96.1	%Sto	Dredo	jing n	isiory.	dificat	No I	Jata		
3.3 S	ub-doi	minant	Geolo	gical I	Mat.:	G	lacial	6 1 5	Dredo p 6. Fl Berms	and D	oods	Junicai	ld <b>0.0</b>	. 4	0.0	
3.4 L	eft Val	ley Sid	le	V	ery St	еер		0.11	Denns	anu n	oaus	U	One Si		<b>0.0</b> Both S	Sides
		alley S	ide	St	teep			Ro	ad:			•		ft.	Dourc	
3.5 S									ilroad:					ft.		ft.
		Group	<b>)</b> :	D			<b>6.1</b> %	Ве	rm:					ft.		ft. ft.
	oding:						00. %	lm	proved	l Path	:			ft.		ft.
		le Dee		0.			6.1 %	6.2	Deve	lopme	nt:	•	119.0	ft. <b>(</b>	0.0	ft.
		ole Sha	allow:		.0		6.1 %		Chan					Data		16.
	dibility:			SI	ight	•	3.9 %	0.4	Mean		_	n:	_	ration		
7.4 Co	ommer	nts:							Mean					<b>5.0</b> Ra		4.4
Wetlar	nd, cul	vert wa	ay too	small.					Wave	_			23	<b>8.0</b> Ra	atio:	7.8
	•		•						7. Wi			rvey				
									Bank				_			
									Bank					w (<5	ft.)	
		I	ı	ı	1	ı	1 1	7.3	Ice/D	ebris .	Jam P	otentia	ii: Sh	allow	1	
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
									ļ		1	ļ			<u> </u>	ļ

### **Phase 1 - Reach Summary Report**

1

Low

2

High N.S.

0

0

N.S.

9

0

N.S.

Basin: Otter, Little Otter, Lewis

Stream Name: Pond Brook Reach T3.06

Topo Maps: ---

Date Last Edited:

2

High

0

N.S.

0

N.S.

0

Unk.

0

N.D.

2

0

High N.S.

0

N.S.

0

N.S.

0

N.S.

2

High

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

-	is Rea	ch an	Impou	ndmer	it? NC	)		Qι	uality C	Control	Statu	s: <b>Un</b>	know	n			
	Step 1	. Read	ch Loc	ation													
	<u>-</u> _		Descrip		R	t 17 to	Mon	kton R	d Re	ach d	oes fr	om al	ove t	he inl	et to V	Vinon	а
		owns:	2000116	J. 1011.		ristol	111011		.a	uon g	000	OIII G					u
			ream I	_atitude		4.18			Ste	p 4. L	and C	over -	Reach	n Hydr	ology		
				ongitu	•	73.10				Wate		0101	rtodol	yaı	ology		
			am Typ							storic L		'over		Fo	rest		
			n Upst		5	50				rrent E			nd Cov			54.4	0/
				nstrea		75				rrent S				_		_	• /0
			ent Ge			No				Corrid		Jiiiiia	III Laii	u Cov	er. Cr	υþ	
			ength:			<b>979</b> fe	et 1	<b>.89</b> Mile	20							_	
		alley S				0.75 °		.051	1 113	storic L					etland		
			l Lengt	th:		<b>598</b> fe		. <b>01</b> Mil		ırrent l							1 %
			l Slope				% <b>-</b>		Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: We	etland	
		inuosit				.06	, -		4.3	Ripari	ian Bu	ıffer		Left	Bank	Righ	t Bank
			ned Are	ea:	_	5	Saua	re Mile	s Do	minan	t:			>10	00	>100	)
			l Width		- 1	28	•	feet.	Su	b-dom				26-	50	51-1	00
		alley V		-		,697		feet.	Le	ngth w	/ less	than 2	25 ft.:	0		0	
		•		Ratio:		171				Grour					undar	nt	
			ement			Very E	<b>Broad</b>		Step	5. Ins	tream	Chan	nel Mo	odifica	tions		
				tréam <sup>-</sup>					5.1	Flow	Regul	ation -	(old):	No	Data		
		dform:			٠.				Ty	pe:	•		` ,				
	Sul	b-class	s Slope	e:					Ús								
		d Mate	•						5.2	Bridge	es and	d Culv	erts:	0		9	6
c				cterist	ice.				5.3	Bank	Armo	ring:				0.0	
Ë		Iluvial		.0.01101		Non	_			l	_eft		Rig	jht			
						No E	_		5.4	Chan	nel Sti	raighte	ening:	419	7.0	39 %	
			Control		\1a+ ·	Glac	Jala iollo	ka99 1	<sub>o</sub> , 5.5	Dredg	ging H	istory:		No [	Data		
				ologic I		Giac	iai La	ke88.1 Other	<sup>7</sup> ⁰Ste	p 6. Fl	oodpla	ain Mo	dificat	ions			
				Geolo	_				6.1 E	Berms	and R	oads	0	ld <b>0.0</b>	ft	0.0	
			ley Sid			xtreme								One Si		Both S	Sides
		-	alley S	ıae	E	xtreme	ely St	eep	Ro	ad:					ft.		
	3.5 S								Ra	ilroad:					ft.		ft.
	•	_	: Group	<b>)</b> :	С		_	8.4 %	De	rm:					ft.		ft.
		ding:						<b>00.</b> %	lm	proved	l Path:	:			ft.		ft.
	Wat	er Tab	le Dee	ep:	6.	0	5	8.8 %	6.2	Devel	opme	nt:		0.0	ft. <b>(</b>	0.0	ft.
	Wat	er Tab	ole Sha	allow:	6.		5	8.8 %		Chan				No I	Data		ft.
	Eroc	dibility:			S	evere	5	4.0 %		Mean			n·		Data		
	7 4 Cc	ommer	nte:							Mean		_			<b>0.0</b> Ra	atio:	8.7
	7.4 00		113.							Wave						atio: 1	
										7. Wii	_		rvev	70		auo. I	1.1
										Bank							
										Bank	_			1.			
,									7.3	Ice/De	ebris J	iam P	otentia	11:			<del></del>
	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
	7.1	7.2	٦.٥	5.1	٥.۷	0.0	J. <del>T</del>	0.0	0.1	0.2	0.0	0.7	0.0	0.0	' · '	' .∠	I Olai

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Pond Brook Reach T3.07

Topo Maps: ---

2

High

0

N.S.

0

Unk.

0

N.D.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

Is Rea	ich an	Impou	ndmer	nt? NC	)		Qι	uality C	Control	Statu	s: <b>Un</b>	know	n			
Step 1	1. Read	ch Loc	ation													
	each [			D	oach d	rocci	es Moi	akton	Dd on	hoth	cidoc	On	ho oo	ctorn	cido i	4
	owns:	Jescrit	Juon.		onkto		59 IVIUI	IKLOII	Nu oii	DOLLI	Sides	. Оп	ille ea	Sterri	Side	ı
		room l	atitud	_	4.16			Sto	p 4. L	and C	ovor -	Paack	. Hvdr	ology		
	ownsti ownsti			•-					Wate		Ovei -	Neaci	TTIYUI	ology		
				iue	3.09									1		
	2. Strea			_	<b>-</b> 0				storic L					rest		0.4
	levatio				50 50				rrent [							%
	levatio				50				rrent S		omina	nt Lan	d Cov	er:		
	Gradi			Γ	10 10		07141	4.2	Corrid	dor						
	alley L			4	<b>586</b> re	et. <b>U</b>	<b>.87</b> Mile	<sup>es.</sup> His	storic L	and C	cover:		Fo	rest		
	alley S		41	•	J. <b>UU</b>	/0		$\sim$	ırrent l			nd Cov	/er:			%
	hanne				<b>319</b> fe		<b>.20</b> Mil	<u> </u>	rrent S					er.		
	hanne		<b>9</b> :			%			Ripar						Righ	t Bank
	inuosit			1	.38	0	N 1:1	_	minan		iiiGi		0-2		<b>0-25</b>	it Darik
	/atersh				1	•	re Mile		b-dom				26-		>100	<b>\</b>
	hanne		า:		13		eet.		ngth w		than 2	25 ft ·	328		3096	
	alley V		D		198	1	eet.		Grour					imal	3090	1
	Confin				15	\			5. Ins							
	Confin				Very E	sroad										
	Refere		tream	i ype:	В				Flow	Regui	alion -	(old).	NO	Data		
	dform:			•					pe:							
	b-class	•	e:					Us					4		0	,
Be	ed Mate	erial:							Bridge			ens:	1			6
Step 3.	Basin	Chara	acterist	tics:				5.3	Bank		ring:	Б.			0.0	
3.1 A	lluvial	Fan:			Non	е		_ 1		_eft	! . 4 .	Rig	nt			
	Grade C		Ŀ		No E	Data			Chan		_	_			0.0	
	omina			Mat ·				<sub>%5</sub> 5.5	Dredg	ging H	istory:		No [	Data		
	ub-dor				Mat ·			Ste	Dreag o 6. Fl	oodpla	ain Mo	dificat	ions			
	eft Val			_	teep			6.1 E	Berms	and R	oads	0	ld <b>0.0</b>	ft.	0.0	
	light Val				•								One Si	de l	Both S	Sides
3.5 S		alley 3	iue	V	ery St	eep			ad:					ft.		ft.
		_					0.4	Ra	ilroad:					ft.		ft.
	rologic	Group	p:				%	DE	rm:					ft.		ft.
	oding:						%		proved	l Path:	:			ft.		ft.
	ter Tab		•				%	0.2	Devel	opme	nt:	į	513.0	ft. C	0.0	ft.
	ter Tab		allow:				%	6.3	Chan				No I	Data		IL.
Ero	dibility:			sl	ight		%	6.4	Mean	der M	iaratio	n:	No I	Data		
7.4 Cd	ommer	nts:							Mean						atio:	0.0
7.100	511111101	110.							Wave							0.0
									7. Wi	_		rvev		110		0.0
												303				
									Bank							
									Bank	_						
								7.3	Ice/D	ebris J	am Po	otentia	ıl:			
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
4.1	4.2	4.3	5.1	٥.∠	5.5	5.4	5.5	0.1	0.2	0.3	0.4	0.5	6.6	/ .	1.2	Total

1

Low

0

N.S.

0

N.S.

0

N.D.

0

N.S.

0

N.D.

0

N.S.

0

N.S.

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Tribn to Pond Brook Reach T3.1S1.01

Topo Maps: ---

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

is reach an impoundment:	110		Qu	anty C	ontroi	Status	s: <b>u</b> n	Know	n			
Step 1. Reach Location												
1.1 Reach Description:	Parallel	s Silv	er St te	o the	SW. E	nds n	ear St	arksb	oro R	d.		
1.2 Towns:	Monkto											
1.3 Downstream Latitude:	44.27			Ste	p 4. L	and C	over -	Reacl	n Hydi	ology		
1.3 Downstream Longitude	-73.11			4.1	Wate	rshed						
Step 2. Stream Type				His	storic L	and C	over:		Fo	rest		
2.1 Elevation Upstream:	500			Cu	rrent [	Domina	ant lar	id Cov	er: <b>Fi</b>	eld	42.	2 %
2.1 Elevation Downstream:	410			Cu	rrent S	Sub-Do	ominai	nt Lan	d Cov	er: Cr	ор	
2.1 Is Gradient Gentle?	No				Corrid	dor						
2.2 Valley Length:	<b>3714</b> fe		<b>.70</b> Mil∈	es. His	storic L	and C	over:		Cr	ор		
2.3 Valley Slope:		%		$C_1$	ırrent l			nd Cov		•	28.	0 %
2.4.Channel Length:	<b>7301</b> fe		.38Mile	78	rrent S							• ,0
2.5 Channel Slope:		%			Ripar			it Laii			•	nt Bank
2.6 Sinuosity: 2.7 Watershed Area:	1.97 0	Saus	re Mile	_	minan		1101		0-2		0-25	
2.7 Watershed Area.  2.8 Channel Width:	10	•	feet.	_	b-dom					100	51-1	
2.9 Valley Width:	10		feet.		ngth w		than 2	5 ft.:	657		5986	
2.10 Confinement Ratio:	0		ieet.		Ğrour					nimal		
2.10 Confinement Type:	Semi-	confir	ned		5. Ins							
2.11 Reference Stream Type		•••••			Flow					Data		
Bedform:					pe:	5		` ,				
Sub-class Slope:				Ús								
Bed Material:				5.2	Bridge	es and	d Culve	erts:	1		Ç	%
Step 3. Basin Characteristics				5.3	Bank	Armor	ing:				0.0	
3.1 Alluvial Fan:	<u>·</u> Non	Δ				_eft		Rig	jht			
3.2 Grade Control:	No I	_			Chan		-	ening:			0.0	
3.3 Dominant Geologic Mat			ke98.9		Dredo				No I	Data		
3.3 Sub-dominant Geologic		.aa	Till	Ste	p 6. Fl							
3.4 Left Valley Side	Very St	een		6.1 E	Berms	and R	oads		ld <b>0.0</b>		0.0	
3.4 Right Valley Side	Very St	•		_				(	One Si		Both S	Sides
3.5 Soils	very or	ССР			ad:					ft.		ft.
Hydrologic Group:	С	۶	86.3 %		ilroad:					ft.		ft.
Flooding:	None/R		00. %		rm:	ا المعلم				ft.		ft.
Water Table Deep:	2.0		7.1 %		proved				400	ft.		ft.
Water Table Shallow:	0.0		3.1 %		Devel	•			140.0	ft. (	J.U	ft.
Erodibility:	Very Se				Chan					Data		
•	10.700	7 7 0 1 00	, <b>0.10</b> ,0		Mean		_	n:	NO	Data		
7.4 Comments:					Mean							0.0
					Wave	_				Ra	atio:	0.0
					7. Wi			vey				
					Bank							
					Bank	_		_				
				7.3	Ice/D	ebris J	am Po	otentia	ıl:			
	_											

4.2 5.1 5.2 6.5 7.1 7.2 Total 4.1 4.3 5.3 5.4 5.5 6.1 6.2 6.3 6.4 6.6 2 2 2 0 0 0 0 0 0 0 0 0 0 0 0 0 6 N.S. N.S. N.S. N.S. N.S. N.S. N.D. N.D. N.S. N.S. High High High Unk. N.D. Unk.

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Tribn to Pond Brook Reach T3.2S1.01

Topo Maps: ---

Date Last Edited:

2

High

2

High

2

High

0

N.S.

0

Unk.

0

N.D.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.D.

0

N.S.

0

N.S.

6

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Rea	ch an	Impou	ndmer	nt? No	)		Qı	uality (	Control	Statu	s: <b>Un</b>	know	n			
Step 1	I. Read	ch Loc	ation					·								
		Descrip		R	t 116 t	o Tyle	er Brid	lae Ra	l. At th	ne end	l a lef	t on T	urkev	I N. T	he rea	ach is
	owns:	200011	3110111		onkto	•	J. <b>D</b> . 10	.90	., ,				a. Koy	, .		2011 10
		ream L	atitude		4.27			Ste	ep 4. L	and C	over -	Reacl	h Hvdr	oloav		
		ream L		• •	73.10				Wate					97		
		am Typ							storic L		cover.		Fo	rest		
		n Ups		5	00				irrent [			nd Cov			35.0	) %
		n Dow			20				irrent S							, , 0
		ient Ge			No				Corri							
2.2 V	alley L	ength:		2	<b>656</b> fe	et. <b>0</b>	. <b>50</b> Mile		storic L		`ovor:		S I	rub		
	alley S					%		1 113							20	4 0/
		I Lengt	th:	2	<b>824</b> fe	et. <b>0</b>	.53 Mil	125	urrent							1 %
2.5 C	hanne	I Slope	e:	2	2.83	%			irrent S			nt Lan			•	
2.6 S	inuosit	ty:		1	.06				Ripar		ıffer			Bank	_	it Bank
2.7 W	/aters/	ned Are	ea:		0	Squa	re Mile		minan				0-2	-	0-25	
2.8 C	hanne	l Width	า:		5	1	eet.		ıb-dom			)	>10		51-1	
	alley V					1	eet.		ngth w				276		2541	
		ement			0				Grou				No			
		ement			Semi-	confir	ed		5. Ins							
		ence St	tream	Type: I	В				Flow	Regul	ation -	(old):	No	Data		
	dform:			-					pe:							
Su	b-clas	s Slope	e:					Us					•		0	,
Be	d Mate	erial:							Bridg			erts:	0			6
Step 3.	Basin	Chara	acterist	ics:				5.3	Bank		rıng:	D:-	.l. 4		0.0	
3.1 A	lluvial	Fan:			Non	е		E /		Left	rojabta	Rig	gnt		0.0	
3.2 G	rade C	Control	:		No E	Data			Chan					<b>-</b> 4 -	0.0	
3.3 D	omina	int Ged	ologic I	Mat.:	Glac	ial La	ke93.9	)%Ct-	Died(	ging n	istory:	٠. ١: ٤: 4	No I	Jata		
		minant	_		Mat.:		ke93.9 Till	Ste	р 6. гі	ooapia	ain ivio	anicat	ions	_		
		ley Sid		•	teep			6.1 E	3erms	and R	oads	U	nu <b>U.U</b>		0.0	· ·
		alley S			teep			D	d.			(	One Si		Both S	sides
3.5 S	_	,			Т				ad:					ft.		ft.
		Group	٥.	В		8	8.5 %		ilroad:					ft.		ft.
	ding:	, Olou	γ.		one/R		00. %	De	erm:	J Doth	_			ft.		ft.
	_	ole Dec	an.	3.			8.5 %		proved					ft.		ft.
		ole Sha	•	3. 1.			8.5 %	0.2	Deve			(	0.0	ft. <b>(</b>	).0	ft.
	dibility:		allOw.				9.9 %		Chan					Data		
	•			•	ery oc	VCICS	<b>3.3</b> /0	0.¬	Mean		_	n:	No	Data		
7.4 Cd	ommer	nts:							Mean							0.0
									Wave	_				Ra	atio:	0.0
									7. Wi			rvey				
								7.1	Bank	Erosio	on:					
								7.2	Bank	Heigh	ıt:					
									Ice/D	_		otentia	al:			
		4.5						0.1								
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Tribn to Pond Brook Reach T3.3\$1.01

Topo Maps: ---

Date Last Edited:

1

Low

0

N.S.

2

High

0

N.S.

0

Unk.

0

N.D.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.D.

0

N.S.

0

N.S.

3

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundmen	t? No	)		Qua	ality C	ontrol	Status	s: <b>Un</b>	knowi	n			
Step 1. Reach Location					-								
1.1 Reach Description:	Rf	116 t	o Tyl	er Brid	ne Rd	Δt th	e end	l a lefi	on Ti	ırkev	IN T	he rea	ach is
1.2 Towns:		onkto	-	or Bria;	go ita	, , , , , , , , , , , , , , , , , , , ,				аткоў	, .	110 100	1011 10
1.3 Downstream Latitude		4.26	••		Ste	p 4. La	and C	over -	Reach	n Hvdr	oloav		
1.3 Downstream Longitu		_				Water					37		
Step 2. Stream Type						storic L		over.		Fo	rest		
2.1 Elevation Upstream:	4	70				rrent D			nd Cov			47.1	l %
2.1 Elevation Downstrea		42				rrent S							70
2.1 Is Gradient Gentle?		lo				Corric		Jiiiiia	iii Laii	u 001	O I 10		
2.2 Valley Length:		<b>649</b> fe	et. O	<b>.50</b> Mile	_			`~`.~		<b>~</b> -			
2.3 Valley Slope:			%		1 113	storic L					ор	44	<b>7</b> 0/
2.4.Channel Length:		<b>821</b> fe	et. C	<b>).53</b> Mile	15	ırrent [							7 %
2.5 Channel Slope:			%		Cu	rrent S	Sub-Do	omina	nt Lan				
2.6 Sinuosity:	1	.06			4.3	Ripari	an Bu	ıffer		Left	Bank	_	t Bank
2.7 Watershed Area:		0	Squa	re Miles	,	minan				>10	0	>100	
2.8 Channel Width:		6		feet.		b-dom			4.	0-2		0-25	
2.9 Valley Width:				feet.		ngth w				121		1213	}
2.10 Confinement Ratio:		0				Grour				No			
2.10 Confinement Type:	ı	<b>Narro</b> v	N			5. Ins							
2.11 Reference Stream	Гуре: (	<b>C</b>			5.1	Flow	Regula	ation -	(old):	No	Data		
Bedform:	-				Ty								
Sub-class Slope:					Us								
Bed Material:						Bridge			erts:	0			6
Step 3. Basin Characterist	ics:				5.3	Bank		ring:		_		0.0	
3.1 Alluvial Fan:		Non	e				_eft		Rig	ht			
3.2 Grade Control:		No F	lata			Chan						0.0	
3.3 Dominant Geologic N	/lat·	Glac	ial La	ke73.0	<sub>%</sub> 5.5	Dredg	jing Hi	istory:		No [	Data		
3.3 Sub-dominant Geolo		Mat :		ke73.0 Till	~Ste	o 6. Flo	oodpla	ain Mo	dificat	ions			
3.4 Left Valley Side	_	ktreme			6.1 E	Berms	and R	oads	U	iu <b>U.U</b>		0.0	
3.4 Right Valley Side		lly	ciy Ot	.eep	_				C	One Si	de l	Both S	Sides
3.5 Soils	• • • •	ııy				ad:					ft.		ft.
Hydrologic Group:	D		-	77.1 %		ilroad:					ft.		ft.
, , ,		ono/D		100. %		rm:					ft.		ft.
Flooding:						oroved					ft.		ft.
Water Table Deep:	1.			1.1 %		Devel			(	0.0	ft. <b>C</b>	0.0	ft.
Water Table Shallow:	0.	-		<b>11.1</b> %		Chani				No I	Data		
Erodibility:	IVI	odera	te 2	28.9 %	6.4	Mean	der M	igratio	n:	No I	Data		
7.4 Comments:						Mean					Ra	atio:	0.0
						Wave					Ra	atio:	0.0
					Step	7. Wii	ndshie	ld Su	rvey				
						Bank			<u> </u>				
						Bank							
						Ice/De	_		otentia	ŀ			
					, .5	.55, 50		\		•••			
4.1 4.2 4.3 5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Tribn to Pond Brook Reach T3.4S1.01

Topo Maps: ---

Date Last Edited:

2

High

2

High

2

High

0

N.S.

0

Unk.

0

N.D.

2

0

High N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

Is Rea	ach an	Impou	ndmer	nt? <b>NC</b>	)		Qι	uality C	Control	Statu	s: <b>Un</b>	know	n			
Step	1. Read	ch Loc	ation													
<u>-</u> _	Reach [			R	une al	ona i	the wes	starn (	ahia	fmou	ntain	rd				
	owns:	JUSCIIF	Juori.		onkto	_	ille we.	Sterri .	side o	i iiiou	ııtaııı	ı a.				
	Downsti	raam l	atitud		4.23	••		Ste	p 4. L	and C	over -	Read	n Hydr	ology		
	Downst			•-					Wate		0 7 01	rtodoi	yaı	ology		
	2. Strea			ide.					storic L		`ovor:		Ea	rest		
				0	90				irrent [			od Cov			70	4 0/
	Elevatio Elevatio				23								_		70.4	<b>+</b> %
	s Gradi				No				rrent S		omina	nı Lan	a Cov	er: Fie	eia	
	/alley L				<b>029</b> fe	ot 1	. <b>71</b> Mile	20	Corrid							
	•	_			5.17		1 . / I IVIII	<sup>35.</sup> His	storic L	and C	Cover:		Cr	ор		
	/alley S Channe		th:		9.17 1 <b>737</b> fe		2. <b>03</b> Mil	CI CI	ırrent l	Domin	ant la	nd Co	er: <b>Fc</b>	rest	38.	3 %
	Channe					ei. 4 %	2.03 1	es. Ci	rrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Ur</b> l	ban	
	Sinuosit		₹.		+.33 .19	70		4.3	Ripar	ian Bu	ıffer		Left	Bank	Riah	nt Bank
	Vatersh		03.	•	1	Saus	are Mile	_	minan				>10		>100	
	Channe				14	•	feet.		b-dom				0-2	_	0-25	
	/alley V		1.		198		feet.		ngth w			25 ft.:	354		3328	
	Confin		Ratio:		14		ieet.		Ğrour					nimal	00_0	
	Confin				Very E	Rroad	l		5. Ins							
	Refere		<i>-</i> .			, oaa			Flow					Data		
	edform:		u oam	. ypc					pe:	. togun	a	(0.0).				
	ıb-clas		٥.					Us								
		•	<del>.</del> .						Bridge	es and	d Culv	erts:	1		0	6
	ed Mate								Bank			0110.	•		0.0	Ü
	. Basin		acterist	ICS:				0.0		-eft	iiig.	Rig	ıht		0.0	
	Alluvial				Non	-		5.4	Chan	_	raighte		345	6.0	32 %	
3.2 (	Grade C	Control	:		No E							•			<b>0–</b> 70	
3.3 [	Domina	int Ged	ologic I	Mat.:	Othe	r	55.3	3%Ste	Dredo p 6. Flo	nodnis	ain Mo	dificat	ions	Jata		
3.3 9	Sub-dor	minant	Geolo	gical I	Mat.:		Till	6 1 5	Berms	and D	oods	amoat	ld <b>0.0</b>	£.	0.0	
3.4 L	.eft Val	ley Sid	le	S	teep			0.1	Dellii5	anu n	uaus	U	One Si		<b>0.0</b> Both S	Sidoc
3.4 F	Right Va	alley S	ide	E	xtreme	ely St	teep	Do	ad:			•	JIIE SI		DOUT S	olues
3.5 9	Soils	-				•	•		ilroad:					ft.		ft.
Hvd	drologic	Groun	0:	N	ot Rat	ed 4	<b>45.9</b> %							ft. ft.		ft.
-	oding:						100. %	De	rm:	l Doth						ft.
	ter Tab	le Dec	D.	0.			14.7 %		proved			-	702.0	ft.		ft.
	iter Tab		•		.0		1 <b>4.7</b> %		Devel				783.0	ft. <b>(</b>	J.U	ft.
	dibility:		allow.		.u odera		33.4 %		Chan					Data		
	•			141	ouera		<b>JJ.T</b> /0	0.4	Mean		_	n:	No I	Data		
7.4 C	ommer	nts:							Mean							0.0
									Wave					Ra	atio:	0.0
								Step	7. Wi	ndshie	eld Su	rvey				
								7.1	Bank	Erosio	on:					
								7.2	Bank	Heigh	t:					
									Ice/De	_		otentia	ıl:			
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

1

Low

0

N.S.

0

N.S.

0

N.D.

0

N.D.

0

N.S.

0

N.S.

9

0

N.S.

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Tribn to Pond Brook Reach T3.4S2.01

Topo Maps: ---

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

is Reach an impoundment?	NO	Quali	ity Control Status: Unknov	vn	
Step 1. Reach Location					
1.1 Reach Description:	Runs along	the weste	ern side of mountain rd.		
1.2 Towns:	Monkton	THE WEST	in side of mountain rd.		
1.3 Downstream Latitude:	44.21		Step 4. Land Cover - Read	ch Hydrology	
1.3 Downstream Longitude:			4.1 Watershed	<u> </u>	
Step 2. Stream Type	70110		Historic Land Cover:	Forest	
2.1 Elevation Upstream:	495		Current Dominant land Co		<b>69.3</b> %
2.1 Elevation Downstream:	456		Current Sub-Dominant La		
2.1 Is Gradient Gentle?	No		4.2 Corridor	na cover. i ic	iu
2.2 Valley Length:	<b>7550</b> feet.	<b>1.43</b> Miles.		•	
2.3 Valley Slope:	0.52 %		riisione Land Cover.	Crop	
2.4.Channel Length:	<b>9584</b> feet.	<b>1.82</b> Miles.	Current Dominant land Co	-	<b>21.5</b> %
2.5 Channel Slope:	0.41 %		Current Sub-Dominant La		
2.6 Sinuosity:	1.27		4.3 Riparian Buffer	Left Bank	Right Bank
2.7 Watershed Area:		are Miles	Dominant:	0-25	0-25
2.8 Channel Width:	18	feet.	Sub-dominant:	>100	>100
2.9 Valley Width:	1,263	feet.	Length w/ less than 25 ft.:		6133
2.10 Confinement Ratio:	69	_	4.4 Ground Water Inputs:		
2.10 Confinement Type:	Very Broa	d S	Step 5. Instream Channel M		
2.11 Reference Stream Typ	e: <b>C</b>		5.1 Flow Regulation - (old)	: No Data	
Bedform:			Type:		
Sub-class Slope:			Use:		
Bed Material:			5.2 Bridges and Culverts:	0	%
Step 3. Basin Characteristics:			5.3 Bank Armoring:		0.0
3.1 Alluvial Fan:	None			ight	00.07
3.2 Grade Control:	No Data		5.4 Channel Straightening		28 %
3.3 Dominant Geologic Mat	: Glacial I	_ake100. %	5.5 Dredging History: Step 6. Floodplain Modifica	No Data	
3.3 Sub-dominant Geologic	al Mat ·	_	Step 6. Floodplain Modifica	ations	
3.4 Left Valley Side	Hilly	6	6.1 Berms and Roads	old $0.0$ $\mathbf{\pi}$ .	0.0
3.4 Right Valley Side	Extremely	Steen	<b>D</b> 1		Both Sides
3.5 Soils	Extromoly	Stoop	Road:	ft.	ft.
Hydrologic Group:	С	<b>56.0</b> %	Railroad:	ft.	ft.
Flooding:	None/Rare		Berm:	ft.	ft.
Water Table Deep:	2.0	56.0 %	Improved Path:	ft.	ft.
Water Table Shallow:	0.0	57.8 %	6.2 Development:	0.0 ft. 0	<b>).0</b> ft.
Erodibility:	Severe	56.0 %	6.3 Channel Bars:	No Data	
•	Severe	<b>30.0</b> /0	6.4 Meander Migration:	No Data	
7.4 Comments:			6.5 Meander Width:	<b>15.0</b> Ra	
		_	6.6 Wavelength:	<b>15.0</b> Ra	atio: <b>0.8</b>
		-	Step 7. Windshield Survey		
			7.1 Bank Erosion:		
			7.2 Bank Height:		
			7.3 Ice/Debris Jam Potenti	ial:	

4.1 4.2 4.3 5.1 5.2 5.3 5.4 5.5 6.1 6.2 6.3 6.4 6.5 7.1 7.2 Total 6.6 2 2 2 2 0 0 0 2 0 0 0 0 0 2 0 0 12 N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. High High High Unk. N.D. High High High

### **Phase 1 - Reach Summary Report**

1

Low

0

N.S.

7

0

N.D.

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Tribn to Pond Brook Reach T3.4S3.01

Topo Maps: ---

Date Last Edited:

1

Low

2

High

0

N.S.

0

Unk.

1

Low

0

N.D.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

2

High

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

15 Reach an impoundmen	10: 140	<u>,                                     </u>		QU	iality C	ontroi	Statu	<u>s: Un</u>	Know	Π			
Step 1. Reach Location													
1.1 Reach Description:	R	uns al	ona t	he wes	stern s	side o	f mou	ntain	rd.				
1.2 Towns:		onkto				J. 40 0							
1.3 Downstream Latitud	_	4.21			Ste	p 4. L	and C	over -	Reach	n Hvdr	ology		
1.3 Downstream Longitu	· ·					Wate					<u> </u>		
Step 2. Stream Type						storic L		over.		Fo	rest		
2.1 Elevation Upstream:	6	80				rrent [			nd Cov			63	5 %
2.1 Elevation Downstrea		56				rrent S				_			<b>0</b> 70
2.1 Is Gradient Gentle?		No			42	Corrid	dor			u 001	o <b>o</b> .	<b>o</b> p	
2.2 Valley Length:	14	<b>309</b> fe	et. 2	<b>.71</b> Mile	ے.، ع:دا	torio l	ond C	`ovor		Fa	<b>***</b>		
2.3 Valley Slope:	•	1.57	%								rest	<b>F</b> 0	4 0/
2.4.Channel Length:	18	<b>941</b> fe	et. 3	. <b>59</b> Mile	<u> </u>	ırrent l							4 %
2.5 Channel Slope:	•	1.18	%			rrent S			nt Lan				
2.6 Sinuosity:	1	.32				Ripar		ffer				_	nt Bank
2.7 Watershed Area:		2	Squa	re Mile	_	minan				0-2		>100	
2.8 Channel Width:	•	16	1	feet.		b-dom		41	· ·	>10		0-25	
2.9 Valley Width:	;	378	1	feet.		ngth w				757	-	7386	5
2.10 Confinement Ration		24				Grour					Data		
2.10 Confinement Type:		Very E	Broad			5. Ins							
2.11 Reference Stream	Type:	В				Flow	Regula	ation -	(old):	No	Data		
Bedform:						pe:							
Sub-class Slope:					Us	-							.,
Bed Material:	;	Sand				Bridge			erts:	1			%
Step 3. Basin Characterist	tics:				5.3	Bank		ing:	Б.			0.0	
3.1 Alluvial Fan:		Non	е		- 4		_eft	!	Rig		^ ^	47.0/	
3.2 Grade Control:		No [	Data			Chan				323		17 %	1
3.3 Dominant Geologic	Mat.:	Till		45.8	5.5	Dredo 6. Fl	jing H	istory:		No [	Data		
3.3 Sub-dominant Geold			C	ther									
3.4 Left Valley Side	_	ery St			6.1 E	Berms	and R	oads		ld <b>0.0</b>		0.0	
3.4 Right Valley Side		ery St	-		_				(	One Si		Both S	Sides
3.5 Soils	•	cry Ot	сср			ad:					ft.		ft.
	В		1	4.3 %		ilroad:					ft.		ft.
Hydrologic Group:		one/R		00. %		rm:					ft.		ft.
Flooding:						proved					ft.		ft.
Water Table Deep:	6.			0.8 %		Devel	-		2	280.0	ft. <b>(</b>	0.0	ft.
Water Table Shallow:	2.			7.3 %		Chan					Data		
Erodibility:	3	evere	•	9.9 %		Mean		_	n:	No I	Data		
7.4 Comments:					6.5	Mean	der W	idth:			Ra	atio:	0.0
Meander and natural pon	de un	able to	n mea	SUIFA	6.6	Wave	length	1:			Ra	atio:	0.0
•	ao, an	abio (C	moa	- Cui C	Step	7. Wi	ndshie	ld Su	rvey				
meander geometry					7.1	Bank	Erosic	n:					
						Bank				Lo	w (<5	ft.)	
						Ice/De	_		otentia		•	/	
					,.0		20	J (				Ι	<del></del> _
4.1   4.2   4.3   5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

**Unnamed Tribn to Pond Brook** Reach T3.6S1.01 Stream Name:

Topo Maps:

Date Last Edited:

2

High

2

High

2

High

0

N.S.

0

Unk.

0

N.D.

2

0

High N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: **Lewis Creek** 

Is Rea	s Reach an Impoundment? No Quality Control Status: Unknown																
Step 1	I. Read	ch Loc	ation														
	each D			R	t 17 to	Mon	kton R	d. Re	ach q	oes fr	om th	e outl	et Wir	nona l	Lake t	o the	
	owns:				ristol												
		eam L	atitude	: 4	4.17			Ste	ep 4. L	and C	over -	Reach	n Hydr	ology			
1.3 D	ownstr	eam L	ongitue.	de: <b>-</b>	73.09			4.1	Wate	rshed							
Step 2	2. Strea	am Typ	oe -					His	storic L	and C	Cover:		Fo	rest			
2.1 E	levatio	n Upst	tream:	5	20			Cι	irrent [	Domin	ant lar	nd Cov	er: Cr	op	42.3	8 %	
2.1 E	levatio	n Dow	nstrea	m: <b>4</b>	70				rrent S						rest		
2.1 ls	Gradi	ent Ge	entle?	1	No			4.2	Corrid	dor							
2.2 V	alley L	ength:		4	<b>626</b> fe	et. <b>0</b>	<b>.88</b> Mile	S. Hi	storic L	and C	over.		Fo	rest			
	alley S			•	1.08	%		C	urrent l			nd Cov			26	5 %	
2.4.C	hannel	l Lengt	th:	4	<b>932</b> fe		<b>.93</b> Mile	<b>-</b>	irrent S					•			
	hanne		e:			%						nı Lan					
	inuosit			1	.07	_		_	Ripar		itter		Left Bank Right Bank				
	/atersh				0	•	re Mile	_	minan				0-25 0-25				
	hanne		า:		9		feet.		b-dom			05 ft ·	>10		>100		
	alley V			;	510	,	feet.		-				335		3353	İ	
	Confine			,	60				Grour					nimal			
	Confine				Very E	sroad			5. Ins								
			tream 1	ype:	C				Flow	Regui	alion -	(old):	NO	Data			
	dform:							Us	pe:								
	b-class	-	<b>e</b> :							00 000	1 Culv.	orto:	4		9	,	
	d Mate								Bridge			eris.	1			o .	
Step 3.	Basin	Chara	cteristi	cs:				5.3	Bank	∡imoi ₋eft	nng.	Die	ıht		0.0		
3.1 A	lluvial l	Fan:			Non	е		5.4	ı Chan		raiahta	Rig	յու <b>222</b>	۵ ۵	45 %		
3.2 G	rade C	Control	:		No [	Data					•	•			45 /6		
3.3 D	omina	nt Ged	ologic N	/lat.:	Glac	ial La	ke77.0 Other	%Sta	Dredo	jiriy n	isioly.	dificat	No I	Jata			
			Geolog		Mat.:	C	Other	316	р б. гі	ooupia	!-	unicai	111 2	٠.			
	eft Vall			_	xtrem			6. I E	Berms	ana R	oads	0	ıa <b>0.0</b>		0.0	N: -I	
	ight Va				teep	,		Da				(	One Si		Both S	laes	
3.5 S	•	,							ad: ilroad:					ft.		ft.	
Hvd	rologic	Grour	٥.	D		4	<b>2.1</b> %							ft.		ft.	
•	ding:	0.04		_			00. %		rm:	l Doth				ft.		ft.	
	er Tab	le Dec	an.	0.			<b>2.1</b> %		proved				4400	ft.		ft.	
	ter Tab				.0		2.1 %		Devel	•		•	416.0	ft. <b>(</b>	J.U	ft.	
	dibility:		anow.		evere		7.9 %		Chan					Data			
	-			0	CVCIC	`	70		Mean		0	n:		Data	_		
7.4 Cd			Mean					6.0 Ra		0.7							
Reach	is all s	straigh	tened						Wave	_			(	<b>6.0</b> Ra	atio:	0.7	
		ŭ							7. Wi			vey					
									Bank								
								7.2	Bank	Heigh	t:						
								7.3	Ice/D	ebris J	lam Po	otentia	ıl:				
4.4	40	4.0		<i>E</i> 0	F 2	E A		C 4	6.0	6.0	C 4	6.5	6.0	7.4	7.0	Total	
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total	

1

Low

0

N.S.

0

Unk.

2

0

N.S.

2

High | High | N.S.

0

0

N.S.

1

Low

2

High

2

High

0

N.S.

1

Low

1

Low

2

High

1

Low

2

High

1

Low

2

High

1

Low

2

High

1

Low

0

N.S.

1

Low

20

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Hollow Brook Reach T4.01

Topo Maps: 414

Date Last Edited: Wed, December 31, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Reach an impoundment?	NO		Qu	ality C	control	Statu	s: Un	know	n			
Step 1. Reach Location												
1.1 Reach Description:	From H	inesh	ııra sa	nd an	d arav	el au	arrv d	owns	tream	alone	1	
1.2 Towns:	Hinesbu				u grav	ei qu	arry u	OWIIS	ucam	aionę	1	
1.3 Downstream Latitude:	44.28	ing, o	taiksb		p 4. La	and C	over -	Reach	h Hydr	ology		
1.3 Downstream Longitude:					Water		OVEI -	Iteaci	i i iyui	ology		
Step 2. Stream Type	-7 3.00								Г			
	AGE				storic L			, d C ~,		rest	70	• 0/
2.1 Elevation Upstream:	465 276				rrent C				_		_	<b>1</b> %
2.1 Elevation Downstream:	376				rrent S		omina	nt Lan	a Cov	er: <b>Cr</b>	ор	
2.1 Is Gradient Gentle?	No	_ 4	2014:1-		Corric	dor						
2.2 Valley Length:	<b>7341</b> fe		<b>.39</b> Mile	<sup>es.</sup> His	storic L	and C	over:		Cr	ор		
2.3 Valley Slope:		% -1 <b>1</b>	0014:1-	. Cu	ırrent [	Domin	ant lai	nd Cov	ver: <b>Fc</b>	rest	38.	9 %
2.4.Channel Length:	<b>9650</b> fe		. <b>83</b> Mile	76	rrent S							
2.5 Channel Slope:		%			Ripari							t Bank
2.6 Sinuosity:	1.31	Cauc	ro Milo	_	minan		IICI		>10		>100	
2.7 Watershed Area:		•	re Mile	_	b-dom				0-2		0-25	
2.8 Channel Width:	35 267		eet.		ngth w		than 2	25 ft ·	161		1741	
2.9 Valley Width:	867	1	feet.		Grour					<del>4</del> undar		
2.10 Confinement Ratio:	25				5. Ins						ıı	
2.10 Confinement Type:	Very E	road								110113		
2.11 Reference Stream Type		D I			Flow	Regui	auon -					
Bedform:	Riffle-	Pool		Тур				None	;			
Sub-class Slope:	None			Us				t	4		• 0	,
Bed Material:	Grave				Bridge			erts:	4			6
Step 3. Basin Characteristics:				5.3	Bank			Б.	1 . 00		5 %	
3.1 Alluvial Fan:	Yes			<b>-</b> 1		_eft 28			ht <b>28</b> 4		42.0/	
3.2 Grade Control:	None	е			Chan			_			13 %	
3.3 Dominant Geologic Mat.	: Alluv	/ial	48.4	%5.5	Dredg 6. Flo	jing H	istory:		Dred	dging		
3.3 Sub-dominant Geologica			ther	Step	o 6. Flo	oodpla	ain Mo	dificat	ions			
3.4 Left Valley Side	Hilly			6.1 E	Berms	and R	oads	0	ld 193	<b>37.0</b> ft.	20 %	
3.4 Right Valley Side	•							(	One Si	de l	Both S	Sides
3.5 Soils	Hilly				ad:			•	1021	ft. C	0.0	ft.
	_	_		Ra	ilroad:				0.0	ft. C	0.0	ft.
Hydrologic Group:	В		0.7 %	Be	rm:			7	791	ft. 1	124	ft.
Flooding:	Frequer		8.7 %	lm	oroved	l Path:			0.0	ft. C	0.0	ft.
Water Table Deep:	6.0		<b>7.1</b> %	6.2	Devel	opme	nt:		527	ft. 1	<b>178</b>	ft.
Water Table Shallow:	0.0		<b>7.6</b> %		Chani				Mul	tiple		IL.
Erodibility:	slight	9	9.3 %		Mean			n:		tiple		
7.4 Comments:					Mean		_			<b>4.0</b> Ra	atio:	8.2
		_			Wave					8.0 Ra		7.1
Updated Dec 2008, relying pr	•	_	•		7. Wii	_		(VAV		0.0 1\2	atio.	<i>i</i> . 1
2008 field observations and a	ıdditional	cross	3					VCy				
sections, and limited field obs	ervation	s from	July		Bank				-	326.92	z TT.	
and Sept 2002.			,		Bank	_				06 ft.		
and Copt 2002.				7.3	Ice/De	ebris J	am Po	otentia	al: <b>M</b> u	Itiple		
44 42 42 54 54		E 1		C 4	6.0	6.0	C 4	6.5	6.0	74	7.0	Total
4.1   4.2   4.3   5.1   5.2	2   5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Hollow Brook Reach T4.02

Topo Maps: 414

2

High

0

N.S.

0

N.S.

1

Low

2

High

1

Low

Date Last Edited: Wed, December 31, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

Is Rea	ich an l	Impou	ndmer	nt? No	)		Qι	ality C	Control	Statu	s: <b>Un</b>	know	n			
Step 1	I. Read	ch Loc	ation					•								
	each D			FI	ows f	rom e	ast to	west a	alona	Hines	bura	Holloy	w Rd f	rom v	vicinity	v of
	owns:	7000116	,		inesbu		401 10				Du. g					<i>,</i> 0.
	ownstr	eam I	atitud		4.29	<u>9</u>		Ste	p 4. L	and C	over -	Reach	n Hvdr	oloav		
	ownstr			• •	73.07				Wate					-11-97		
	2. Strea								storic L		over.		Fo	rest		
	levatio			6	00				rrent [			nd Cov			84.0	) %
	levatio				65				rrent S							, ,0
	Gradi				No				Corrid		J		u 00.	o <b>o</b>		
2.2 V	alley L	ength:		6	<b>213</b> fe	et. <b>1</b>	<b>.18</b> Mile		storic L	-	`ovor:		ln.	ductri	al	
	alley S				2.17			1 113						dustri		• 0/
	hannel		:h:	7	<b>019</b> fe	et. 1	.33 Mile	<b>-</b>	ırrent İ							9 %
	hanne			•	1.92	%			rrent S			nt Lan				_
2.6 S	inuosit	y: .		1	.13			_	Ripar		ıffer				_	it Bank
2.7 W	/atersh	ed Are	ea:		7	Squa	re Mile	_	minan				0-2		>100	
2.8 C	hanne	l Width	າ:	3	32	1	eet.		b-dom		٠ (	) F 44 .	_	100	0-25	
	alley V				220	1	eet.		ngth w				323		1982	
	Confine				7				Grour					nimal		
	Confine				Broad				5. Ins							
	Refere		ream						Flow	Regul	ation -			Data		
_	dform:			l	Riffle-	Pool			pe:			None				
Su	b-class	s Slope	<b>ə</b> :	-	b			Us					•		4 0	,
Be	d Mate	erial:		(	Cobbl	е			Bridge			erts:	2		4 %	o
Step 3.	Basin	Chara	cterist	tics:				5.3	Bank	Armoi _eft <b>1</b> (	_	Dia	ht 74		15 %	
3.1 A	lluvial l	Fan:			Non	е		5.4	Chan				ht <b>71</b> <b>282</b>	7.0	40 %	
3.2 G	rade C	Control	:		Mult	iple									40 /0	
3.3 D	omina	nt Ged	ologic I	Mat.:	Till		56.5	%Stat	Dredo 6. Fl	oodnis	isiory. Sin Ma	dificat	ions	dging		
3.3 S	ub-dor	ninant	Geolo	gical I	Mat.:	C	ther	6 1 5	0. FI	oodpie		unicat	10115		04.07	
3.4 L	eft Vall	ey Sid	е	E	xtreme	ely St		0.1 6	Berms	and R	oaus	U	iu 3/.	32 ft.		
3.4 R	ight Va	alley S	ide		ery St		•	Po	ad:				One Si 5 <b>732</b>		Both S	nues
3.5 S	oils				•	-		_	au. ilroad:				).0	ft. <b>C</b> ft. <b>C</b>		ft.
Hyd	rologic	Group	o:	С		5	6.9 %		rm:				).0 ).0	ft. C		ft.
	ding:	•		N	one/R	are 9	<b>7.1</b> %		proved	l Path			).0 ).0	ft. C		ft.
	er Tab	le Dee	ep:	2.	5	4	2.9 %		Devel				1144			ft.
	ter Tab		•	1.		4	4.9 %		Chan					tiple	173	ft.
	dibility:			V	erv Se		5.4 %		Mean			n·		tiple		
	•				•				Mean		_	11.		-	<b></b>	0.0
	ommen								Wave					N/A Ra		0.0
Update	ed Dec	2008,	relyin	ıg prim	arily o	n field	l		7. Wi	_		r\/ <b>△</b> \/	ľ	<b>N/A</b> Ra	alio: (	0.0
observ	ations/	from A	Aug ar	nd Oct	2008,	includ	ding					vey		204 22	£ı	
additio	nal cro	ss sec	ctions,	that s	uppler	nent a	n		Bank				•	631.26	IT.	
							6.6 not		Bank	_				08 ft.		
	. , -				- 1: -	- , `		7.3	Ice/D	ebris J	am Po	otentia	ı: <b>M</b> u	ltiple	1	
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
7.1	7.2	7.5	J. 1	0.2	0.0	J.7	0.0	U. I	0.2	0.5	0.4	0.0	0.0	/ . '	٠.٢	1 Otal

2

High | High | High

2

2

1

Low

1

Low

1

Low

0

N/A

0

N/A

0

N.S.

1

Low

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Hollow Brook Reach T4.03

Topo Maps: ---

Date Last Edited:

2

High

1

Low

2

High

0

N.S.

0

Unk.

0

N.D.

2

0

High N.S.

0

Unk.

0

N.S.

0

N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

is Reach an impoundment?	NO		Qι	iality C	control	Statu	s: Un	know	n			
Step 1. Reach Location												
1.1 Reach Description:	Where I	hrook	cross	es ho	low ro	l for t	he 4th	time	until	helow	,	
1.2 Towns:	Hinesb		0.000	00 110			110 -111		allell !			
1.3 Downstream Latitude:	44.29	a. 9		Ste	p 4. L	and C	over -	Reach	n Hvdr	oloav		
1.3 Downstream Longitude:					Wate					<u> </u>		
Step 2. Stream Type					storic L		over.		Fo	rest		
2.1 Elevation Upstream:	635				rrent D			nd Cov			84	1 %
2.1 Elevation Downstream:	600				rrent S				_		_	1 /0
2.1 Is Gradient Gentle?	No				Corrid		Jiiiiia	in Lan	u 001	o <b>o</b>	<b>o</b> p	
2.2 Valley Length:	<b>8565</b> fe	et. 1.	. <b>62</b> Mile		storic L	-	`ovor		<b>E</b> :	ماط		
2.3 Valley Slope:	0.41	%		1 113						eld	٥.	• 0/
2.4.Channel Length:	<b>10730</b> fe	et. 2	.03 Mile	<b>-</b> 20:	ırrent [							.0 %
2.5 Channel Slope:	0.33	%			rrent S			nt Lan				
2.6 Sinuosity:	1.25			_	Ripari		ffer				_	nt Bank
2.7 Watershed Area:	7	Squai	re Mile	_	minan				0-2		0-25	
2.8 Channel Width:	30	f	eet.		b-dom		4han C	) F 44 .	>10		>100	
2.9 Valley Width:	417	f	eet.		ngth w				976		9764	4
2.10 Confinement Ratio:	.14				Grour					undar	nt	
2.10 Confinement Type:	Very E	Broad			5. Ins							
2.11 Reference Stream Typ	e: <b>C</b>				Flow	Regula	ation -	(old):	No	Data		
Bedform:					pe:							
Sub-class Slope:				Us					•		,	24
Bed Material:	Cobbl	е			Bridge			erts:	2			%
Step 3. Basin Characteristics:				5.3	Bank		ing:	D:-	.1.4		0.0	
3.1 Alluvial Fan:	Non	е		E 1		_eft	·oiabte	Rig		0 0	22 0/	
3.2 Grade Control:	No [	Data			Chan			_			33 %	)
3.3 Dominant Geologic Mat	::: Alluv	∕ial	46.1	%0.5	Dredo 6. Flo	jing m	ISIOIY.	٠ - ١:٤:	No [	Jata		
3.3 Sub-dominant Geologic		Ice-0	Contac	et Sie	5 6. FI	boabis	in ivio	dilicat	ions III a	_		
3.4 Left Valley Side	Extrem			6.1 E	Berms	and R	oads	U	10 <b>0.0</b>		0.0	S: 1
3.4 Right Valley Side	Extrem			р.				(	One Si		Both S	Sides
3.5 Soils		.,	Т		ad:					ft.		ft.
Hydrologic Group:	С	6	2.7 %		ilroad:					ft.		ft.
Flooding:	None/R			_	rm:	l Dath				ft.		ft.
Water Table Deep:	1.5		0.7 %		proved				105.0	ft.		ft.
Water Table Shallow:	0.0		8.5 %		Devel	•			185.0	ft. <b>(</b>	).U	ft.
Erodibility:	Modera		0.3 % 0.2 %		Chan					Data		
•	Modera		<b>0.2</b> /0		Mean		_	n:		Ision		
7.4 Comments:					Mean					<b>5.0</b> Ra		6.4
Flatter, riffle-pool, old terrace	?, some	buffer,	,		Wave				17	<b>7.0</b> Ra	atio:	5.8
wetland, beavers, overhangi					7. Wii			vey				
	g c c.				Bank							
					Bank	_				w (<5	ft.)	
				7.3	Ice/De	ebris J	am Po	otentia	l: Sh	allow		
44 40 40 -				0.1		0.0	0.1					
4.1   4.2   4.3   5.1   5.	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

1

Low

0

N.S.

2

High Low

1

0

N.S.

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Hollow Brook Reach T4.04

Topo Maps: ---

Date Last Edited:

1

Low

2

High

2

High

0

N.S.

0

Unk.

0

N.D.

2

0

High N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

	3 1\ca	cii aii	impou	Hulliell	11.	<b>,</b>		QU	iality (	ontroi	Statu	<u>s: Un</u>	Know	n			
	Step 1	I. Read	ch Loc	ation													
-		each [			C	onflue	nce o	of T9&	T10 to	start	of inc	rease	in slo	pe ne	xt to t	trailer	park
		owns:				tarksb											<b>J</b>
			ream L	atitude	e: <b>4</b>	4.29			Ste	ep 4. L	and C	over -	Reach	ո Hydr	ology		
				ongitu		73.02				Wate							
(	Step 2	2. Strea	am Typ	oe -					His	storic L	and C	over:		Fie	eld		
-	2.1 E	levatio	n Upst	tream:	6	60				ırrent [			nd Cov	er: Fo	rest	87.6	<b>3</b> %
				nstrea	m: <b>6</b>	35			Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Ur</b> l	ban	
	2.1 ls	Gradi	ent Ge	entle?	1	No			4.2	Corrid	dor						
	2.2 V	alley L	ength:		3			.63Mile	es. <sub>Hi</sub>	storic L	and C	over.		Fi	eld		
	2.3 V	alley S	Slope:				%		C	urrent l			nd Cay		-	1 24	<b>n</b> 0/.
		hanne				<b>862</b> fe		<b>.73</b> Mil		irrent S							<b>9</b> /0
		hanne		э:			%						nı Lan				
		inuosit			1	.15	_		_	Ripar		itter				_	it Bank
		/atersh				3	•	re Mile		minan				0-2	_	0-25	
		hanne		า:		20		feet.		b-dom		than C	05 ft ·	>10		26-5	
		alley V				190	,	feet.		ngth w				386		2085	1
				Ratio:		24				Grour					nimal		
		Confin				Very E	Broad			5. Ins							
				tream <sup>-</sup>	I ype:	C				Flow	Regui	ation -	(ola):	NO	Data		
		dform:			•					pe:							
		b-class	•	e:					Us					4		0	,
	Be	d Mate	erial:		(	Grave				Bridge			erts:	1		9	o
S	tep 3.	Basin	Chara	acteristi	ics:				5.3	Bank		ring:	Dia	.b.4		0.0	
	3.1 A	lluvial	Fan:			Non	е		<i>5 1</i>		_eft	raiahta	Rig	ηητ 1 <b>51</b>	6.0	39 %	
	3.2 G	rade C	Control	:		No E	)ata			Chan						39 %	
	3.3 D	omina	nt Geo	ologic N	Mat.:	Othe	r	39.8	3%	Dredo p 6. Fl	jing n	isiory:	٦:٤: 4	No [	Jata		
				Geolo		Mat.:	Ice-	Contac eep	et Ste	р 6. г	ooapia	in ivio			_		
		eft Vall			_	xtreme	elv St	een	6.1 b	Berms	and R	oads		ld <b>0.0</b>		0.0	
		ight Va				xtreme	•	•					(	One Si		Both S	ides
	3.5 S		<b>,</b> -				J., C.	ССР		ad:					ft.		ft.
		rologic	Grour	o.	D		_	4.5 %		ilroad:					ft.		ft.
		ding:	Cloup	J.	_			<b>15.2</b> %	De	rm:	l Dath.				ft.		ft.
		er Tab	Ja Dae	'n.	0.			9.8 %		proved				400.0	ft.		ft.
		ter Tab				.0		9.8 %		Devel	•		4	462.0	ft. <b>C</b>	).0	ft.
		dibility:		allOw.		.u ight		5.6 %		Chan					Data		
		•			31	igiit		<b>J.U</b> /0	0.4	Mean		_	n:		Data		
•	7.4 Cd	ommer	nts:							Mean						atio: 1	
(	C strea	am typ	e.							Wave	_			1	6.0 Ra	atio:	8.0
		-7 P							Step	7. Wi	ndshie	eld Su	rvey				
									7.1	Bank	Erosio	n:					
									7.2	Bank	Heigh	t:					
										Ice/De			otentia	ıl:			
Γ			_														
	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

0

Unk.

1

Low

0

N.S.

2

0

N.S.

2

High | High | N.S.

0

0

N.S.

4.2

1

Low

4.1

1

Low

4.3

2

High

5.1

1

Low

5.2

1

Low

5.3

0

N.S.

5.4

1

Low

5.5

2

High

6.1

1

Low

6.2

1

Low

6.3

1

Low

6.4

1

Low

6.5

0

N/A

6.6

0

N/A

7.1

0

N.S.

7.2

1

Low

Total

14

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Hollow Brook Reach T4.05

Topo Maps: 414

Date Last Edited: Wed, December 31, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

to readir air impoditament:	Qua	anty Control Status. Unkno	/VVII
Step 1. Reach Location			
1.1 Reach Description:	Extends to the south	neast from Lincoln Hill Ro	ad crossing
1.2 Towns:	Hinesburg, Starksbo		au creeding
1.3 Downstream Latitude:	44.30	Step 4. Land Cover - Rea	ach Hydrology
1.3 Downstream Longitude:		4.1 Watershed	<u> </u>
Step 2. Stream Type		Historic Land Cover:	Forest
2.1 Elevation Upstream:	1070	Current Dominant land C	
2.1 Elevation Downstream:	660	Current Sub-Dominant La	
2.1 Is Gradient Gentle?	No	4.2 Corridor	
2.2 Valley Length:	<b>6839</b> feet. <b>1.30</b> Miles		Forest
2.3 Valley Slope:	6.00 %		
2.4.Channel Length:	<b>7879</b> feet. <b>1.49</b> Miles	S. Current Dominant land C	
2.5 Channel Slope:	<b>5.20</b> %	Current Sub-Dominant La	
2.6 Sinuosity:	1.15	4.3 Riparian Buffer	Left Bank Right Bank
2.7 Watershed Area:	2 Square Miles	Dominant:	>100 >100
2.8 Channel Width:	<b>19</b> feet.	Sub-dominant:	0-25 0-25
2.9 Valley Width:	<b>45</b> feet.	Length w/ less than 25 ft 4.4 Ground Water Inputs:	
2.10 Confinement Ratio:	2	•	
2.10 Confinement Type:	Semi-confined	Step 5. Instream Channel	
2.11 Reference Stream Typ		5.1 Flow Regulation - (old	all Store and Release
Bedform:	Step-Pool	Type: Sm Use: Oth	
Sub-class Slope:	a		
Bed Material:	Cobble	5.2 Bridges and Culverts:	. 4 6 % 4 %
Step 3. Basin Characteristics:	; ; =	5.3 Bank Armoring: Left <b>345</b> F	4 % Right <b>0.0</b>
3.1 Alluvial Fan:	Yes	5.4 Channel Straightening	
3.2 Grade Control:	Multiple		J
3.3 Dominant Geologic Mat	:: Till 80.3 9	5.5 Dredging History: Step 6. Floodplain Modific	rations
3.3 Sub-dominant Geologica	al Mat.: Ice-Contact	6.1 Berms and Roads	
3.4 Left Valley Side	Very Steep	o. i beillis allu Rodus	old <b>1538</b> ft. <b>19 %</b> One Side Both Sides
3.4 Right Valley Side	Very Steep	Road:	7/1 9 # 250
3.5 Soils		Railroad:	$\Pi$ $\Pi$
Hydrologic Group:	C 44.2 %	Berm:	427 + 00 <sup>∏</sup> .
Flooding:	None/Rare 100. %	Improved Path:	00 #00 <sup>π.</sup>
Water Table Deep:	6.0 41.2 %	6.2 Development:	7/7 ft 129 <sup>II.</sup>
Water Table Shallow:	1.5 41.0 %	6.3 Channel Bars:	Multiple ft.
Erodibility:	Very Severe98.4 %	6.4 Meander Migration:	Multiple
7.4 Comments:	-	6.5 Meander Width:	<b>N/A</b> Ratio: <b>0.0</b>
		6.6 Wavelength:	<b>N/A</b> Ratio: <b>0.0</b>
Updated Dec 2008, relying p		Step 7. Windshield Survey	
observations, as well as limit	ed field observations	7.1 Bank Erosion:	1,589.40 ft.
and additional cross sections	s completed in July of	7.1 Bank Erosion. 7.2 Bank Height:	1,569.40 ft. 2.68 ft.
2008.		7.2 bank neight. 7.3 Ice/Debris Jam Poten	
		7.3 ice/Debits Jam Polen	itial: Multiple

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Hollow Brook Reach T4.06

Topo Maps: ---

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

is reach an impoundment:	110 Q	uality Control Status: Unkno	own
Step 1. Reach Location			
1.1 Reach Description:	Crossing at Lincol	n Hill Rd.	
1.2 Towns:	Hinesburg		
1.3 Downstream Latitude:	44.31	Step 4. Land Cover - Re	ach Hvdrologv
1.3 Downstream Longitude	e: <b>-73.04</b>	4.1 Watershed	<u> </u>
Step 2. Stream Type		Historic Land Cover:	Forest
2.1 Elevation Upstream:	1090	Current Dominant land C	
2.1 Elevation Downstream:		Current Sub-Dominant L	
2.1 Is Gradient Gentle?	No	4.2 Corridor	
2.2 Valley Length:	1237 feet. 0.23Mi		Wetland
2.3 Valley Slope:	<b>1.62</b> %		Cover: <b>Wetland 49.9</b> %
2.4.Channel Length:	<b>1509</b> feet. <b>0.29</b> Mi	168	
2.5 Channel Slope:	1.33 %	Current Sub-Dominant L	
2.6 Sinuosity:	1.22	4.3 Riparian Buffer	Left Bank Right Bank
2.7 Watershed Area:	1 Square Mile	es Dominant:	>100 >100
2.8 Channel Width:	12 feet.	Sub-dominant: Length w/ less than 25 ft	51-100 26-50
2.9 Valley Width:	<b>160</b> feet.	_	
2.10 Confinement Ratio:	13	4.4 Ground Water Inputs	
2.10 Confinement Type:	Very Broad	Step 5. Instream Channel	
2.11 Reference Stream Ty	pe: C	5.1 Flow Regulation - (ol	d): No Data
Bedform:		Type: Use:	
Sub-class Slope:			: <b>1</b> %
Bed Material:	Sand	5.2 Bridges and Culverts	
Step 3. Basin Characteristics	<u>):</u>	5.3 Bank Armoring: Left I	<b>0.0</b>
3.1 Alluvial Fan:	None	5.4 Channel Straightenin	Right .g: <b>0.0</b>
3.2 Grade Control:	No Data		J
3.3 Dominant Geologic Ma	nt.: Till 100	<b>).</b> %5.5 Dredging History: Step 6. Floodplain Modific	NO Data
3.3 Sub-dominant Geologic	cal Mat.:		
3.4 Left Valley Side	<b>Extremely Steep</b>	6.1 Berms and Roads	old <b>0.0</b> ft. <b>0.0</b>
3.4 Right Valley Side	Extremely Steep	Road:	One Side Both Sides
3.5 Soils	, ,	Railroad:	ft. ft.
Hydrologic Group:	D 76.1 %	, Railloau. • Berm:	ft Π.
Flooding:	None/Rare 100. %	DEIIII.	π.
Water Table Deep:	2.0 76.1 %	iiiipiovea i atii.	$\Pi$ .
Water Table Shallow:	0.0 76.1 %	0.2 Development.	No Data
Erodibility:	Very Severe94.4 %	0.0 Oriarii Ci Daro.	No Data
•	,	6.5 Meander Width:	
7.4 Comments:			Ratio: <b>0.0</b>
Wetland, bottom culvert, wid	dens at either side of	6.6 Wavelength:	Ratio: <b>0.0</b>
culvert.		Step 7. Windshield Survey	<u>′</u>
		7.1 Bank Erosion:	
		7.2 Bank Height:	Low (<5 ft.)
		7.3 Ice/Debris Jam Poter	ntial: <b>Shallow</b>

4.2 4.3 5.1 5.2 5.3 5.4 6.1 6.2 6.3 6.4 6.5 6.6 7.1 7.2 Total 4.1 5.5 1 0 0 0 0 0 0 0 0 0 0 1 1 3 0 0 0 N.S. N.S. N.S. N.S. N.S. N.S. N.D. N.S. Unk. N.D. Unk. Unk. N.D. Low Low Low

# **Phase 1 - Reach Summary Report**

1

Low

0

N.D.

1

Low

5

Basin: Otter, Little Otter, Lewis

Stream Name: Hollow Brook Reach T4.07

Topo Maps: ---

Date Last Edited:

1

Low

1

Low

0

N.S.

0

Unk.

0

N.D.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

1

Low

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown	
Step 1. Reach Location	
1.1 Reach Description: N of Lincoln Hill Rd., Top of Hollow Brook, includes trib // to	road
1.2 Towns: Hinesburg	Todu
1.3 Downstream Latitude: 44.31 Step 4. Land Cover - Reach Hydrology	
1.3 Downstream Latitude: -73.04	
Step 2. Stream Type Historic Land Cover: Forest	
2.1 Elevation Upstream: 1170 Current Dominant land Cover: Forest	93.9 %
2.1 Elevation Downstream: <b>1090</b> Current Sub-Dominant Land Cover: <b>Urb</b>	
2.1 Is Gradient Gentle? No 4.2 Corridor	<b>α</b> 11
2.2 Valley Length: 3522 feet 0.67 Miles	
2.3 Valley Slope: Historic Land Cover: Forest	<b>75</b> 4 0/
2.4 Channel Length: 3284 feet 0.62 Miles Current Dominant land Cover: Forest	<b>75.1</b> %
2.5 Channel Slope: 2.44 % Current Sub-Dominant Land Cover: Urb	
2.6 Sinuosity: 0.93 4.3 Riparian Buffer Left Bank	Right Bank
Zir Waterenbarttean i e-greene mines	>100
2.0 Chambri Wath. 11 100th 1 1 1 1 2 4	26-50
2.6 valley Water Land	131
2.10 Confinement Ratio: 0 4.4 Ground Water Inputs: None	
2.10 Confinement Type: Narrowly Confined Step 5. Instream Channel Modifications	
2.11 Reference Stream Type: A 5.1 Flow Regulation - (old): No Data	
Bedform: Type:	
Sub-class Slope: Use:	0/
Bed Material: Sand 5.2 Bridges and Culverts: 0	%
Sieb 3. Dasiii Characteristics.	0.0
3.1 Alluvial Fan:  None  Left Right  5.4 Channel Streightening:	0.0
3.2 Grade Control: No Data	
3.3 Dominant Geologic Mat.: Till 3.3 Sub-dominant Geological Mat.:  100. % 5.5 Dredging History: No Data  Step 6. Floodplain Modifications 6.1 Berms and Roads old 0.0 ft.	
3.3 Sub-dominant Geological Mat.:	
3 / Laft Valley Side Extremely Steen 5.1 Bolling and Rodds 51d 0.0 11. C	
3 4 Right Valley Side Fytremely Steen	oth Sides
3.5 Soils	ft.
Hydrologic Group: D 76.1 % Berm: ft.	ft.
Flooding: None/Rare 100. % Improved Path: ft.	ft.
improved t dati.	n ft.
0.2 Development.	ft.
Finally like in Many Course 04.4.0/	
5 0.4 integration. No Data	
7.4 Comments: 6.5 Meander Width: Rat	
Flat part, wetland.  6.6 Wavelength: Rat	io: <b>0.0</b>
Step 7. Windshield Survey	
7.1 Bank Erosion:	
7.2 Bank Height: Low (<5 ft	: <b>.)</b>
7.3 Ice/Debris Jam Potential: <b>Shallow</b>	
4.1 4.2 4.3 5.1 5.2 5.3 5.4 5.5 6.1 6.2 6.3 6.4 6.5 6.6 7.1	7.2 Total

## **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.1S1.01

Topo Maps: ---

Date Last Edited:

2

High

2

High

0

N.S.

0

Unk.

0

N.D.

0

0

Unk. N.S.

2

High

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

	Is Rea	ch an	Impou	ndmer	nt? No	)		Qι	uality (	Control	Statu	s: <b>Un</b>	know	n			
	Step 1	l. Read	ch Loc	ation													
	<u>-</u>	each [			10	000' W	est of	rt 116	6 thro	ugh a	farm t	o the	head	water	s		
		owns:	, , , , , , , , , , , , , , , , , , ,			tarksb				.g u					•		
			ream L	atitude	_	4.28			Ste	ep 4. L	and C	over -	Reacl	h Hydr	ology		
	_			ongitu	_	73.07				Wate							
	Step 2								Hi	storic L	and C	over:		Fi	eld		
•		levatio			4	60				irrent [			nd Cov	er: <b>Fi</b>	eld	52.5	5 %
				nstrea		00			Cı	irrent S	Sub-Do	omina	nt Lan	d Cov	er: Cr		
	2.1 ls	Gradi	ent Ge	entle?	1	No			4.2	? Corrid	dor					•	
		alley L						. <b>39</b> Mile	es. Hi	storic L	and C	over.		Fi	eld		
		alley S					%		$\sim$	urrent l			nd Cov			33	4 %
		hanne				<b>596</b> fe		<b>.30</b> Mil	125	irrent S							70
		hanne		<b>e</b> :			%						iii Laii		Bank		t Dook
		inuosit			U	.78	0	NA:1	_	Ripar minan		iii <del>C</del> i		<b>0-2</b> :		<b>0-25</b>	nt Bank
		/atersh				0	•	re Mile		ıb-dom				>10		>100	
		hanne		1:		4 100		eet.		ngth w		than 2	25 ft.:	159		1596	
		alley V		Ratio:		24	I	eet.		Grour					nimal	1000	•
				Type:		Very E	Broad			5. Ins							
				tream		-	n oau			Flow					Data		
		dform:		Odini	. ypc.					pe:	. toga.	at. 0	(0.4).				
		b-class		۵.					Üs								
		d Mate	•	<b>.</b>		Sand			5.2	2 Bridge	es and	Culve	erts:	1		9	%
<	Step 3.			octorict		Sanu				Bank						0.0	
_		Iluvial		CICHSI	.103.	Non	_				_eft	O	Rig	ght			
						No F	)ata			Chan						0.0	
					Mot .	Glac	Jala ial I a	k000 9	<sub>o/</sub> 5.5	Dredg	ging H	istory:		No [	Data		
				ologic I		Mati	ıaı ∟a ∧ı	Negg.c	<b>'</b> ′°Ste	Dredo p 6. Flo	oodpla	ain Mo	dificat	ions			
				Geolo	•		Ai	iuviai	6.1 I	3erms	and R	oads	0	ld <b>0.0</b>	ft.	0.0	
		eft Vall	•			illy								One Si	de	Both S	Sides
	3.4 K	ight Va	alley S	iue	п	illy				oad:					ft.		ft.
			Crain	<b>.</b> .	D		E	1.8 %		ailroad:					ft.		ft.
		rologic	Group	J.	В				De	erm:					ft.		ft.
		ding:	la Das					9.8 %		proved					ft.	_	ft.
		er Tab		•	3.			1.8 %	0.2	2 Devel			•	105.0		0.0	ft.
		ter Tab		allow:	1.			1.8 %		Chan					Data		
	EIOC	dibility:			V	ery Se	veres	4.6 %	0	Mean			n:	No l	Data		
	7.4 Cc	ommer	nts:							Mean					Ra	atio:	0.0
	1' wide	e. catta	il wetla	and.						Wave	_				Ra	atio:	0.0
		, : :::::							Step	7. Wi	ndshie	eld Sui	rvey				
									7.1	Bank	Erosio	n:					
									7.2	Bank	Heigh	t:		Lo	w (<5	ft.)	
										Ice/De	_		otentia		•	•	
ĺ	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
- 1	( )	1		1 1		1				1	I	I	1	1	1	I	1 1

1

Low

0

N.S.

0

N.S.

0

N.D.

0

N.S.

1

Low

0

N.S.

8

0

N.D.

### **Phase 1 - Reach Summary Report**

1

Low

0

N.S.

4

0

N.D.

0

N.D.

0

N.S.

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.1S2.01

Topo Maps: ---

Date Last Edited:

1

Low

0

N.S.

0

N.S.

0

Unk.

0

N.D.

0

N.D.

2

High

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

is Rea	cn an	impou	namer	IL? INC	,		Qι	ıalıty C	control	Statu	s: Un	know	n			
Step 1	l. Read	ch Loc	ation					-								
	each [			30	00' We	st of	Rt 116	to he	adwat	er bre	ak of	Т3				
	owns:	2000116	J. 1011.				Starksb		aawat	D. C	Jan Oi					
		ream I	_atitude		4.28	y, \	otal Non		p 4. L	and C	over -	Read	h Hvdr	ology		
			ongitu						Wate			rtodo	i i i y ai	<u>ology</u>		
	2. Strea		_	<b>40.</b>	0.0.				storic L				Fi	eld		
	levatio			4	80				rrent [			nd Cov			56.5	0/2
			nstrea		10				rrent S				_			/0
	Gradi				No				Corrid		Jiiiiia	III Laii	u Cov	ei. Oii	Dali	
	alley L					et (	<b>).49</b> Mile						_			
	alley S					%	<b>7.</b> 31VIII	1 113	storic L				_	rest		
	hanne		th:		2 <b>837</b> fe		<b>0.54</b> Mile	ے کر	ırrent l	Domin	ant la	nd Co	ver: <b>W</b>	etlanc	21.0	<b>)</b> %
	hanne					%	J.O-71VIIII	Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Fo</b>	rest	
	inuosit		<i>,</i>		.09	, •		4.3	Ripar	ian Bu	ıffer		Left	Bank	Righ	t Bank
	/atersh		ea.	•	1	Saua	are Mile	_	minan				>10		>100	
	hanne				12	•	feet.	Su	b-dom	inant:			26-	50	26-5	0
	alley V				100		feet.	Le	ngth w	/ less	than 2	25 ft.:	0		0	
			Ratio:		8		icci.	4.4	Groun	าd Wa	ter Inp	outs:	No	ne		
	Confin				Broad			Step	5. Ins	tream	Chan	nel Mo	odifica	tions		
			ream					5.1	Flow	Regul	ation -	(old):	No	Data		
	dform:								pe:	9		,				
	b-class		ā.					Ús								
	d Mate	•	J.		Sand			5.2	Bridge	es and	d Culv	erts:	1		9	6
Step 3.			otorict		Sariu				Bank						0.0	
			iciensi	165.	<b>N</b> I	_				_eft	3	Rig	ıht			
	lluvial				Non			5.4	Chan	nel Sti	raighte		•		0.0	
	rade C			_	No E	ata							No [	Data		
			ologic <b>N</b>		Glac	ıal La	ake70.6 Iluvial	%Ste	o 6. Fl	oodpla	ain Mo	dificat	ions			
3.3 S	ub-dor	minant	Geolo	gical I	Mat.:	Α	lluvial	6 1 F	Berms	and R	nade	00	ld <b>0.0</b>	ft	0.0	
	eft Vall			Н	illy			0.1 L	Cillis	ana n	oaus		One Si		Both S	eahi
3.4 R	ight Va	alley S	ide	Н	illy			Ro	ad:			`		ft.	Doui C	
3.5 S	oils								ilroad:					ft.		ft.
Hyd	rologic	Group	o:	С		(	66.5 %	_	rm:					ft.		ft.
•	ding:			N	one/Ra	are :	<b>70.6</b> %		proved	l Path				ft.		ft.
	er Tab	le Dee	en:	2.			54.7 %		Deve				0.0	ft. <b>(</b>	١.	ft.
	ter Tab		•	0.			<b>52.8</b> %			•		'			<b>J.</b> U	ft.
	dibility:				evere		58.3 %		Chan					Data		
	,			J.		`	70		Mean		_	n:	NO I	Data		
7.4 Cc	ommer	nts:							Mean							0.0
Wetlar	nd								Wave					Ra	atio: (	0.0
								Step	7. Wi	ndshie	eld Su	rvey				
								7.1	Bank	Erosio	on:					
								7.2	Bank	Heigh	t:		Lo	w (<5	ft.)	
									Ice/D	_		otentia			,	
									1							
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

0

N.S.

0

N.S.

0

N.S.

0

N.S.

### **Phase 1 - Reach Summary Report**

Total

5

7.2

0

N.S.

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.1S3.01

Topo Maps: ---

Date Last Edited:

4.2

0

N.S.

4.1

1

Low

4.3

2

High

5.1

0

N.S.

5.2

0

Unk.

5.3

0

N.D.

5.4

0

Unk.

5.5

0

N.S.

6.1

0

N.S.

6.2

0

N.S.

6.3

0

N.S.

6.4

2

High

6.5

0

N.D.

6.6

0

N.D.

7.1

0

N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment?	NO	Quali	ity Control Status: Unkno	own	
Step 1. Reach Location					
1.1 Reach Description:	Mouth of se	econd trib	off left bank, 700 ft wes	t of Rt 116	
1.2 Towns:	Hinesburg	econd trib	on left bank, 700 it wes	LOIKLIIO	
1.2 Towns. 1.3 Downstream Latitude:	44.28		Step 4. Land Cover - Re	ach Hydrology	
1.3 Downstream Landude:			4.1 Watershed	aciffyurology	
Step 2. Stream Type	-73.07			Tiold.	
	600		Historic Land Cover:	Field	74.0 0/
<ul><li>2.1 Elevation Upstream:</li><li>2.1 Elevation Downstream:</li></ul>	480		Current Dominant land (		71.2 %
2.1 Is Gradient Gentle?	460 No		Current Sub-Dominant L	and Cover: Fie	ıa
2.1 is Gradient Gentle? 2.2 Valley Length:	4158 feet.	0.70Miles	4.2 Corridor		
, ,	<b>2.89</b> %	<b>0.79</b> Willes.	Historic Land Cover:	Shrub	
2.3 Valley Slope: 2.4.Channel Length:	<b>4009</b> feet.	<b>0.76</b> Miles.	Current Dominant land	Cover: <b>Forest</b>	<b>49.2</b> %
2.5 Channel Slope:	<b>2.99</b> %	<b>0.70</b> IVIIIES.	Current Sub-Dominant L	and Cover: We	tland
2.6 Sinuosity:	0.96		4.3 Riparian Buffer	Left Bank	Right Bank
2.7 Watershed Area:		are Miles	Dominant:	>100	>100
2.8 Channel Width:	<b>6</b>	feet.	Sub-dominant:	0-25	0-25
2.9 Valley Width:	120	feet.	Length w/ less than 25 f		801
2.10 Confinement Ratio:	19	ieet.	4.4 Ground Water Inputs		
2.10 Confinement Type:	Very Broa	d S	Step 5. Instream Channel		
2.11 Reference Stream Typ	•		5.1 Flow Regulation - (ol		
Bedform:			Type:	14). 110 2414	
Sub-class Slope:			Use:		
Bed Material:			5.2 Bridges and Culverts	s: <b>1</b>	%
			5.3 Bank Armoring:		0.0
Step 3. Basin Characteristics:			9	Right	
3.1 Alluvial Fan:	None		5.4 Channel Straightenin		0.0
3.2 Grade Control:	No Data		•	•	
3.3 Dominant Geologic Mat	.: Glacial I	_ake49.9 %	5.5 Dredging History: Step 6. Floodplain Modifi	cations	
3.3 Sub-dominant Geologica	al Mat.:	Other	6.1 Berms and Roads	old <b>0.0</b> ft.	0.0
3.4 Left Valley Side	Hilly		or Definis and Roads		oth Sides
3.4 Right Valley Side	Hilly		Road:	ft.	
3.5 Soils			Railroad:	ft.	ft.
Hydrologic Group:	В	<b>27.3</b> %	Berm:	ft.	ft.
Flooding:	None/Rare	90.0 %	Improved Path:	ft.	ft.
Water Table Deep:	6.0	41.1 %	6.2 Development:	0.0 ft. 0	o ft.
Water Table Shallow:	6.0	40.4 %	6.3 Channel Bars:	No Data	ft.
Erodibility:	Severe	60.5 %	6.4 Meander Migration:	Migration	
·			6.5 Meander Width:	_	tio. 00
7.4 Comments:				Ra	
		ć	6.6 Wavelength:		tio: <b>0.0</b>
		2	Step 7. Windshield Surve	<u>y</u>	
			7.1 Bank Erosion:		
			7.2 Bank Height:		
			7.3 Ice/Debris Jam Poter	ntial:	

# **Phase 1 - Reach Summary Report**

0

N.D.

0

N.S.

0

N.D.

0

N.S.

0

N.S.

6

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.1S4.01

Topo Maps: ---

Date Last Edited:

2

High

2

High

2

High

0

N.S.

0

Unk.

0

N.D.

0

0

Unk. N.S.

0

Unk.

0

N.S.

0

N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

	Is Rea	ch an	Impou	ndmen	t? <b>Nc</b>	)		Qι	ality	Control	Statu	s: <b>Un</b>	know	n			
	Step 1	I. Read	ch Loc	ation													
	<u>-</u> _		Descrip		В	reak o	ff T3,	100' E	ast o	of Rt 11	6 to tl	he sta	rt of s	teep s	slope		
		owns:	•			inesbu								•	•		
	1.3 D	ownst	ream L	atitude	: 4	4.28	•		S	tep 4. L	and C	over -	Reacl	n Hydr	ology		
	1.3 D	ownst	ream L	ongitu	de: <b>-</b>	73.07			<u>4</u> .	1 Wate	rshed						
	Step 2	2. Strea	am Typ	ре					Н	istoric L	and C	Cover:		Fie	eld		
	2.1 E	levatio	n Upst	tream:	5	00			С	urrent [	Domin	ant lar	nd Cov	er: Fc	rest	55.4	<b>!</b> %
	2.1 E	levatio	n Dow	nstrea	m: <b>4</b>	10			С	urrent S	Sub-D	omina	nt Lan	d Cov	er: <b>Ur</b> l	ban	
	_		ient Ge			Vo				2 Corrie	dor						
			ength:					<b>.58</b> Mile	es. H	istoric L	and C	Cover:		Sh	rub		
		alley S					%		_	Current			nd Co	_		1 36	4 %
			I Lengt			<b>633</b> fe		<b>.88</b> Mil		urrent S							. /0
			el Slope	e:			%			3 Ripar			iii Laii				t Bank
		inuosit			1	.51 1	Sauc	re Mile	_	ominan		iiiCi		0-2		<b>0-25</b>	it Darik
			ned Are I Width			10	•	eet.	_	ub-dom					100	>100	)
		alley V		1.		100		eet.		ength w			25 ft.:	319		3243	
				Ratio:		10	'	eet.		4 Ğroui					nimal	0_10	
			ement			Broad				p 5. Ins							
				tream T					5.	1 Flow	Regul	ation -	(old):	No	Data		
		dform:			,					ype:	Ū		,				
	Su	b-clas	s Slope	e:						se:							
		d Mate	•						5.	2 Bridg	es and	d Culve	erts:	1		9	6
ç				acteristi	cs.				5.	3 Bank	Armo	ring:				0.0	
-		lluvial				Yes					Left		Rig	jht			
			Control			No E	Data			4 Chan						0.0	
				ologic N	/lat·	Allu		36.0	<sub>.%</sub> 5.	5 Dredo ep 6. Fl	ging H	istory:		No [	Data		
				Geolog			lce-(	Contac	St.	ep 6. Fl	oodpla	ain Mo					
			ley Sid		-	illy			6.1	ep 6. FI Berms	and R	oads		ld <b>0.0</b>		0.0	
			alley S			illy							(	One Si		Both S	Sides
	3.5 S				• • •	,				oad:					ft.		ft.
			Group	٦.	С		4	6.5 %		ailroad:					ft.		ft.
	-	ding:	Cloup	J.	_	one/R		4.0 %	ט	erm:	J Doth	_			ft.		ft.
		_	ole Dec	au.	1.			9.1 %		nproved					ft.		ft.
			ole Sha	•	0.			6.7 %		2 Deve			'	0.0	ft. (	J.U	ft.
		dibility:		allow.		ight		2.0 %		3 Chan					Data		
		•			<u> </u>	.9	_	<b></b>	0.	4 Mean		_	m.	NO	Data		
	7.4 Cc	ommer	าเร:							5 Mean							0.0
										6 Wave	_		r\/0\/		Ra	atio:	0.0
										p 7. Wi			vey				
										1 Bank							
										2 Bank	_		_				
									7.	3 Ice/D	ebris .	Jam Po	otentia	ıl:			
	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.1S4.02

Topo Maps: ---

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

Unk.

0

N.D.

0

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

Is Rea	ch an	Impou	ndmer	nt? No	)		Qı.	ality C	<u>Control</u>	Statu	s: <b>U</b> n	know	<u>n</u>			
Step 1	. Rea	ch Loc	ation					•								
		Descrip					off of T	Γ4 , S	of Qua	arry, i	n Fred	d John	son V	VMA,	E of T	yler
1.2 T	owns:				inesb	urg				•						-
_		ream L		<b>U</b> .	4.29						over -	Reacl	า Hydi	rology		
		ream L		ıde: <b>-</b> 7	73.06			4.1	Wate	rshed						
		am Typ							storic L					rest		
		on Ups			00							nd Cov			96.8	<b>3</b> %
		n Dow			00			Cu	rrent S	Sub-D	omina	nt Lan	d Cov	er:		
		ient Ge			No (		4 = 5 4.1		Corrid	dor						
		.ength:			<b>766</b> fe		<b>.15</b> Mile	<sup>es.</sup> His	storic L	and C	Cover:		Fo	rest		
	alley S		٠. حاله		3.05			Cu	ırrent l	Domin	ant la	nd Co	ver: <b>Fc</b>	rest	68.	8 %
		I Leng			<b>576</b> fe <b>7.36</b>		<b>.11</b> Mile					nt Lan				
		el Slope	ð.		7.36 .75	/0			Ripar						Righ	t Bank
	inuosit Jatersk	ıy. ned Ar	<b>6</b> 2.	U	.75 0	Saus	re Mile	_	minan				>10		>100	
		el Width			5	•	eet.	_	b-dom					100	51-1	
	alley V		1.		<del>4</del> 0		eet.		ngth w			25 ft.:	0		0	
		ement	Ratio:		8		CCI.	4.4	Grour	nd Wa	ter Inp	outs:	No	ne		
		ement			Broad			Step	5. Ins	tream	Chan	nel Mo				
		ence S						5.1	Flow	Regul	ation -	- (old):	No	Data		
	dform			-					pe:	Ū		` ,				
Su	b-clas	s Slope	e:					Ús								
	d Mate	•						5.2	Bridge	es and	d Culv	erts:	0		9	6
Step 3.			acterist	tics:				5.3	Bank	Armo	ring:				0.0	
	lluvial				Non	6				_eft		Rig	Jht			
		Control	-		NοΓ	Tata			Chan						0.0	
		nt Ge		Mat ·	Glac	ial La	ke64.3	$\frac{5.5}{2}$	Dredo	ging H	istory:		No [	Data		
		minant	_		Mat ·	lce-(	ke64.3 Contac	Ste	p 6. Fl	oodpla	ain Mo	dificat	ions			
		ley Sic		•	ery St		Contac	6.1 E	Berms	and R	oads	U	iu <b>U.U</b>		0.0	
		alley S			ery St	•						(	One Si		Both S	Sides
3.5 S	_	a		•	cry Ct	ССР			ad:					ft.		ft.
		Group	n·	D		6	4.3 %		ilroad:					ft.		ft.
	ding:	, Group	ρ.	_	one/R	_	<b>00.</b> %	De	rm:	I D - 41-	_			ft.		ft.
	_	ole Dec	an.	2.			4.3 %	1111	proved					ft.		ft.
		ole Sha	•	0.			4.3 %		Deve			(	0.0	ft. <b>(</b>	).0	ft.
	dibility:		allOw.				<b>00</b> . %		Chan					Data		
	•			•	cry Oc	, , , , , ,	<b>00.</b> 70	0. 1	Mean		_	n:	No	Data		
7.4 Cc	ommer	nts:							Mean							0.0
									Wave	_				Ra	atio:	0.0
									7. Wi			rvey				
									Bank							
									Bank							
		1			1			7.3	Ice/D	ebris .	Jam P	otentia	ıl:			
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

0

N.S. N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.D.

0

N.S.

0

N.S.

0

0

N.S.

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.3S1.01

Topo Maps: ---

2

High

0

N.S.

0

Unk.

0

N.S.

0

N.D.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.D.

0

N.S.

0

N.S.

5

2

High

1

Low

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Rea	ch an	Impou	ndmer	nt? No			Qı	ality (	Control	Statu	s: Un	know	<u>n</u>			
Step 1	I. Read	ch Loc	ation													
1.1 R	each [	Descrip	otion:	19	st Righ	ht goi	ng up	Hollo	w R. to	o // wi	th Ma	son H	ill Rd.	, Inclu	ides 2	2nd
	owns:				tarksb		•							•		
1.3 D	ownst	ream L	_atitude	e: <b>4</b>	4.29			St	ер 4. L	and C	over -	Reacl	h Hydi	rology		
1.3 D	ownst	ream L	_ongitu	ide: <b>-</b> 7	73.03			<u>4. ′</u>	Wate	rshed						
		am Typ						Hi	storic L	and C	Cover:		Fo	rest		
2.1 E	levatio	n Ups	tream:	12	240			Cı	ırrent [	Domin	ant lar	nd Cov	er: Fc	rest	87.	1 %
			/nstrea		30			Cı	ırrent S	Sub-D	omina	nt Lan	d Cov	er: <b>Ur</b>	ban	
		ient Ge			No			4.2	2 Corrie	dor						
		.ength:			<b>643</b> fe	et. <b>0</b>	<b>.88</b> Mile	es. Hi	storic L	and C	Cover:		Fo	rest		
	alley S		_		3.14	, 0		$\sim$	urrent l	Domin	ant la	nd Co			39	3 %
		I Leng			<b>601</b> fe		.25 Mile	_<	irrent S							70
		el Slope	<del>9</del> :			%			Ripar			iit Laii		Bank		nt Bank
	inuosit			1	.42	Cauc	ro Milo	_	minan		illei		>10		>100	
		ned Ar			1	•	re Mile	_	ıb-dom				0-2		0-25	
		el Width	n:	1	12		eet.		ngth w			25 ft.:	151		1782	
	alley V		:Ratio:		0	1	eet.		Grou				No		1702	•
			Type:		U Narrov	wly C	onfine									
			tream			wiy C	Jiiiiie	u <u>5.5</u>	Flow	Regul	ation -	· (Olq).	No	Data		
	dform:		ucam	турс. і					pe:	rtogui	ation	(Old).		Dutu		
		s Slope	٥.						se:							
		•	С.						2 Bridg	es and	d Culv	erts:	1		Q	%
	d Mate								Bank			0.10.	•		0.0	
Step 3.			actensi	ics.				•		Left	9.	Rig	ıht		0.0	
	lluvial				Non			5.4	Chan		raighte		,		0.0	
		Control			No E	Jata	00.4						No I	Data		
			ologic I		Till		92.4	<sup>1,%</sup> Ste	Dredo p 6. Fl	oodpla	ain Mc	dificat	ions			
			Geolo	_		ice-	Juna	<b>∺</b> 611	: Berms	and R	oads		ld <b>0.0</b>	ft	0.0	
		ley Sic			xtreme	•	•	0	2011110	aa	Juan		One Si		Both S	Sides
	_	alley S	lide	E	xtreme	ely St	еер	Ro	oad:					ft.		_
3.5 S								Ra	ailroad:					ft.		ft.
•	_	: Group	p:	В			<b>2.1</b> %	Вє	erm:					ft.		ft.
Floo	ding:			N	one/R		<b>00.</b> %	lm	proved	d Path	:			ft.		ft.
Wat	er Tab	ole Dec	ep:	6.	0	8	<b>6.0</b> %		Deve				137.0	ft. <b>(</b>	0.0	ft.
Wat	ter Tab	ole Sha	allow:	2.			3.7 %	6.3	3 Chan					Data		ft.
Ero	dibility:			V	ery Se	vere9	9.9 %		Mean			n:		Data		
7.4 Cd	ommer	nts:							Mean		_				atio:	0.0
7.100	311111101	110.							Wave							0.0
									7. Wi	_		rvev		110	atio.	0.0
									Bank			,				
									Bank	_		a 4 a := 1! =	.1.			
		I			<u> </u>	I		/.:	Ice/D	enlis c	jam P	vientia	11.	ı	ı	
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
					3.5	J.,	3.5	J. 1		5.5		5.5	3.3	ļ <u>.</u>	L <u>-</u>	1.0.0.

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.3S2.01

Topo Maps: ---

Date Last Edited:

1

Low

0

N.S.

1

Low

0

N.S.

0

Unk.

0

N.D.

0

N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

Is Rea	ich an	Impou	ndmer	nt? No	•		Qι	uality (	Control	Statu	s: <b>Un</b>	know	n			
Step <sup>2</sup>	1. Read	ch Loc	ation													
	leach [	Descrip	otion:		_		k of H	3. Cro	sses	Hollov	v Rd.	longe	r than	T13		
	owns:				inesbu	urg		04	4 1	1 0		D I				
	ownst			٠.	4.29 73.03				ep 4. L <i>l Wate</i>		over -	Reaci	n Hyar	ology		
	ownsti 2. Strea			iue	3.03				<i>r vvate</i> storic L		`ovor:		Ea	rest		
	levatio			11	330				urrent [			nd Cov			74 7	<b>7</b> %
	levatio				30				urrent S							70
	Gradi			1	No			1	Corri	dor			u 001	O. O.	~P	
2.2 V	alley L	ength:		4	<b>855</b> fe	et. <b>0</b>	. <b>92</b> Mil	es. <sub>Hi</sub>	storic L	and (	over.		Fc	rest		
	'alley S				7.72	/0		$\sim$	urrent l						51	0 %
	hanne				<b>355</b> fe		<b>.01</b> Mil		urrent S							
	hanne		<b>ə</b> :		3.07	%			Ripar			iii Laii				nt Bank
	inuosit Vatersh		00:	. [	.10 0	Saus	re Mile	_	ominan		11101		>10		>100	
	hanne				6	•	eet.	_	ıb-dom				26-		51-1	
	'alley V				•		eet.	Le	ngth w	/ less	than 2	25 ft.:	267		267	
	Confin		Ratio:		0				l Grour				No			
2.10	Confin	ement	Type:		Narrov	wly Co	onfine	d Ste	5. Ins	tream	Chan	nel Mo	odifica	tions		
	Refere		tream <sup>-</sup>	Type:	A				Flow	Regul	ation -	· (old):	No	Data		
	dform:								pe:							
Su	b-class	s Slope	e:						se:				^		0	,
	ed Mate								2 Bridge			erts:	0			6
Step 3.			acterist	ics:				5.0	Bank ا	∡imoi ₋eft	ning.	Rig	ıht		0.0	
	lluvial				Non	-		5.4	l Chan		raighte		jiit		0.0	
	Frade C				No E	Data	400	E 1	Dredg		-	_	No [	Data		
	omina		_		Till		100		p 6. Fl							
	ub-dor			_			luvial		Berms				ld <b>0.0</b>	ft.	0.0	
	eft Val				xtreme	-	-						One Si		Both S	Sides
3.4 K	Right Va Roile	alley S	iue		xtreme	ely St	eep		oad:					ft.		ft.
		Grour	٥.	С		0	0.9 %		ailroad:					ft.		ft.
	rologic oding:	, Group	ρ.		one/R		0.9 % 00. %	טט	erm:					ft.		ft.
	ter Tab	de Dec	an.	3.			0.0 %	111	proved					ft.		ft.
	ter Tab		•	2.	•		9.1 %	0.2	Devel			(	0.0	ft. <b>(</b>	).0	ft.
	dibility:		allow.				00. %		Chan			n.		Data		
	•			•	J., J.		<b>.</b> , , ,	٥.	l Mean 5 Mean		_	m.	NO	Data	_4:	0.0
7.4 C	ommer	นร:							Wave							0.0
									7. Wi	_		rvev		ΓĊ	atio:	0.0
									Bank			ı voy				
									2 Bank 3 Ice/D			ntantin	ıl·			
								7.0	 	י פוומי	aiii Pi	 	ii.		I	<del>                                     </del>
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.S.

0

N.D.

0

N.S.

0

N.S.

2

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.3S3.01

Topo Maps: ---

Date Last Edited:

1

Low

1

Low

1

Low

0

N.S.

0

Unk.

0

N.D.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.D.

0

N.S.

0

N.S.

3

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

_	is Rea	ch an	Impou	ndmer	nt? NC	)		Qι	ıality (	Control	Statu	s: <b>Un</b>	know	n				
	Step 1	. Read	ch Loc	ation														
•			Descrip		20	00'S	of Ho	low R	d of	f S bro	ok of	Hollo	w bro	ok				
		owns:	2000116	Juoi i.		inesbu			a., O.	0 5.0	OK O.			O.K				
			ream L	atitude		4.29	g		Ste	ep 4. L	and C	over -	Reach	n Hydr	oloav			
			ream L							Wate		<del></del>	· touo.	y u.	<del>o.ogj</del>			
			am Typ			0.0_				storic L		'over		Fo	rest			
-			n Upst		10	000				irrent [			nd Cov			75.3	0/	
			n Dow			30				irrent S				_			<b>)</b> /0	
			ent Ge			No				Corric		Jiiiiia	III Laii	u Cov	ei. Fie	;iu		
			ength:			<b>738</b> fe	et O	. <b>33</b> Mile	00					_				
		alley S	_			1.29		.00101110	1 113	storic L					rest			
			l Lengt	th:		23 2 <b>952</b> fe		. <b>56</b> Mil	ے С۱	urrent l	Domin	ant la	nd Cov	ver: <b>Fc</b>	rest	63.	<b>7</b> %	
			l Slope			2.53		.001	Cı	ırrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Ur</b> l	ban		
		inuosit				.70			4.3	Ripar	ian Bu	ıffer		Left	Bank	Righ	nt Bank	
			ned Are	ea.	•	0	Squa	re Mile	s Do	minan	t:			>10	0	>100	)	
			l Width			4	•	eet.	Su	ıb-dom	inant:			51-	100	26-5	0	
		alley V		••		40		eet.	Le	ngth w	/ less	than 2	25 ft.:	118	3	383		
			ement	Ratio:		9	'	001.	4.4	Grour	nd Wa	ter Inp	outs:	No	ne			
			ement			Broad			Step	5. Ins	tream	Chan	nel Mo	odifica	tions			
			nce St	• •		Α			5.1	Flow	Regul	ation -	(old):	No	Data			
		dform:			٠.				Ty	pe:	•		` ,					
	Sul	b-class	s Slope	e:					Ús									
		d Mate	•						5.2	Bridge	es and	d Culv	erts:	0		9	6	
S			Chara	octerist	ice.				5.3	Bank	Armoi	ring:				0.0		
<u> </u>		Iluvial		20101101		Non	^			I	_eft		Rig	jht				
						No E	-		5.4	Chan	nel Sti	raighte	ening:			0.0		
			Control		\ 1at .	Till	Jala	00.2	<sub>o</sub> , 5.5	Dredg	ging H	istory:		No [	Data			
			nt Ged	•			Α.	99.2 امارستا	<sup>' 7</sup> ⁰Ste	p 6. Fl	podpla	ain Mo	dificat	ions				
			minant		_				6.1 E	Berms	and R	oads	0	ld <b>0.0</b>	ft.	0.0		
			ley Sid			xtreme	-	•						One Si		Both S	Sides	
		-	alley S	ıae	E	xtreme	ely St	eep	Ro	ad:					ft.			
	3.5 S								Ra	ilroad:					ft.		ft.	
			: Group	o:	D			<b>7.1</b> %	Be	rm:					ft.		ft.	
		ding:						9.2 %	lm	proved	l Path:	:			ft.		ft.	
			le Dee	•	6.	0	7	<b>7.1</b> %	6.2	Devel	opme	nt:		33.0	ft. <b>(</b>	0.0	ft.	
	Wat	er Tab	ole Sha	allow:	6.	0	6	4.2 %		Chan				No I	Data		Ħ.	
	Eroc	dibility:			V	ery Se	vere9	9.2 %		Mean			n:		Data			
	7 4 Cc	ommer	nts:							Mean						atio:	0.0	
	7.100	,,,,,,,	110.							Wave							0.0	
										7. Wi	_		rvev		110	alio.	0.0	
										Bank								
										Bank	U			ı.				
,									7.3	Ice/D	ebris J	iam P	otentia	11:			<del>,</del>	
	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total	
	7.1	7.2	٦.٥	5.1	٥.۷	0.0	J. <del>T</del>	0.0	0.1	0.2	0.0	0.7	0.0	0.0	' . '	' .∠	I Oldi	

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.3S4.01

Topo Maps: ---

Date Last Edited:

1

Low

1

Low

2

High

0

N.S.

0

Unk.

0

N.D.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.D.

0

N.S.

0

N.S.

4

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment?	NO		Qι	ality C	Control	Statu	s: <b>Un</b>	<u>know</u> ı	n			
Step 1. Reach Location												
1.1 Reach Description:	Crosses	. Mae	on Hill	Road	1							
1.2 Towns:	Hinesbu		011 11111	itoat	A							
1.3 Downstream Latitude:	44.29	ai g		Sta	ep 4. La	and C	over -	Reach	a Hydr	ology		
1.3 Downstream Longitude:					Wate		OVCI	rtcaci	TTIYGI	ology		
Step 2. Stream Type	70.02				storic L		'ovor		Ea	rest		
	1160				irrent [			od Cov			70.5	<b>.</b> 0/
<ul><li>2.1 Elevation Upstream:</li><li>2.1 Elevation Downstream:</li></ul>	630								_		70.5	%
2.1 Is Gradient Gentle?	No				irrent S		Jillina	nt Lan	a Cov	er. Fie	eia	
2.1 is Gradient Gentle:	<b>3376</b> fe	ot O	. <b>64</b> Mile		Corrid							
2.3 Valley Slope:	15.70		.O4 IVIIII	zs. His	storic L	and C	over:		Fo	rest		
2.4.Channel Length:	<b>3105</b> fe		. <b>59</b> Mile	ς Cι	urrent [	Domin	ant laı	nd Cov	ver: <b>Fc</b>	rest	58.0	0 %
2.5 Channel Slope:	17.07		.JJ WIII	Cı	irrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Ur</b> l	ban	
2.6 Sinuosity:	0.92	70		4.3	Ripari	ian Bu	ffer		Left	Bank	Riah	t Bank
2.7 Watershed Area:		Squa	re Mile	_	minan				26-		>100	
2.8 Channel Width:	6	•	eet.	_	b-dom				>10		26-5	
2.9 Valley Width:	10		eet.	Le	ngth w	/ less	than 2	25 ft.:	372		372	
2.10 Confinement Ratio:	2		CCI.	4.4	Grour	nd Wa	ter Inp	uts:	No	ne	_	
2.10 Confinement Type:	Narrov	vlv C	onfine						odifica	tions		
2.11 Reference Stream Typ		,		5.1	Flow	Regula	ation -	(old):	No	Data		
Bedform:					pe:	- 3 -		(,-				
Sub-class Slope:				Ús								
Bed Material:				5.2	Bridge	es and	Culve	erts:	0		9	6
Step 3. Basin Characteristics:					Bank						0.0	
	NI	_				_eft	3	Rig	ıht			
3.1 Alluvial Fan:	Non	-		5.4	Chan	nel Sti	aighte				0.0	
3.2 Grade Control:	No E	vata	00.4				~	_	No [	Data		
3.3 Dominant Geologic Mat.			96.1	%a.	. ^			dificat	ions			
3.3 Sub-dominant Geologica		Ice-(		6 1 F	Berms	and R	oads	0	ld <b>0.0</b>	ft	0.0	
3.4 Left Valley Side	Extreme	,	•	0.1.	3011110	ana n	ouuo		One Si		Both S	Sides
3.4 Right Valley Side	Extreme	ely St	еер	Ro	ad:					ft.	J 0 iii . C	
3.5 Soils					ilroad:					ft.		ft.
Hydrologic Group:	D	4	1.6 %		rm:					ft.		ft.
Flooding:	None/Ra	are 9	<b>8.8</b> %		proved	l Path:				ft.		ft.
Water Table Deep:	6.0	6	4.2 %		Devel				50.0	ft. <b>C</b>	0.0	ft.
Water Table Shallow:	6.0	4	1.6 %		Chan				No I	Data		ft.
Erodibility:	<b>Very Se</b>	vere9	8.8 %		Mean			n·		Data		
7.4 Comments:	-				Mean		_		.10		atio:	0.0
7.4 Comments.					Wave							
					7. Wii	_		1/01/		Κċ	aliU.	0.0
								vey				
					Bank							
					Bank	U						
				7.3	Ice/De	ebris J	am Po	otentia	ıl:			
4.1 4.2 4.3 5.1 5.2	) F 2	E 1	5.5	6.1	6.2	6.2	6 4	6 5	6.6	7 1	7.2	Total
4.1   4.2   4.3   5.1   5.2	2   5.3	5.4	່ ວ.ວ	0.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.3S5.01

Topo Maps: ---

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

is Reach an impoundment?	NO Qua	ılity Control Status: <b>Unkno</b>	wn
Step 1. Reach Location		•	
1.1 Reach Description:	Off Rt Bank Of #3 at	mouth, may cross Hollow	Rd.
1.2 Towns:	Hinesburg	<b>,.,</b>	
1.3 Downstream Latitude:	44.29	Step 4. Land Cover - Rea	ach Hydrology
1.3 Downstream Longitude:	-73.02	4.1 Watershed	
Step 2. Stream Type		Historic Land Cover:	Forest
2.1 Elevation Upstream:	1000	Current Dominant land C	over: Forest 74.0 %
2.1 Elevation Downstream:	630	Current Sub-Dominant La	and Cover: <b>Field</b>
2.1 Is Gradient Gentle?	No	4.2 Corridor	
2.2 Valley Length:	<b>2223</b> feet. <b>0.42</b> Miles	S. Historic Land Cover:	Forest
2.3 Valley Slope:	16.64 %	Current Dominant land C	
2.4.Channel Length:	<b>2276</b> feet. <b>0.43</b> Miles	S. Current Sub-Dominant La	
2.5 Channel Slope:	16.26 %		Left Bank Right Bank
2.6 Sinuosity:	1.02	4.3 Riparian Buffer Dominant:	>100 >100
2.7 Watershed Area:	O Square Miles	Sub-dominant:	51-100 51-100
<ul><li>2.8 Channel Width:</li><li>2.9 Valley Width:</li></ul>	4 feet. 10 feet.	Length w/ less than 25 ft.	
2.10 Confinement Ratio:	10 feet. 2	4.4 Ground Water Inputs:	
2.10 Confinement Type:	Semi-confined	Step 5. Instream Channel I	
2.11 Reference Stream Typ		5.1 Flow Regulation - (old	
Bedform:		Type:	.,. 110 2 414
Sub-class Slope:		Use:	
Bed Material:		5.2 Bridges and Culverts:	0 %
Step 3. Basin Characteristics:		5.3 Bank Armoring:	0.0
3.1 Alluvial Fan:	None	•	Right
	No Data	5.4 Channel Straightening	g: <b>0.0</b>
3.2 Grade Control:	.: Till 100.9	, 5.5 Dredging History:	No Data
3.3 Dominant Geologic Mat	IIII IUU.,	5.5 Dredging History: Step 6. Floodplain Modific	ations
3.3 Sub-dominant Geologica		6.1 Berms and Roads	old <b>0.0</b> ft. <b>0.0</b>
<ul><li>3.4 Left Valley Side</li><li>3.4 Right Valley Side</li></ul>	Extremely Steep		One Side Both Sides
3.5 Soils	Extremely Steep	Road:	ft. ft. ft.
	C 63.9 %	Railroad:	π. <sub>ft</sub>
Hydrologic Group:		Berm:	π. <sub>ft</sub>
Flooding:	None/Rare 100. % 3.5 63.9 %	Improved Path:	tt. ft
Water Table Deep:		6.2 Development:	<b>0.0</b> π. <b>0.0</b> <sub>ft</sub>
Water Table Shallow:	2.0 99.6 %	6.3 Channel Bars:	No Data
Erodibility:	Very Severe100. %	6.4 Meander Migration:	No Data
7.4 Comments:		6.5 Meander Width:	Ratio: <b>0.0</b>
		6.6 Wavelength:	Ratio: <b>0.0</b>
		Step 7. Windshield Survey	
		7.1 Bank Erosion:	
		7.2 Bank Height:	
		7.3 Ice/Debris Jam Poten	tial:

4.1 4.2 4.3 5.1 5.2 5.3 5.4 6.1 6.2 6.4 6.5 7.1 7.2 Total 5.5 6.3 6.6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. Unk. N.D. N.S. N.D. N.D.

2

High

1

Low

2

High

0

N.S.

1

Low

2

0

N.S.

0

High N.S.

2

High

1

Low

2

High

1

Low

0

N/A

0

N/A

0

N.S.

1

Low

15

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.3S6.01

Topo Maps: 414

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

13	s ivea	CITAII	impou	Humen	11: 140			QU	ianty C	ontroi	Statu	<u>s: Un</u>	Know	n			
5	Step 1	l. Read	ch Loc	ation													
_			Descrip		R	each r	paralle	els Bio	ı Hollo	w Roa	ad and	d exte	nds fi	om u	ostrea	am of	
		owns:	, , , , , , , , , , , , , , , , , , ,					tarksb				. 02110		J J.	, , , ,	•.	
			ream L	atitude	_	4.29	g, C			p 4. L	and C	over -	Reacl	h Hvdr	oloav		
			ream L		<b>-</b> .	_				Wate					37		
			am Typ							storic L		over.		Fi	eld		
_			n Upst		10	)90				rrent D			nd Cov			82.1	I %
			n Dow			70				rrent S				_		_	70
			ent Ge			No				Corrid		J	iii Laii	u 001	on. <b>O</b> 1	OP	
			ength:				et. <b>0</b>	. <b>96</b> Mile			-	٠		<b>F</b> :.	اماما		
		alley S					%		1 113	storic L					eld	0.4	• • •
			l Lengt	th:		<b>746</b> fe		. <b>47</b> Mil		ırrent [							6 %
			l Slope				%		Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Fo</b>	rest	
		inuosit			1	.53				Ripari		ffer		Left	Bank	Righ	it Bank
			ned Are	ea:		2	Squai	re Mile		minan				26-	50	>100	
	2.8 C	hanne	l Width	า:	1	17	· f	eet.		b-dom				0-2		0-25	
	2.9 V	alley V	Vidth:				f	eet.		ngth w				247		2498	}
	2.10	Confin	ement	Ratio:		0				Grour					nimal		
	2.10	Confin	ement	Type:		Narro	wly Co	onfine	<b>d</b> Step	5. Ins	tream	Chan	nel Mo	odifica	tions		
			nce St	tream <sup>-</sup>					5.1	Flow	Regul	ation -					
	Be	dform:	•		•	Step-F	Pool			pe:			None	<b>!</b>			
	Su	b-class	s Slope	ə:		None			Us	-							
	Be	d Mate	erial:			Cobbl	е			Bridge			erts:	7		10 %	6
St	tep 3.	Basin	Chara	cterist	ics:				5.3	Bank			ъ.			0.0	
	3.1 A	lluvial	Fan:			Non	е		_ 1		_eft <b>0</b> .			ht <b>0.0</b>		20.0/	
			Control	:		Non				Chan			_	305		39 %	
			nt Geo		Mat.:	Till		87.4	1%2.5	Dredo	jing H	istory:		Non	е		
			minant	_			Ice-0	Contac	ct Ste	Dredo p 6. Flo Berms	podbis	ain Mo	dificat	ions			
			ley Sid		_	ktreme	elv Sto		6.1 E	Berms	and R	oads	U	nu <b>33</b> 4		71 %	
			alley S			ktreme	,	•						One Si		Both S	Sides
	3.5 S					~ CI OIII	oly Ott	ССР		ad:				5243	ft. 2		ft.
			Group	٠.	В		6	2.8 %		ilroad:				0.0	ft. <b>(</b>		ft.
		ding:	, Croup	<i>J</i> .		one/R		8.9 %	De	rm:				0.0	ft. C		ft.
			le Dee	'n.	6.			2.8 %		proved				0.0	ft. <b>(</b>		ft.
			ole Sha	•	2.			2.8 %		Devel	•		•	853		524.6	ft.
		dibility:		allOw.				2.6 % 6.3 %	0.0	Chan					tiple		
		•			•	ыу эе	veres	0.5 /6	0.7	Mean		_	n:		od Ch		
7	7.4 Cc	ommer	nts:							Mean					I/A Ra		0.0
C	Culver	t - fish	barrie	r, dowi	nstrea	m mid	bar, c	deep		Wave	_			N	<b>I/A</b> Ra	atio:	0.0
			ed usi					•		7. Wii			rvey				
•		•	04. Up	•					7.1	Bank	Erosio	n:		31	19.30	ft.	
			elying (						7.2	Bank	Heigh	t:		4.	75 ft.		
3	թերւ Հ	1) 100	eiyirig (	UII 200	ıı uala	1).			7.3	Ice/De	ebris J	am P	otentia	al: <b>M</b> u	ltiple		
	, ,		4.5						<u> </u>		0.0						
	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.3\$7.01

Topo Maps: ---

2

High

0

N.S.

0

Unk.

0

N.S.

0

N.D.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.D.

1

Low

2

High

8

1

Low

2

High

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Rea	<u>ich an</u>	Impou	ndmer	nt? No	)		Qu	ality C	Control	Statu	s: <b>U</b> n	<u>know</u>	n			
Step 1	I. Rea	ch Loc	ation													
1.1 R	each [	Descrip	otion:	of	f T9, I	nclud	les 2 tr	ibs er	ntering	710,	cross	ses Ru	ıby Bı	race R	₹d	
	owns:	•					tarksb						-			
1.3 D	ownst	ream L	atitud	e: <b>4</b>	4.29	•		Ste	ер 4. L	and C	over -	Reacl	h Hydi	rology		
1.3 D	ownst	ream L	ongitu	ıde: <b>-</b> 7	73.01			4.1	Wate	rshed						
Step 2	2. Strea	am Typ	oe -					His	storic L	and C	Cover:		Fo	rest		
2.1 E	levatio	n Upst	 tream:	: <b>1</b> 1	00				rrent [			nd Cov	er: Fc	rest	85.	1 %
		n Dow			30			Cu	rrent S	Sub-D	omina	nt Lan	d Cov	er: Cr	op	
2.1 ls	Gradi	ient Ge	entle?	1	No			4.2	Corrie	dor					•	
2.2 V	alley L	ength:		9	<b>880</b> fe	et. 1	<b>.87</b> Mile	s. <sub>Hi</sub>	etoric I	and C	Over.		Fo	rest		
2.3 V	alley S	Slope:		4	1.76	%		C .	irrant l	Domin	ont la	nd Co			26	4 %
2.4.C	hanne	I Lengt	th:	8	<b>671</b> fe		.64 Mile	<b>3</b> <	urrent l Irrent S							4 70
2.5 C	hanne	l Slope	e:			%						nı Lan				
	inuosi			0	.88	_		_	Ripar		itter			Bank		nt Bank
		ned Are			1	•	re Mile	_	minan				>10		>100	
		l Width	า:		15		feet.		b-dom			05 ft ·	0-2		0-25	
	alley V				70	1	feet.		ngth w				147		1387	
		ement			.5				Groun					nimal		
		ement			Narro	N			5. Ins							
		ence St	ream	Type:	4				Flow	Regui	ation -	(ola):	NO	Data		
	dform:			-					pe:							
		s Slope	<del>)</del> :					Us		00 00/	4 (	orto	4		0	/
	d Mate				Cobbl	е			Bridge			eris.	1		0.0	%
Step 3.	Basin	Chara	cterist	tics:				5.5	Bank	_eft	ning.	Rig	tht		U.U	
3.1 A	lluvial	Fan:			Non	е		5.4	Chan		raiahta		ji it		0.0	
3.2 G	irade (	Control	:		No E	Data							No I	Data	0.0	
3.3 D	omina	int Ged	ologic I	Mat.:	Till		88.5	%Sta	Dredo p 6. Fl	oodni:	ain Ma	dificat	ione ione	Jala		
3.3 S	ub-doi	minant	Geolo	ogical N	Mat.:	Ice-(	Contac eep	t = 310	Pormo	ood D	ann ivic					
3.4 L	eft Val	ley Sid	le	E	ktreme	ely St	еер	0.16	bernis	anu r	oaus		ld <b>0.0</b> One Si		<b>0.0</b> Both S	Sidos
3.4 R	ight Va	alley S	ide	E	ktreme	ely St	eep	D.	ad:			•	Jile Si		DOIII S	olues
3.5 S	oils						•		ilroad:					ft. ft.		ft.
Hyd	rologic	Group	o:	В		4	6.8 %		rm:					ft.		ft.
•	ding:			N	one/R	are 1	00. %		proved	l Path				ft.		ft.
	_	le Dee	ep:	6.	_		2.6 %		Deve				190.0	ft. <b>(</b>	١.	ft.
		ole Sha		2.	0		6.8 %		Chan				Nor		<b></b> .	ft.
	dibility:						00. %					n.		ie Data		
	•				., ·		70		Mean Mean		_	11.	NO		.4!	0.0
7.4 C	ommer	าเร:														0.0
Culve	t abov	e strea	am, alr	most to	high	on			Wave	_		r) (0) (		Ra	atio:	0.0
upstre	am, wa	ater cu	t arou	und, u	pstrea	m			7. Wi			ıvey				
•		t wedg		- '	•				Bank					_		
2 2, 3 0		9	-						Bank					w (<5	ft.)	
								7.3	Ice/D	ebris .	Jam P	otentia	al:			
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7 1	7.2	Total
4.1	4.∠	4.3	5.1	5.2	5.5	5.4	5.5	0.1	0.2	0.3	0.4	0.5	6.6	7.1	1.2	Iolai

### **Phase 1 - Reach Summary Report**

1

Low

0

N.D.

0

N.D.

0

N.S.

1

Low

4

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.5S1.01

Topo Maps: ---

Date Last Edited:

1

Low

0

N.S.

1

Low

0

N.S.

0

Unk.

0

N.D.

0

N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

is iteach an impoundment:	140		QU	iality C	ontroi	Statu	s: Un	Know	n			
Step 1. Reach Location												
1.1 Reach Description:	off H5	Cross	es Lind	oln H	lill Rd.							
1.2 Towns:	Hines											
1.3 Downstream Latitude:	44.30			Ste	ep 4. L	and C	over -	Reacl	h Hydr	ology		
1.3 Downstream Longitude	: -73.02	2			Wate							
Step 2. Stream Type				His	storic L	and C	over:		Fo	rest		
2.1 Elevation Upstream:	1370			Cu	ırrent [	Domina	ant lar	nd Cov	er: Fc	rest	88.	8 %
2.1 Elevation Downstream	820			Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Ur</b>	ban	
2.1 Is Gradient Gentle?	No			4.2	Corrid	dor						
2.2 Valley Length:		feet. 0	<b>.74</b> Mile	es. Hie	storic L	and C	over.		Fc	rest		
2.3 Valley Slope:	14.13			C	urrent l			nd Co			76	5 %
2.4.Channel Length:	4410		<b>.84</b> Mile	78	irrent S							<b>J</b> /0
2.5 Channel Slope:	12.47	%						III Laii				- 4 D 1 -
2.6 Sinuosity:	1.13	_		_	Ripar		mer				_	nt Bank
2.7 Watershed Area:	0	•	re Mile	_	minan				>10		>100	
2.8 Channel Width:	7		feet.		b-dom		than 3	)5 ft ·	0-2		0-25	)
2.9 Valley Width:	_	1	feet.		Grour				352		352	
2.10 Confinement Ratio:	0		<b></b>						No			
2.10 Confinement Type:		owly C	ontine		Claur	Dogud	Chan	(eld):	Juliica	Doto		
2.11 Reference Stream Ty	pe: A				Flow	Regui	auon -	(ola):	NO	Data		
Bedform:				us Us	pe:							
Sub-class Slope:					-	00 000	1 Culva	orto	4		(	%
Bed Material:	Grav	el			Bridge			eris.	1			70
Step 3. Basin Characteristics	<u>s:</u>			5.3	Bank	Armoi ₋eft	ing:	Die	sht.		0.0	
3.1 Alluvial Fan:	No	ne		5.4	ı Chan		raiahta	Rig	Ji it		0.0	
3.2 Grade Control:	No	Data			D		! - 4		Na F	2-1-	0.0	
3.3 Dominant Geologic Ma	t.: Till		97.7	%a.	i			dificat	No [	Jata		
3.3 Sub-dominant Geologic	cal Mat.:	Ice-	Contac eep	t 2 1 5	P 0. FI	ooupia	2111 1010	unicat	14 0		• •	
3.4 Left Valley Side		nely St		6. I E	serms	ana R	oaas	O	na <b>U.U</b>		0.0	):d
3.4 Right Valley Side		nely St		Do	ad:			(	One Si		Both S	sides
3.5 Soils		•	•		ilroad:					ft.		ft.
Hydrologic Group:	D	6	1.5 %							ft. ft.		ft.
Flooding:	None/		00. %		rm:	l Dath						ft.
Water Table Deep:	6.0		3.8 %		proved				0.0	ft. ft. (	٠.	ft.
Water Table Shallow:	2.0		9.2 %		Deve	•		'	0.0		J.U	ft.
Erodibility:		Severe1			Chan					Data		
•	voly	,	70		Mean		_	n:	NO	Data		
7.4 Comments:					Mean						atio:	0.0
Narrow valley, vegetation ha	anging o	ver, cul	vert		Wave					Ra	atio:	0.0
has a bottom.	0 0	•		Step	7. Wi	ndshie	eld Sui	rvey				
nas a solioni.				7.1	Bank	Erosic	n:					
				7.2	Bank	Heigh	t:		Lo	w (<5	ft.)	
					Ice/D	_		otentia		•	•	
			]							l <b>_</b> .	T	
4.1   4.2   4.3   5.1   5	.2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

0

N.S.

0

N.S.

0

N.S.

0

N.S.

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Hollow Brook Reach T4.5S2.01

Topo Maps: ---

Date Last Edited:

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

Unk.

0

N.D.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.D.

0

N.D.

0

N.S.

0

N.S.

0

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Rea	ch an	Impou	ndmer	it? <b>NC</b>	)		Qı	uality (	Control	Statu	s: <b>Un</b>	know	n			
Step 1	l. Read	ch Loc	ation													
	each [			S	tarte h	elow	down	strear	n end	of H6	Cros	ses n	o roac	łe		
	owns:	JUSUII	Juon.		inesbu		aowii.	Sti Cai	ii ciid	01 110,	0103	363 11	o roac	13		
		ream I	atitude		4.31	41 <b>9</b>		Sto	ep 4. L	and C	over -	Read	h Hvdr	ology		
			ongitu						Wate		0101	rtouo	i i i y ai	ology		
	2. Strea								storic L		over.		Fo	rest		
			tream:	1:	360				irrent [			nd Cov			94.7	7 %
			nstrea		070				urrent S						34.1	70
	Gradi				No				Corrie		Jiiiiia	iii Laii	u 00v	O1.		
	alley L				<b>253</b> fe	et. <b>0</b>	. <b>62</b> Mil	00								
	alley S	_				%		1 11	storic L					rest		
	hanne		th:		<b>309</b> fe		<b>.63</b> Mil	<del></del>	urrent							1 %
	hanne					%		Cı	ırrent S	Sub-Do	omina	nt Lan			•	
	inuosit			1	.02			4.3	Ripar R	ian Bu	ıffer		Left	Bank	Righ	t Bank
	/atersh		ea:		0	Squa	re Mile		ominan				>10	00	>100	
2.8 C	hanne	l Width	า:		7	· f	eet.		ıb-dom				26-	50	51-1	00
2.9 V	alley V	Vidth:				f	eet.		ngth w				0		0	
2.10	Confin	ement	Ratio:		0				Grour				No			
2.10	Confin	ement	Type:		Narro	wly Co	onfine	<b>d</b> Step	5. Ins	tream	Chan	nel Mo	odifica			
			tream <sup>-</sup>	Type:	Α				Flow	Regul	ation -	(old):	No	Data		
Be	dform:								pe:							
Su	b-class	s Slope	e:						se:				_			_
Be	d Mate	erial:							2 Bridg			erts:	0		9	6
Step 3.	Basin	Chara	acterist	ics:				5.3	Bank <sub>.</sub>		ring:				0.0	
3.1 A	Iluvial	Fan:			Non	е		_		_eft		Rig	ght			
	rade C		:		No E	-			Chan			•		_	0.0	
			ologic l	Mat.:	Till		100	. %5.5	5 Dredo	ging H	istory:		. No [	Data		
			Geolo					Ste	p 6. Fl	oodpla	ain Mo	dificat	ions			
	eft Val			•	xtreme	elv St		6.1	3erms	and R	oads	U	na <b>U.U</b>		0.0	
	ight Va	•			xtreme	-	-	_				(	One Si		Both S	Sides
3.5 S		a C		-	ALI CIII	ory Ot	ССР		oad:					ft.		ft.
	rologic	Groun	٠.	С		Q	9.6 %		ailroad:					ft.		ft.
	iding:	, Group	<i>J</i> .		one/R			De	erm:					ft.		ft.
	er Tab	do Doc	no:	2.			9.6 %		proved					ft.		ft.
	er Tab		•	2. 1.			9.6 % 9.6 %	0.2	Deve			(	0.0	ft. <b>(</b>	0.0	ft.
	dibility:		allOW.		อ ery Se			0.0	Chan					Data		
	•			V	егу Зе	veres	1.0 /0	0	Mean		-	n:	No	Data		
7.4 Cd	ommer	nts:							Mean					Ra	atio:	0.0
									6 Wave	_				Ra	atio: (	0.0
								Step	7. Wi	ndshie	eld Su	rvey				
								7.1	Bank	Erosio	on:					
								7.2	Bank	Heigh	t:					
									Ice/D	_		otentia	al:			
									1							
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Hogback Brook Reach T5.01

Topo Maps: ---

Date Last Edited:

4.2

0

N.S.

4.1

1

Low

4.3

1

Low

5.1

0

N.S.

5.2

0

Unk.

5.3

0

N.D.

5.4

0

N.S.

5.5

0

N.S.

6.1

0

N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

is Reach an impoundment?	NO	Qual	ity Control Status: <b>U</b>	Inknown		
Step 1. Reach Location						
1.1 Reach Description:	West of 116	:				
1.2 Towns:	Starksboro					
1.3 Downstream Latitude:	44.24		Step 4. Land Cover	· - Reach Hyd	rology	
1.3 Downstream Longitude:			4.1 Watershed	- readility di	rology	
Step 2. Stream Type	10101		Historic Land Cove	r Fe	orest	
2.1 Elevation Upstream:	610		Current Dominant la			4 %
2.1 Elevation Downstream:	415		Current Sub-Domin			7 /0
2.1 Is Gradient Gentle?	No		4.2 Corridor	iani Lana Cov	C1. <b>C1OP</b>	
2.2 Valley Length:		0.66 Miles		F.	1	
2.3 Valley Slope:	5.59 %		Thistoric Land Cove		orest	• 0/
2.4.Channel Length:	<b>3374</b> feet.	0.64 Miles	Current Dominant I			.3 %
2.5 Channel Slope:	<b>5.78</b> %		Current Sub-Domin			
2.6 Sinuosity:	0.97		4.3 Riparian Buffer		t Bank Rig	
2.7 Watershed Area:	<b>2</b> Squ	ıare Miles	Dominant:	>10		
2.8 Channel Width:	19	feet.	Sub-dominant:	0-2		00
2.9 Valley Width:		feet.	Length w/ less than			
2.10 Confinement Ratio:	0		4.4 Ground Water In			
2.10 Confinement Type:		Confined <u>s</u>	Step 5. Instream Cha	annei iviodifica	Data	
2.11 Reference Stream Typ	e: <b>A</b>		5.1 Flow Regulation	1 - (OIA): <b>NO</b>	Data	
Bedform:			Type: Use:			
Sub-class Slope:				lverts: 1	(	%
Bed Material:			<ul><li>5.2 Bridges and Cul</li><li>5.3 Bank Armoring:</li></ul>		0.0	/0
Step 3. Basin Characteristics:	-		Left	Right	0.0	
3.1 Alluvial Fan:	None		5.4 Channel Straigh		0.0	
3.2 Grade Control:	No Data			-	Data	
3.3 Dominant Geologic Mat		54.5 %	Step 6. Floodplain N	Modifications	Data	
3.3 Sub-dominant Geologica			6.1 Berms and Roads	s old <b>0.</b> 0	) ft. <b>0.0</b>	
3.4 Left Valley Side	Extremely S	steep	7. 1 Definis and 1 todas	One S		Sides
3.4 Right Valley Side	Extremely S	Steep	Road:	0110 0	ft.	
3.5 Soils			Railroad:		ft.	ft.
Hydrologic Group:	Not Rated	<b>54.5</b> %	Berm:		ft.	ft.
Flooding:	None/Rare	<b>100.</b> %	Improved Path:		ft.	ft.
Water Table Deep:	6.0	45.5 %	6.2 Development:	0.0	ft. <b>0.0</b>	ft.
Water Table Shallow:	6.0	23.5 %	6.3 Channel Bars:		Data	ft.
Erodibility:	Moderate	<b>45.5</b> %	6.4 Meander Migrat		Data	
7.4 Comments:			6.5 Meander Width:		Ratio:	0.0
			6.6 Wavelength:			0.0
		;	Step 7. Windshield S	urvey	. tatio:	J. <b>J</b>
		-	7.1 Bank Erosion:	<u>-</u> _		
			7.1 Bank Height:			
			7.3 Ice/Debris Jam	Potential <sup>.</sup>		
			7.5 100/200115 0dill			
	0   5 0   5				174 70	T-4-1

6.3

0

N.S.

6.2

0

N.S.

6.4

0

N.S.

6.5

0

N.D.

6.6

0

N.D.

7.1

0

N.S.

7.2

0

N.S.

Total

2

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Hogback Brook Reach T5.02

Topo Maps: ---

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

is reach an impoundment:	110	Quai	ity Control Status: Unkno	own	
Step 1. Reach Location					
1.1 Reach Description:	West of 116	3			
1.2 Towns:	Starksboro				
1.3 Downstream Latitude:	44.24		Step 4. Land Cover - Rea	ach Hydrology	
1.3 Downstream Longitude:			4.1 Watershed		
Step 2. Stream Type			Historic Land Cover:	Forest	
2.1 Elevation Upstream:	614		Current Dominant land C		88.6 %
2.1 Elevation Downstream:	610		Current Sub-Dominant L		
2.1 Is Gradient Gentle?	No		4.2 Corridor		
2.2 Valley Length:	<b>3089</b> feet.	<b>0.59</b> Miles.		Wetland	4
2.3 Valley Slope:	0.13 %		Current Deminent land		
2.4.Channel Length:	<b>4013</b> feet.	<b>0.76</b> Miles			
2.5 Channel Slope:	0.10 %		Current Sub-Dominant L		
2.6 Sinuosity:	1.30		4.3 Riparian Buffer		Right Bank
2.7 Watershed Area:	•	uare Miles	Dominant:	>100	>100
2.8 Channel Width:	19	feet.	Sub-dominant: Length w/ less than 25 ft	51-100	51-100
2.9 Valley Width:	464	feet.	4.4 Ground Water Inputs	-	0
2.10 Confinement Ratio:	25		Step 5. Instream Channel		nτ
2.10 Confinement Type:	Very Broa	ıa <u> </u>	•		
2.11 Reference Stream Typ	e:C		5.1 Flow Regulation - (old	d): No Data	
Bedform:			Type: Use:		
Sub-class Slope:				: <b>0</b>	%
Bed Material:			5.2 Bridges and Culverts	. 0	0.0
Step 3. Basin Characteristics	• • <u>-</u>		5.3 Bank Armoring: Left F	Right	0.0
3.1 Alluvial Fan:	None		5.4 Channel Straightenin		0.0
3.2 Grade Control:	No Data		E E Drodging History	No Data	0.0
3.3 Dominant Geologic Mat	:: Other	<b>93.1</b> %	Step 6. Floodplain Modific		
3.3 Sub-dominant Geologic	al Mat.:	Till	S.1 Berms and Roads		0.0
3.4 Left Valley Side	Extremely \$	Steep <sup>©</sup>	o. i beillis aliu Roaus		<b>0.0</b> Both Sides
3.4 Right Valley Side	Extremely \$	Steep	Road:	ft.	Doill Sides
3.5 Soils	-	-	Railroad:	ft.	ft.
Hydrologic Group:	D	<b>76.9</b> %	Berm:	ft.	ft.
Flooding:	None/Rare	100. %	Improved Path:	ft.	ft.
Water Table Deep:	0.0	70.0 %	6.2 Development:	<b>0.0</b> ft. (	n n ft.
Water Table Shallow:	-1.0	<b>70.0</b> %	6.3 Channel Bars:	No Data	ft.
Erodibility:	slight	<b>6.9</b> %	6.4 Meander Migration:	Avulsion	
7.4 Comments:	•		6.5 Meander Width:	174.0 R	
7.4 Comments.			6.6 Wavelength:	162.0 R	
		,	Step 7. Windshield Survey		au0. <b>0.7</b>
		_	·	<u>-</u>	
			7.1 Bank Erosion:		
			7.2 Bank Height:		
	1 1	1 1	7.3 Ice/Debris Jam Poter	ıtıaı:	

4.2 4.3 5.1 5.2 5.3 5.4 6.1 6.2 6.3 6.4 6.5 7.1 7.2 Total 4.1 5.5 6.6 1 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 3 N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. Unk. N.D. Low Low Low

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Hogback Brook Reach T5.03

Topo Maps: ---

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

is Reach an impoundment?	NO	Qual	ity Control Status: Unknov	wn	
Step 1. Reach Location					
1.1 Reach Description:	West of 116	\$			
1.2 Towns:	Starksboro				
1.3 Downstream Latitude:	44.23		Step 4. Land Cover - Rea	ch Hydrology	
1.3 Downstream Longitude:			4.1 Watershed	<u>.c.r.r.yurology</u>	
Step 2. Stream Type			Historic Land Cover:	Forest	
2.1 Elevation Upstream:	618		Current Dominant land Co		88.3 %
2.1 Elevation Downstream:	614		Current Sub-Dominant La		
2.1 Is Gradient Gentle?	No		4.2 Corridor		OP
2.2 Valley Length:	<b>1444</b> feet.	<b>0.27</b> Miles.		Wetland	J
2.3 Valley Slope:	0.28 %		riistoric Lariu Cover.		-
2.4.Channel Length:	1756 feet.	<b>0.33</b> Miles.	Current Dominant land C		
2.5 Channel Slope:	<b>0.23</b> %		Current Sub-Dominant La		
2.6 Sinuosity:	1.22		4.3 Riparian Buffer		Right Bank
2.7 Watershed Area:	•	ıare Miles	Dominant:	>100	>100
2.8 Channel Width:	15	feet.	Sub-dominant:	51-100	51-100
2.9 Valley Width:	320	feet.	Length w/ less than 25 ft.:	-	0
2.10 Confinement Ratio:	21		4.4 Ground Water Inputs:		nt
2.10 Confinement Type:	Very Broa	d <u> </u>	Step 5. Instream Channel N		
2.11 Reference Stream Typ	e: <b>C</b>		5.1 Flow Regulation - (old	): No Data	
Bedform:			Type:		
Sub-class Slope:			Use:	•	0/
Bed Material:			5.2 Bridges and Culverts:	0	%
Step 3. Basin Characteristics:			5.3 Bank Armoring:	Carlo t	0.0
3.1 Alluvial Fan:	None			ight 	0.0
3.2 Grade Control:	No Data		5.4 Channel Straightening		0.0
3.3 Dominant Geologic Mat	.: Ice-Cont	act 93.3 %	5.5 Dredging History:	No Data	
3.3 Sub-dominant Geologic		1 111	Step 6. Floodplain Modifica		
3.4 Left Valley Side	Extremely S	Steep	6.1 Berms and Roads		0.0
3.4 Right Valley Side	Extremely S	•	Dood		Both Sides
3.5 Soils			Road:	ft.	ft.
Hydrologic Group:	С	93.3 %	Railroad:	ft.	ft.
Flooding:	None/Rare		Berm:	ft.	ft.
Water Table Deep:	1.0	93.3 %	Improved Path:	ft.	ft.
Water Table Shallow:	0.0	93.3 %	6.2 Development:	0.0 ft. (	).0 ft.
Erodibility:	slight	6.7 %	6.3 Channel Bars:	No Data	
•	Silgin	J.1 /0	6.4 Meander Migration:	Avulsion	
7.4 Comments:			6.5 Meander Width:	111.0 Ra	
		,	6.6 Wavelength:	<b>99.0</b> Ra	atio: <b>6.5</b>
		3	Step 7. Windshield Survey		
			7.1 Bank Erosion:		
			7.2 Bank Height:		
			7.3 Ice/Debris Jam Potent	tial:	

4.2 4.3 5.1 5.2 5.3 5.4 6.1 6.2 6.4 6.5 7.1 7.2 Total 4.1 5.5 6.3 6.6 1 1 0 0 0 0 0 1 0 1 0 4 0 0 0 0 0 N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. Low N.S. Unk. N.D. Low Low Low

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Hogback Brook Reach T5.04

Topo Maps: ---

Date Last Edited:

4.2

1

Low

4.1

1

Low

4.3

0

N.S.

5.1

0

N.S.

5.2

0

Unk.

5.3

0

N.D.

5.4

1

Low

6.1

0

Unk.

5.5

0

N.S.

6.2

0

N.S.

6.3

0

N.S.

6.4

0

N.S.

6.5

0

N.S.

7.1

0

N.S.

6.6

1

Low

7.2

0

N.S.

Total

4

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Reach an impoundment?	NO	Quali	ty Control Status: Unknow	wn	
Step 1. Reach Location					
1.1 Reach Description:	West of 116				
1.2 Towns:	Starksboro				
1.3 Downstream Latitude:	44.22		Step 4. Land Cover - Rea	ch Hydrology	
1.3 Downstream Longitude:			4.1 Watershed	<u>-</u>	
Step 2. Stream Type			Historic Land Cover:	Forest	
2.1 Elevation Upstream:	638		Current Dominant land Co		89.6 %
2.1 Elevation Downstream:	618		Current Sub-Dominant La		
2.1 Is Gradient Gentle?	No		4.2 Corridor		- 1-
2.2 Valley Length:	<b>4190</b> feet. <b>0</b> .	.79 Miles.		Wetland	ı
2.3 Valley Slope:	0.48 %				
2.4.Channel Length:		<b>.90</b> Miles.	Current Cub Deminant land C		43.0 %
2.5 Channel Slope:	0.42 %		Current Sub-Dominant La		
2.6 Sinuosity:	1.13		4.3 Riparian Buffer		Right Bank
2.7 Watershed Area:	•	re Miles	Dominant:	>100	>100
2.8 Channel Width:		eet.	Sub-dominant: Length w/ less than 25 ft.:	51-100	51-100
2.9 Valley Width:		eet.	_	-	0
2.10 Confinement Ratio:	43		4.4 Ground Water Inputs:		it
2.10 Confinement Type:	Very Broad	2	Step 5. Instream Channel N		
2.11 Reference Stream Typ	e: C		5.1 Flow Regulation - (old	): No Data	
Bedform:			Type: Use:		
Sub-class Slope:				1	%
Bed Material:			5.2 Bridges and Culverts:	<del>-</del>	0.0
Step 3. Basin Characteristics	• • <u>-</u>		5.3 Bank Armoring: Left R	ight	0.0
3.1 Alluvial Fan:	None		5.4 Channel Straightening		18 %
3.2 Grade Control:	No Data				10 /0
3.3 Dominant Geologic Mat	:: Ice-Contac	ct 96.2 %	5.5 Dredging History: Step 6. Floodplain Modification	ations	
3.3 Sub-dominant Geologic	al Mat.:	Till	.1 Berms and Roads		0.0
3.4 Left Valley Side	<b>Extremely Ste</b>	eep o	. I beillis allu Roaus		<b>0.0</b> Both Sides
3.4 Right Valley Side	<b>Extremely Ste</b>	еер	Road:	ft.	Juli Sides
3.5 Soils	-	-	Railroad:	ft.	ft.
Hydrologic Group:	C 9	6.2 %	Berm:	ft.	ft.
Flooding:	None/Rare 1		Improved Path:	ft.	ft.
Water Table Deep:		6.2 %	6.2 Development:	0.0 ft. 0	0 ft.
Water Table Shallow:		6.2 %	6.3 Channel Bars:	No Data	ft.
Erodibility:		3.8 %	6.4 Meander Migration:	No Data	
7.4 Comments:	_		6.5 Meander Width:	<b>98.0</b> Ra	atio: <b>6.6</b>
7.4 Comments.			6.6 Wavelength:	90.0 Ra	
		c	Step 7. Windshield Survey	30.0 Ra	uo. <b>0.1</b>
		_	7.1 Bank Erosion:		
			7.1 Bank Erosion. 7.2 Bank Height:		
			•	ial:	
			7.3 Ice/Debris Jam Potent	lai.	

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Hogback Brook Reach T5.05

Topo Maps: ---

Date Last Edited:

4.2

0

N.S.

4.1

1

Low

4.3

0

N.S.

5.1

0

N.S.

5.2

0

Unk.

5.3

0

N.S.

5.4

0

N.S.

5.5

0

N.S.

6.1

0

N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

is Reach an impoundment?	NO	Qualit	y Control S	Status	: Unkn	own		
Step 1. Reach Location								
1.1 Reach Description:	West of 116							
1.2 Towns:	Starksboro							
1.3 Downstream Latitude:	44.21		Step 4. La	and Co	wer - Re	ach Hyd	rology	
1.3 Downstream Longitude:			4.1 Waters		7701 110	aciiiiya	lology	
Step 2. Stream Type	-13.01		Historic La		ovor:	E.	orest	
2.1 Elevation Upstream:	870		Current D					2 2 0/
2.1 Elevation Downstream:	638		Current S					2.2 %
2.1 Is Gradient Gentle?	No				IIIIIIaiili	Land Cov	ei. Ciop	
2.2 Valley Length:		11100	4.2 Corrido	-		_		
2.3 Valley Slope:	<b>5.49</b> %	willes.	Historic La				orest	
2.4.Channel Length:		Miles.	Current D					<b>60.6</b> %
2.5 Channel Slope:	3.62 %		Current Si	ub-Do	minant l	Land Cov	⁄er: <b>Wetla</b>	nd
2.6 Sinuosity:	1.52		4.3 Riparia	an Buf	fer	Left	t Bank R	ight Bank
2.7 Watershed Area:	<b>0</b> Square M	/liles	<b>Dominant</b> :	:		>10	00 >1	100
2.8 Channel Width:	9 feet.	_	Sub-domi				<b>-100 5</b> 1	1-100
2.9 Valley Width:	<b>266</b> feet.		Length w/			_	0	
2.10 Confinement Ratio:	28		4.4 Ground				-	
2.10 Confinement Type:	Very Broad	S	tep 5. Inst	ream (	Channe	I Modifica	ations	
2.11 Reference Stream Typ	e: A		5.1 Flow R	Regula	tion - (o	ld):		
Bedform:	Step-Pool		Type:		No	one		
Sub-class Slope:			Use:					
Bed Material:	Gravel	:	5.2 Bridge	s and	Culverts	s: <b>2</b>		%
Step 3. Basin Characteristics:		:	5.3 Bank <i>P</i>		ng:		0.0	)
3.1 Alluvial Fan:	None			eft		Right		_
3.2 Grade Control:	Ledge		5.4 Chann		-	-	0.0	)
3.3 Dominant Geologic Mat	: Other 8	2.5%	5.5 Dredgi	ing His	story:	No	Data	
3.3 Sub-dominant Geologic	al Mat.: Ice-Con	tact =	5.5 Dredgi Step 6. Flo	odplai	in Modif	ications		
3.4 Left Valley Side	Extremely Steep		.1 Berms a	and Ro	ads	010 <b>0.</b> 0		
3.4 Right Valley Side	Extremely Steep		_			One S		h Sides
3.5 Soils	Extremely Steep		Road:				ft.	ft.
Hydrologic Group:	Not Rated 82.5	0/	Railroad:				ft.	ft.
	None/Rare 100.	07	Berm:				ft.	ft.
Flooding:		07	Improved				ft.	ft.
Water Table Deep:		٠,	6.2 Develo	•		0.0	ft. <b>0.0</b>	ft.
Water Table Shallow:	2.0 7.8	0/	6.3 Chann			Poi		
Erodibility:	slight 11.6	'	6.4 Meand	•	-	Nor	ne	
7.4 Comments:			6.5 Meand				Ratio	: <b>0.0</b>
Past logging practices, atv tri	il had gully potentia		6.6 Wavel				Ratio	: <b>0.0</b>
Updated using Phase 2 data		_	tep 7. Win	dshiel	d Surve	<u>y</u>		
7/22/04.	511 10/02/01 and 0		7.1 Bank E	Erosio	n:	No	ne	
1/22/04.			7.2 Bank H	Height	:			
			7.3 Ice/De	_		ntial: <b>Μι</b>	ıltiple	
11 10 10 51 5	0 50 54 5		4 00		0.4			

6.3

0

N.S.

6.2

0

N.S.

6.4

0

N.S.

6.5

0

N.D.

6.6

0

N.D.

7.1

0

N.S.

7.2

1

Low

Total

2

1

Low

1

Low

1

Low

0

N.S.

1

Low

0

N.S.

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

**High Knob Brook** T6.01 Reach Stream Name:

413 Topo Maps:

Date Last Edited: Mon, December 08, 2008

Lewis Creek, Little Otter, Lake Champlain Watershed:

Sub-watershed: **Lewis Creek** 

Is Reach an Impoundment? No Quality Control Status: Unknown

0

N.S.

0

N.S.

0

Unk.

1

Low

1

Low

1

Low

0

N/A

0

N/A

0

N.S.

2

High

9

Is Reach an Impoundment?	NO		Qι	ıality C	Control	Statu	s: <b>Un</b>	<u>know</u> ı	n			
Step 1. Reach Location												
1.1 Reach Description:	Flows p	act E	roodor	n Aor	oc MU	D and	arov	al mit	orocc	oc Bo		16
•	Starksb		eeuoi	II ACI	62 MILI	r anu	grave	∌ı pıι,	C1055	es Ru	ule i	10,
1.2 Towns:	44.22	010		C+c	on 4 L	and C	ovor	Doool	م لايرمار	·ology		
1.3 Downstream Latitude:					ep 4. L		over -	Readi	тпуш	ology		
1.3 Downstream Longitude:	-73.00				Wate				_			
Step 2. Stream Type					storic L					rest		
2.1 Elevation Upstream:	755				irrent [						84.6	<b>5</b> %
2.1 Elevation Downstream:	580				irrent S		omina	nt Lan	d Cov	er: <b>Ur</b> l	ban	
2.1 Is Gradient Gentle?	No			4.2	Corrid	dor						
2.2 Valley Length:	5000 fe	et. <b>0</b> .	. <b>95</b> Mile	es. His	storic L	and C	over:		Fo	rest		
2.3 Valley Slope:	3.30	70		$\sim$	urrent I			nd Cov	ver: <b>Fc</b>	rest	58	1 %
2.4.Channel Length:	<b>5649</b> fe		<b>.07</b> Mile	<u> </u>	irrent S							1 /0
2.5 Channel Slope:		%						III Laii				4 Daule
2.6 Sinuosity:	1.13	_		_	Ripari		πer				_	t Bank
2.7 Watershed Area:	5	•	re Mile	_	minan				>10	_	>100	
2.8 Channel Width:	25	f	eet.		b-dom		46	л- <b>с</b> г.	No		None	е
2.9 Valley Width:	155	f	eet.		ngth w				499		0	
2.10 Confinement Ratio:	6				Grour				No	-		
2.10 Confinement Type:	Broad				5. Ins					tions		
2.11 Reference Stream Typ	e: <b>C</b>			5.1	Flow	Regula	ation -					
Bedform:	Riffle-	Pool			pe:			None				
Sub-class Slope:	b			Us	e:							
Bed Material:	Grave	I		5.2	Bridge	es and	d Culve	erts:	2		<b>5</b> %	6
Step 3. Basin Characteristics				5.3	Bank		_				1 %	
3.1 Alluvial Fan:	Non	<b>6</b>				_eft _ <b>5</b>			ht <b>0.0</b>			
3.2 Grade Control:	l ed	ne			Chan		_	_	0.0		0.0	
3.3 Dominant Geologic Mat	· lca-C	ontar Contar	+ 73 ∩	<sub>0%</sub> 5.5	Dredg	ging Hi	istory:		Non	е		
	ICC-C	Jonia	,, 73.0 Till	′ ′°Ste	Dredo p 6. Flo	oodpla	ain Mo	dificat	ions			
3.3 Sub-dominant Geologic				6.1 E	Berms	and R	oads	0	ld <b>0.0</b>	ft.	0.0	
3.4 Left Valley Side	Extreme	-	-						One Si		Both S	Sides
3.4 Right Valley Side	Extrem	ely Ste	eep	Ro	ad:			(	0.0	ft. <b>(</b>	0.0	£.
3.5 Soils				Ra	ilroad:				0.0	ft. C		ft.
Hydrologic Group:	Α		9.3 %	Ве	rm:				0.0	ft. C		ft.
Flooding:	None/R	are 1	<b>00</b> . %		proved	Path:			0.0	ft. <b>(</b>		ft.
Water Table Deep:	6.0	7	6.7 %		Devel				484.7			ft.
Water Table Shallow:	6.0	7	6.7 %		Chan					tiple		ft.
Erodibility:	Very Se	vere9	4.6 %		Mean			n·		od Ch	ιι <del>ί</del> α	
7.4 Comments:	•				Mean		_			NA Ra		0.0
					Wave							
Presence of channel-spanning	ng bedroo	ck (3.2	)			_		3/0)/	ľ	<b>I/A</b> Ra	สแบ:	0.0
suggested by DiPietro, 1983	. Large so	edimei	nt		7. Wii			vey	-		•.	
deposit (mid-channel bar) im	•				Bank					19.40	lt.	
of Freedom Acres Road culv		•	- <del> • •</del>		Bank	_				91 ft.		
or recubilit Acres Road culv	011 01033	iiig is		7.3	Ice/De	ebris J	am Po	otentia	ıl: <b>M</b> u	Itiple		
44 40 40 54 5	0 50			0.4		0.0	0.4	0.5		7.4	7.0	
4.1   4.2   4.3   5.1   5.	2   5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

1

Low

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

### **Phase 1 - Reach Summary Report**

1

Basin: Otter, Little Otter, Lewis

Stream Name: High Knob Brook Reach T6.02

Topo Maps: 413

Date Last Edited: Mon, December 08, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

15 INCACII	i ali illipuui	iumem	: 140			Qt	Jailty C	ontroi	Statu	<u>s: Un</u>	Know	n			
Step 1. F	Reach Loca	ation													
	ch Descrip		R	emote	fore	sted r	each i	pstre	am of	Free	dom A	cres l	ИНР		
1.2 Tow	•	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		tarksb		otou i	ouon (	pono	u 0.		20111 7	0.001	•		
	vnstream L	atitude		4.22			Ste	ep 4. L	and C	over -	Reacl	h Hydr	ology		
	vnstream L			73.05				Wate					- 37		
	Stream Typ							storic L		over.		Fo	rest		
	ation Upst		8	05				rrent [			nd Cov			85.	9 %
	vation Dow			55				rrent S				_			<b>0</b> 70
_	radient Ge		1	No			42	Corrid	dor			u 00.	o <b>o.</b> .	Jui	
	ey Length:		1	<b>700</b> fe	et. <b>0</b> .	. <b>32</b> Mil	es. ப:	storic L	ond C	`ovor		Fa	rest		
	ey Slope:		2	2.94	%									77	• 0/
	nnel Lengt	h:	1	<b>854</b> fe	et. <b>0</b>	.35 Mil	<u> </u>	ırrent l						//	.2 %
2.5 Cha	annel Slope	<b>:</b>	2	2.70	%			rrent S			nt Lan				
2.6 Sinu	uosity:		1	.09			_	Ripar		ffer			Bank		ht Bank
	tershed Are			5	•	re Mile		minan				>10		>10	
	annel Width	1:	2	26	f	eet.		b-dom		4h a n C	)E 44 .	No	ne	Non	e
	ey Width:				f	eet.		ngth w				0		0	
	onfinement			0				Grour				No	_		
	onfinement			Semi-	confin	ed		5. Ins					tions		
	eference St	ream T						Flow	Regula	ation -					
Bedfo	_			Step-F	ool			pe:			None	!			
Sub-	class Slope	<del>)</del> :		None			Us	-				_		•	0.4
Bed I	Material:		(	Cobbl	е			Bridge			erts:	0			%
Step 3. Ba	asin Chara	cteristi	cs:				5.3	Bank			Б.			0.0	
3.1 Allu	vial Fan:			Non	е		_ A		_eft <b>0</b> .			ht <b>0.0</b>		0.0	
	de Control			Mult	iple			Chan				0.0		0.0	
	minant Geo		1at.:	Till	•	100	. 5.5	Dredo p 6. Flo	Jing Hi	ISTORY:	-1:¢: 4	Non	е		
	-dominant	_		Mat.:											
	Valley Sid		-	xtreme	elv Sto	een	6.1 E	Berms	and R	oads		ld <b>0.0</b>		0.0	
	ht Valley Si			teep	oly Ot	ООР	_					One Si			Sides
3.5 Soil			•	ССР				ad:				0.0	ft. C		ft.
	ogic Group	٠.	D		1	00. %		ilroad:				0.0	ft. C		ft.
Floodii		<b>,</b> .		one/R		00. % 00. %	De	rm:				0.0	ft. C		ft.
	Table Dee	n:	6.			00. % 00. %		proved				0.0	ft. C		ft.
		•				00. % 00. %	0.2	Devel	•			0.0	ft. <b>(</b>	0.0	ft.
	Table Sha	illow:	6.				0.0	Chan				No	Data		
Erodib	onity.		V	ery Se	verei	<b>00.</b> %	0. 1	Mean		_	n:				
7.4 Com	iments:							Mean					I/A Ra		0.0
Presence	e of channe	el-snan	nina	hedroc	k (3.2	`	6.6	Wave	length	1:		N	<b>I/A</b> Ra	atio:	0.0
	ed by DiPie		_	- Juli 00	\0.2	,	Step	7. Wi	ndshie	ld Su	rvey				
suggeste	a by DIFIE	110, 190	JJ.				7.1	Bank	Erosic	n:		(	).00 ft		
							7.2	Bank	Heiah	t:			00 ft.		
								Ice/D	_		otentia				
							1.0		20	···					
4.1	4.2 4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

0

N.S.

0

Unk.

0

N.S.

0

N.S.

0

N/A

0

N.S.

0

N.S.

0

N/A

0

N.S.

1

Low

1

Low

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

Unk.

0

N.S.

0

N.S.

# **Phase 1 - Reach Summary Report**

2

High

0

N.S.

1

Low

0

N.S.

0

N.S.

5

Basin: Otter, Little Otter, Lewis

Stream Name: High Knob Brook Reach T6.03

Topo Maps: 413

Date Last Edited: Mon, December 08, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

	Is Rea	ch an	Impou	ndmen	it? No	)		Qι	ality (	Control	Statu	s: <b>Un</b>	know	n				
	Step 1	l. Read	ch Loc	ation														
		each [			FI	ows to	o sou	th betv	ween	Baldw	in Poi	nd on	the w	est ar	nd Hig	jh Kno	ob on	
		owns:	•			arksb												
	1.3 D	ownsti	ream L	.atitude	e: <b>4</b>	4.23			Ste	ep 4. L	and C	over -	Reach	า Hydr	ology			
				.ongitu	de: <b>-</b> 7	73.05			4.1	Wate	rshed							
	Step 2	2. Strea	am Typ	<u>e</u>					His	storic L	and C	over:		Fo	rest			
		levatio				35			Cι	ırrent [	Domina	ant lar	nd Cov	er: Fc	rest	86.0	) %	
				nstrea		05			Cι	irrent S	Sub-Do	omina	nt Lan	d Cov	er: <b>Ur</b> l	ban		
		Gradi		entle?		No.			4.2	Corrid	dor							
		alley L				<b>984</b> fe	et. <b>0</b>	<b>.57</b> Mile	es. His	storic L	and C	over:		Fo	rest			
		alley S					, 0		$\sim$	urrent l	Domin	ant la	nd Cov	ver: <b>Fc</b>	rest	40.	3 %	
		hanne				<b>438</b> fe		<b>.65</b> Mile	_<	irrent S							,,	
		hanne		<del>)</del> :			%			Ripar						•	ıt Bank	
		inuosit /atersh			1	.15 5	Saus	re Mile	_	minan				>10		>100		
		hanne			•	26	•	eet.	_	b-dom				Noi	-	51-1		
		alley V		1.		579		eet.		ngth w		than 2	25 ft.:	0		116		
				Ratio:		22		eet.	4.4	Grour	nd Wa	ter Inp	outs:	Mir	nimal			
		Confin				Very E	Broad		Step	5. Ins	tream	Chan	nel Mo	odifica	tions			
				ream -					5.1	Flow	Regul	ation -	(old):					
		dform:				Riffle-	Pool		Ty	pe:			None	!				
	Su	b-class	s Slope	e:	ı	None			Ús									
		d Mate	•			Grave	1		5.2	Bridge	es and	d Culv	erts:	0		0 %	6	
S	Step 3.			cterist			-		5.3	Bank						1 %		
-		Iluvial				Non	e				_eft <b>6</b> 2			ht <b>0.0</b>				
		rade C				l edd	ne er			Chan		_	_	0.0		0.0		
				ologic N	Mat.:	Ice-C	Contac	ct 49.7	, <sub>%</sub> 5.5	Dredo	ging H	istory:		Non	е			
				Geolo		Mat ·	Al	ct 49.7 Iuvial	Ste	p 6. Fl	oodpla	ain Mo	dificat	ions				
		eft Vall			_	ktreme			6.1 E	Berms	and R	oads	0	ıa <b>0.0</b>		0.0		
		ight Va	-			ktreme	-	-	_					One Si		Both S	Sides	
	3.5 S					~ CI OIII	ory Ot	ССР		ad:				0.0	ft. C		ft.	
		rologic	Grour	٠.	В		3	5.8 %		ilroad:				0.0	ft. <b>(</b>		ft.	
		ding:	Cioup			one/R		8.6 %	De	rm:	l Dath			0.0	ft. <b>(</b>		ft.	
		er Tab	le Dec	n.	6.	_		4.3 %		proved				0.0	ft. <b>(</b>		ft.	
		ter Tab		•	0.	•		4.9 %		Devel			,	0.0	ft. (	J.U	ft.	
		dibility:		anow.		o odera		6.9 %		Chan					Data			
		•				ouo.u		70	0.4	Mean		_	n:		tiple			
	7.4 Cc									Mean					2.0 Ra		2.0	
	Reach	locate	d with	in the	Source	e Prote	ection	Area		Wave	_		0.400.4	16	<b>2.0</b> Ra	atio:	<b>b.</b> 2	
	for the	spring	water	sourc	e supp	olying	the			7. Wi			vey		-4 00	•.		
	Starks	boro V	'illage '	Water	Coop.	="				Bank					71.60	rt.		
			J		•					Bank	_			_	40 ft.			
									7.3	Ice/D	ebris J	am P	otentia	ii: No	Data			1
	4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total	

1

Low

2

High

1

Low

0

N.S.

1

Low

1

Low

2

High

0

N.S.

2

High

1

Low

0

N.S.

### **Phase 1 - Reach Summary Report**

2

High

2

High

0

N.S.

0

N.S.

1

Low

16

Basin: Otter, Little Otter, Lewis

Stream Name: High Knob Brook Reach T6.04

Topo Maps: 413

Date Last Edited: Mon, December 08, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment?	NO		Qι	ıality C	Control	Statu	s: <b>Un</b>	know	n			
Step 1. Reach Location												
1.1 Reach Description:	Along s	outho	act ci	do Bio	المال	w Dd	croc	cina E	2rown	шін в	) <b>4</b>	
•	Starksb		ası sı	ue big	Hone	W Ku	, cros	siliy E	SIOWII	пшк	\u	
1.2 Towns:	44.23	010		Sto	n 4 L	and C	ovor	Doool	. Uvdr	ology		
1.3 Downstream Latitude:					p 4. L		ovei -	Readi	т пуш	ology		
1.3 Downstream Longitude:	-73.05				Wate				_	_		
Step 2. Stream Type	000				storic L					rest		
2.1 Elevation Upstream:	860				rrent [						84.8	8 %
2.1 Elevation Downstream:	835				rrent S		omina	nt Lan	d Cov	er: <b>Ur</b> l	ban	
2.1 Is Gradient Gentle?	No		4014	4.2	Corrid	dor						
2.2 Valley Length:	<b>2535</b> fe	et. <b>0</b> .	.48Mile	<sup>es.</sup> His	storic L	and C	over:		Fo	rest		
2.3 Valley Slope:	0.55	/0		$\sim$	ırrent l			nd Cov	/er·Ur	han	33.0	<b>o</b> %
2.4.Channel Length:	<b>2907</b> fe		<b>.55</b> Mil	14	rrent S							,0
2.5 Channel Slope:		%						iii Laii				+ Doole
2.6 Sinuosity:	1.15	•		_	Ripari		nei				_	t Bank
2.7 Watershed Area:	3	•	re Mile	U	minan				>10	_	51-10	
2.8 Channel Width:	22		eet.		b-dom		than G	05 f+ ·	Nor		None	9
2.9 Valley Width:	1,300	f	eet.		ngth w				359		0	
2.10 Confinement Ratio:	59				Grour				No	-		
2.10 Confinement Type:	Very E	Broad			5. Ins					tions		
2.11 Reference Stream Typ		_			Flow	Regula	ation -					
Bedform:	Riffle-	Pool		Tyl				None				
Sub-class Slope:	None			Us							_	
Bed Material:	Grave	I			Bridge			erts:	2		<b>5</b> %	6
Step 3. Basin Characteristics:				5.3	Bank		_				9 %	
3.1 Alluvial Fan:	Non	_				_eft_ <b>1</b> ′			ht <b>150</b>			
3.2 Grade Control:	Non	-			Chan		_	_	157	5	<b>54</b> %	
	· lco-C	`onta	of 83 3	<sub>0/</sub> 5.5	Dredo	ging Hi	istory:		Non	е		
3.3 Dominant Geologic Mat	10 <del>0</del> -0	Ontal A I	ct 83.2 Iuvial	<sup>∵ ∕⁰</sup> Ste <sub>l</sub>	o 6. Flo	oodpla	ain Mo	dificat	ions			
3.3 Sub-dominant Geologic		AI	iuviai	6.1 E	Berms	and R	oads	0	ld <b>94</b> 4	l ft.	32 %	
3.4 Left Valley Side	Flat								One Si		Both S	ides
3.4 Right Valley Side	Extreme	ely Sto	eep	Ro	ad:				199	ft. <b>7</b>	<b>7</b> 45	٠.
3.5 Soils				Ra	ilroad:				0.0	ft. C		ft.
Hydrologic Group:	Α	8	<b>3.2</b> %		rm:				0.0	ft. C		ft.
Flooding:	None/R	are 8	4.2 %		proved	l Path:			0.0	ft. C		ft.
Water Table Deep:	6.0	8	4.2 %		Devel				156	ft 3		ft.
Water Table Shallow:	6.0	8	3.2 %		Chan	•				Data	_	ft.
Erodibility:	Severe		1.1 %		Mean			n·	140 1	Jala		
•				0.4	Mean		_	11.	~	0.0	.4!	4.0
7.4 Comments:										2.0 Ra		1.0
Reach located within the Sou	irce Prote	ection	Area		Wave	_			2	<b>2.0</b> Ra	atio: '	1.0
for the spring water source s	upplyina	the			7. Wii			vey				
Starksboro Village Water Co					Bank					3.21 f	t.	
Claritoporo vinage vvaler co	۵۲.			7.2	Bank	Heigh	t:		2.	36 ft.		
				7.3	Ice/De	ebris J	am Po	otentia	ıl: <b>Mu</b>	ltiple		
4.1   4.2   4.3   5.1   5.	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

1

Low

2

High

0

N.S.

0

N.S.

0

N.S.

1

Low

0

N.S.

0

N.S.

1

Low

1

Low

1

Low

### **Phase 1 - Reach Summary Report**

1

Low

1

Low

1

Low

0

N.S.

1

Low

11

Basin: Otter, Little Otter, Lewis

Stream Name: High Knob Brook Reach T6.05

Topo Maps: 413

Date Last Edited: Mon, December 08, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

io readir air impoditament.			Qu	anty C	OHUO	Statu	s. UII	KIIOWI				
Step 1. Reach Location												
1.1 Reach Description:	Flows s	outh-	south	vest a	lona l	3ia Ha	ollow	Rd: er	nds iu	st ups	strean	n of
1.2 Towns:	Starksb					9			,	u.p.		
1.3 Downstream Latitude:	44.24			Ste	p 4. L	and C	over -	Reach	n Hydr	ology		
1.3 Downstream Longitude:	-73.04				Wate							
Step 2. Stream Type				His	storic L	and C	over:		Fo	rest		
2.1 Elevation Upstream:	935				rrent [			nd Cov			86.1	l %
2.1 Elevation Downstream:	860				rrent S				_			
2.1 Is Gradient Gentle?	No				Corrid							
2.2 Valley Length:	<b>5670</b> fe		. <b>07</b> Mile		storic L		OVET.		Fo	rest		
2.3 Valley Slope:	1.32			$\sim$	irrent l			nd Cov			52	2 %
2.4.Channel Length:	<b>6236</b> fe		<b>.18</b> Mile	76	rrent S							<b>2</b> /0
2.5 Channel Slope:		%						III Laii				4 Danle
2.6 Sinuosity:	1.10	_		_	Ripar		пеr				_	t Bank
2.7 Watershed Area:	3		re Mile	_	minan				>10		>100	
2.8 Channel Width:	21		eet.		b-dom ngth w		than 2	95 ft ·	Noi		None	9
2.9 Valley Width:	168	f	eet.		Grour				110	nimal	170	
2.10 Confinement Ratio:	8				5. Ins							
2.10 Confinement Type:	Broad				Flow					110115		
2.11 Reference Stream Typ	Riffle-	Dool				Regui	auon -	None				
Bedform:		Pool		Ty <sub>l</sub> Us				NOHE				
Sub-class Slope:	None	_			e. Bridge	ac and	l Culv	orte:	2		<b>1</b> %	<b>/</b> _
Bed Material:	Grave	ı			Bank			GIIS.	_		3%	O
Step 3. Basin Characteristics:	_			5.5		_eft <b>1</b> ;	_	Ric	ht <b>59</b>		J /0	
3.1 Alluvial Fan:	Non	_		5 4	Chan				452		7 %	
3.2 Grade Control:	Led	ge		5.5	Dredo	nina Hi	istory:	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			. ,0	
3.3 Dominant Geologic Mat	:: Ice-C	Contac	et 38.6 Till	%Stel	26 Fl	ondola	ain Mo	dificat	ions	C		
3.3 Sub-dominant Geologic	al Mat.:		Till	6 1 5	Berms	and D	oods	amoat	ld <b>80</b> 8	. 4	12 %	
3.4 Left Valley Side	Extreme			0. I L	EIIIIS	anu n	uaus	U	One Si		Both S	
3.4 Right Valley Side	Very St	eep		Ro	ad:				496	ft. 3		
3.5 Soils					ilroad:				).O	ft. C		ft.
Hydrologic Group:	Α	3	8.6 %		rm:				0.0	ft. C		ft.
Flooding:	None/R	are 7	7.1 %		proved	l Path			0.0	ft. C		ft.
Water Table Deep:	6.0	7	7.1 %		Devel				376.1	ft. C		ft.
Water Table Shallow:	6.0	3	8.8 %		Chan	•		`		tiple		ft.
Erodibility:	Severe	7	4.2 %		Mean			n·		tiple		
7.4 Comments:					Mean		_	• • •		<b>3.0</b> Ra	atio:	3.4
					Wave					0.0 Ra		
In the upstream half of the re				Sten	7. Wi	_		rvev	50	0.0 1\2	atio. i	4.1
cleared in the corridor for pas	sture or c	ultivat	ed use					VOy	40	06.40	£1	
in 1942 aerial photographs.	At that tir	ne, ch	annel		Bank					36.10 t	ιτ.	
was apparently straightened	and push	ned ald	ong		Bank	_		. 4 4!		79 ft.		
				7.3	Ice/D	edris J	am Po	otentia	ii: Cu	ivert	ı	
4.1   4.2   4.3   5.1   5.	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

4.2

2

High

4.3

2

High

4.1

1

Low

5.1

1

Low

5.2

1

Low

5.3

0

N.S.

5.4

1

Low

5.5

0

N.S.

6.1

2

High

6.2

1

Low

6.3

0

N.S.

6.4

0

N.S.

### **Phase 1 - Reach Summary Report**

6.5

0

N/A

6.6

0

N/A

7.1

0

N.S.

7.2

1

Low

Total

12

Basin: Otter, Little Otter, Lewis

Stream Name: High Knob Brook Reach T6.06

Topo Maps: 414

Date Last Edited: Thu, January 08, 2009

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is iteach an impoundment:	110		Qua	IIIy U	ontroi	Statu	s: Un	Know	n			
Step 1. Reach Location												
1.1 Reach Description:	From up	stream	exter	nt of t	tributa	arv ne	ar dr	ainag	e divid	le wit	h Hol	low
1.2 Towns:	Starksb		OALOI			u. y	Jai ai	amag	o anvic			
1.3 Downstream Latitude:	44.25			Ste	o 4. La	and C	over -	Reacl	h Hydr	ology		
1.3 Downstream Longitude:	-73.03					rshed						
Step 2. Stream Type				Hist	toric L	and C	over:		Fo	rest		
2.1 Elevation Upstream:	1060							nd Cov	er: Fc		83.	4 %
2.1 Elevation Downstream:	935								d Cov			
2.1 Is Gradient Gentle?	No			42	Corric	lor					•	
2.2 Valley Length:	7650 fee	et. <b>1.4</b> :	<b>5</b> Miles	. Hie	toric I	and C	over.		Fo	rest		
2.3 Valley Slope:	1.05	70		$\sim$				nd Cov	ver: <b>Fc</b>		36	8 %
2.4.Channel Length:	<b>8482</b> fee		<b>1</b> Miles						d Cov			0 /0
2.5 Channel Slope:		%						iii Laii				at Book
2.6 Sinuosity:	1.11	0	N 4:1		ninan	an Bu ⊷	iiei		>10		<b>51-1</b>	nt Bank
2.7 Watershed Area:		Square				i. inant:			No:		26-5	
2.8 Channel Width:	16	fee				/ less	than 2	5 ft.:	277		20-3 2783	
2.9 Valley Width: 2.10 Confinement Ratio:	0	fee	et.					uts:		ง undar		,
2.10 Confinement Type:		onfine	4						odifica			
2.11 Reference Stream Type		, OIIIIII <del>C</del>	•					(old):	<u> </u>			
Bedform:	Riffle-F	Pool		Тур		toguit	211011		l Run	of Riv	/er	
Sub-class Slope:	None	001		Use					eation			
Bed Material:	Gravel					es and	Culv		4		12	%
Step 3. Basin Characteristics:					_	Armor			-		0.0	,
	•	_				_eft <b>0</b> .	_	Rig	ht <b>0.0</b>			
3.1 Alluvial Fan:	None			5.4	Chanr	nel Str	aighte	ening:	630		7 %	
3.2 Grade Control:	None	<b>;</b>	04 E 0	, 5.5	Dredg	jing Hi	istory:		Non	е		
3.3 Dominant Geologic Mat		laa Ca	91.5 %	<sup>⁰</sup> Step	6. Flo	oodpla	ain Mo	dificat	ions			
3.3 Sub-dominant Geologica		ice-co	maci	6.1 B	erms	and R	oads		ld <b>5</b> 99	<b>94</b> ft.	70 %	)
3.4 Left Valley Side	Extreme	,							One Si		Both S	
3.4 Right Valley Side	Extreme	ely Stee	р	Roa	ad:				5994	ft. <b>(</b>	0.0	ft.
3.5 Soils	•		4 0/	Rai	lroad:			(	0.0	ft. C	0.0	ft.
Hydrologic Group:	C		4 %	Ber	m:			(	0.0	ft. <b>(</b>	0.0	ft.
Flooding:	None/Ra			Imp	roved	Path:		(	0.0	ft. <b>(</b>	0.0	ft.
Water Table Deep:	6.0		8 %	6.2	Devel	opme	nt:	•	1134	ft. <b>(</b>	0.0	ft.
Water Table Shallow:	2.0		7 %	6.3	Chanr	nel Ba	rs:		Non	e		16.
Erodibility:	Very Se	vere92.	6 %	6.4	Mean	der M	igratio	n:	Bra	iding		
7.4 Comments:				6.5	Mean	der W	idth:		N	I/A Ra	atio:	0.0
In the downstream half of the	reach la	ind appe	ears			length			N	<b>I/A</b> Ra	atio:	0.0
cleared in the corridor for pas	•	• •		Step	7. Wir	ndshie	ld Su	vey				
in 1942 aerial photographs.				7.1	Bank	Erosio	n:		(	).00 ft		
				7.2	Bank	Heigh	t:		0.	00 ft.		
was apparently straightened	anu push	eu aion	y			_		otentia	ıl: Cu	lvert		
												<u> </u>

2

High

1

Low

2

High

0

N.S.

0

N.S.

2

0

N.S.

0

High N.S.

2

High

1

Low

0

N.S.

0

N.S.

0

N/A

0

N/A

0

N.S.

1

Low

11

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

**Unnamed Trib to High Knob Brook** T6.3S1.01 Reach Stream Name:

413 Topo Maps:

Mon, December 08, 2008 Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

**Lewis Creek** Sub-watershed:

Is Rea	ch an	Impou	ndmer	nt? No	•		Qu	ality (	Control	Statu	s: Un	know	n			
Step 1	I. Read	ch Loc	ation													
	each [			D	rains	acros	s broa	d gla	cio-flu	vial te	rrace	to so	uth-sc	outhw	est to	join
	owns:	•			tarksb											•
_			_atitude	٠.	4.23				ep 4. L		over -	Reac	h Hydı	rology		
			_ongitu	ide: <b>-</b> 7	73.04				1 Wate							
	2. Strea			_					storic <u>L</u>					orest		
			tream:		70				ırrent [						89.4	<b>!</b> %
		_	/nstrea	_	35				urrent S		omina	nt Lan	d Cov	er: <b>Ur</b>	ban	
	Gradi				10 166 to	ot 0	201/116		2 Corrie							
	alley L alley S				400 16 2.39		. <b>28</b> Mile	<sup>;S.</sup> Hi	storic L	and C	Cover:		Fo	orest		
	hanne		th:		<b>586</b> fe		<b>.30</b> Mile	ر ر	urrent l	Domin	ant la	nd Co	ver: <b>Fc</b>	orest	37.	<b>5</b> %
	hanne					%	.JO IVIIIC	΄. Cι	urrent S	Sub-D	omina	nt Lan	d Cov	er: <b>Ur</b>	ban	
	inuosit		<b>J</b> .		.08			4.3	Ripar	ian Βι	ıffer		Left	Bank	Righ	t Bank
	/atersh		ea:		1	Squa	re Mile	_	ominan				>10	00	>100	)
2.8 C	hanne	l Width	า:	1	14	· f	eet.		ıb-dom				No	ne	None	е
	alley V				,400	f	eet.		ngth w				0		718	
			Ratio:		100				Grou				No	-		
			Type:		Very E	Broad			5. Ins					itions		
			tream			D I			Flow	Regui	ation -					
	dform:			_	Riffle-	Pool			rpe: se:			None	)			
	b-clas	•	e:	_	b	_			se. 2 Bridg	oe and	4 Culv	orte:	1		<b>1</b> %	<i>/</i> _
	d Mate				Grave				Bank			eris.	•		0.0	0
Step 3.			acterist	ICS:				5.0		_eft <b>0</b>	_	Ric	ht <b>0.0</b>	)	0.0	
	lluvial				Non	_		5.4	l Chan				137		86 %	
	rade C			_	Non	е	. ===				_	_				
			ologic I		Ice-C	Contac	ct 52.8 Iuvial	<sup>%</sup> Ste	p 6. Fl	oodpla	ain Mo	dificat	ions			
			Geolo	_				6.1	Berms	and R	oads		ld <b>7</b> 42	<b>2</b> ft	46 %	
	eft Val				xtrem	ely St	eep	• • • • • • • • • • • • • • • • • • • •					One Si		Both S	
	ight Va	alley S	iae	FI	at			R	oad:				0.0	ft. (		
3.5 S		_		_		_		Ra	ailroad:			(	0.0	ft. (	0.0	ft. ft.
•	rologic	Group	p:	A			2.8 %	Ве	erm:			•	742	ft. (	0.0	ft.
	ding:						6.1 %		proved				0.0	ft. (		ft.
	er Tab			6.			6.1 %		2 Deve				162	ft. (	0.0	ft.
	ter Tab		allow:	6.	-		6.1 %		3 Chan	-	-		No	Data		11.
Ero	dibility:			V	ery Se	evere/	<b>6.1</b> %		l Mean		_	n:				
7.4 Cd	ommer	nts:							Mean					<b>V/A</b> Ra		0.0
									3 Wave				1	<b>V/A</b> Ra	atio:	0.0
									7. Wi			rvey				
								7.1	Bank	Erosi	on:		50	66.33	ft.	
									2 Bank	_				.83 ft.		
								7.3	lce/D	ebris .	Jam P	otentia	al: Cu	lvert		
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
r. 1	1.2	1.0	0.1	0.2	0.0	0.7	0.0	<u> </u>	0.2	0.0	0.4	0.0	0.0	' · '		- Olai

1

Low

0

N.S.

0

N.S.

0

N.S.

0

N.S.

1

Low

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to High Knob Brook Reach T6.3S1.02

Topo Maps: 413

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

is iteach an impoundment:	110		Qt	iality C	ontroi	Statu	s: Un	Know	n			
Step 1. Reach Location												
1.1 Reach Description:	Remote	. fore	sted re	ach:	drains	to so	uthw	est ald	ona B	rown	Hill R	oad.
1.2 Towns:	Starksb			, ao,					Jg _	. •		<b>-</b>
1.3 Downstream Latitude:	44.24			Ste	p 4. L	and C	over -	Reacl	h Hydi	ology		
1.3 Downstream Longitude:	-73.04				Wate				<u> </u>	37		
Step 2. Stream Type					storic L		over:		Fo	rest		
2.1 Elevation Upstream:	1300				rrent [			nd Cov			90.5	5 %
2.1 Elevation Downstream:	870				rrent S							,,,
2.1 Is Gradient Gentle?	No				Corrid							
2.2 Valley Length:	<b>5600</b> fe	et. 1	. <b>06</b> Mile	es. ⊔i	etoric I	and C	over.		Ec	rest		
2.3 Valley Slope:	7.68	%		C .	irrant l	Jania C	ont lo	nd Co			74	9 %
2.4.Channel Length:	<b>5845</b> fe		<b>.11</b> Mile	<b>-</b>	urrent l							9 %
2.5 Channel Slope:	7.36	%			rrent S			nı Lan				
2.6 Sinuosity:	1.04			_	Ripar		tter				_	t Bank
2.7 Watershed Area:	1	•	re Mile		minan				>10		>100	
2.8 Channel Width:	14		eet.		b-dom ngth w		than G	05 ft ·		100	Non	е
2.9 Valley Width:		f	eet.		_				49	.:	36	
2.10 Confinement Ratio:	. 0				Grour					nimal		
2.10 Confinement Type:	Narro	wly Co	ontine	g Steb	5. Ins	neam	Chan	nei ivio	Julica	lions		
2.11 Reference Stream Typ					Flow	Regui	ation -					
Bedform:	Step-F	<b>2</b> 001			pe:			None	•			
Sub-class Slope:	None			Us	-		ı Cuka	o #40 .	4		4 0	,
Bed Material:	Cobbl	е			Bridge			erts:	1			6
Step 3. Basin Characteristics	• •			5.3	Bank			Dia	.h. 42		0 %	
3.1 Alluvial Fan:	Non	е		<b>5</b> 1	Chan	_eft <b>0</b> .			t 42 0.0		0.0	
3.2 Grade Control:	Led	ge								_	0.0	
3.3 Dominant Geologic Mat	.: Till	_	100.	%Cto	Dredo p 6. Fl	jiriy m	isiory.	dificat	Non	е		
3.3 Sub-dominant Geologic												
3.4 Left Valley Side	Extreme	elv Ste	еер	6. I E	Berms	and R	oaas		ld 150		26 %	
3.4 Right Valley Side	Extreme			Da	- d.				One Si		Both S	olaes
3.5 Soils		,			ad: ilroad:				1566	ft. (		ft.
Hydrologic Group:	D	6	<b>5.4</b> %						0.0	ft. (		ft.
Flooding:	None/R		00. %		rm:	l Doth			0.0	ft. (		ft.
Water Table Deep:	6.0		00. %		proved				0.0	ft. (		ft.
Water Table Shallow:	6.0		5.4 %		Devel	•		'	0.0	ft. 3	) I	ft.
Erodibility:	Very Se				Chan				NO	Data		
•	10.700		<b>00.</b> 70		Mean		_	n:	_			
7.4 Comments:					Mean					I/A Ra		0.0
Presence of channel-spannir	ng bedroo	k (3.2	2)		Wave				r	<b>I/A</b> Ra	atio:	0.0
suggested by DiPietro, 1983	-		•		7. Wi			rvey				
ditch runoff (small gravels, sa	•			7.1	Bank	Erosic	n:		(	0.00 ft	: <b>.</b>	
road to the left bank just dow	•	•		7.2	Bank	Heigh	t:		0.	00 ft.		
Toad to the left ballk just dow	nisutaili	oi a ci	uiveit	7.3	Ice/Do	ebris J	am Po	otentia	al: Cu	lvert		
44 40 40 54 5	0 50			0.4	0.0	0.0	0.4	0.5	0.0	7.4	7.0	
4.1   4.2   4.3   5.1   5.	2   5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

0

N.S.

0

N.S.

2

High

0

N.S.

0

N.S.

0

N/A

0

N.S.

0

N.S.

0

N/A

1

Low

5

1

Low

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

### **Phase 1 - Reach Summary Report**

1

0

N.S.

0

N/A

0

N/A

0

N.S.

0

N.S.

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to High Knob Brook Reach T6.3S1.03

Topo Maps: 413

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

is Reach an impoundment?	INO		Qι	ıalıty C	control	Statu	s: Un	know	n			
Step 1. Reach Location												
1.1 Reach Description:	Remote	fore	sted re	ach:	drains	to no	rthwe	et no	orth of	f Brow	vn Hill	
1.2 Towns:	Starksb		olea i	Jaoii,	aranis		,, (,,,,,,,	, ot, 110	,, tii O	D.O.	• • • • • • • • • • • • • • • • • • • •	ı
1.3 Downstream Latitude:	44.24	0.0		Ste	p 4. L	and C	over -	Read	n Hydr	ology		
1.3 Downstream Longitude					Wate		0101	rtodol	yaı	ology		
Step 2. Stream Type					storic L		over.		Fo	rest		
2.1 Elevation Upstream:	1680				rrent E			nd Cov			93.2	9 %
2.1 Elevation Downstream:					rrent S							- 70
2.1 Is Gradient Gentle?	No				Corric		Jiiiiia	iii Laii	u 001	O1. <b>O</b> 1.	Juii	
2.2 Valley Length:	<b>3700</b> fe	et. <b>0</b>	. <b>70</b> Mile		storic L	-	`ovor:		E.	root		
2.3 Valley Slope:	10.27			1 113						rest	70	<b>7</b> 0/
2.4.Channel Length:	<b>3906</b> fe	et. <b>0</b>	. <b>74</b> Mile	-5	ırrent l						73.	<b>7</b> %
2.5 Channel Slope:	9.73	%			rrent S			nt Lan				_
2.6 Sinuosity:	1.06			_	Ripari		iffer			Bank	_	it Bank
2.7 Watershed Area:	0	Squa	re Mile	_	minan				>10		>100	
2.8 Channel Width:	9	1	eet.		b-dom		than C	)5 f+ ·	No	ne	None	е
2.9 Valley Width:	_	1	eet.		ngth w				27	.:	49	
2.10 Confinement Ratio:	. 0		<b>.</b> .		Grour					nimal		
2.10 Confinement Type:	Narro	wly Co	ontine	a Sieb	5. IIIS	Deam	Chan	TIEL IVIC	Julica	lions		
2.11 Reference Stream Typ		21			Flow	Regui	ation -					
Bedform:	Step-F	2001		Us	pe:			None	•			
Sub-class Slope:	None					oo ond	1 Culv	orto:	0		0 %	/
Bed Material:	Cobbl	е			Bridge Bank			eris.	U		0.0	0
Step 3. Basin Characteristics	<u>:</u>			5.5		_eft <b>0</b> .	_	Ric	ht <b>0.0</b>		U.U	
3.1 Alluvial Fan:	Non			5.4	Chan						0.0	
3.2 Grade Control:	Non	e						_		^	0.0	
3.3 Dominant Geologic Ma	t.: Till		100.	. %Stel	Dredo 6. Flo	andnis	ain Mo	dificat	ions	E		
3.3 Sub-dominant Geologic	al Mat.:			6 1 5	Berms	and D		unicat	14 0			
3.4 Left Valley Side	Extreme	ely St		0.1 6	ems	anu r	oaus	U	ld <b>0.0</b> One Si		<b>0.0</b> Both S	Sidos
3.4 Right Valley Side	Extreme	ely St	еер	Ro	ad:				).16 31 <b>).0</b>	ft. <b>(</b>		nues
3.5 Soils			-		au. ilroad:				0.0 0.0	ft. <b>C</b>	-	ft.
Hydrologic Group:	В	9	<b>7.0</b> %		rm:				0.0	ft. <b>(</b>		ft.
Flooding:	None/R	are 1	<b>00.</b> %		proved	l Path			0.0	ft. C		ft.
Water Table Deep:	6.0	9	7.0 %		Devel				0.0	ft. C		ft.
Water Table Shallow:	2.0	9	7.0 %		Chan	•		`		Data	<b>7.0</b>	ft.
Erodibility:	Very Se				Mean			n·	140	Data		
7.4 Comments:	•			0.4	Mean		_	11.		I/A D	atio.	0.0
					Wave					N/A Ra		0.0
Presence of channel-spanni	-				7. Wii			(VAV	ľ	<b>N/A</b> Ra	สแบ้.	0.0
suggested by the steep grad								vey		1 00 £		
geologic mapping. Detailed	bedrock i	mappi	ng not		Bank					0.00 ft	•	
available.			•		Bank	_				00 ft.		
				7.3	Ice/De	ebris J	am Po	otentia	II: No	Data		
4.1 4.2 4.3 5.1 5	.2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
7.1 7.2 7.3 5.1 5	0.0	J. <del>4</del>	0.0	0.1	0.2	0.5	Ŭ. <del>↑</del>	0.5	0.0	' .	۷.۷	iolai

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Unk.

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N.S.

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Low

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N.S.

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N.S.

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N.S.

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N.S.

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N.S.

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N.S.

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N.S.

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N.S.

0

N.S.

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N.S.

0

N/A

0

N/A

0

N.S.

0

N.S.

1

Low

# **Phase 1 - Reach Summary Report**

2

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to High Knob Brook Reach T6.5S1.01

Topo Maps: 414, 413

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Kea	cn an i	mpou	namen	IL? INC	,		Qυ	iality C	control	Statu	s: <b>Un</b>	know	n			
Step 1	. Read	h Loc	ation													
	each D			Si	een f	orest	ed rea	ch dra	inina	to we	st fro	m Bro	wne	Mount	ain to	ioin
	owns:	CSCII	Juon.		tarksb		cu ica	cii di c	9	to we	31 110	5.0	WIIS	vio ai i	ann te	, 10111
	owns. ownstr	oam I	atitude		4.25	010		Ste	p 4. L	and C	over -	Reach	h Hydr	rology		
	ownstr								Wate			rtcaci	TTIYGI	Clogy		
	2. Strea		_	uc	3.03				storic L				Ea	rest		
	levatio			16	680				rrent [			od Cov			04	8 %
	levatio				40										_	<b>o</b> %
	Gradie				40 10				rrent S		omina	nı Lan	u Cov	er. <b>Ur</b>	ban	
	alley Le				<b>700</b> fe	ot 1	<b>.27</b> Mile		Corrid							
	alley S				1.04		. <b>2</b> / Wille	<sup>55.</sup> His	storic L	and C	Cover:		Fo	orest		
	hannel		th:		1.04 9 <b>50</b> fe		.32Mile	Cu	ırrent l	Domin	ant la	nd Cov	ver: <b>Fc</b>	rest	48.	2 %
	hannel				0.65		.JZ IVIII	-S. Cu	rrent S	Sub-Do	omina	nt Lan	d Cov	er: Ur	ban	
	inuosity		<del>7</del> .		.04	70		4.3	Ripar	ian Bu	ıffer		Left	Bank	Riał	nt Bank
	/atersh		22.	•	. <del>0 -</del> 1	Saua	re Mile	_	minan				>10		>100	
	hannel			4	13	•	feet.	_	b-dom				Noi	-	Non	
	alley W		1.	!	13		feet.		ngth w			25 ft.:	13		27	•
	Confine		Ratio:		0		ieet.		Ğrour				No	ne		
	Confine			ı	U Narrov	wly C	onfine									
	Refere					Wiy O		5 1	Flow	Regul	ation -	(old).				
	dform:	ilice Oi	ICam		_ Casca	de			pe:	i togui	ation	None				
		Slope	٠.		oasca None	uc		Us								
	b-class	•	<b>∃.</b>			- •			Bridge	es and	l Culv	erte.	2		1 9	%
	d Mate				Bedro	CK			Bank			CITO.	_		0.0	70
Step 3.			cterist	ICS:				5.5		_eft <b>0</b> .	_	Ric	ht <b>0.0</b>		0.0	
	lluvial F				Non	-		5 4	Chan						0.0	
3.2 G	rade C	ontrol	:		Led	ge						_		•	0.0	
3.3 D	omina	nt Ged	ologic N	Mat.:	Till		98.3	%Stat	S El	andnis	iolory.	dificat	ione	E		
3.3 S	ub-don	ninant	Geolo	gical I	Mat.:	Ice-	Contac	t 215	Dredo p 6. Fl	ooupie		unicat	14 05	<b>.</b>	0.01	
	eft Valle			_	xtrem	elv St		0.16	Berms	ana R	oaas	U	iu 256		3 %	):d
	ight Va				xtrem			Da	- d.				One Si		Both S	sides
3.5 S		,				,	-		ad:				256	ft. <b>(</b>		ft.
	rologic	Grour	٠.	В		Q	8.3 %		ilroad:				0.0	ft. (		ft.
-	ding:	Cioup	<b>J.</b>		one/R		00. %		rm:	l D-4-	_		0.0	ft. (		ft.
	er Tabl		'n.	6.			00. %		proved				0.0	ft. <b>(</b>		ft.
	er Tab		•				8.3 %		Devel	•		(	0.0	ft. 7	/1	ft.
		عا ال	allOW.	2.					Chan				No	Data		
E100	dibility:			V	ery Se	verei	<b>00.</b> %		Mean		_	n:				
7.4 Cc	mmen	ts:						6.5	Mean	der W	idth:		N	<b>V/A</b> Ra	atio:	0.0
Preser	nce of o	chann	el-snar	nnina l	hedrod	rk (3.2	<b>)</b> )	6.6	Wave	length	1:		N	<b>V/A</b> Ra	atio:	0.0
			-	_		•	- <i>)</i> d dam /	Step	7. Wi	ndshie	eld Su	rvey				
	•							71	Bank	Erosio	on:		(	0.00 ft	i <b>.</b>	
	•		,				ıll, non-	7 2	Bank					00 ft.		
delinea	ated tril	butary	to this	reach	n. Acc	ordin	g to the		Ice/De	_		otentia				
	Т							0		20			• •			<u> </u>
4.1	4.2	4.3	5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

# **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to High Knob Brook Reach T6.6S1.01

Topo Maps: 414

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N.S.

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N.S.

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N.S.

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N.S.

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N.S.

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N.S.

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Unk.

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N.S.

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N.S.

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N.S.

0

N/A

0

N/A

0

N.S.

0

N.S.

0

0

N.S.

0

N.S.

Date Last Edited: Tue, January 22, 2008

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

is Reach an impoundment?	NO		Qı	ıalıty (	Control	Statu	s: Un	know	n			
Step 1. Reach Location				•								
1.1 Reach Description:	Foreste	ed read	ch flov	vina v	vest to	ioin I	liah k	(nob l	Brook	unsti	ream	of T6.
1.2 Towns:	Starks		J	viiig v		, jO			<b>D</b> . <b>O</b> O.	чроп	Cam	01 10.
1.3 Downstream Latitude:	44.25			Ste	ep 4. L	and C	over -	Reach	h Hvdr	oloav		
1.3 Downstream Longitude					Wate					0.097		
Step 2. Stream Type					storic L		over.		Fo	rest		
2.1 Elevation Upstream:	1200				irrent [			nd Cov			81	7 %
2.1 Elevation Downstream:	970				irrent S						_	. 70
2.1 Is Gradient Gentle?	No			42	Corrid	dor		iii Laii	u 00.	O1. I I	J. G.	
2.2 Valley Length:	1100 fe	et. <b>0</b>	. <b>21</b> Mile	es. ⊔:,	otorio I	and C	`ovor:		Ec	rest		
2.3 Valley Slope:	20.91	%									40	<b>3</b> 0/
2.4.Channel Length:	<b>1285</b> fe		.24Mil	es:	urrent I						100	<b>).</b> %
2.5 Channel Slope:	17.90	%			irrent S			nt Lan				
2.6 Sinuosity:	1.17			_	Ripar		ffer			Bank	_	nt Bank
2.7 Watershed Area:	0	Squa	re Mile	_	minan				>10		>100	_
2.8 Channel Width:	10	f	eet.		b-dom		4h a n C	) F 44 .	No	ne	Non	е
2.9 Valley Width:		f	eet.		ngth w				0		0	
2.10 Confinement Ratio:	0				Grour				No			
2.10 Confinement Type:		wly Co	onfine	d Step	5. Ins	tream	Chan	nei ivid	odifica	tions		
2.11 Reference Stream Typ		_			Flow	Regula	ation -					
Bedform:	Casca	ade			pe:			None	<b>!</b>			
Sub-class Slope:	None			Us					•			
Bed Material:	Bedro	ck			Bridge			erts:	2			%
Step 3. Basin Characteristics	:			5.3	Bank		_	D:-			0.0	
3.1 Alluvial Fan:	Nor	e		E 1		_eft <b>0</b> .			ht <b>0.0</b>		0.0	
3.2 Grade Control:	Non	e			Chan			_			0.0	
3.3 Dominant Geologic Ma	t.: Till		100	, S.S	Dredo	jing m	ISIOIY.	٦:٤: 4	Non	е		
3.3 Sub-dominant Geologic				Sie	Dredo p 6. Fl	boabis	in ivio	unicai	ions	_		
3.4 Left Valley Side	Extrem	elv St		6.1 E	Berms	and R	oads	U	nu <b>U.U</b>		0.0	S. 1
3.4 Right Valley Side	Extrem	-	-	р.					One Si		Both S	sides
3.5 Soils		J., J.	- op		ad:				0.0	ft. <b>(</b>		ft.
Hydrologic Group:	В	8	1.0 %		ilroad:				0.0	ft. <b>(</b>		ft.
Flooding:	None/R			De	erm:	l Dath			0.0	ft. <b>(</b>		ft.
Water Table Deep:	6.0		1.0 %		proved				0.0	ft. (		ft.
Water Table Shallow:	2.0		1.0 %		Devel	•		•	0.0	ft. 1	1 /	ft.
Erodibility:	Very Se			0.0	Chan				NO	Data		
,	very or	, , , , , ,	<b>00.</b> 70	0.7	Mean		_	n:				
7.4 Comments:					Mean					I/A Ra		0.0
Presence of channel-spanni	ng bedro	ck (3.2	2)		Wave				r	<b>I/A</b> Ra	atio:	0.0
suggested by the steep grad	ient and	surficia	al		7. Wi			rvey				
geologic mapping. Detailed				7.1	Bank	Erosic	n:		(	0.00 ft		
available.	Sourcon	αρρι	9 1100	7.2	Bank	Heigh	t:		0.	00 ft.		
avallable.				7.3	Ice/De	ebris J	am P	otentia	ıl: Cu	lvert		
4.1 4.2 4.3 5.1 5	2 5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total
7.1 4.2 4.3 5.1 5	2   5.5	0.4	0.5	0.1	0.2	0.5	0.4	0.5	0.0	/.1	1.2	Iolai

0

N.S.

0

N.S.

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N.D.

0

N.S.

0

N.S.

0

N.S.

0

N.S.

### **Phase 1 - Reach Summary Report**

0

N/A

0

N.S.

0

N.S.

0

N/A

0

N.S.

0

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to High Knob Brook Reach T6.6S1.02

Topo Maps: 414

Date Last Edited: Thu, September 06, 2007

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

is Reach an impoundment	! INO			Qı	ıalıty (	Jontrol	Statu	s: Un	know	n			
Step 1. Reach Location													
1.1 Reach Description:	Fro	m so	uthw	est sl	ones	of Sha	ker M	ounta	in. dra	ains to	) wes	t-sout	hwest
1.2 Towns:		rksbo		001 01	opco	or ona		Janta	, a.c	o tt	, 1100	· oou	
1.3 Downstream Latitude:					St	ep 4. L	and C	over -	Reach	h Hvdi	oloav		
1.3 Downstream Longitud						1 Wate					0.09)		
Step 2. Stream Type						storic L		over.		Fc	rest		
2.1 Elevation Upstream:	186	0				urrent [						80 1	3 %
2.1 Elevation Downstrean						urrent S							<b>)</b> /0
2.1 Is Gradient Gentle?	No					2 Corrie		Jiiiiia	iii Laii	u 001	O1. I I	,iu	
2.2 Valley Length:			et. <b>0</b> .	. <b>89</b> Mil	~~								
2.3 Valley Slope:		04 %			1 11	storic L					rest		• 0/
2.4.Channel Length:		<b>59</b> fee		<b>.94</b> Mil	14	urrent							0 %
2.5 Channel Slope:	13.				Cı	urrent S	Sub-Do	omina	nt Lan				
2.6 Sinuosity:	1.0				4.3	3 Ripar	ian Bu	ıffer		Left	Bank	Righ	nt Bank
2.7 Watershed Area:	0	,	Squai	re Mile	_	ominan				>10	00	>100	)
2.8 Channel Width:	9		· f	eet.		ıb-dom				No	ne	Non	е
2.9 Valley Width:			f	eet.		ength w							
2.10 Confinement Ratio:	(	)				1 Groui					nimal		
2.10 Confinement Type:	Na	arrow	ly Co	onfine	d Ste	5. Ins	tream	Chan	nel Mo	odifica	tions		
2.11 Reference Stream T	ype: A				5.	l Flow	Regul	ation -	· (old):				
Bedform:	Ca	ascac	de			γpe:							
Sub-class Slope:	No	one				se:							
Bed Material:	Ве	edroc	k			2 Bridg			erts:	0			%
Step 3. Basin Characteristic	s:				5.3	Bank		ring:				0.0	
3.1 Alluvial Fan:		None	•		_		Left		Rig	jht			
3.2 Grade Control:		None				1 Chan			_			0.0	
3.3 Dominant Geologic M		Γill		100	. 5.5	5 Dred	ging H	istory:		Non	е		
3.3 Sub-dominant Geolog					Ste	Dredo p 6. Fl	oodpla	ain Mo	dificat	ions			
3.4 Left Valley Side			ly Ste		6.1	Berms	and R	oads	U	nu <b>U.U</b>		0.0	
3.4 Right Valley Side			ly Ste		_				(	One Si		Both S	Sides
3.5 Soils		CITIC	iy Ott	ССР		oad:					ft.		ft.
Hydrologic Group:	В		1	00. %		ailroad:					ft.		ft.
		ne/Ra		00. % 00. %	D	erm:					ft.		ft.
Flooding:		IE/Ra				proved				_	ft.	_	ft.
Water Table Deep:	6.0			00. %		2 Deve	•			0.0	ft. <b>(</b>	0.0	ft.
Water Table Shallow:	2.0			00. %		3 Chan				No	Data		
Erodibility:	ver	y Sev	verei	<b>00.</b> %	0	1 Mean		_	n:				
7.4 Comments:						5 Mean				1	<b>I/A</b> Ra	atio:	0.0
Presence of channel-spani	nina be	drocl	k (3 2	)		3 Wave				1	<b>V/A</b> Ra	atio:	0.0
suggested by the steep gra	•		•	•	Ste	o 7. Wi	<u>ndshi</u> e	eld Su	rvey				
					7.	l Bank	Erosio	on:					
geologic mapping. Detaile	u bealt	JUK II	ιαμμι	ng not	7.2	2 Bank	Heigh	t:					
available.						3 Ice/D	_		otentia	ıl: No	Data		
4.1   4.2   4.3   5.1	5.2	5.3	5.4	5.5	6.1	6.2	6.3	6.4	6.5	6.6	7.1	7.2	Total

0

N.S.

0

N.S.

0

N.S.

0

N.S.

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Headwater Trib Reach T7.01

Topo Maps: ---

Date Last Edited:

4.2

1

Low

4.1

1

Low

4.3

0

N.S.

5.1

0

N.S.

5.2

0

Unk.

5.3

0

N.S.

5.4

0

N.S.

5.5

0

N.S.

6.1

0

N.S.

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

is Reach an impoundment?	NO	Quali	ty Control Status: Unkn	own	
Step 1. Reach Location					
1.1 Reach Description:	East of Rt 11	6 and Fa	st Mountain		
1.2 Towns:	Starksboro	o ana La	3t Woulden		
1.3 Downstream Latitude:	44.20		Step 4. Land Cover - Re	ach Hydrology	,
1.3 Downstream Longitude:			4.1 Watershed	acii i iyarology	
Step 2. Stream Type	70.00		Historic Land Cover:	Forest	
2.1 Elevation Upstream:	1120		Current Dominant land		91.9 %
2.1 Elevation Downstream:	1000		Current Sub-Dominant I		
2.1 Is Gradient Gentle?	No		4.2 Corridor	Land Cover. Of	Dali
2.2 Valley Length:		.56Miles.			
2.3 Valley Slope:	4.05 %		riistoric Lariu Cover.	Forest	
2.4.Channel Length:		<b>).58</b> Miles.	Current Dominant land		49.3 %
2.5 Channel Slope:	3.92 %		Current Sub-Dominant I	₋and Cover: <b>Ur</b>	ban
2.6 Sinuosity:	1.03		4.3 Riparian Buffer	Left Bank	Right Bank
2.7 Watershed Area:		re Miles	Dominant:	>100	>100
2.8 Channel Width:	•	feet.	Sub-dominant:	51-100	51-100
2.9 Valley Width:		feet.	Length w/ less than 25 f	-	0
2.10 Confinement Ratio:	0		4.4 Ground Water Inputs		
2.10 Confinement Type:	Semi-confir	ned S	Step 5. Instream Channel		
2.11 Reference Stream Typ	e: <b>B</b>		5.1 Flow Regulation - (o	ld): No Data	
Bedform:			Type:		
Sub-class Slope:			Use:		
Bed Material:			5.2 Bridges and Culverts	s: <b>0</b>	%
Step 3. Basin Characteristics:			5.3 Bank Armoring:		0.0
3.1 Alluvial Fan:	None			Right	
3.2 Grade Control:	No Data		5.4 Channel Straightenir	ng:	0.0
3.3 Dominant Geologic Mat		100 %	5.5 Dredging History:	No Data	
3.3 Sub-dominant Geologic	= =	100. 70	5.5 Dredging History: Step 6. Floodplain Modifi	cations	
3.4 Left Valley Side	Extremely St		6.1 Berms and Roads	014 <b>0.0</b> [[.	0.0
3.4 Right Valley Side	•	•		One Side	Both Sides
3.5 Soils	Extremely St	eep	Road:	ft.	ft.
	D 6	<b>10 4</b> 0/	Railroad:	ft.	ft.
Hydrologic Group:		99.1 %	Berm:	ft.	ft.
Flooding:	None/Rare 1		Improved Path:	ft.	ft.
Water Table Deep:		9.1 %	6.2 Development:	<b>0.0</b> ft. (	<b>0.0</b> ft.
Water Table Shallow:		9.1 %	6.3 Channel Bars:	No Data	11.
Erodibility:	Very Severe1	1 <b>00.</b> %	6.4 Meander Migration:	No Data	
7.4 Comments:			6.5 Meander Width:	R	atio: <b>0.0</b>
			6.6 Wavelength:		atio: <b>0.0</b>
		5	Step 7. Windshield Surve		
		-	7.1 Bank Erosion:	<u>-</u>	
			7.2 Bank Height:		
			7.3 Ice/Debris Jam Pote	ntial·	
			7.5 155/255/15 04/11 1 010		<del></del> _
	0   5 0   5 4		4   00   00   04   0	F   00   74	70   T-4-1

6.3

0

N.S.

6.2

0

N.S.

6.4

0

N.S.

6.5

0

N.D.

6.6

0

N.D.

7.1

0

N.S.

7.2

0

N.S.

Total

2

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Headwater Trib Reach T7.02

Topo Maps: ---

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? **No**Quality Control Status: **Unknown** 

Is Reach an Impoundment?	<b>No</b> Qua	ality Control Status: Unkno	wn
Step 1. Reach Location			
1.1 Reach Description:	East of Rt 116 and E	ast Mountain	
1.2 Towns:	Starksboro		
1.3 Downstream Latitude:	44.21	Step 4. Land Cover - Rea	ach Hydrology
1.3 Downstream Longitude:		4.1 Watershed	<u></u>
Step 2. Stream Type		Historic Land Cover:	Forest
2.1 Elevation Upstream:	1690	Current Dominant land C	
2.1 Elevation Downstream:	1120	Current Sub-Dominant La	
2.1 Is Gradient Gentle?	No	4.2 Corridor	and Cover. Ciban
2.2 Valley Length:	9662 feet. 1.83 Miles	_	Farrat
2.3 Valley Slope:	5.90 %	riistoric Lariu Cover.	Forest
2.4.Channel Length:	<b>10613</b> feet. <b>2.01</b> Miles	s. Current Dominant land C	
2.5 Channel Slope:	5.37 %	Current Sub-Dominant La	and Cover: <b>Urban</b>
2.6 Sinuosity:	1.10	4.3 Riparian Buffer	Left Bank Right Bank
2.7 Watershed Area:	1 Square Miles	Dominant:	>100 >100
2.8 Channel Width:	<b>15</b> feet.	Sub-dominant:	51-100 51-100
2.9 Valley Width:	<b>254</b> feet.	Length w/ less than 25 ft.	
2.10 Confinement Ratio:	17	4.4 Ground Water Inputs:	Abundant
2.10 Confinement Type:	Very Broad	Step 5. Instream Channel I	
2.11 Reference Stream Typ		5.1 Flow Regulation - (old	i): No Data
Bedform:		Type:	
Sub-class Slope:		Use:	
Bed Material:		5.2 Bridges and Culverts:	0 %
Step 3. Basin Characteristics:		5.3 Bank Armoring:	0.0
3.1 Alluvial Fan:	None	Left F	Right
	No Data	5.4 Channel Straightening	g: <b>0.0</b>
3.2 Grade Control:	.: Till 100.°	, 5.5 Dredging History:	No Data
3.3 Dominant Geologic Mat	.;	5.5 Dredging History:  Step 6. Floodplain Modific  6.1 Berms and Roads	ations
3.3 Sub-dominant Geologica		6.1 Berms and Roads	old <b>0.0</b> ft. <b>0.0</b>
3.4 Left Valley Side	Extremely Steep		One Side Both Sides
3.4 Right Valley Side	Extremely Steep	Road:	ft
3.5 Soils		Railroad:	ft Π.
Hydrologic Group:	B 86.7 %	Berm:	ft Π.
Flooding:	None/Rare 100. %	Improved Path:	π.
Water Table Deep:	6.0 90.0 %	6.2 Development:	$\Pi$ $\Pi$ $\Pi$
Water Table Shallow:	2.0 86.7 %	6.3 Channel Bars:	No Data
Erodibility:	Very Severe98.9 %	6.4 Meander Migration:	No Data
7.4 Comments:		6.5 Meander Width:	Ratio: <b>0.0</b>
r.+ Comments.		6.6 Wavelength:	Ratio: <b>0.0</b>
		Step 7. Windshield Survey	
		7.1 Bank Erosion:	
		7.1 Bank Erosion. 7.2 Bank Height:	
		<u> </u>	tial:
		7.3 Ice/Debris Jam Poten	uai:

4.2 4.3 5.1 5.2 5.3 5.4 6.1 6.2 6.3 6.4 6.5 7.1 7.2 Total 4.1 5.5 6.6 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 2 0 N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. Low N.S. Unk. N.S. N.D. N.D. Low

### **Phase 1 - Reach Summary Report**

Basin: Otter, Little Otter, Lewis

Stream Name: Unnamed Trib to Headwater Trib Reach T7.1S1.01

Topo Maps: ---

Date Last Edited:

Watershed: Lewis Creek, Little Otter, Lake Champlain

Sub-watershed: Lewis Creek

Is Reach an Impoundment? No Quality Control Status: Unknown

is Reach an impoundment?	Qua	ility Control Status: Unknov	wn
Step 1. Reach Location			
1.1 Reach Description:	East of Rt 116 and E	ast Mountain	
1.2 Towns:	Starksboro		
1.3 Downstream Latitude:	44.21	Step 4. Land Cover - Rea	ch Hydrology
1.3 Downstream Longitude:		4.1 Watershed	<u> </u>
Step 2. Stream Type		Historic Land Cover:	Forest
2.1 Elevation Upstream:	2100	Current Dominant land Co	
2.1 Elevation Downstream:	1120	Current Sub-Dominant La	
2.1 Is Gradient Gentle?	No	4.2 Corridor	
2.2 Valley Length:	11352 feet. 2.15 Miles		Forest
2.3 Valley Slope:	8.63 %	Current Deminent land C	
2.4.Channel Length:	<b>14276</b> feet. <b>2.70</b> Miles	si .	
2.5 Channel Slope:	<b>6.86</b> %	Current Sub-Dominant La	
2.6 Sinuosity:	1.26	4.3 Riparian Buffer	Left Bank Right Bank
2.7 Watershed Area:	2 Square Miles	Dominant:	>100 >100
2.8 Channel Width:	18 feet.	Sub-dominant: Length w/ less than 25 ft.:	51-100 51-100
2.9 Valley Width:	<b>362</b> feet.	4.4 Ground Water Inputs:	
2.10 Confinement Ratio:	20	Step 5. Instream Channel N	
2.10 Confinement Type:	Very Broad		
2.11 Reference Stream Typ	e: <b>A</b>	5.1 Flow Regulation - (old	): No Data
Bedform:	<b></b>	Type: Use:	
Sub-class Slope:		5.2 Bridges and Culverts:	2 %
Bed Material:		5.3 Bank Armoring:	0.0
Step 3. Basin Characteristics:		•	ight
3.1 Alluvial Fan:	None	5.4 Channel Straightening	
3.2 Grade Control:	No Data		
3.3 Dominant Geologic Mat	:: Till 100.9	5.5 Dredging History: Step 6. Floodplain Modifica	ations
3.3 Sub-dominant Geologic		6.1 Berms and Roads	old <b>0.0</b> ft. <b>0.0</b>
3.4 Left Valley Side	Extremely Steep	o. i Deillis and Noads	One Side Both Sides
3.4 Right Valley Side	Extremely Steep	Road:	ft
3.5 Soils		Railroad:	ft Π.
Hydrologic Group:	B 97.7 %	Berm:	ft Π.
Flooding:	None/Rare 100. %	Improved Path:	<del>μ</del> π.
Water Table Deep:	6.0 100. %	6.2 Development:	00 θ00 Π.
Water Table Shallow:	2.0 97.7 %	6.3 Channel Bars:	No Data
Erodibility:	Very Severe100. %	6.4 Meander Migration:	No Data
7.4 Comments:	-	6.5 Meander Width:	Ratio: <b>0.0</b>
7.4 Comments.		6.6 Wavelength:	Ratio: <b>0.0</b>
		Step 7. Windshield Survey	Ralio. <b>0.0</b>
		<u>-</u>	
		7.1 Bank Erosion:	
		7.2 Bank Height:	
		7.3 Ice/Debris Jam Potent	ial:

4.2 4.3 5.1 5.2 5.3 5.4 6.1 6.2 6.3 6.4 6.5 7.1 7.2 Total 4.1 5.5 6.6 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.S. N.D. N.S. N.S. N.S. Unk. N.D. Low

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M01 Stream: **Lewis Creek** Segment: 0 Completion Date: September 27, 2004 Organization: Lewis Creek Association Why Not assessed:wetland Observers: KLU. EE. MI Rain: Yes Segment Length (ft): 6.693 Segment Location: Downstream-most reach of Lewis Creek main stem, extending 1.3 miles downstream from QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 0.00 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation None 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 0.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 0.00 1.3 Corridor Encroachments Material Type Silt Silt 4.5 Flow Regulation Type None 2.8 Incision Ratio 0.00 Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Moderate 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Not Applicable 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 height 0 (old) Upstrm Flow Reg None Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 height 0 0 Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 Revetmt. Type None None 0 0 height 0 0 Revetmt. Length (ft) Development 108 0 Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Flat Hilly 0 Affected Length (ft) Sub-dominant **Deciduous Deciduous** Continuous w/ Never Never Step 5. Channel Bed and Planform Changes Bank Canopy Left Right W/in 1 Bankfill Never Never 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? Yes Texture Not Evalua Not Evalua Point Mid Side Mid-Channel Canopy Open Detritus 0 % 1.5 Valley Features 0 0 0 3.2 Riparian Buffer 38 # Large Woody Valley Width (ft) 1,415 Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant >100 >100 Bed 0.0 Confinement Type Very Broad 5.2 Other Features Sub-dominant 0-25 **Braiding** None 0.0 Bar Rock Gorge? No W less than 25 0 552 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Deciduous Deciduous** Stream Type: 2.1 Bankfull Width 0 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: 0.00 2.2 Max Depth (ft) No 3.3 Riparian Corridor Subclass Slope: 2.3 Mean Depth (ft) 0.00 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: 5.5 Straightening None 2.4 Floodprone Width (ft) 0 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant None **Pasture** 2.15 Reference Stream Type 5.5 Dredging None Cows in stream. Direct pasturing along RB Mass Failures 0 0 (if different from Phase 1) mid-reach. Development in RB corridor is Height 0 Note: Step 1.6 - Grade Controls boat launch site mid-reach. Reach is Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions influenced by backwater effects from Lake Length **Failures** None 0.00 are on The second page of this Champlain; did not exhibit fluvial form

Height

0.00

0.00

report - with Steps 6 through 7.

/process. Therefore, RGA and RHA were not

Gullies

None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M02 Stream: **Lewis Creek** Segment: 0 Completion Date: September 27, 2004 Organization: Lewis Creek Association Why Not assessed:wetland Rain: Yes Observers: KLU. EE. MI Segment Location: From Greenbush Rd crossing downstream to VT Railway bridge crossing. Segment Length (ft): 4.092 QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 0.00 ft. 4.1 Springs / Seeps Abundant 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation None 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 0.00 Upper 1 4.4 # of Debris Jams 2.7 Entrenchment Ratio 0.00 1.3 Corridor Encroachments Material Type Silt Silt 4.5 Flow Regulation Type None 2.8 Incision Ratio 0.00 Length (ft) One Both Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat 0.00 Berms 0 0 Lower Impoundments None 2.9 Sinuosity Low 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Not Applicable 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 height 0 0 (old) Upstrm Flow Reg None Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 <del>597</del> Erosion Length (ft) 674 0 0 height Erosion Height (ft) 5.76 5.59 Improved Paths 869 0 Revetmt. Type None None 7 0 height 0 0 Revetmt. Length (ft) Development 0 39 Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Flat Hilly 0 Affected Length (ft) Sub-dominant **Pasture Deciduous** Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes

Side

0

Island

0

**Braiding** 

Trib Rejuv.

No

Yes

Straightening

report - with Steps 6 through 7.

1.585

None

Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 51-75 26-50 Canopy % Silt/Clav Present? Not Evalua Texture Not Evalua Point Mid Mid-Channel Canopy Open **Detritus** 0 % 1.5 Valley Features 0 0 3.2 Riparian Buffer 30 # Large Woody 500 Valley Width (ft) Diagonal Delta Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0-25 Dominant >100 Bed 0.0 Confinement Type Narrow 5.2 Other Features Sub-dominant >100 0-25 0.0 Bar Rock Gorge? No W less than 25 1.935 797 Flood Neck Cutoff Avulsion Human-caused Change? No Left Buffer Veg. Type Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Mixed Trees Mixed Trees Stream Type: 2.1 Bankfull Width 0 Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: 0.00 2.2 Max Depth (ft) 3.3 Riparian Corridor Subclass Slope: 2.3 Mean Depth (ft) 0.00 5.4 Stream Ford or Animal Corridor Land Left Riaht Bed Form: 5.5 Straightening 2.4 Floodprone Width (ft) 0 **Pasture Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant **Forest Pasture** 2.15 Reference Stream Type 5.5 Dredging Cows in stream mid-reach. Pasture has Mass Failures 0 0 (if different from Phase 1) direct access. Farm bridge is BKFL Height 0 Note: Step 1.6 - Grade Controls constrictor with span of 61 ft. Reach is Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions influenced by backwater effects from Lake Length None 0.00 are on The second page of this Champlain. Exhibits modified fluvial form and **Failures** 

Height

0.00

process; therefore RGA and RHA were not

Gullies

None

0.00

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M03 Stream: **Lewis Creek** Segment: 0 Completion Date: September 17, 2007 Lewis Creek Association Why Not assessed: Rain: Yes Organization: Observers: KLU. BOS Segment Length (ft): 5.471 Segment Location: From Greenbush Road downstream to the railroad bridge crossing. QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 6.90 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks 1.1 Segmentation None Typical Bank Slope Steep 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 14.84 Upper 2 4.4 # of Debris Jams 2.7 Entrenchment Ratio 15.77 1.3 Corridor Encroachments Material Type Silt Silt 4.5 Flow Regulation Type Small 2.8 Incision Ratio 1.03 Length (ft) One Both Other 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity Moderate 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Not Applicable 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 0 0 height (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 1.534 0 Erosion Length (ft) 517 229 0% 25 0 Bedrock height Erosion Height (ft) 3.46 4.34 Improved Paths 2.120 0 Boulder 0% Revetmt. Type Rip-Rap Rip-Rap 0 14 height Cobble 0% 170 10 Revetmt. Length (ft) Development 549 103 Coarse Gravel 0% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 26% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Flat Steep 0 Affected Length (ft) Sand 52% Sub-dominant **Deciduous Deciduous** Continuous w/Sometimes Never Step 5. Channel Bed and Planform Changes Silt and smaller 23% Bank Canopy Left Right W/in 1 Bankfill Sometimes Never 5.1 Bar Types 1-25 1-25 Canopy % Silt/Clav Present? Yes Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 0 1 1 3.2 Riparian Buffer 33 # Large Woody Valley Width (ft) 1,200 Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0 26-50 Dominant 26-50 Bed N/A Confinement Type Very Broad 5.2 Other Features Sub-dominant >100 51-100 **Braiding** N/A Bar Rock Gorge? No W less than 25 101 728 Flood Neck Cutoff Avulsion Human-caused Change? ves Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Mixed Trees Deciduous** Stream Type: C 2.1 Bankfull Width 65 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Herbaceous Herbaceous Bed Material: Sand 2.2 Max Depth (ft) 6.70 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 4.40 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Dune-Ripple 5.5 Straightening Straightening 2.4 Floodprone Width (ft) 1.030 **Pasture** Crop Field Measured Slope: Dominant 830 Straightening Length: Notes: Sub-dominant Shrubs/Saplin Shrubs/Saplin 2.15 Reference Stream Type 5.5 Dredging None Repeat cross sections and field notes Mass Failures 0 0 (if different from Phase 1) completed in Sept 2007 to supplement Phase 0 Height Note: Step 1.6 - Grade Controls 2 data collected in July 2001 and Sept 2004. Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Slight valley encroachment at downstream

Length

Height

0.00

are on The second page of this

report - with Steps 6 through 7.

0.00

0.00

**Failures** 

Gullies

end by railroad. However, valley confinement

(Very Broad) remains unchanged. Small

None

None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M04 Stream: **Lewis Creek** Segment: 0 Completion Date: September 25, 2004 Lewis Creek Association Why Not assessed: Rain: Yes Organization: Observers: KLU. EE Segment Location: From vicinity of Rt 7 crossing downstream to Greenbush Rd crossing. Segment Length (ft): 5.344 QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 7.75 ft. 4.1 Springs / Seeps Abundant 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation None 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 10.69 Upper 3 4.4 # of Debris Jams 2.7 Entrenchment Ratio 27.83 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type None 2.8 Incision Ratio 1.00 Length (ft) One Both 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Oxbows 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Not Applicable 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 height 0 (old) Upstrm Flow Reg None Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 1,318 1,120 0% 0 0 Bedrock height Erosion Height (ft) 7.10 6.92 Improved Paths 0 Boulder 0% Revetmt. Type None None 0 0 height Cobble 0% 0 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 5% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 45% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Very Steep Hilly 0 Affected Length (ft) Sand 16% Sub-dominant Shrubs/Saplin Shrubs/Saplin Continuous w/Sometimes Never Step 5. Channel Bed and Planform Changes Silt and smaller 34% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 1-25 1-25 Canopy % Silt/Clav Present? Yes Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 10 % 1.5 Valley Features 1 9 4 3.2 Riparian Buffer 47 # Large Woody 730 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant >100 >100 Bed N/A Confinement Type Very Broad 5.2 Other Features Sub-dominant 26-50 0-25 **Braiding** N/A Bar Rock Gorge? No W less than 25 736 1.324 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous Herbaceous Stream Type: E 2.1 Bankfull Width 54 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: Sand 2.2 Max Depth (ft) 7.75 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 5.04 5.4 Stream Ford or Animal Yes Corridor Land Left Riaht Bed Form: Dune-Ripple Straightening 2.4 Floodprone Width (ft) 1.500 5.5 Straightening Forest Shrubs/Saplin Field Measured Slope: Dominant 993 Straightening Length: Notes: Sub-dominant Shrubs/Saplin Forest 2.15 Reference Stream Type 5.5 Dredging None Short section of riffle/pool (subdominant Mass Failures 0 0 (if different from Phase 1) bedform) near upstream end of reach. Neck 0 Height Note: Step 1.6 - Grade Controls cutoffs: one recent, one pending. Tributary Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions along RB was observed to be eroded gully-Length None 0.00 are on The second page of this like through silt/clays and fine sands. **Failures** 

Height

0.00

However, no other signs of active incision

Gullies

None

0.00

report - with Steps 6 through 7.

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M05 Stream: **Lewis Creek** Segment: 0 Completion Date: September 25, 2004 Organization: Lewis Creek Association Observers: KLU. EE Why Not assessed: Rain: Yes Segment Length (ft): 2.394 Segment Location: Short channel section crossed by VT Route 7. QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 5.80 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation None 4.2 Adjacent Wetlands None 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 32.27 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 2.32 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 1.49 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 0 Lower Impoundments None 2.9 Sinuosity Moderate 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Complete 1.058 513 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 800 height 35 40 (old) Upstrm Flow Reg None Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 155 0 0 0 Bedrock height 0% Erosion Height (ft) 4.00 0.00 Improved Paths 0 0 Boulder 15% Revetmt. Type None None 0 0 height Cobble **55**% 0 0 Revetmt. Length (ft) 157 Development 415 Coarse Gravel 10% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 3% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Extremely **Very Steep** 0 Affected Length (ft) Sand 17% Sub-dominant **Deciduous Deciduous** Continuous w/Sometimes Never Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right W/in 1 Bankfill Sometimes Sometimes 5.1 Bar Types 26-50 1-25 Canopy % Silt/Clav Present? Yes Silt/Clay Texture Silt/Clay Mid Point Side Mid-Channel Canopy Open Detritus 1 % 1.5 Valley Features 3 2 0 3.2 Riparian Buffer 8 # Large Woody 230 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 2 0 Dominant >100 >100 Bed 400.0 mm Confinement Type Semi-confined 5.2 Other Features Sub-dominant 0-25 0-25 **Braiding** Bar 250.0 mm Rock Gorge? No W less than 25 333 Flood Neck Cutoff Avulsion 125 Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Mixed Trees Mixed Trees Stream Type: C 2.1 Bankfull Width 84 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant None Shrubs/Saplin Bed Material: Cobble 2.2 Max Depth (ft) 3.90 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 2.60 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 195 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant Residential Residential 2.15 Reference Stream Type 5.5 Dredging None Roads passing through corridor are high on Mass Failures 87 0 (if different from Phase 1) valley wall. Slight human-caused change in 12 Height Note: Step 1.6 - Grade Controls valley width due to VT Route 7 in vicinity of Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions the bridge crossing. Not sufficient to cause Length **Failures** One 12.00 are on The second page of this change in valley type or overall confinement

Height

0.00

0.00

report - with Steps 6 through 7.

status. Shallow ledge under Rt 7 crossing.

Gullies

None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M06 Stream: **Lewis Creek** Segment: 0 Completion Date: October 2, 2004 Lewis Creek Association Why Not assessed: Rain: Yes Organization: Observers: KLU. EE Segment Location: From Old Hollow Rd crossing in North Ferrisburg village to the Route 7 crossing. Segment Length (ft): 5.831 QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 10.20 ft. Minimal 3.1 Stream Banks 1.1 Segmentation None Typical Bank Slope Steep 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 24.26 Upper 1 4.4 # of Debris Jams 2.7 Entrenchment Ratio 2.06 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type None 2.8 Incision Ratio 1.96 Length (ft) One Both Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat 0.00 Berms 0 0 Lower Impoundments None 2.9 Sinuosity Low 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Sedimented 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 200 height 0 0 (old) Upstrm Flow Reg None Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 1,471 1,544 4.7 StormwaterInputs 0 0 Bedrock height 0% Erosion Height (ft) 4.56 4.00 Improved Paths O 0 Road Ditch 0 Boulder 3% Field Ditch 0 Revetmt. Type None Rip-Rap 0 0 Tile Drain 0 height Other 1 Cobble 53% 0 Revetmt. Length (ft) 163 0 Development 128 Urb Strm Wtr Pipe 0 Overland Flow 0 Coarse Gravel 18% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 4% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Extremely Very Steep 0 Affected Length (ft) Sand 21% Sub-dominant **Deciduous** None Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 1% Bank Canopy Left Right W/in 1 Bankfill Sometimes Sometimes 5.1 Bar Types 1-25 0 Canopy % Silt/Clav Present? No Silt/Clay Texture **Bedrock** Mid Point Side Mid-Channel Canopy Open Detritus 0 % 1.5 Valley Features 8 4 0 3.2 Riparian Buffer 25 # Large Woody Valley Width (ft) 780 Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 2 2 Dominant >100 >100 Bed 250.0 mm Confinement Type **Broad** 5.2 Other Features Sub-dominant **Braiding** None None Bar 0.0 mm Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Mixed Trees Herbaceous Stream Type: C 2.1 Bankfull Width 85 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Herbaceous Shrubs/Saplin Bed Material: Cobble 2.2 Max Depth (ft) 5.20 No 8 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 3.50 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 175 5.5 Straightening Forest Shrubs/Saplin Field Measured Slope: Dominant 1.838 Straightening Length: Notes: Sub-dominant None None 2.15 Reference Stream Type 5.5 Dredging None Bedrock exposed along LB contributes to low Mass Failures 50 86 (if different from Phase 1) sinuosity. Channel spanning bedrock mid-60 Height Note: Step 1.6 - Grade Controls reach. Reach has similar planform on 1942 Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions photo. Avulsion at downstream meander Length Multiple 34.00 are on The second page of this bend between 1995 and 2003. Historically, **Failures** Height 0.00 report - with Steps 6 through 7. dam at bedrock falls upstream in M07 at No

Gullies

None

0.00

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M07 Stream: **Lewis Creek** Segment: 0 Completion Date: November 16, 2006 Lewis Creek Association Observers: Brendan OShea. Thomas Organization: Why Not assessed: Rain: Yes 9,124 Segment Location: Largely forested reach from vicinity (south of) Spear Street and Guinea Rd intersection Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 4.46 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation None 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 21.79 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.69 1.3 Corridor Encroachments Material Type Gravel Gravel 4.5 Flow Regulation Type 2.8 Incision Ratio 1.00 None Length (ft) One Both Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat 0.00 Berms 0 0 Lower Impoundments 2.9 Sinuosity Low 0 0 height Material Type Boulder/Cobbl Boulder/Cobbl Impoundmt. Location 2.10 Riffles Type Complete 744 0 Roads Non-cohesive 4.6 Up/Down strm flow reg Consistency Non-cohesive None 2.11 Riffle/Step Spacing (ft) 350 height 15 0 (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 167 168 4.7 StormwaterInputs 0 0 Bedrock height 0% Erosion Height (ft) 3.00 2.00 Improved Paths 0 0 Field Ditch Road Ditch 0 Boulder 4% 0 Revetmt. Type None Rip-Rap 0 0 Tile Drain 0 heiaht Other 0 Cobble 28% 0 Revetmt. Length (ft) 227 175 Development 1.541 Urb Strm Wtr Pipe 1 Overland Flow 0 Coarse Gravel 27% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 4% 4.9 # of Beaver Dams Dominant Coniferous Coniferous Hillside Slope Very Steep **Very Steep** 0 Affected Length (ft) Sand 27% Sub-dominant Herbaceous Herbaceous Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 10% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 51-75 51-75 Canopy % Silt/Clav Present? Yes Mixed Mixed Texture Mid Point Side Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 1 0 2 3.2 Riparian Buffer 7 # Large Woody 255 Valley Width (ft) Diagonal Delta Island Left Right Buffer Width 2.13 Average Largest Particle on Width Determination Measured 0 1 Dominant >100 >100 Bed 900.0 mm Confinement Type Semi-confined 5.2 Other Features Sub-dominant **Braiding** None None Bar N/A mm Rock Gorge? No W less than 25 217 279 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous **Coniferous** Stream Type: B 2.1 Bankfull Width 74 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant None None Bed Material: Gravel 2.2 Max Depth (ft) 4.46 No 3.3 Riparian Corridor Subclass Slope: C 3.40 5.4 Stream Ford or Animal No 2.3 Mean Depth (ft) Corridor Land Left Riaht Bed Form: Riffle-Pool None 2.4 Floodprone Width (ft) 125 5.5 Straightening **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant None None 2.15 Reference Stream Type 5.5 Dredging None November 2006 field assessment Mass Failures 126 0 (if different from Phase 1) supplemented by longitudinal profile and 35 Height Note: Step 1.6 - Grade Controls Phase 3 cross sections / pebble counts Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions completed by VTDEC in August 2001. Length

None

None

Failures

Gullies

Bedrock waterfalls (e.g., falls at North

Ferrisburg) are actually long lengths of

0.00

0.00

Height

0.00

are on The second page of this

report - with Steps 6 through 7.

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M08 Stream: **Lewis Creek** Segment: 0 Completion Date: September 17, 2004 Lewis Creek Association Observers: KLU, SHPytlik Why Not assessed: Organization: Rain: Yes Segment Length (ft): 6.484 Segment Location: From 1/4 mile upstream of Quinlan Covered Bridge to nearly one mile downstream of the QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 6.00 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation None 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 20.89 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 11.97 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type 2.8 Incision Ratio 1.00 None Length (ft) One Both 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 194 Lower Impoundments 2.9 Sinuosity Moderate 7 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Sedimented 35 1.411 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg **Up Stream** 2.11 Riffle/Step Spacing (ft) 450 6 height 9 (old) Upstrm Flow Reg Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 1,069 1,386 4.7 StormwaterInputs 0 0 Bedrock height 0% Erosion Height (ft) 4.66 5.62 Improved Paths 0 0 Road Ditch 1 Boulder 0% Field Ditch 0 Revetmt. Type Rip-Rap Rip-Rap 0 0 Tile Drain 0 height Other 0 Cobble 6% Revetmt. Length (ft) 187 82 323 0 Development Urb Strm Wtr Pipe 0 Overland Flow 0 Coarse Gravel 46% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 23% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Hilly Hilly 0 Affected Length (ft) Sand 14% Sub-dominant Shrubs/Saplin Shrubs/Saplin Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 11% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 0 0 Canopy % Silt/Clav Present? Yes Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 3 % 1.5 Valley Features 2 1 0 3.2 Riparian Buffer 26 # Large Woody 800 Valley Width (ft) Diagonal Delta Island Left Right Buffer Width 2.13 Average Largest Particle on Width Determination **Estimated** 0 1 Dominant >100 >100 Bed 80.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant 0-25 0-25 **Braiding** Bar N/A mm Rock Gorge? No W less than 25 905 535 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Mixed Trees** Herbaceous Stream Type: C 2.1 Bankfull Width 75 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin None Bed Material: Gravel 2.2 Max Depth (ft) 6.00 No 3.3 Riparian Corridor Subclass Slope: None 3.60 5.4 Stream Ford or Animal No 2.3 Mean Depth (ft) Corridor Land Left Right Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 900 5.5 Straightening Forest Shrubs/Saplin Field Measured Slope: Dominant 305 Straightening Length: Notes: Sub-dominant None Hay 2.15 Reference Stream Type 5.5 Dredging Dredging Slight reduction in valley width at upstream Mass Failures 0 161 (if different from Phase 1) end of reach by Spear Street and Lewis Height 0 12 Note: Step 1.6 - Grade Controls Creek Rd. Enough to cause change in valley Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions confinement (from Very Broad to Narrow) but Length **Failures** One 12.00 are on The second page of this still unconfined - and only for a short section Height 0.00 report - with Steps 6 through 7. of the reach length. Bedrock exposures in Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M09 Stream: **Lewis Creek** Segment: A Completion Date: September 17, 2004 Lewis Creek Association Observers: KLU, SHPytlik Why Not assessed: Organization: Rain: Yes 1.004 Segment Location: From just below Scott Pond Dam to approximately 1/4 mile upstream of the Quinlan Segment Length (ft): QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 9.30 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Grade Controls 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 31.72 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.36 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 2.66 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity Low 0 0 height Material Type Mix Mix Impoundmt, Location 2.10 Riffles Type Not Applicable 1.004 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg **Up Stream** 2.11 Riffle/Step Spacing (ft) 0 0 height 9 (old) Upstrm Flow Reg Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 0 0 Bedrock 0% height Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 Boulder 4% Revetmt. Type None None 0 0 height Cobble 39% 0 0 Revetmt. Length (ft) Development 317 166 Coarse Gravel 16% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 9% 4.9 # of Beaver Dams Dominant Deciduous Herbaceous Hillside Slope Very Steep Extremely 0 Affected Length (ft) Sand 25% Sub-dominant Herbaceous **Deciduous** Continuous w/ Never **Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 7% Bank Canopy Left Right W/in 1 Bankfill Sometimes Always 5.1 Bar Types 51-75 76-100 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 2 % 1.5 Valley Features 1 0 0 3.2 Riparian Buffer 4 # Large Woody 175 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0-25 Dominant >100 Bed 250.0 mm Confinement Type Semi-confined 5.2 Other Features Sub-dominant 26-50 **Braiding** None Bar N/A mm Rock Gorge? No W less than 25 605 0 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Deciduous Mixed Trees Stream Type: F 2.1 Bankfull Width 85 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin None Bed Material: Gravel 2.2 Max Depth (ft) 3.50 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 2.67 5.4 Stream Ford or Animal No Corridor Land Left Right Bed Form: Plane Bed 5.5 Straightening Straightening 2.4 Floodprone Width (ft) 115 Hay **Forest** Field Measured Slope: Dominant 487 Straightening Length: Notes: Sub-dominant Residential None 2.15 Reference Stream Type 5.5 Dredging None Lewis Creek Rd (gravel) encroaches within Mass Failures 0 0 (if different from Phase 1) the valley and is elevated above the Height 0 Note: Step 1.6 - Grade Controls floodplain near the upstream end of the Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions segment. For a majority of the segment Length None 0.00 are on The second page of this length, the road is only slightly elevated Failures

Height

0.00

above the LB terrace. Uncertain to what

Gullies

None

0.00

report - with Steps 6 through 7.

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M09 Stream: **Lewis Creek** Segment: B Completion Date: September 17, 2004 Why Not assessed:impounded Organization: Lewis Creek Association Observers: KLU, SHPytlik Rain: Yes Segment Location: Upstream end of reach comprising Scott Pond Dam, upstream impoundment, and bedrock 301 Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 0.00 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks 1.1 Segmentation Grade Controls Typical Bank Slope Steep 4.2 Adjacent Wetlands None 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 0.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 0.00 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type Small Run of 2.8 Incision Ratio 0.00 Length (ft) One Both Other 0.00 Consistency Non-cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity 0 0 height Material Type Mix Mix Impoundmt, Location 2.10 Riffles Type 301 0 Roads Non-cohesive Cohesive 4.6 Up/Down strm flow reg Consistency None 2.11 Riffle/Step Spacing (ft) 0 9 0 height (old) Upstrm Flow Reg Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 4.7 StormwaterInputs 0 0 height Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 Road Ditch 1 Field Ditch 0 Revetmt. Type None None 0 0 Tile Drain 0 heiaht Other 0 0 0 Revetmt. Length (ft) Development 298 41 Urb Strm Wtr Pipe 0 Overland Flow 0 Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Very Steep Extremely 0 Affected Length (ft) Sub-dominant **Deciduous** Coniferous Continuous w/ Never Sometimes Step 5. Channel Bed and Planform Changes Bank Canopy Left Right W/in 1 Bankfill Never Always 5.1 Bar Types 26-50 51-75 Canopy % Silt/Clav Present? Texture Not Evalua **Bedrock** Mid Point Side Mid-Channel Canopy Open Detritus 0 % 1.5 Valley Features 0 1 0 3.2 Riparian Buffer 0 # Large Woody Valley Width (ft) 200 Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant 51-100 >100 0.0 Bed Confinement Type Semi-confined 5.2 Other Features Sub-dominant 0-25 **Braiding** None 0.0 Bar Rock Gorge? No W less than 25 168 0 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous Mixed Trees Stream Type: 2.1 Bankfull Width 0 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: 2.2 Max Depth (ft) 0.00 No 3.3 Riparian Corridor Subclass Slope: 2.3 Mean Depth (ft) 0.00 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: None 2.4 Floodprone Width (ft) 0 5.5 Straightening Hay **Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant Residential None 2.15 Reference Stream Type 5.5 Dredging None Segment comprises Scott Pond Dam and Mass Failures 0 0 (if different from Phase 1) impoundment (refurbished in 1992; see Ph2 Height 0 Note: Step 1.6 - Grade Controls report). Historic record suggests larger Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions upstream impoundment in the past, and Length None 0.00 are on The second page of this period(s) of breached status. Lewis Creek **Failures** Height 0.00 report - with Steps 6 through 7. Rd encroaches within the valley and is Gullies 0.00

None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M10 Stream: **Lewis Creek** Segment: A Completion Date: August 18, 2009 Lewis Creek Association Why Not assessed: impounded Organization: Observers: KLU. MI Rain: Yes Segment Length (ft): 1.016 Segment Location: Downstream end of reach representing approximate former mill pond extent and current QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 0.00 ft. Abundant 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Flow Status 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 0.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 0.00 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 0.00 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity 0 0 height Material Type Mix Mix Impoundmt, Location 2.10 Riffles Type 126 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg **Down Stream** 2.11 Riffle/Step Spacing (ft) 0 9 0 height (old) Upstrm Flow Reg Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 254 0 0 height Erosion Height (ft) 0.00 5.00 Improved Paths 0 Revetmt. Type None None 0 0 height 0 0 Revetmt. Length (ft) Development 0 0 Near Bank Veg. Type Left Right Left 1.4 Adjacent Side Right 0 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Steep Very Steep 0 Affected Length (ft) Sub-dominant Shrubs/Saplin Shrubs/Saplin Continuous w/Sometimes Never Step 5. Channel Bed and Planform Changes Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 0 0 Canopy % Silt/Clav Present? Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 0 % 1.5 Valley Features 0 0 0 3.2 Riparian Buffer 0 # Large Woody 440 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant >100 >100 Bed 0.0 Confinement Type Narrow 5.2 Other Features Sub-dominant **Braiding** None None 0.0 Bar Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Shrubs/Saplin Shrubs/Saplin Stream Type: 2.1 Bankfull Width 0 Steep Riffles Trib Rejuv. Head Cuts Sub-dominant Herbaceous Herbaceous Bed Material: 0.00 2.2 Max Depth (ft) No 3.3 Riparian Corridor Subclass Slope: 2.3 Mean Depth (ft) 0.00 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: 5.5 Straightening None 2.4 Floodprone Width (ft) 0 Shrubs/Saplin Shrubs/Saplin Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant None None 2.15 Reference Stream Type 5.5 Dredging None Segment comprises approx length of Mass Failures 0 0 (if different from Phase 1) impoundment effects from downstream Scott Height 0 Note: Step 1.6 - Grade Controls Pond Dam, as observed November 2006. Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Inferred location of former mill pond, when Length **Failures** None 0.00 are on The second page of this dam was historically higher in elevation. See Height 0.00 report - with Steps 6 through 7. Phase 2 report. Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M10 Stream: **Lewis Creek** Segment: B Completion Date: August 18, 2009 Lewis Creek Association Why Not assessed: Rain: Yes Organization: Observers: KLU. MI 3.535 Segment Location: From downstream of RB sand / gravel guarry downstream past Barlow hay field to approx Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 6.20 ft. **Abundant** 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 32.88 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 2.67 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 1.59 None Length (ft) One Both 0.00 Consistency Cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity Moderate 0 0 height Material Type Mix Mix Impoundmt. Location 2.10 Riffles Type Complete 0 0 Roads Consistency Cohesive Non-cohesive 4.6 Up/Down strm flow reg **Down Stream** 2.11 Riffle/Step Spacing (ft) 490 0 height 0 (old) Upstrm Flow Reg Left Bank Frosion Right 2.12 Substrate Composition Railroads 0 0 312 Erosion Length (ft) 60 0 0 Bedrock height 0% Erosion Height (ft) 3.66 4.60 Improved Paths 0 Boulder 10% Revetmt. Type None None 0 0 height Cobble 37% 0 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 12% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 14% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Very Steep Very Steep 0 Affected Length (ft) Sand 9% Sub-dominant Coniferous Coniferous Continuous w/ Never Never Step 5. Channel Bed and Planform Changes Silt and smaller 18% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 51-75 51-75 Canopy % Silt/Clav Present? No Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 1 % 1.5 Valley Features 0 1 1 3.2 Riparian Buffer 1 # Large Woody 460 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 1 0 Dominant >100 >100 Bed 120.0 mm Confinement Type Narrow 5.2 Other Features Sub-dominant 0-25 **Braiding** None Bar 56.0 mm Rock Gorge? No W less than 25 0 1.225 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Mixed Trees Stream Type: C 2.1 Bankfull Width 86 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: Gravel 2.2 Max Depth (ft) 3.90 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 2.60 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 228 5.5 Straightening **Forest Forest** Field Measured Slope: Dominant 1.026 Straightening Length: Notes: Sub-dominant None Hay 2.15 Reference Stream Type 5.5 Dredging None Segment receives Prindle Brook (aka Pease Mass Failures 0 0 (if different from Phase 1) Bk, T1) along RB near upstream end of Height 0 Note: Step 1.6 - Grade Controls segment. Minimal encroachments. Hav field Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions along RB corridor was developed circa 1980, Length **Failures** None 0.00 are on The second page of this based on historic photo review. Downstream Height 0.00 report - with Steps 6 through 7. R-o-R flow regulation is Scott Pond Dam. Gullies 0.00 None

**Phase 2 Segment Summary** Reach # M10 Stream: **Lewis Creek** Segment: C Completion Date: November 15, 2006 Lewis Creek Association Why Not assessed: Organization: Observers: B Oshea, T Baines (11/06) Rain: Yes 2.701 Segment Location: Mid-reach section of narrower valley confinement extending approx 2700 ft upstream of RB Segment Length (ft): QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 7.37 ft. **Abundant** 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 28.77 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 2.19 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 1.54 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 0 Lower Impoundments 2.9 Sinuosity Moderate 0 0 height Material Type Mix Mix Impoundmt, Location 2.10 Riffles Type Complete 0 0 Roads Consistency Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg **Down Stream** 2.11 Riffle/Step Spacing (ft) 330 0 height 0 (old) Upstrm Flow Reg Left Bank Frosion Right 2.12 Substrate Composition Railroads 0 0 335 Erosion Length (ft) 41 0 0 Bedrock height 0% Erosion Height (ft) 10.00 2.46 Improved Paths 0 Boulder 9% None Revetmt. Type None 0 0 height Cobble 18% 0 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 16% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 10% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Very Steep Extremely 0 Affected Length (ft) Sand 43% Sub-dominant Coniferous Coniferous Continuous w/Sometimes **Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 4% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 51-75 76-100 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 0 0 4 3.2 Riparian Buffer 4 # Large Woody 240 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0 Dominant >100 >100 Bed 120.0 mm Confinement Type Semi-confined 5.2 Other Features Sub-dominant **Braiding** None None Bar 56.0 mm Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Coniferous Stream Type: B 2.1 Bankfull Width 91 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant None None Bed Material: Gravel 2.2 Max Depth (ft) 4.78 No 3.3 Riparian Corridor Subclass Slope: C 2.3 Mean Depth (ft) 3.18 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 200 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant None Commercial 2.15 Reference Stream Type 5.5 Dredging None Original August 2001 assessment of this Mass Failures 0 284 (if different from Phase 1) segment by VTDEC RMP - including 5 cross 0 В 4 С Riffle-Pool Height 46 sections and Longitudinal Profile. Note: Step 1.6 - Grade Controls Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Assessment updated with observations from Length 0 **Failures** One 46.00 are on The second page of this Nov 2006, relying on a riffle cross section Height 0.00 report - with Steps 6 through 7. from 2001. Segment is Semi-confined and Gullies 0.00 None

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Project:

**Lewis Creek** 

Project: **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M10 Stream: **Lewis Creek** Segment: **D** Completion Date: August 18, 2009 Lewis Creek Association Observers: KLU, MI (8/09); B Oshea, T Rain: Yes Organization: Why Not assessed: 4.868 Segment Location: Mid-reach section extending approx 4800 feet downstream of point where Roscoe Rd pulls Segment Length (ft): QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 5.40 ft. **Abundant** 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 57.44 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 7.14 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 1.59 None Length (ft) One Both 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 0 Lower Impoundments 2.9 Sinuosity Moderate 0 0 height Material Type Mix Mix Impoundmt. Location 2.10 Riffles Type Complete 742 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg **Down Stream** 2.11 Riffle/Step Spacing (ft) 330 height 20 0 (old) Upstrm Flow Reg Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 309 Erosion Length (ft) 167 0 0 Bedrock height 0% Erosion Height (ft) 2.20 2.41 Improved Paths 0 0 Boulder 8% Revetmt. Type None None 0 0 height Cobble 42% 0 0 Revetmt. Length (ft) 0 Development 318 Coarse Gravel 28% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 6% 4.9 # of Beaver Dams Dominant Coniferous Coniferous Hillside Slope Very Steep Very Steep 0 Affected Length (ft) Sand 8% Sub-dominant Herbaceous Herbaceous Continuous w/Sometimes **Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 8% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 51-75 51-75 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 2 % 1.5 Valley Features 3 0 0 3.2 Riparian Buffer 18 # Large Woody 430 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant >100 >100 Bed 120.0 mm Confinement Type Narrow 5.2 Other Features Sub-dominant **Braiding** None None Bar 56.0 mm Rock Gorge? No W less than 25 209 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Coniferous Stream Type: C 2.1 Bankfull Width 112 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: Gravel 2.2 Max Depth (ft) 3.40 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 1.95 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 800 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant Shrubs/Saplin Shrubs/Saplin 2.15 Reference Stream Type 5.5 Dredging None Original Nov 2006 assessment updated with Mass Failures 0 0 (if different from Phase 1) limited observations and a cross section in 0 Height Note: Step 1.6 - Grade Controls August 2009. Valley width is quite variable, Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions ranging generally from Semi-confined to Length **Failures** None 0.00 are on The second page of this Broad, averaging Narrow. One very short Height 0.00 report - with Steps 6 through 7. section mid-segment is apparently narrowly-Gullies 0.00 None

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Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M10 Stream: **Lewis Creek** Segment: E Completion Date: August 19, 2009 Lewis Creek Association Observers: KLU, MI (8/09); B Oshea, T Why Not assessed: Organization: Rain: Yes 1.149 Segment Location: From Sequin covered bridge to a point approx 1200 ft downstream, along Roscoe Road. Segment Length (ft): QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 5.50 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Corridor Encroachment 4.2 Adjacent Wetlands None 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 21.17 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 7.56 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 1.45 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat 321 Berms 0 Lower Impoundments 2.9 Sinuosity Low 8 0 height Material Type Mix Mix Impoundmt. Location 2.10 Riffles Type Complete 1.110 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 400 7 0 height (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 239 Erosion Length (ft) 172 0 0 Bedrock 0% height Erosion Height (ft) 3.33 3.73 Improved Paths 0 0 Boulder 7% Revetmt. Type None Multiple 0 0 height Cobble 44% 149 0 Revetmt. Length (ft) 0 Development 220 Coarse Gravel 25% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 6% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Very Steep **Very Steep** 0 Affected Length (ft) Sand 9% Sub-dominant **Deciduous Deciduous** Continuous w/ Never **Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 9% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Never 5.1 Bar Types 1-25 51-75 Canopy % Silt/Clav Present? Yes Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 1 % 1.5 Valley Features 0 0 0 3.2 Riparian Buffer 7 # Large Woody 160 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0-25 Dominant >100 Bed 250.0 mm Confinement Type **Narrowly** 5.2 Other Features Sub-dominant None **Braiding** None Bar N/A mm Rock Gorge? No W less than 25 635 0 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous Mixed Trees Stream Type: C 2.1 Bankfull Width 64 Steep Riffles **Head Cuts** Trib Rejuv. Sub-dominant Deciduous Herbaceous Bed Material: Cobble 2.2 Max Depth (ft) 3.80 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 3.00 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool 5.5 Straightening Straightening 2.4 Floodprone Width (ft) 480 **Forest Pasture** Field Measured Slope: Dominant 762 Straightening Length: Notes: Hay Sub-dominant Residential 2.15 Reference Stream Type 5.5 Dredging None Original Nov 2006 assessment updated with Mass Failures 0 0 (if different from Phase 1) observations and cross section in Aug 2009. Height 0 Note: Step 1.6 - Grade Controls House or barn visible in LB corridor on 1995 Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions ortho - absent in 2003. Road ditches along Length **Failures** None 0.00 are on The second page of this southeast side road drain to Lewis Ck via LB

Height

0.00

trib culvert under road. Low-profile berm

Gullies

None

0.00

report - with Steps 6 through 7.

Project: page 1 of 2 March 3, 2010 SGAT Version: 4.56 **Lewis Creek Phase 2 Segment Summary** Reach # M10 Stream: **Lewis Creek** Segment: F Completion Date: August 19, 2009 Why Not assessed:bedrock gorge Organization: Lewis Creek Association Observers: KLU, MI (8/09); B Oshea, T Rain: Yes 564 Segment Location: Upstream 500+ ft of reach dominated by bedrock controls, including small waterfall Segment Length (ft): QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 0.00 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Grade Controls 4.2 Adjacent Wetlands None 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 0.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 0.00 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 0.00 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity 0 0 height Material Type Mix Mix Impoundmt, Location 2.10 Riffles Type 82 0 Roads Cohesive Cohesive 4.6 Up/Down strm flow reg Consistency None 2.11 Riffle/Step Spacing (ft) 0 7 0 height (old) Upstrm Flow Reg Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 4.7 StormwaterInputs 0 0 height Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 Field Ditch Road Ditch 3 0 Revetmt. Type None Rip-Rap 0 0 Tile Drain 0 height Other 0 0 Revetmt. Length (ft) 44 54 Development 0 Urb Strm Wtr Pipe 0 Overland Flow 0 Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 4.9 # of Beaver Dams Herbaceous Herbaceous Dominant Hillside Slope Very Steep Extremely 0 Affected Length (ft) Sub-dominant Shrubs/Saplin **Deciduous** Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Bank Canopy Left Right W/in 1 Bankfill **Always** Always 5.1 Bar Types 26-50 76-100 Canopy % Silt/Clav Present? **Bedrock Bedrock** Texture Point Mid Side Mid-Channel Canopy Open Detritus 0 % 1.5 Valley Features 0 0 0 3.2 Riparian Buffer 0 # Large Woody Valley Width (ft) 130 Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant 51-100 >100 Bed 0.0 Confinement Type **Narrowly** 5.2 Other Features Sub-dominant 26-50 **Braiding** None 0.0 Bar Rock Gorge? Yes W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous **Deciduous** Stream Type: B 2.1 Bankfull Width 0 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant **Deciduous Shrubs/Saplin** Bed Material: Bedrock 2.2 Max Depth (ft) 0.00 No 3.3 Riparian Corridor Subclass Slope: c 2.3 Mean Depth (ft) 0.00 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Step-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 0 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant Shrubs/Saplin None 2.15 Reference Stream Type 5.5 Dredging None Original Nov 2006 assessment of this Mass Failures 0 (if different from Phase 1) segment, updated with August 2009 Step-Pool Height 0 В 1 С Note: Step 1.6 - Grade Controls observations. Historic grist mill and possible Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions dam / mill pond at bedrock falls upstream of Length **Failures** None 0.00 are on The second page of this Seguin covered bridge according to Beers Atlas. Seguin covd bridge constr c1850 Height 0.00 report - with Steps 6 through 7.

0.00

Gullies

None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M11 Stream: **Lewis Creek** Segment: 0 Completion Date: October 18, 2004 Organization: Lewis Creek Association Why Not assessed: Observers: KLU, EE (SMRC) Rain: Yes Segment Length (ft): 3.341 Segment Location: From Cedar Brook confluence downstream to the Charlotte town line, just upstream of QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 7.20 ft. Abundant 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation None 4.2 Adjacent Wetlands None 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 19.25 Upper 1 4.4 # of Debris Jams 2.7 Entrenchment Ratio 23.88 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type None 2.8 Incision Ratio 1.57 Length (ft) One Both Non-cohesive 0.00 Consistency Non-cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 0 Lower Impoundments 2.9 Sinuosity Moderate 0 0 height Material Type Mix Mix Impoundmt. Location 2.10 Riffles Type Complete 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 840 0 height 0 (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 803 549 height 0 0 Bedrock 3% Erosion Height (ft) 7.01 7.69 Improved Paths 0 Boulder 5% Revetmt. Type None None 0 0 height Cobble 29% 0 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 24% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 1 Fine Gravel 6% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Very Steep Hilly 1,200 Affected Length (ft) Sand 33% Sub-dominant **Deciduous Deciduous** Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 76-100 26-50 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 3 % 1.5 Valley Features 1 1 1 3.2 Riparian Buffer 19 # Large Woody 500 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0-25 Dominant >100 Bed 250.0 mm Confinement Type **Broad** 5.2 Other Features Sub-dominant 51-100 >100 **Braiding** Bar 3.0 mm Rock Gorge? No W less than 25 0 1,574 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Mixed Trees** Herbaceous Stream Type: C 2.1 Bankfull Width 67 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant **Mixed Trees** None Bed Material: Gravel 2.2 Max Depth (ft) 4.60 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 3.48 5.4 Stream Ford or Animal No Corridor Land Left Right Bed Form: Riffle-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 1.600 **Forest** Hay Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant None **Forest** 2.15 Reference Stream Type 5.5 Dredging None Valley confinement gradually narrows with Mass Failures 0 0 (if different from Phase 1) distance downstream to bedrock-controlled Height 0 Note: Step 1.6 - Grade Controls valley pinch point - varies from Very Broad to Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Semi-confined, with an average of Broad. Length **Failures** None 0.00 are on The second page of this One channel-spanning bedrock exposure

Height

0.00

observed near the upstream end of the reach.

Gullies

None

0.00

report - with Steps 6 through 7.

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T2.01 Stream: Cedar Lake Segment: 0 Completion Date: November 14, 2006 Organization: Lewis Creek Association Observers: BOS. TB Why Not assessed: Rain: Yes Segment Length (ft): 3.202 Segment Location: Forested downstream-most reach of Cedar Brook which joins the Lewis Creek at the reach QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 2.20 ft. 4.1 Springs / Seeps **Abundant** 3.1 Stream Banks Typical Bank Slope Moderate 1.1 Segmentation None 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 11.62 Upper 2 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.99 1.3 Corridor Encroachments Material Type Boulder/Cobbl Boulder/Cobbl 4.5 Flow Regulation Type 2.8 Incision Ratio 1.00 None Length (ft) One Both 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity Low 0 0 height Material Type Boulder/Cobbl Boulder/Cobbl Impoundmt, Location 2.10 Riffles Type Complete 0 0 Roads Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg Consistency None 2.11 Riffle/Step Spacing (ft) 10 0 height 0 (old) Upstrm Flow Reg Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 29 Erosion Length (ft) 60 0 0 Bedrock 0% height Erosion Height (ft) 3.00 4.00 Improved Paths 0 0 Boulder 50% Revetmt. Type None None 0 0 height Cobble 40% 0 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 0% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 2 Fine Gravel 0% 4.9 # of Beaver Dams Dominant Coniferous Coniferous Hillside Slope Very Steep Very Steep 750 Affected Length (ft) Sand 10% Sub-dominant None None Continuous w/ Always **Always** Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right W/in 1 Bankfill Always Always 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? No Mixed Mixed Texture Mid Point Side Mid-Channel Canopy Closed Detritus 5 % 1.5 Valley Features 1 0 0 3.2 Riparian Buffer 22 # Large Woody Valley Width (ft) 65 Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 2 0 0 Dominant >100 >100 Bed 200.0 mm Confinement Type Semi-confined 5.2 Other Features Sub-dominant **Braiding** None None Bar N/A mm Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Coniferous Stream Type: B 2.1 Bankfull Width 15 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant None None Bed Material: Cobble 2.2 Max Depth (ft) 2.20 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 1.30 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Step-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 30 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant None None 2.15 Reference Stream Type 5.5 Dredging None Assessment updated in November 2006; Mass Failures 0 0 (if different from Phase 1) original assessment by VTDEC/LCA in 2001 Height 0 Note: Step 1.6 - Grade Controls focused on select section of the reach. Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Bedrock grade controls. Waterfall indexed is

Length

Height

0.00

are on The second page of this

report - with Steps 6 through 7.

0.00

0.00

**Failures** 

Gullies

actually a 450 ft long section of bedrock

cascade stream type with an approximate

None

None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M12 Stream: **Lewis Creek** Segment: A Completion Date: October 18, 2004 Lewis Creek Association Why Not assessed:beaver dam Organization: Observers: KLU. EE Rain: Yes Segment Length (ft): 3.632 Segment Location: Downstream quarter of the reach from Baldwin Rd bridge to the Cedar Brook confluence. QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 0.00 ft. Minimal 3.1 Stream Banks Typical Bank Slope Undercut 1.1 Segmentation Flow Status 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 0.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 0.00 1.3 Corridor Encroachments Material Type Silt Silt 4.5 Flow Regulation Type 2.8 Incision Ratio 0.00 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity 0 0 height Material Type Silt Silt Impoundmt. Location 2.10 Riffles Type 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 height 0 0 (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 **271** Erosion Length (ft) 630 0 0 height Erosion Height (ft) 7.00 7.00 Improved Paths 0 Revetmt. Type None None 0 0 height 0 0 Revetmt. Length (ft) Development 0 0 Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 1 4.9 # of Beaver Dams Herbaceous Herbaceous Dominant Hillside Slope Very Steep Steep Affected Length (ft) 1.620 Sub-dominant Shrubs/Saplin Coniferous Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 1-25 0 Canopy % Silt/Clav Present? Not Evalua Texture Not Evalua Point Mid Side Mid-Channel Canopy Open Detritus 0 % 1.5 Valley Features 1 0 0 3.2 Riparian Buffer 0 # Large Woody 310 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant >100 >100 Bed 0.0 Confinement Type Semi-confined 5.2 Other Features Sub-dominant 0-25 **Braiding** None 0.0 Bar Rock Gorge? No W less than 25 0 1.129 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Shrubs/Saplin Stream Type: E 2.1 Bankfull Width 0 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Herbaceous Herbaceous Bed Material: Gravel 2.2 Max Depth (ft) 0.00 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 0.00 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Dune-Ripple 5.5 Straightening Straightening 2.4 Floodprone Width (ft) 0 Forest Shrubs/Saplin Field Measured Slope: Dominant 338 Straightening Length: Notes: Sub-dominant Shrubs/Saplin Crop 2.15 Reference Stream Type 5.5 Dredging None Beaver-impounded segment. One intact Mass Failures 0 0 (if different from Phase 1) beaver dam at the segment mid-point, 0 Height Note: Step 1.6 - Grade Controls impacting approx 1620 ft channel. Second Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions beaver dam (in downstream reach M11) with Length **Failures** None 0.00 are on The second page of this impoundment effects extending upstream into Height 0.00 report - with Steps 6 through 7. M12-A. Possible short length of straightening Gullies 0.00 None

Project: **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M12 Stream: **Lewis Creek** Segment: B Completion Date: October 21, 2004 Lewis Creek Association Observers: KLU (SMRC), Carrie & Dave Why Not assessed: Organization: Rain: Yes 1.161 Segment Location: Short section upstream of Baldwin Road crossing. Segment Length (ft): QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 7.20 ft. 4.1 Springs / Seeps None 3.1 Stream Banks Typical Bank Slope Moderate 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands None 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 17.75 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 2.02 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 1.71 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity Low 0 0 height Material Type Mix Mix Impoundmt, Location **Eroded** 2.10 Riffles Type 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 0 height 0 (old) Upstrm Flow Reg Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 161 0 height 0 0 Bedrock 0% Erosion Height (ft) 8.00 0.00 Improved Paths 0 Boulder 7% Revetmt. Type Rip-Rap Rip-Rap 0 0 height Cobble 43% 72 88 Revetmt. Length (ft) 75 Development 0 Coarse Gravel 14% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 13% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Extremely Steep 0 Affected Length (ft) Sand 23% Sub-dominant **Deciduous Deciduous** Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right W/in 1 Bankfill **Always** Always 5.1 Bar Types 51-75 26-50 Canopy % Silt/Clav Present? Yes Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 0 0 0 3.2 Riparian Buffer 4 # Large Woody Valley Width (ft) 216 Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0-25 Dominant >100 Bed 300.0 mm Confinement Type Semi-confined 5.2 Other Features Sub-dominant 26-50 **Braiding** 51-100 Bar N/A mm Rock Gorge? No W less than 25 314 772 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Mixed Trees Shrubs/Saplin Stream Type: B 2.1 Bankfull Width 59 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant **Deciduous** None Bed Material: Gravel 2.2 Max Depth (ft) 4.20 No 3.3 Riparian Corridor Subclass Slope: c 2.3 Mean Depth (ft) 3.34 5.4 Stream Ford or Animal No Corridor Land Left Right Bed Form: Plane Bed 5.5 Straightening Straightening 2.4 Floodprone Width (ft) 120 **Forest** Hay Field Measured Slope: Dominant 437 Straightening Length: Notes: Sub-dominant Residential Forest 2.15 Reference Stream Type 5.5 Dredging None Short subreach of alternate reference stream Mass Failures 0 0 (if different from Phase 1) type, that appears to have undergone a 0 С Non Riffle-Pool Height 4 Note: Step 1.6 - Grade Controls vertical stream type departure (from C to Bc). Gullies 1 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Historic incision may have been post-glacial Length **Failures** None 0.00 are on The second page of this rather than ocurring in historic times (last 300 Height 5.00 report - with Steps 6 through 7. years). Bridge crossing (Baldwin Rd) is Gullies One 5.00

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Project: page 1 of 2 March 3, 2010 SGAT Version: 4.56 **Lewis Creek Phase 2 Segment Summary** Reach # M12 Stream: **Lewis Creek** Segment: C Completion Date: October 21, 2004 Lewis Creek Association Observers: KLU (SMRC), Carrie & Dave Organization: Why Not assessed:beaver dam Rain: Yes Segment Length (ft): 9.501 Segment Location: 1.8 mile segment downstream of Pond Brook confluence. QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 0.00 ft. 4.1 Springs / Seeps Abundant 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Flow Status 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 0.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 0.00 1.3 Corridor Encroachments Material Type Silt Silt 4.5 Flow Regulation Type 2.8 Incision Ratio 0.00 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 height 0 0 (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 1,925 1,886 height 0 0 Erosion Height (ft) 7.00 7.00 Improved Paths 0 Revetmt. Type None None 0 0 height 0 0 Revetmt. Length (ft) Development 0 0 Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 1 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Very Steep Steep 7,200 Affected Length (ft) Sub-dominant Shrubs/Saplin Shrubs/Saplin Continuous w/ Never Never Step 5. Channel Bed and Planform Changes Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 0 0 Canopy % Silt/Clav Present? Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Open **Detritus** 0 % 1.5 Valley Features 1 2 0 3.2 Riparian Buffer 0 # Large Woody 850 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant >100 >100 Bed 0.0 Confinement Type Very Broad 5.2 Other Features Sub-dominant 51-100 **Braiding** None 0.0 Bar Rock Gorge? No W less than 25 123 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous Herbaceous Stream Type: 2.1 Bankfull Width 0 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: 0.00 2.2 Max Depth (ft) No 3.3 Riparian Corridor Subclass Slope: 2.3 Mean Depth (ft) 0.00 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: 5.5 Straightening None 2.4 Floodprone Width (ft) 0 Shrubs/Saplin **Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant Forest Shrubs/Saplin 2.15 Reference Stream Type 5.5 Dredging None Wetland-dominated segment; extensive Mass Failures 158 0 (if different from Phase 1) impoundment by beaver dam. Two neck 12 Height Note: Step 1.6 - Grade Controls cutoffs historically - reavealed by comparison Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions of topo map to current planform. Recent Length

are on The second page of this

report - with Steps 6 through 7.

Multiple

None

**Failures** 

Gullies

avulsion has shifted the position of the Pond

Brook confluence at the upstream end of the

12.00

0.00

Height

0.00

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T3.01 Stream: **Pond Brook** Segment: A Completion Date: September 8, 2008 Lewis Creek Association Observers: KLU (SMRC); JC (MMI) Organization: Why Not assessed: Rain: No 3.199 Segment Location: From farm road culvert crossing downstream to confluence with Lewis Creek at the Segment Length (ft): QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 3.60 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 10.44 Upper 4 4.4 # of Debris Jams 2.7 Entrenchment Ratio 24.68 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type 2.8 Incision Ratio 1.00 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 0 Lower Impoundments 2.9 Sinuosity Hiah 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Not Applicable 605 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 7 0 height (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 849 703 0 0 Bedrock 0% height Erosion Height (ft) 4.97 5.00 Improved Paths 0 0 Boulder 0% Revetmt. Type None None 0 0 height Cobble 1% 0 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 18% Near Bank Veg. Type Left Right Left 1.4 Adjacent Side Right 0 Fine Gravel 12% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Steep Steep 0 Affected Length (ft) Sand 37% Sub-dominant Bare Bare Continuous w/Sometimes Never Step 5. Channel Bed and Planform Changes Silt and smaller 32% Bank Canopy Left Right W/in 1 Bankfill Sometimes Never 5.1 Bar Types 0 0 Canopy % Silt/Clav Present? Yes Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 10 % 1.5 Valley Features 1 10 3 3.2 Riparian Buffer 9 # Large Woody 350 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant >100 >100 Bed N/A Confinement Type Very Broad 5.2 Other Features Sub-dominant 26-50 **Braiding** None N/A Bar Rock Gorge? No W less than 25 93 0 Flood Neck Cutoff Avulsion **Not Evaluated** Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous Herbaceous Stream Type: E 2.1 Bankfull Width 24 Steep Riffles Trib Rejuv. Head Cuts Sub-dominant Coniferous Coniferous Bed Material: Sand 2.2 Max Depth (ft) 3.60 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 2.25 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Dune-Ripple 5.5 Straightening None 2.4 Floodprone Width (ft) 580 Shrubs/Saplin Shrubs/Saplin Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant **Forest** Forest 2.15 Reference Stream Type 5.5 Dredging None Updated Dec 2008, relying primarily on field Mass Failures 0 0 (if different from Phase 1) observations and additional cross sections 0 Ε 5 Non Dune-Ripple Height Note: Step 1.6 - Grade Controls collected in Sept 2008 to support original Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions October 2004 assessment. Lower half of Length None 0.00 are on The second page of this subreach of E-dune/ripple reference stream **Failures** Height 0.00 report - with Steps 6 through 7. type, that has not undergone recent Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T3.01 Stream: **Pond Brook** Segment: B Completion Date: September 8, 2008 Lewis Creek Association Observers: KLU (SMRC); JC (MMI) Organization: Why Not assessed: Rain: No 1.840 Segment Location: In pasture and hay fields, mid-segment, ending near farm road culvert crossing. Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 4.70 ft. Abundant 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 16.42 Upper 1 4.4 # of Debris Jams 2.7 Entrenchment Ratio 20.57 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type None 2.8 Incision Ratio 1.42 Length (ft) One Both Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat 0.00 0 Berms 0 Lower Impoundments 2.9 Sinuosity Low 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Sedimented 347 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 100 7 0 height (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 453 258 4.7 StormwaterInputs 0 0 Bedrock height 0% Erosion Height (ft) 3.95 4.00 Improved Paths 0 0 Road Ditch 0 Boulder 0% Field Ditch 0 Revetmt. Type None Rip-Rap 0 0 Tile Drain height Other 0 Cobble 1% 0 Revetmt. Length (ft) 63 54 Development 0 Urb Strm Wtr Pipe 0 Overland Flow 0 Coarse Gravel 31% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 20% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Steep Steep 0 Affected Length (ft) Sand 11% Sub-dominant Bare Bare Continuous w/ Never Never Step 5. Channel Bed and Planform Changes Silt and smaller 37% Bank Canopy Left Right W/in 1 Bankfill Never Never 5.1 Bar Types 0 0 Canopy % Silt/Clav Present? Yes Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 3 % 1.5 Valley Features 5 1 4 3.2 Riparian Buffer 4 # Large Woody 550 Valley Width (ft) Diagonal Delta Island Left Right Buffer Width 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0-25 Dominant >100 Bed 32.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant 26-50 0-25 **Braiding** Bar 42.0 mm Rock Gorge? No W less than 25 726 138 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous Herbaceous Stream Type: C 2.1 Bankfull Width 30 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: Gravel 2.2 Max Depth (ft) 3.30 No 3.3 Riparian Corridor Subclass Slope: None 1.85 5.4 Stream Ford or Animal No 2.3 Mean Depth (ft) Corridor Land Left Riaht Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 625 5.5 Straightening Pasture Shrubs/Saplin Field Measured Slope: Dominant 1.381 Straightening Length: Notes: Sub-dominant Shrubs/Saplin Hay 2.15 Reference Stream Type 5.5 Dredging Dredging Updated Dec 2008, relying primarily on field Mass Failures 0 0 (if different from Phase 1) observations and additional cross sections 0 Ε Non Dune-Ripple Height 4 Note: Step 1.6 - Grade Controls collected in Sept 2008 to support original Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions October 2004 assessment. Upper half of Length None 0.00 are on The second page of this subreach of E-dune/ripple reference stream **Failures** Height 0.00 report - with Steps 6 through 7. type, that has undergone substantial Gullies 0.00

None

Reach # T3.01 Stream: **Pond Brook** Segment: C Completion Date: September 8, 2008 Lewis Creek Association Observers: KLU (SMRC); JC (MMI) Why Not assessed: Organization: Rain: No 4.363 Segment Location: Upstream half of the reach; spans Silver Street. Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 2.30 ft. 4.1 Springs / Seeps **Abundant** 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 29.29 Upper 3 4.4 # of Debris Jams 2.7 Entrenchment Ratio 3.17 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type None 2.8 Incision Ratio 1.00 Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity Moderate 0 0 height Material Type Boulder/Cobbl Boulder/Cobbl Impoundmt, Location 2.10 Riffles Type Complete 464 0 Roads Non-cohesive 4.6 Up/Down strm flow reg Consistency Non-cohesive None 2.11 Riffle/Step Spacing (ft) 190 height 12 0 (old) Upstrm Flow Reg Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 **178** Erosion Length (ft) 546 4.7 StormwaterInputs 0 0 Bedrock height 0% Erosion Height (ft) 3.01 3.10 Improved Paths 0 0 Road Ditch 0 Boulder 0% Field Ditch 0 Revetmt. Type Rip-Rap Rip-Rap 0 0 Tile Drain 0 height Other 1 Cobble 16% 246 Revetmt. Length (ft) 197 281 68 Development Urb Strm Wtr Pipe 0 Overland Flow 0 Coarse Gravel 27% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 1 Fine Gravel 17% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Steep Steep 10 Affected Length (ft) Sand 7% Sub-dominant Shrubs/Saplin Shrubs/Saplin Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 33% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 51-75 51-75 Canopy % Silt/Clav Present? Yes Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 2 % 1.5 Valley Features 6 9 3 3.2 Riparian Buffer 26 # Large Woody 200 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 1 Dominant >100 >100 Bed 138.0 mm Confinement Type Narrow 5.2 Other Features Sub-dominant None 0-25 **Braiding** Bar 34.0 mm Rock Gorge? No W less than 25 180 503 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Mixed Trees Mixed Trees Stream Type: C 2.1 Bankfull Width 41 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: Gravel 2.2 Max Depth (ft) 2.30 No 2 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 1.40 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 130 5.5 Straightening **Forest Forest** Field Measured Slope: Dominant 146 Straightening Length: Notes: Sub-dominant Shrubs/Saplin Shrubs/Saplin 2.15 Reference Stream Type 5.5 Dredging None Updated in Dec 2008, relying primarily on Mass Failures 0 0 (if different from Phase 1) field observations and additional cross 0 Height Note: Step 1.6 - Grade Controls sections collected in Sept 2008, to Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions supplement original Oct 2004 assessment. Length **Failures** None 0.00 are on The second page of this Roads indexed in the segment include Silver Height 0.00 report - with Steps 6 through 7. Street which crosses the channel at an Gullies 0.00 None

**Phase 2 Segment Summary** 

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Project:

**Lewis Creek** 

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M13 Stream: **Lewis Creek** Segment: A Completion Date: October 21, 2004 Lewis Creek Association Organization: Observers: KLU (SMRC), Carrie & Dave Why Not assessed:beaver dam Rain: Yes 3.802 Segment Location: From Silver Street crossing to Pond Bk confluence. Segment Length (ft): QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 0.00 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 0.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 0.00 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type 2.8 Incision Ratio 0.00 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 height 0 0 (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 681 731 height 0 0 Erosion Height (ft) 7.27 7.00 Improved Paths 0 Revetmt. Type None None 0 0 height 0 0 Revetmt. Length (ft) Development 0 0 Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 3 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Steep Steep 2.950 Affected Length (ft) Sub-dominant None None Continuous w/ Never Sometimes Step 5. Channel Bed and Planform Changes Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 0 0 Canopy % Silt/Clav Present? Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open **Detritus** 0 % 1.5 Valley Features 5 1 0 3.2 Riparian Buffer 33 # Large Woody 530 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0 Dominant >100 >100 Bed 0.0 Confinement Type **Broad** 5.2 Other Features Sub-dominant 0-25 **Braiding** None 0.0 Bar Rock Gorge? No W less than 25 413 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous Herbaceous Stream Type: E 2.1 Bankfull Width 0 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: Gravel 0.00 2.2 Max Depth (ft) No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 0.00 5.4 Stream Ford or Animal No Corridor Land Left Right Bed Form: Dune-Ripple 5.5 Straightening Straightening 2.4 Floodprone Width (ft) 0 Shrubs/Saplin Shrubs/Saplin Field Measured Slope: Dominant 1.734 Straightening Length: Notes: Sub-dominant **Pasture** None 2.15 Reference Stream Type 5.5 Dredging None Negligible encroachments, development. Mass Failures 0 0 (if different from Phase 1) Segment not assessed due to extensive 0 Ε Non Dune-Ripple Height 4 Note: Step 1.6 - Grade Controls beaver-dam impoundments. Subreach of Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions reference E4-dune/ripple channel. Length None 0.00 are on The second page of this Dominantly fallow fields, with short section of **Failures** Height 0.00 report - with Steps 6 through 7. horse pasture within the LB corridor near the Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M13 Stream: **Lewis Creek** Segment: B Completion Date: June 15, 2005 Organization: Lewis Creek Association Why Not assessed: Rain: Yes Observers: KLU, EE (SMRC) Segment Length (ft): 4.042 Segment Location: From Lewis Creek Rd downstream to Silver Street bridge. QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 5.40 ft. 4.1 Springs / Seeps **Abundant** 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 29.89 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 3.20 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 1.86 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity Low 0 0 height Material Type Mix Mix Impoundmt, Location 2.10 Riffles Type Complete 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 450 0 height 0 (old) Upstrm Flow Reg Bank Frosion Right Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 94 98 4.7 StormwaterInputs height 0 0 Bedrock 0% Erosion Height (ft) 5.00 5.00 Improved Paths 0 0 Road Ditch 1 Boulder 8% Field Ditch 0 Revetmt. Type Rip-Rap Rip-Rap 0 0 Tile Drain 0 height Other 0 Cobble 37% 165 Revetmt. Length (ft) 100 93 88 Development Urb Strm Wtr Pipe 0 Overland Flow 0 Coarse Gravel 20% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 14% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Very Steep Hilly 0 Affected Length (ft) Sand 21% Sub-dominant Coniferous Shrubs/Saplin Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 76-100 Canopy % 26-50 Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open **Detritus** 2 % 1.5 Valley Features 0 0 0 3.2 Riparian Buffer 4 # Large Woody 300 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0-25 Dominant >100 Bed 250.0 mm Confinement Type Narrow 5.2 Other Features Sub-dominant 0-25 >100 **Braiding** Bar N/A mm Rock Gorge? No W less than 25 760 1,788 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Mixed Trees Shrubs/Saplin Stream Type: C 2.1 Bankfull Width 56 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Mixed Trees Bed Material: Gravel 2.2 Max Depth (ft) 2.90 No 2 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 1.88 5.4 Stream Ford or Animal No Corridor Land Left Right Bed Form: Riffle-Pool 5.5 Straightening Straightening 2.4 Floodprone Width (ft) 180 **Forest** Hay Field Measured Slope: Dominant 594 Straightening Length: Notes: Sub-dominant Hay Forest 2.15 Reference Stream Type 5.5 Dredging None Bank armoring at the Silver Street bridge Mass Failures 0 0 (if different from Phase 1) crossing. Hay fields in the RB corridor and Height 0 Note: Step 1.6 - Grade Controls LB corridor. Stormwater inputs along RB Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions downstream of the bridge. Straightening Length **Failures** None 0.00 are on The second page of this possible in vicinity of the bridge crossing. LB delta of fine sediments at the confluence of Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M14 Stream: **Lewis Creek** Segment: 0 Completion Date: November 29, 2006 Lewis Creek Association Why Not assessed: Organization: Observers: SH. Peter. KU Rain: No Segment Length (ft): 3.003 Segment Location: Reach is parallel to Lewis Creek Road, east of intersection with Silver Street, and crosses QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 3.30 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Moderate 1.1 Segmentation None 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 21.05 Upper 1 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.50 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type Small 2.8 Incision Ratio 1.00 Length (ft) One Both Other Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat 0.00 Berms 0 0 Lower Impoundments None 2.9 Sinuosity Low 0 0 height Material Type Mix Mix Impoundmt, Location 2.10 Riffles Type Complete 3.003 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 200 height 12 0 (old) Upstrm Flow Reg None Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 4.7 StormwaterInputs 0 0 Bedrock height 58% Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 Road Ditch 2 Boulder 3% Field Ditch 0 Revetmt. Type Rip-Rap Rip-Rap 0 0 Tile Drain 0 height Other 1 Cobble 9% 47 Revetmt. Length (ft) 126 50 Development 645 Urb Strm Wtr Pipe 0 Overland Flow 1 Coarse Gravel 13% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 4% 4.9 # of Beaver Dams Dominant **Deciduous Deciduous** Hillside Slope Steep **Very Steep** 0 Affected Length (ft) Sand 13% Sub-dominant Herbaceous Herbaceous Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right W/in 1 Bankfill **Always** Always 5.1 Bar Types 51-75 51-75 Canopy % Silt/Clav Present? No Not Evalua Bedrock Texture Mid Point Side Mid-Channel Canopy Open **Detritus** 10 % 1.5 Valley Features 0 1 0 3.2 Riparian Buffer 8 # Large Woody Valley Width (ft) 188 Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 2 1 Dominant >100 51-100 Bed 600.0 mm Confinement Type Semi-confined 5.2 Other Features Sub-dominant 0-25 **Braiding** None Bar N/A mm Rock Gorge? No W less than 25 141 1.175 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Mixed Trees Deciduous** Stream Type: B 2.1 Bankfull Width 52 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant None Shrubs/Saplin Bed Material: Cobble 2.2 Max Depth (ft) 3.30 No 3.3 Riparian Corridor Subclass Slope: C 2.3 Mean Depth (ft) 2.47 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 78 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant None Residential 2.15 Reference Stream Type 5.5 Dredging None November 2006 assessment (including cross Mass Failures 0 0 (if different from Phase 1) sections) updates a 10/12/2001 original Height 0 Note: Step 1.6 - Grade Controls Phase 2 assessment. Overall, reach is Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions dominated by cobbles; at representative Length

None

None

**Failures** 

Gullies

cross section, bedrock dominated. Bedform

is more planebed in short sections of channel

0.00

0.00

Height

0.00

are on The second page of this

report - with Steps 6 through 7.

Project: **Lewis Creek Phase 2 Segment Summary** page 1 of 2 Reach # M15 Stream: **Lewis Creek** Segment: A Completion Date: November 29, 2006 Lewis Creek Association Why Not assessed: Organization: Observers: KLU. BOS Rain: No 6.162 Segment Location: Extends from just above the Monkton / Hinesburg line downstream to the end of the reach Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 6.80 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 10.71 Upper 4 4.4 # of Debris Jams 2.7 Entrenchment Ratio 20.00 1.3 Corridor Encroachments Material Type Silt Silt 4.5 Flow Regulation Type 2.8 Incision Ratio 1.00 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity Moderate 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Not Applicable 605 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 9 0 height (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 2,060 1,352 0% 0 0 Bedrock height Erosion Height (ft) 3.00 3.26 Improved Paths 0 0 Boulder 0% Revetmt. Type None Rip-Rap 0 0 height Cobble 0% 0 279 Revetmt. Length (ft) 0 Development 426 Coarse Gravel 8% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 2 Fine Gravel 47% 4.9 # of Beaver Dams Herbaceous Herbaceous Dominant Hillside Slope Steep Steep Affected Length (ft) Sand 45% Sub-dominant Shrubs/Saplin Shrubs/Saplin Continuous w/Sometimes Never Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right W/in 1 Bankfill Sometimes Never 5.1 Bar Types 1-25 1-25 Canopy % Silt/Clav Present? Yes Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 5 9 23 3.2 Riparian Buffer 42 # Large Woody 750 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 1 Dominant >100 >100 Bed 50.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant **Braiding** None None Bar 24.0 mm Rock Gorge? No W less than 25 0 105 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Deciduous **Deciduous** Stream Type: E 2.1 Bankfull Width 45 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Coniferous Shrubs/Saplin Bed Material: Gravel 2.2 Max Depth (ft) 6.80 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 4.20 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 900 5.5 Straightening **Forest Forest** Field Measured Slope: Dominant 1.916 Straightening Length: Notes: Sub-dominant None Shrubs/Saplin 2.15 Reference Stream Type 5.5 Dredging None November 2006 assessment updates the Mass Failures 0 0 (if different from Phase 1) original August 2001 VTDEC/LCA 0 Ε 4 Non Riffle-Pool Height Note: Step 1.6 - Grade Controls assessment which focused on select sections Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions only. Lewis Creek Rd encroaches on Length None 0.00 are on The second page of this floodplain within downstream 10% of the Failures Height 0.00 report - with Steps 6 through 7. segment; not substantial enough to constitute Gullies 0.00 None

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Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek Phase 2 Segment Summary** page 1 of 2 Reach # M15 Stream: **Lewis Creek** Segment: B Completion Date: November 29, 2006 Lewis Creek Association Why Not assessed: Organization: Observers: KLU. BOS Rain: No 3.989 Segment Location: From Hollow Brook confluence downstream under the Tyler Bridge Road bridge to a point Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 4.60 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 35.81 Upper 2 4.4 # of Debris Jams 2.7 Entrenchment Ratio 8.03 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type Small 2.8 Incision Ratio 1.64 Length (ft) One Both Non-cohesive Other 0.00 Consistency Non-cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 0 Lower Impoundments 2.9 Sinuosity Moderate 0 0 height Material Type Gravel Gravel Impoundmt, Location 2.10 Riffles Type Complete 165 0 Roads Consistency Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 300 7 0 height (old) Upstrm Flow Reg Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 954 Erosion Length (ft) 783 4.7 StormwaterInputs 0 0 Bedrock height 0% Erosion Height (ft) 3.07 3.19 Improved Paths 0 0 Road Ditch 0 Boulder 0% Field Ditch 1 Revetmt. Type None Rip-Rap 0 0 Tile Drain 0 height Other 0 Cobble 6% 0 Revetmt. Length (ft) 48 65 Development 167 Urb Strm Wtr Pipe 0 Overland Flow 0 Coarse Gravel 42% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 1 Fine Gravel 15% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Hilly Steep 2 Affected Length (ft) Sand 37% Sub-dominant **Deciduous Deciduous** Continuous w/ Never Never Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right W/in 1 Bankfill Sometimes Never 5.1 Bar Types 26-50 26-50 Canopy % Silt/Clav Present? Yes Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 1 9 3 3.2 Riparian Buffer 49 # Large Woody 1,400 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 1 Dominant >100 >100 Bed 60.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant **Braiding** None None Bar 60.0 mm Rock Gorge? No W less than 25 498 153 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Mixed Trees Mixed Trees Stream Type: C 2.1 Bankfull Width 57 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: Gravel 2.2 Max Depth (ft) 2.80 No 1 3.3 Riparian Corridor Subclass Slope: None 1.60 5.4 Stream Ford or Animal No 2.3 Mean Depth (ft) Corridor Land Left Right Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 460 5.5 Straightening **Forest Forest** Field Measured Slope: Dominant 2.121 Straightening Length: Notes: Sub-dominant Crop None 2.15 Reference Stream Type 5.5 Dredging None November 2006 assessment updates the Mass Failures 0 0 (if different from Phase 1) original August 2001 VTDEC/LCA 0 Height Note: Step 1.6 - Grade Controls assessment which focused on select sections Gullies 1 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions only. Left-bank driveway (Cobble Creek Length 75 **Failures** None 0.00 are on The second page of this Nursery) encroaches on floodplain for very Height 4.00 report - with Steps 6 through 7. short distance just upstream of the Tyler Gullies One 4.00

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M16 Stream: **Lewis Creek** Segment: 0 Completion Date: June 24, 2005 Lewis Creek Association Observers: KLU Organization: Why Not assessed: Rain: Yes Segment Length (ft): 6.559 Segment Location: West of Route 116, from Mitch Kelly farm at M16S1 confluence downstream to Hollow Brook QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 7.20 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation None 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 20.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 11.43 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type 2.8 Incision Ratio 1.16 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Hiah 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type 0 0 Complete Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 190 0 height 0 (old) Upstrm Flow Reg None Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 1,257 2,848 0 0 Bedrock height 0% Erosion Height (ft) 5.87 6.00 Improved Paths 0 0 Boulder 0% Revetmt. Type Other Other 0 0 height Cobble 0% 380 835 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 7% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 1 Fine Gravel 50% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Hilly Hilly 1 Affected Length (ft) Sand 33% Sub-dominant **Deciduous Deciduous** Continuous w/Sometimes Never Step 5. Channel Bed and Planform Changes Silt and smaller 10% Bank Canopy Left Right W/in 1 Bankfill Sometimes Never 5.1 Bar Types 1-25 1-25 Canopy % Silt/Clav Present? Yes Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 2 2 0 3.2 Riparian Buffer 9 # Large Woody 800 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant 26-50 26-50 Bed 20.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant 0-25 0-25 **Braiding** Bar 22.0 mm Rock Gorge? No W less than 25 1.961 2.514 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous Herbaceous Stream Type: C 2.1 Bankfull Width 56 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant **Deciduous Deciduous** Bed Material: Gravel 2.2 Max Depth (ft) 6.20 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 2.80 5.4 Stream Ford or Animal Yes Corridor Land Left Right Bed Form: Riffle-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 640 **Pasture Pasture** Field Measured Slope: Dominant Straightening Length: Notes: Crop Sub-dominant **Forest** 2.15 Reference Stream Type 5.5 Dredging None updated in Jan 2008 to 2007 protocols by Mass Failures 0 0 (if different from Phase 1) SMRC, relying on original Aug 2001 data Height 0 Note: Step 1.6 - Grade Controls (DEC, LCA), and 2005 data and Ph3 Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions (SMRC). Three riffle cross sections and Length None 0.00 are on The second page of this pebble counts added to Ph2 worksheet from **Failures** June 2005 Ph3 assessment. Step 2 relies on Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

Project: Lewis Creek
Stream: Lewis Creek
Reach # M7

Phase 2 Segment Summary Page 1 of 2 Segment: A Segment: A Segment: A Completion Date: September 21, 2002

Organization: Lewis Creek Association Observers: LU, LD Why Not assessed: Rain: Yes

Segment Length (ft): 3,446 Segment Location: Downstream segment; on Kelly farm west of Route 116.

Segment Length (it).	3,440	Segment Loc	Jalion. Downs	tream segment, c	on Nelly Iailli	west of Route	110.		
QC Status - Staff: Pro	ovisional Cons	Provisional Step 2. (Contued)		Step 3. Riparian Features			Step 4. Flow & Flow Modifiers		
Step 1. Valley ar	nd Floodplain	2.5 Aband. Floodpln 7.40 ft.		3.1 Stream Banks			4.1 Springs / Seeps	Minimal	
1.1 Segmentation Bank	s and Buffers	Human Elev Flood	oln <b>0.00</b> ft.	Typical Bank Slop	oe Steep		4.2 Adjacent Wetlands	Minimal	
1.2 Alluvial Fan N	lone	2.6 Width/Depth Ra	tio <b>3.35</b>	Bank Texture	<u>Left</u>	Right	4.3 Flow Status	Moderate	
1.3 Corridor Encroachme	ents	2.7 Entrenchment F	Ratio <b>36.44</b>	Upper			4.4 # of Debris Jams	2	
Length (ft)	One Both	2.8 Incision Ratio	1.25	Material Type	Sand	Sand	4.5 Flow Regulation Type	None	
Berms	0 0	Human Elevated In	c Rat <b>0.00</b>	Consistency I	Non-cohesive	Non-cohesive	Flow Regulation Use		
height	0 0	2.9 Sinuosity	High	Lower			Impoundments	None	
Roads	0 0	2.10 Riffles Type	Complete	Material Type	Silt	Silt	Impoundmt. Location		
height	0 0	2.11 Riffle/Step Spa	acing (ft) 160	Consistency	Cohesive	Cohesive	1	None	
Railroads	0 0	2.12 Substrate Com	nposition	Bank Erosion	Left	Right	(old) Upstrm Flow Reg	None	
height	0 0	Bedrock	0%	Erosion Length (f	=	489			
Improved Paths	0 0	Boulder	0%	Erosion Height (ft	4.36	4.46			
height	0 0	Cobble	0%	Revetmt. Type	None	Rip-Rap			
Development	0 63	Coarse Gravel	0%	Revetmt. Length	(ft) <b>0</b>	394			
1.4 Adjacent Side	<u>Left</u> Right	Fine Gravel	60%	Near Bank Veg. Ty	· —	Right	4.9 # of Beaver Dams	3	
Hillside Slope Very	y Steep Steep	Sand	40%	Dominant	Herbaceous	Herbaceous	Affected Length (ft)	700	
Continuous w/Sometimes Never		Silt and smaller 0%			Pasture		Step 5. Channel Bed and	Planform Changes	
W/in 1 Bankfill Som	netimes Never		2 70	Bank Canopy	Left	Right	5.1 Bar Types		
Texture	Mixed Not Evalua	Silt/Clay Present?	Yes	Canopy %	1-25	0	Mid Point	Side	
1.5 Valley Features		Detritus	5 %	Mid-Channel Can		Open	1 1	0	
Valley Width (ft)	500	# Large Woody	0	3.2 Riparian Buffer	-	Dialet	Diagonal Delta	Island	
Width Determination	· · ·		est Particle on	Buffer Width	<u>Left</u> <b>0-25</b>	Right <b>0-25</b>	0 0	0	
Confinement Type	Very Broad	Bed <b>4.0</b>	mm	Dominant Sub-dominant	v-25 >100	None	5.2 Other Features	∖ Braiding	
Rock Gorge?	No	Bar <b>N/A</b>	mm	W less than 25	2,100	2,621	Flood Neck Cutoff Avulsi	\	
Human-caused Change	? No			Buffer Veg. Type	•	Right	$\frac{1}{1} \frac{\text{Neck Cutoff}}{0} \text{Avaising Avaising Avaising the second of the cutoff$	<u> </u>	
Step 2. Stream Cl		2.14 Stream Type		Dominant	Deciduous	Herbaceous	5.3 Steep Riffles and Head	Cuts	
2.1 Bankfull Width	37	Stream Type:	E	Sub-dominant	Herbaceous	None	Steep Riffles Head Cuts	Trib Rejuv.	
2.2 Max Depth (ft)	5.90	Bed Material:		3.3 Riparian Corrid		None	0 0	No	
2.3 Mean Depth (ft)	10.90	Subclass Slope:		Corridor Land	Left	Right	5.4 Stream Ford or Animal	Yes	
2.4 Floodprone Width (ft) 1,330		Bed Form: <b>Riffle-Pool</b> Field Measured Slope:		Dominant	Forest	Pasture	5.5 Straightening	None	
Notes:			•	Sub-dominant	Pasture	None	Straightening Length:	0	
Updated to 2007 methods, relying on		2.15 Reference Stream Type		Mass Failures	152	0	5.5 Dredging	None	
9/21/2002 assessment data from LCA/SMRC.		(if different from	Phase 1)	Height	61	0			
Original bankfull elevation was				Gullies	01	•	Note: Step 1.6 - Grade Controls		
underestimated (and therefore incision ratio		3.3 old Amount	Mean Height		0		and Step 4.8 - Channel Constrictions		
was overestimated). Als		Failures None	0.00	Length		0	are on The second page of this		
reference C channel to	a reference E stream	Gullies None	0.00	Height		0.00	report - with Steps 6 throug	n /.	

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M17 Stream: **Lewis Creek** Segment: B Completion Date: September 10, 2007 Lewis Creek Association Observers: KLU Why Not assessed: Rain: Yes Organization: 8.552 Segment Location: From 1000 ft downstream of States Prison Hollow Ext bridge to Kelly Farm. Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 6.90 ft. 4.1 Springs / Seeps Abundant 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Banks and Buffers 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 6.79 Upper 2 4.4 # of Debris Jams 2.7 Entrenchment Ratio 10.09 1.3 Corridor Encroachments Material Type Silt Silt 4.5 Flow Regulation Type 2.8 Incision Ratio 1.00 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity **Oxbows** 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Complete 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 150 0 height 0 (old) Upstrm Flow Reg None Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 1,317 1,495 0 0 Bedrock height 0% Erosion Height (ft) 4.18 4.43 Improved Paths 0 Boulder 0% Revetmt. Type Rip-Rap Rip-Rap 0 0 height Cobble 0% 275 54 Revetmt. Length (ft) 40 Development 0 Coarse Gravel 0% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 6 Fine Gravel 60% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Extremely Extremely 1.750 Affected Length (ft) Sand 40% Sub-dominant None None Continuous w/Sometimes **Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes

5.1 Bar Types 0 0 Canopy % Silt/Clav Present? Yes Not Evalua Texture Not Evalua Mid

Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 8 3.2 Riparian Buffer 12

# Large Woody

2.1 Bankfull Width

9/10/2007, relying on cross sections from

overestimated incision). Stream type and

condition have been updated accordingly.

underestimated bankfull elevation (and

9/21/2002. Original assessment

34

650 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0

Dominant >100 >100 Bed 4.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant **Braiding** None None

Bar 10.0 mm Rock Gorge? No W less than 25 189 0 Flood Neck Cutoff Avulsion

Human-caused Change? No Buffer Veg. Type Left Right

2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous Herbaceous Stream Type: E

Trib Rejuv. Steep Riffles Head Cuts Sub-dominant None None Bed Material: Gravel 2.2 Max Depth (ft) 6.90 No 3.3 Riparian Corridor

Subclass Slope: None 2.3 Mean Depth (ft) 4.96 5.4 Stream Ford or Animal No

Corridor Land Left Riaht Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 340 5.5 Straightening

Shrubs/Saplin Shrubs/Saplin Field Measured Slope: Dominant 863 Straightening Length:

Notes: Sub-dominant **Forest** Forest 2.15 Reference Stream Type 5.5 Dredging None Segment updated with observations on Mass Failures 0 0 (if different from Phase 1)

> Height 0 Note: Step 1.6 - Grade Controls Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Length **Failures** None 0.00 are on The second page of this Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

Point

12

Side

3

**Phase 2 Segment Summary** Reach # M17 Stream: **Lewis Creek** Segment: C Completion Date: September 10, 2007 Lewis Creek Association Observers: KLU Why Not assessed: Organization: Rain: Yes 2.005 Segment Location: Upstream segment from base of bedrock gorge along States Prison Hollow Road, crossing Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 4.90 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks 1.1 Segmentation Channel Dimensions Typical Bank Slope Steep 4.2 Adjacent Wetlands Minimal Human Elev Floodpln 5.10 ft. Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan Yes 2.6 Width/Depth Ratio 11.66 Upper 2 4.4 # of Debris Jams 2.7 Entrenchment Ratio 19.58 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 1.40 None Length (ft) One Both Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat 1.46 Berms 311 335 Lower Impoundments None 2.9 Sinuosity Low 5 4 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Complete 925 872 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 116 6 5 height (old) Upstrm Flow Reg None Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 162 270 0 0 Bedrock height 0% Erosion Height (ft) 3.00 3.00 Improved Paths 0 0 Boulder 0% Revetmt. Type None Rip-Rap 0 0 height Cobble 5% 0 198 Revetmt. Length (ft) 43 Development 395 Coarse Gravel 39% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 20% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Very Steep Very Steep 0 Affected Length (ft) Sand 34% Sub-dominant **Deciduous Deciduous** Continuous w/Sometimes Never Step 5. Channel Bed and Planform Changes Silt and smaller 2% Bank Canopy Left Right W/in 1 Bankfill Sometimes Never 5.1 Bar Types 51-75 1-25 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 1 1 1 3.2 Riparian Buffer 9 # Large Woody 450 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0-25 Dominant >100 Bed 64.0 mm Confinement Type **Broad** 5.2 Other Features Sub-dominant 51-100 26-50 **Braiding** Bar N/A mm Rock Gorge? No W less than 25 94 551 Flood Neck Cutoff Avulsion Human-caused Change? ves Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Deciduous Deciduous** Stream Type: C 2.1 Bankfull Width 34 Steep Riffles Trib Rejuv. Head Cuts Sub-dominant Coniferous Herbaceous Bed Material: Gravel 2.2 Max Depth (ft) 3.50 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 2.89 5.4 Stream Ford or Animal No Corridor Land Left Right Bed Form: Riffle-Pool 5.5 Straightening With Windrowing 2.4 Floodprone Width (ft) 660 **Forest** Hav Field Measured Slope: Dominant 1.287 Straightening Length: Notes: Sub-dominant None Residential 2.15 Reference Stream Type 5.5 Dredging None Updated with observations and repeat cross Mass Failures 0 0 (if different from Phase 1) section 9/10/2007; relying also on С 4 Non Riffle-Pool Height 0 Note: Step 1.6 - Grade Controls observations from 2002 and from 9/18/2007 Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions during landowner outreach. "Alluvial fan" was Length **Failures** None 0.00 are on The second page of this selected to capture the significant slope change (from approx 7% to less than 2%) Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

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page 1 of 2

Project:

**Lewis Creek** 

Project: Lewis Creek
Stream: Lewis Creek
Reach # M18

Phase 2 Segment Summary Page 1 of 2 Segment: 0

March 3, 2010 SGAT Version: 4.56

Segment: 0

Completion Date: August 10, 2002

Organization: Lewis Creek Association Observers: Staci Pomeroy, B. Eliason, Joe Why Not assessed: Rain: No

Segment Length (ft): 1,446 Segment Location: From States Prison Hollow Road crossing downstream to States Prison Hollow Road

Segment Length (it).		1,440	00(	JITICITE LOCK	ation. Troin o	tates i rison riono	N INOUG CIO	Joing downsti	cam to otates	1 113011 1101	iow itoau	
QC Status - Staff: Provisional Cons			Provisional Step 2. (Contued)		Step 3. Riparian Features			Step 4. Flow & Flow Modifiers				
Step 1. Valley and Floodplain			2.5 Aban	d. Floodpln		3.1 Stream Banks			4.1 Springs / S	•	Minimal	
1.1 Segmentation None				Elev Floodpl		Typical Bank Slope	Steep		4.2 Adjacent V	Vetlands	None	
1.2 Alluvial Fan	None		2.6 Width	n/Depth Rati	io <b>12.82</b>	Bank Texture	<u>Left</u>	Right	4.3 Flow Statu	_	Moderate	
1.3 Corridor Encroachments			2.7 Entre	nchment Ra	atio <b>2.20</b>	Upper			4.4 # of Debris		2	
Length (ft)	One	Both	2.8 Incision	on Ratio	1.00	Material Type	Mix	Mix	4.5 Flow Regu	• •	None	
Berms	140	0	Human E	levated Inc	Rat <b>0.00</b>	Consistency	Cohesive	Cohesive	3			
height	4	0	2.9 Sinuc	,	Low	Lower			Impoundme			
Roads	1,397	42	2.10 Riffle	es Type	Complete	Material Type	Bedrock	Bedrock	Impoundmt.			
height	0	0	2.11 Riffle	e/Step Spac	cing (ft) 30	Consistency	Cohesive	Cohesive	•	•	None	
Railroads	0	0	2.12 Sub	strate Comp	oosition	Bank Erosion	Left	Right	(old) Upstrm	Flow Reg		
height	0	0	Bedrock	(	<b>50</b> %	Erosion Length (ft)	194	0	4.7 Stormwater	Inputs		
Improved Paths	0	0	Boulder		20%	Erosion Height (ft)	3.00	0.00	Field Ditch	0 Road	Ditch	5
height	0	0	Cobble		15%	Revetmt. Type	Rip-Rap	None	Other	0 Tile D		0
Development	217	242	Coarse	Gravel	5%	Revetmt. Length (ft)		0	Overland Flow	v <b>0</b> Urb S	strm Wtr Pipe	0
1.4 Adjacent Side	<u>Left</u>	Right	Fine Gra	avel	5%	Near Bank Veg. Typ		Right	4.9 # of Beav	er Dams	0	
Hillside Slope Ex	xtremely	Steep	Sand		5%	Dominant	Deciduous	Coniferous	Affected L	ength (ft)	0	
Continuous w/Sor	metimes	Sometimes	Silt and	smaller	0%	Sub-dominant	None	None	Step 5. Chan	nel Bed and	Planform Ch	anges
W/in 1 Bankfill	Always	Always				Bank Canopy	Left	Right	5.1 Bar Types	i		
Texture	Mixed	Mixed	Silt/Clay	Present?	No	Canopy %	76-100	76-100	Mid	Point	Side	
1.5 Valley Features			Detritus		10 %	Mid-Channel Canop	у	Open	0	0	0	
Valley Width (ft)	120		# Large V	•	20	3.2 Riparian Buffer	1 044	Diaht	Diagonal	Delta	Island	
Width Determination Measured		2.13 Ave	rage Larges	st Particle on	Buffer Width Dominant	<u>Left</u> <b>51-100</b>	Right >100	0	0	1		
Confinement Type	Semi-c	onfined	Bed	3.5	inches	Sub-dominant	0-25	0-25	5.2 Other Fea	•	\ Braiding	n
Rock Gorge?	Yes		Bar	N/A	inches	W less than 25	324	148	Flood Neck (		\	<u> </u>
Human-caused Change						Buffer Veg. Type	Left	Right	1 000 1000 0		\ .	
Step 2. Stream Channel			2.14 Stre			Dominant	Deciduous	Coniferous	5.3 Steep Riff	les and Head	Cuts	
2.1 Bankfull Width		50		eam Type:		Sub-dominant	Coniferous	Mixed Trees	Steep Riffles	Head Cuts	Trib Reju	IV.
2.2 Max Depth (ft)	4.	50		d Material:		3.3 Riparian Corrido		mixed frees	0	0	No	
2.3 Mean Depth (ft)	3.	90		ass Slope:		Corridor Land	Left	Right	5.4 Stream Fo	ord or Animal	No	
2.4 Floodprone Width (ft) 110		Bed Form: <b>Step-Pool</b> Field Measured Slope:		Dominant	Forest	Forest	5.5 Straighten			None		
Notes:	. ,				•	Sub-dominant	None	None	•	ing Length:	0	)
Features indexed and DMS records updated			erence Stre	<del></del>	Mass Failures	None 93	None 0	5.5 Dredging	- •	ı	None	
in Jan 2008 by SMRC, relying on original		(it diff	erent from I	Pnase 1)			0					
2002 Ph2 data. Select features updated				Height	30 0		Note: Step 1.6 - Grade Controls					
based on limited field observations: 7/7/2007			3.3 old	Amount	Mean Height	Gullies		•	and Step 4.8 -			
(armored sites of mass failures from repair of			Failures	None	0.00	Length		0	are on The se	. •		
washed out road, stormwater road culverts)			Gullies	None	0.00	Height		0.00	report - with S	steps 6 throug	jh /.	

Project: page 1 of 2 March 3, 2010 SGAT Version: 4.56 **Lewis Creek Phase 2 Segment Summary** Reach # M19 Stream: **Lewis Creek** Segment: A Completion Date: October 16, 2002 Observers: SP, SH, KLU, Steve, Ethan, Nel Why Not assessed: Organization: Lewis Creek Association Rain: Yes 2.808 Segment Location: Downstream portion of reach at Cota Ballfields off States Prison Hollow Road. Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 5.38 ft. Minimal 3.1 Stream Banks 1.1 Segmentation Channel Dimensions Typical Bank Slope Steep 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 8.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 11.19 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type 2.8 Incision Ratio 1.17 None Length (ft) One Both 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Hiah 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type 34 0 Complete Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 280 height 8 0 (old) Upstrm Flow Reg None Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 579 463 0 0 Bedrock height 0% Erosion Height (ft) 4.75 4.62 Improved Paths 0 0 Boulder 0% Revetmt. Type None Rip-Rap 0 0 height Cobble 1% 0 445 Revetmt. Length (ft) 0 Development 341 Coarse Gravel 29% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 1 Fine Gravel 32% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Very Steep Steep 100 Affected Length (ft) Sand 32% Sub-dominant Shrubs/Saplin Shrubs/Saplin Continuous w/ Never Never Step 5. Channel Bed and Planform Changes Silt and smaller 6% Bank Canopy Left Right W/in 1 Bankfill Never Never 5.1 Bar Types 26-50 1-25 Canopy % Silt/Clav Present? Yes Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 5 2 0 3.2 Riparian Buffer 0 # Large Woody 875 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 26-50 Dominant >100 Bed 0.0 Confinement Type Very Broad 5.2 Other Features Sub-dominant **Braiding** None 51-100 0.0 Bar Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion **Not Evaluated** Human-caused Change? ves Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Shrubs/Saplin Shrubs/Saplin Stream Type: E 2.1 Bankfull Width 27 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Herbaceous Herbaceous Bed Material: Gravel 2.2 Max Depth (ft) 4.58 No 3.3 Riparian Corridor Subclass Slope: c 3.35 5.4 Stream Ford or Animal No 2.3 Mean Depth (ft) Corridor Land Left Riaht Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 300 5.5 Straightening Shrubs/Saplin Residential Field Measured Slope: Dominant 372 Straightening Length: Notes: Sub-dominant None Shrubs/Saplin 2.15 Reference Stream Type 5.5 Dredging None Assessment (updated 2007) relies on Phase Mass Failures 0 0 (if different from Phase 1) 3 longitudinal profile, cross sections and 0 Ε С Riffle-Pool Height 4 Note: Step 1.6 - Grade Controls pebble counts completed by VTDEC in Oct Gullies 0

Length

Height

0.00

and Step 4.8 - Channel Constrictions

are on The second page of this

report - with Steps 6 through 7.

3.3 old

Failures

Gullies

2002, as well as field observations from

9/18/2001, 6/13/2002 (training day), and

other limited field visits 2003 to 2007. States

Amount

None

None

Mean Height

0.00

0.00

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M19 Stream: **Lewis Creek** Segment: B Completion Date: September 18, 2001 Lewis Creek Association Observers: SP, SH, Christa, Mike, KLU Why Not assessed: Organization: Rain: No 8.077 Segment Location: From farm bridge at upstream end of reach to Cota Ballfields; west of Route 116 and Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 3.90 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 15.16 Upper 1 4.4 # of Debris Jams 2.7 Entrenchment Ratio 4.52 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type Small 2.8 Incision Ratio 1.26 Length (ft) One Both Other 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Low 0 0 height Material Type Gravel Gravel Impoundmt, Location 2.10 Riffles Type Complete 1.693 1.335 Roads Consistency Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 height 15 5 (old) Upstrm Flow Reg None Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 1,181 548 0% 0 0 Bedrock height Erosion Height (ft) 3.48 4.17 Improved Paths 0 0 Boulder 0% Multiple Revetmt. Type Rip-Rap 0 0 height Cobble 6% 1,207 Revetmt. Length (ft) 841 72 Development 0 Coarse Gravel 33% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 4 Fine Gravel 24% 4.9 # of Beaver Dams Dominant **Deciduous Deciduous** Hillside Slope Very Steep Extremely 300 Affected Length (ft) Sand 31% Sub-dominant Herbaceous Herbaceous Continuous w/ Never **Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 6% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Never 5.1 Bar Types 26-50 26-50 Canopy % Silt/Clav Present? Yes Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 3 17 0 3.2 Riparian Buffer 0 # Large Woody 980 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant 26-50 26-50 Bed 0.0 Confinement Type Very Broad 5.2 Other Features Sub-dominant >100 >100 **Braiding** 0.0 Bar Rock Gorge? No W less than 25 286 1,150 Flood Neck Cutoff Avulsion **Not Evaluated** Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Deciduous **Deciduous** Stream Type: C 2.1 Bankfull Width 33 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: Gravel 2.2 Max Depth (ft) 3.10 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 2.19 5.4 Stream Ford or Animal Yes Corridor Land Left Riaht Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 150 5.5 Straightening Crop Crop Field Measured Slope: Dominant 6,408 Straightening Length: Notes: Sub-dominant Shrubs/Saplin Shrubs/Saplin 2.15 Reference Stream Type 5.5 Dredging **Gravel Mining** Relied on field observations, longitudinal Mass Failures 0 (if different from Phase 1) profile, cross sections and pebble counts 0 Height Note: Step 1.6 - Grade Controls from Sept 2001 assessment (VTDEC) to Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions update to 2007 protocols; also supplemented

Length

Height

0.00

are on The second page of this

report - with Steps 6 through 7.

0.00

0.00

**Failures** 

Gullies

with limited field observations of the segment

from 2002 - 2007 (SMRC). Route 116

None

None

**Phase 2 Segment Summary** Reach # M20 Stream: **Lewis Creek** Segment: A Completion Date: November 7, 2006 Lewis Creek Association Why Not assessed: Organization: Observers: KLU. BOS Rain: No 2.294 Segment Location: Downstream half of reach, which crosses under Parsonage Road bridge and ends upstream Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 5.30 ft. Minimal 3.1 Stream Banks 1.1 Segmentation Channel Dimensions Typical Bank Slope Steep 4.2 Adjacent Wetlands None 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 21.88 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 2.34 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type 2.8 Incision Ratio 1.89 None Length (ft) One Both Non-cohesive 0.00 Consistency Non-cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 0 Lower Impoundments None 2.9 Sinuosity Moderate 0 0 height Material Type Gravel Gravel Impoundmt. Location 2.10 Riffles Type Sedimented 174 0 Roads Consistency Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 225 0 height 8 (old) Upstrm Flow Reg None Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 206 Erosion Length (ft) 261 0 0 Bedrock height 0% Erosion Height (ft) 4.00 4.93 Improved Paths 0 0 Boulder 5% Revetmt. Type Rip-Rap None 0 0 height Cobble 39% 0 Revetmt. Length (ft) 207 73 Development 0 Coarse Gravel 28% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 16% 4.9 # of Beaver Dams Dominant **Deciduous Deciduous** Hillside Slope Extremely Steep 0 Affected Length (ft) Sand 12% Sub-dominant Herbaceous Herbaceous Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 51-75 51-75 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 0 3 0 3.2 Riparian Buffer 4 # Large Woody 510 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 2 0 0 0-25 Dominant >100 Bed 9.0 inches Confinement Type Very Broad 5.2 Other Features Sub-dominant 26-50 0-25 **Braiding** Bar 5.4 inches Rock Gorge? No W less than 25 602 360 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Deciduous Deciduous** Stream Type: C 2.1 Bankfull Width 49 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Herbaceous None Bed Material: Gravel 2.2 Max Depth (ft) 2.80 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 2.23 5.4 Stream Ford or Animal Yes Corridor Land Left Right Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 114 5.5 Straightening **Forest** Field Measured Slope: Dominant Hay 1.532 Straightening Length: Notes: Crop Sub-dominant **Pasture** 2.15 Reference Stream Type 5.5 Dredging None Cross section repeated and visual Mass Failures 0 0 (if different from Phase 1) observations recorded in November 2006 to Height 0 Note: Step 1.6 - Grade Controls update an assessment originally conducted in Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions July of 2002. A short section of Parsonage Length **Failures** None 0.00 are on The second page of this Road passes parallel to the Creek within the Height 0.00 report - with Steps 6 through 7. right-bank corridor, but not significant enough Gullies 0.00 None

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Project:

**Lewis Creek** 

Project: **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M20 Stream: **Lewis Creek** Segment: B Completion Date: November 7, 2006 Lewis Creek Association Why Not assessed: Organization: Observers: KU. BOS Rain: No Segment Location: Forested upstream half of M20 from confluence of High Knob tributary (T6) downstream to 1.738 Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 6.20 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Moderate 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 33.23 Upper 1 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.18 1.3 Corridor Encroachments Material Type Gravel Gravel 4.5 Flow Regulation Type 2.8 Incision Ratio 2.58 None Length (ft) One Both 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Moderate 0 0 height Material Type Boulder/Cobbl Boulder/Cobbl Impoundmt. Location 2.10 Riffles Type Sedimented 0 0 Roads Consistency Non-cohesive 4.6 Up/Down strm flow reg None Non-cohesive 2.11 Riffle/Step Spacing (ft) 225 0 height 0 (old) Upstrm Flow Reg None Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 0 0 Bedrock height 0% Erosion Height (ft) 0.00 0.00 Improved Paths 402 0 Boulder 10% Revetmt. Type None None 0 2 height Cobble 53% 0 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 22% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 3% 4.9 # of Beaver Dams Dominant Coniferous Coniferous Hillside Slope Steep Steep 0 Affected Length (ft) Sand 12% Sub-dominant None None Continuous w/ **Never Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? No Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Closed Detritus 2 % 1.5 Valley Features 5 1 0 3.2 Riparian Buffer 6 # Large Woody 270 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 Dominant >100 >100 Bed 350.0 mm Confinement Type Narrow 5.2 Other Features Sub-dominant 26-50 **Braiding** None Bar N/A mm Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Coniferous Stream Type: F 2.1 Bankfull Width 52 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant None None Bed Material: Cobble 2.2 Max Depth (ft) 2.40 No 3.3 Riparian Corridor Subclass Slope: C 2.3 Mean Depth (ft) 1.55 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool 5.5 Straightening Straightening 2.4 Floodprone Width (ft) 61 **Forest Forest** Field Measured Slope: Dominant 690 Straightening Length: Notes: Crop Sub-dominant None 2.15 Reference Stream Type 5.5 Dredging None Cross section repeated and visual Mass Failures 0 0 (if different from Phase 1) observations recorded in November 2006 to Height 0 Note: Step 1.6 - Grade Controls update an assessment originally conducted in Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions July of 2002. Improved path along right bank Length None 0.00 are on The second page of this appears to be 4-wheeler trail and may be **Failures** Height 0.00 report - with Steps 6 through 7. used for occasional access to RB field further Gullies 0.00 None

March 3, 2010 SGAT Version: 4.56

Reach # M21 Stream: **Lewis Creek** Segment: A Completion Date: November 7, 2006 Lewis Creek Association Why Not assessed: Organization: Observers: KLU. BOS Rain: Yes 1.280 Segment Location: Short section of semi-confined channel alongside Camp Common Ground, crossing under Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 5.10 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Moderate 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 12.19 Upper 1 4.4 # of Debris Jams 2.7 Entrenchment Ratio 2.08 1.3 Corridor Encroachments Material Type Boulder/Cobbl Boulder/Cobbl 4.5 Flow Regulation Type None 2.8 Incision Ratio 1.42 Length (ft) One Both 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 0 Lower Impoundments 2.9 Sinuosity Low 0 0 height Material Type Boulder/Cobbl Boulder/Cobbl Impoundmt, Location 2.10 Riffles Type Not Applicable 0 0 Roads Consistency Non-cohesive 4.6 Up/Down strm flow reg Non-cohesive None 2.11 Riffle/Step Spacing (ft) 0 0 height 0 (old) Upstrm Flow Reg Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 4.7 StormwaterInputs 0 0 Bedrock 0% height Erosion Height (ft) 0.00 0.00 Improved Paths 335 0 Road Ditch 1 Boulder 10% Field Ditch 0 Rip-Rap Revetmt. Type Rip-Rap 0 7 Tile Drain 0 height Other 0 Cobble 45% 57 Revetmt. Length (ft) 58 67 Development 0 Urb Strm Wtr Pipe 0 Overland Flow 1 Coarse Gravel 30% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 10% 4.9 # of Beaver Dams Dominant **Deciduous Deciduous** Hillside Slope Steep Steep 0 Affected Length (ft) Sand 5% Sub-dominant None None Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right W/in 1 Bankfill **Always** Always 5.1 Bar Types 51-75 51-75 Canopy % Silt/Clav Present? Yes Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Closed **Detritus** 0 % 1.5 Valley Features 0 0 0 3.2 Riparian Buffer 0 # Large Woody Valley Width (ft) 80 Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination Measured 0 0 Dominant 26-50 >100 Bed 0.0 Confinement Type Semi-confined 5.2 Other Features Sub-dominant **Braiding** None None N/A Bar Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion **Not Evaluated** Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Mixed Trees Mixed Trees** Stream Type: B 2.1 Bankfull Width 31 Steep Riffles Trib Rejuv. Head Cuts Sub-dominant None None Bed Material: Cobble 2.2 Max Depth (ft) 3.60 No 3.3 Riparian Corridor Subclass Slope: c 2.3 Mean Depth (ft) 2.56 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Plane Bed 5.5 Straightening None 2.4 Floodprone Width (ft) 65 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant Hay None 2.15 Reference Stream Type 5.5 Dredging None Cross section measured in Sept of 2002. 44 Mass Failures 0 (if different from Phase 1) Reviewed in Sept 2007 (SMRC) and bankfull В 3 С Plane Bed Height 0 12 Note: Step 1.6 - Grade Controls elevation raised consistent with field Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions observations during bankfull event on Length **Failures** None 0.00 are on The second page of this 5/19/2006. Improved path along right bank is located downstream of Tatro Road crossing, Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

**Phase 2 Segment Summary** 

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Project:

**Lewis Creek** 

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M21 Stream: **Lewis Creek** Segment: B Completion Date: November 7, 2006 Lewis Creek Association Why Not assessed: Organization: Observers: KLU. BOS Rain: Yes 3.118 Segment Location: Downstream of Meadow Lark Lane crossing extending to Camp Common Ground. Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 5.20 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 14.75 Upper 6 4.4 # of Debris Jams 2.7 Entrenchment Ratio 2.66 1.3 Corridor Encroachments Material Type Silt Silt 4.5 Flow Regulation Type 2.8 Incision Ratio 1.49 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity Moderate 0 0 height Material Type Sand Sand Impoundmt. Location 2.10 Riffles Type Complete 0 0 Roads Consistency Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 200 0 height 0 (old) Upstrm Flow Reg Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 650 Erosion Length (ft) 953 0 0 Bedrock height 0% Erosion Height (ft) 5.12 3.75 Improved Paths O 0 Boulder 13% Revetmt. Type None Rip-Rap 0 0 height Cobble 16% 0 128 Revetmt. Length (ft) 0 Development 102 Coarse Gravel 23% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 14% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Hilly Hilly 0 Affected Length (ft) Sand 34% Sub-dominant Coniferous Coniferous Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 1-25 1-25 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 20 % 1.5 Valley Features 1 13 2 3.2 Riparian Buffer 12 # Large Woody 500 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant >100 >100 Bed 250.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant 0-25 **Braiding** None Bar 60.0 mm Rock Gorge? No W less than 25 0 543 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Mixed Trees Mixed Trees Stream Type: C 2.1 Bankfull Width 35 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: Gravel 2.2 Max Depth (ft) 3.50 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 2.40 5.4 Stream Ford or Animal Yes Corridor Land Left Riaht Bed Form: Riffle-Pool 5.5 Straightening Straightening 2.4 Floodprone Width (ft) 94 **Forest Forest** Field Measured Slope: Dominant 618 Straightening Length: Notes: Crop Sub-dominant None 2.15 Reference Stream Type 5.5 Dredging None Cross section repeated and visual Mass Failures 0 0 (if different from Phase 1) observations recorded in November 2006 to Height 0 Note: Step 1.6 - Grade Controls update an assessment originally conducted in Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Sept of 2002. New development (residential Length **Failures** None 0.00 are on The second page of this home) within right bank corridor as of 2006 at Height 0.00 report - with Steps 6 through 7. downstream end of segment. 4-wheeler Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M22 Stream: **Lewis Creek** Segment: 0 Completion Date: August 29, 2002 Lewis Creek Association Observers: DF/CF/MI/KU/SP Why Not assessed: Organization: Rain: No 7.944 Segment Location: From upstream of Hillsboro Road crossing, downstream under Route 116, Meadowlark Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 3.51 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation None 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan Yes 2.6 Width/Depth Ratio 23.53 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 11.33 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type 2.8 Incision Ratio 1.64 None Length (ft) One Both Non-cohesive 0.00 Consistency Non-cohesive Flow Regulation Use Human Elevated Inc Rat 425 Berms 0 Lower Impoundments None 2.9 Sinuosity Low 5 0 height Material Type Gravel Gravel Impoundmt, Location 2.10 Riffles Type Complete 1.061 0 Roads Consistency Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 250 7 0 height (old) Upstrm Flow Reg None Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 1,871 1,449 4.7 StormwaterInputs 0 0 Bedrock height 0% Erosion Height (ft) 3.23 3.08 Improved Paths 0 0 Boulder Road Ditch 0 1% Field Ditch 0 Revetmt. Type Rip-Rap Rip-Rap 0 0 Tile Drain 0 height Other 0 Cobble 30% 739 Revetmt. Length (ft) 260 Development 163 219 Urb Strm Wtr Pipe 0 Overland Flow 1 Coarse Gravel 39% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 4 Fine Gravel 15% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Extremely Steep 203 Affected Length (ft) Sand 15% Sub-dominant Shrubs/Saplin Shrubs/Saplin Continuous w/ Never Never Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Never 5.1 Bar Types 1-25 1-25 Canopy % Silt/Clav Present? No Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Open **Detritus** 10 % 1.5 Valley Features 1 15 0 3.2 Riparian Buffer # Large Woody 1 680 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0-25 0-25 Dominant Bed 4.0 inches Confinement Type Very Broad 5.2 Other Features Sub-dominant 26-50 >100 **Braiding** Bar 4.0 inches Rock Gorge? No W less than 25 2.113 2,682 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Deciduous **Deciduous** Stream Type: C 2.1 Bankfull Width 35 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: Gravel 2.2 Max Depth (ft) 2.14 No 2 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 1.50 5.4 Stream Ford or Animal Yes Corridor Land Left Right Bed Form: Riffle-Pool With Windrowing 2.4 Floodprone Width (ft) 400 5.5 Straightening Hay Shrubs/Saplin Field Measured Slope: Dominant 3.906 Straightening Length: Notes: Sub-dominant Crop 2.15 Reference Stream Type Hay 5.5 Dredging Dredging Updated to 2007 protocols including FIT in Mass Failures 0 43 (if different from Phase 1) Jan 2008 by SMRC, relying on 2002 Ph2 Height 0 Note: Step 1.6 - Grade Controls reach-wide observations and limited 2005 Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions observations. Route 116 parallels the reach, Length **Failures** None 0.00 are on The second page of this causing HCCVW, but not substantial enough Height 0.00 report - with Steps 6 through 7. to change confinement (Very Broad). Four Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # M23 Stream: **Lewis Creek** Segment: 0 Completion Date: July 8, 2008 Lewis Creek Association Observers: KLU (SMRC); JC (MMI) Why Not assessed: Organization: Rain: Yes 4.505 Segment Location: Flows to the southwest along Ireland Road passing intersection with Meehan Rd. Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 7.50 ft. Abundant 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation None 4.2 Adjacent Wetlands None 8.40 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan Yes 2.6 Width/Depth Ratio 28.32 Upper 3 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.19 1.3 Corridor Encroachments Material Type Gravel Gravel 4.5 Flow Regulation Type 2.8 Incision Ratio 3.95 None Length (ft) One Both Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat 4.42 710 Berms 0 Lower Impoundments 2.9 Sinuosity Low 7 0 height Material Type Boulder/Cobbl Boulder/Cobbl Impoundmt. Location **Eroded** 2.10 Riffles Type 2.114 0 Roads Non-cohesive 4.6 Up/Down strm flow reg Consistency Non-cohesive None 2.11 Riffle/Step Spacing (ft) 0 height 10 0 (old) Upstrm Flow Reg Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 478 Erosion Length (ft) 454 0% 4.7 StormwaterInputs 0 0 Bedrock height Erosion Height (ft) 3.13 3.42 Improved Paths 0 0 Road Ditch 2 Boulder 36% Field Ditch 0 Revetmt. Type Rip-Rap None 0 0 Tile Drain 0 height Other 0 Cobble 12% 63 0 Revetmt. Length (ft) Development 316 14 Urb Strm Wtr Pipe 0 Overland Flow 5 Coarse Gravel 22% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 11% 4.9 # of Beaver Dams Dominant **Deciduous** Coniferous Hillside Slope Very Steep Extremely 0 Affected Length (ft) Sand 19% Sub-dominant Coniferous **Deciduous** Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 51-75 76-100 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 3 % 1.5 Valley Features 3 2 13 3.2 Riparian Buffer 34 # Large Woody 180 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 Dominant 26-50 >100 Bed 523.0 mm Confinement Type Narrow 5.2 Other Features Sub-dominant 0-25 0-25 **Braiding** Bar 216.0 mm Rock Gorge? No W less than 25 Flood Neck Cutoff Avulsion 1.451 101 Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Mixed Trees** Coniferous Stream Type: F 2.1 Bankfull Width 32 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin **Deciduous** Bed Material: Gravel 2.2 Max Depth (ft) 1.90 No 2 3.3 Riparian Corridor Subclass Slope: **b** 2.3 Mean Depth (ft) 1.13 5.4 Stream Ford or Animal Yes Corridor Land Left Riaht Bed Form: Plane Bed None 2.4 Floodprone Width (ft) 38 5.5 Straightening **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant Residential Residential 2.15 Reference Stream Type 5.5 Dredging None Original 2002 assessment updated in July Mass Failures 0 0 (if different from Phase 1) 2008. Valley confinement varies from SC to 0 Height Note: Step 1.6 - Grade Controls VB, but averages Narrow. Ireland Rd Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions encroaches along LB, causing reduction in Length **Failures** None 0.00 are on The second page of this valley width, but still unconfined overall. Height 0.00 report - with Steps 6 through 7. Bedrock offers lateral grade control within the Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T6.01 Stream: **High Knob Brook** Segment: 0 Completion Date: September 24, 2008 Organization: Why Not assessed: Lewis Creek Association Observers: j.clark, s.pytlik Rain: No Segment Location: From the bottom of the gorge upstream of Freedom Acres (private road) to the confluence Segment Length (ft): 5.649 QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 1.90 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Moderate 1.1 Segmentation None 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 20.42 Upper 7 4.4 # of Debris Jams 2.7 Entrenchment Ratio 6.84 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type 2.8 Incision Ratio 1.06 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Low 0 0 height Material Type Gravel Gravel Impoundmt. Location 2.10 Riffles Type Complete 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 125 0 height 0 (old) Upstrm Flow Reg None Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 188 231 0% 0 0 Bedrock height Erosion Height (ft) 3.03 2.81 Improved Paths 0 0 Boulder 3% None Revetmt. Type Rip-Rap 0 0 height Cobble 17% 58 0 Revetmt. Length (ft) 0 Development 485 Coarse Gravel 40% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 10% 4.9 # of Beaver Dams Dominant Coniferous Coniferous Hillside Slope Extremely Extremely 0 Affected Length (ft) Sand 13% Sub-dominant **Deciduous Deciduous** Continuous w/Sometimes **Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 17% Bank Canopy Left Right W/in 1 Bankfill Sometimes Sometimes 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? Yes Mixed Cobble Texture Mid Point Side Mid-Channel Canopy Closed Detritus 5 % 1.5 Valley Features 4 8 29 3.2 Riparian Buffer 27 # Large Woody Valley Width (ft) 155 Diagonal Delta Island Left **Buffer Width** Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant >100 >100 Bed 257.0 mm Confinement Type **Broad** 5.2 Other Features Sub-dominant **Braiding** None None Bar 320.0 mm Rock Gorge? No W less than 25 499 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Coniferous Stream Type: C 2.1 Bankfull Width 23 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant **Deciduous Deciduous** Bed Material: Gravel 2.2 Max Depth (ft) 1.80 No 1 3.3 Riparian Corridor Subclass Slope: **b** 2.3 Mean Depth (ft) 1.11 5.4 Stream Ford or Animal Yes Corridor Land Left Riaht Bed Form: Riffle-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 155 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant Residential Industrial 2.15 Reference Stream Type 5.5 Dredging None Reach typically riffle-pool, but does have Mass Failures 37 0 (if different from Phase 1) short sections of exposed bedrock and gorge 10 Height Note: Step 1.6 - Grade Controls area as a sub-dominant stream type. No Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions sections long enough to segment out. Quarry Length **Failures** One 10.00 are on The second page of this on right near top of bank is active and has

Height

0.00

recently expanded towards stream -no

Gullies

None

0.00

report - with Steps 6 through 7.

Project: page 1 of 2 March 3, 2010 SGAT Version: 4.56 **Lewis Creek Phase 2 Segment Summary** Reach # T6.02 Stream: **High Knob Brook** Segment: A Completion Date: November 6, 2008 **Lewis Creek Association** Observers: J.Clark. R.Schiff Why Not assessed:bedrock gorge Organization: Rain: No Segment Length (ft): 760 Segment Location: Bedrock gorge between Big Hollow Road and Freedom Acres private Road QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 0.00 ft. None 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Grade Controls 4.2 Adjacent Wetlands None 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 0.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 0.00 1.3 Corridor Encroachments Material Type **Bedrock** Bedrock 4.5 Flow Regulation Type 2.8 Incision Ratio 0.00 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity 0 0 height Material Type **Bedrock Bedrock** Impoundmt, Location 2.10 Riffles Type 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 height 0 0 (old) Upstrm Flow Reg None Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 height 0 0 Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 None Revetmt. Type None 0 0 height 0 0 Revetmt. Length (ft) Development 0 0 Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 4.9 # of Beaver Dams Dominant Coniferous Coniferous Hillside Slope Extremely Extremely 0 Affected Length (ft) Sub-dominant Continuous w/ Always **Always** Step 5. Channel Bed and Planform Changes Bank Canopy Left Right W/in 1 Bankfill Always **Always** 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? **Bedrock Bedrock** Texture Mid Point Side Mid-Channel Canopy Closed Detritus 0 % 1.5 Valley Features 0 0 0 3.2 Riparian Buffer 0 # Large Woody Valley Width (ft) 10 Diagonal Delta Island **Buffer Width** Left Right 2.13 Average Largest Particle on Width Determination Measured 0 0 Dominant >100 >100 Bed 0.0 Confinement Type **Narrowly** 5.2 Other Features Sub-dominant **Braiding** 0.0 Bar Rock Gorge? Yes W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Coniferous Stream Type: 2.1 Bankfull Width 0 Steep Riffles **Head Cuts** Trib Rejuv. Sub-dominant Mixed Trees **Mixed Trees** Bed Material: 2.2 Max Depth (ft) 0.00 3.3 Riparian Corridor Subclass Slope: 0.00 5.4 Stream Ford or Animal No 2.3 Mean Depth (ft) Corridor Land Left Riaht Bed Form: 5.5 Straightening None 2.4 Floodprone Width (ft) 0 **Forest Forest** Dominant Field Measured Slope: Straightening Length: Notes: Sub-dominant 2.15 Reference Stream Type 5.5 Dredging None Mass Failures 0 0 (if different from Phase 1) Height 0 Note: Step 1.6 - Grade Controls Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions

Length

Height

0.00

are on The second page of this

report - with Steps 6 through 7.

0.00

0.00

None

None

Failures

Gullies

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T6.02 Stream: **High Knob Brook** Segment: B Completion Date: November 6, 2008 **Lewis Creek Association** Organization: Observers: j.clark, r.schiff Why Not assessed: Rain: No Segment Length (ft): 1.094 Segment Location: Start of bedrock grade control down to end of bedrock gorge, in between Big Hollow Road QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 1.90 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Undercut 1.1 Segmentation Grade Controls 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 15.30 Upper 3 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.27 1.3 Corridor Encroachments Material Type **Bedrock** Silt 4.5 Flow Regulation Type 2.8 Incision Ratio 1.06 None Length (ft) One Both 0.00 Consistency Cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Low 0 0 height Material Type Gravel Gravel Impoundmt, Location 2.10 Riffles Type Complete 0 0 Roads Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg Consistency None 2.11 Riffle/Step Spacing (ft) 90 0 height 0 (old) Upstrm Flow Reg None Left Bank Frosion Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 0 0 Bedrock 13% height Erosion Height (ft) 0.00 0.00 Improved Paths O 0 Boulder 9% None Revetmt. Type None 0 0 height Cobble 18% 0 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 29% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 13% 4.9 # of Beaver Dams Dominant Coniferous Coniferous Hillside Slope Extremely Extremely 0 Affected Length (ft) Sand 13% Sub-dominant **Deciduous Deciduous** Continuous w/ Always **Always** Step 5. Channel Bed and Planform Changes Silt and smaller 6% Bank Canopy Left Right W/in 1 Bankfill Always Always 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? No **Bedrock** Silt/Clay Texture Mid Point Side Mid-Channel Canopy Closed Detritus 2 % 1.5 Valley Features 1 0 8 3.2 Riparian Buffer 15 # Large Woody Valley Width (ft) 26 Diagonal Delta Island Left **Buffer Width** Right 2.13 Average Largest Particle on Width Determination Measured 0 0 Dominant >100 >100 Bed 256.0 mm Confinement Type **Narrowly** 5.2 Other Features Sub-dominant **Braiding** None None Bar 256.0 mm Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Coniferous Stream Type: B 2.1 Bankfull Width 21 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant **Deciduous Deciduous** Bed Material: Gravel 2.2 Max Depth (ft) 1.80 No 3.3 Riparian Corridor Subclass Slope: None 1.34 5.4 Stream Ford or Animal No 2.3 Mean Depth (ft) Corridor Land Left Right Bed Form: Step-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 26 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant None None 2.15 Reference Stream Type 5.5 Dredging None Narrow valley, lots of grade control. No Mass Failures 0 0 (if different from Phase 1) encroachments. Height 0 Note: Step 1.6 - Grade Controls Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Length None 0.00 are on The second page of this Failures Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T6.03 Stream: **High Knob Brook** Segment: A Completion Date: November 6, 2008 Why Not assessed: Organization: Lewis Creek Association Observers: j.clark, s.bonney, r.schiff Rain: Yes Segment Length (ft): 2.068 Segment Location: Downstream end of last field on left bank, downstream from Big Hollow Road to the start of QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 2.00 ft. Minimal 3.1 Stream Banks Typical Bank Slope Undercut 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 14.53 Upper 4 4.4 # of Debris Jams 2.7 Entrenchment Ratio 2.62 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type 2.8 Incision Ratio 1.25 None Length (ft) One Both 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Moderate 0 0 height Material Type Gravel Gravel Impoundmt, Location 2.10 Riffles Type **Sedimented** 0 0 Roads Consistency Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 75 0 height 0 (old) Upstrm Flow Reg None Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 height 0 0 Bedrock 0% Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 Boulder 1% None Revetmt. Type None 0 0 height Cobble 24% 0 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 51% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 14% 4.9 # of Beaver Dams Dominant Coniferous Coniferous Hillside Slope Very Steep Very Steep 0 Affected Length (ft) Sand 10% Sub-dominant **Deciduous Deciduous** Continuous w/ Never Never Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right W/in 1 Bankfill Never Never 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? No Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Closed Detritus 5 % 1.5 Valley Features 7 3 6 3.2 Riparian Buffer 19 # Large Woody 610 Valley Width (ft) Diagonal Delta Island Left **Buffer Width** Right 2.13 Average Largest Particle on Width Determination Measured 1 26-50 Dominant >100 Bed 241.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant >100 **Braiding** None Bar 226.0 mm Rock Gorge? No W less than 25 0 116 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Mixed Trees Stream Type: C 2.1 Bankfull Width 19 Steep Riffles Trib Rejuv. Head Cuts Sub-dominant Deciduous Herbaceous Bed Material: Gravel 2.2 Max Depth (ft) 1.60 No 1 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 1.28 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 49 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant None **Pasture** 2.15 Reference Stream Type 5.5 Dredging None Downstream end of reach transitions to Mass Failures 0 0 (if different from Phase 1) confined valley with bedrock control. Last few Height 0 Note: Step 1.6 - Grade Controls hundred feet are locally wider with lots of Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions gravel aggradation. Also forest changes to Length None 0.00 are on The second page of this mature conifers. **Failures** Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T6.03 Stream: **High Knob Brook** Segment: B Completion Date: August 29, 2008 **Lewis Creek Association** Rain: Yes Organization: Observers: j.clark, s.bonney Why Not assessed: Segment Length (ft): 1.370 Segment Location: Along back pasture between Butler Pond and High Knob, after end of straightened section QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 1.80 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Undercut 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 10.90 Upper 1 4.4 # of Debris Jams 2.7 Entrenchment Ratio 2.31 1.3 Corridor Encroachments Material Type Silt Silt 4.5 Flow Regulation Type 2.8 Incision Ratio 1.29 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Hiah 0 0 height Material Type Gravel Gravel Impoundmt, Location 2.10 Riffles Type 0 0 Complete Roads Consistency Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 90 0 height 0 (old) Upstrm Flow Reg None Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 **154** Erosion Length (ft) 218 height 0 0 Bedrock 0% Erosion Height (ft) 3.78 3.13 Improved Paths 0 0 Boulder 0% None Revetmt. Type Other 0 0 height Cobble 14% 62 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 58% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 19% 4.9 # of Beaver Dams Dominant Herbaceous **Deciduous** Hillside Slope Extremely Steep 0 Affected Length (ft) Sand 9% Sub-dominant Shrubs/Saplin Herbaceous Continuous w/ Never Never Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right W/in 1 Bankfill Never Never 5.1 Bar Types 26-50 76-100 Canopy % Silt/Clav Present? No Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 2 % 1.5 Valley Features 1 8 6 3.2 Riparian Buffer 5 # Large Woody 380 Valley Width (ft) Diagonal Delta Island Left **Buffer Width** Right 2.13 Average Largest Particle on Width Determination Measured 1 Dominant 26-50 >100 Bed 7.9 inches Confinement Type Very Broad 5.2 Other Features Sub-dominant 0-25 26-50 **Braiding** Bar 5.7 inches Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous **Deciduous** Stream Type: E 2.1 Bankfull Width 13 Trib Rejuv. Steep Riffles **Head Cuts** Sub-dominant Shrubs/Saplin Herbaceous Bed Material: Gravel 2.2 Max Depth (ft) 1.40 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 1.17 5.4 Stream Ford or Animal Yes Corridor Land Left Right Bed Form: Riffle-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 29 **Pasture Pasture** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant **Forest** Forest 2.15 Reference Stream Type 5.5 Dredging None Inactive pasture, currently have one old Mass Failures 0 0 (if different from Phase 1) horse. No traces of horse near channel. Ε 4 Non Riffle-Pool Height 0 Note: Step 1.6 - Grade Controls Tractor ford looks seldom used. Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Length None 0.00 are on The second page of this Failures Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T6.3S1.01 Stream: **Unnamed Trib to High Knob** Segment: 0 Completion Date: November 6, 2008 Organization: Why Not assessed: Lewis Creek Association Observers: j.clark, r.schiff Rain: No Segment Length (ft): 1.568 Segment Location: Downstream of Brown Hill Road Crossing to Beginning of field before confluence with High QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 1.40 ft. 4.1 Springs / Seeps None 3.1 Stream Banks Typical Bank Slope Undercut 1.1 Segmentation None 4.2 Adjacent Wetlands 2.40 ft. None Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Low 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 12.50 Upper 2 4.4 # of Debris Jams 2.7 Entrenchment Ratio 39.58 1.3 Corridor Encroachments Material Type Silt Silt 4.5 Flow Regulation Type 2.8 Incision Ratio 1.08 None Length (ft) One Both Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat 1.85 742 Berms 0 Lower Impoundments None 2.9 Sinuosity Low 3 0 height Material Type Mix Mix Impoundmt. Location 2.10 Riffles Type Sedimented 0 0 Roads Consistency Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 38 0 height 0 (old) Upstrm Flow Reg None Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 **261** Erosion Length (ft) 305 0 0 Bedrock 0% height Erosion Height (ft) 3.00 2.69 Improved Paths 0 0 Boulder 1% None Revetmt. Type None 0 0 heiaht Cobble 40% 0 0 Revetmt. Length (ft) 0 Development 163 Coarse Gravel 33% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 17% 4.9 # of Beaver Dams Dominant Deciduous Herbaceous Hillside Slope Very Steep Flat 0 Affected Length (ft) Sand 9% Sub-dominant Coniferous **Deciduous** Continuous w/ **Always** Always Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right W/in 1 Bankfill Always Always 5.1 Bar Types 76-100 26-50 Canopy % Silt/Clav Present? No Mixed Mixed Texture Mid Point Side Mid-Channel Canopy Closed Detritus 5 % 1.5 Valley Features 3 4 6 3.2 Riparian Buffer 6 # Large Woody Valley Width (ft) 1,400 Diagonal Delta Island **Buffer Width** Left Right 2.13 Average Largest Particle on Width Determination Measured 0 0 0-25 Dominant >100 Bed 7.6 inches Confinement Type Very Broad 5.2 Other Features Sub-dominant 51-100 26-50 **Braiding** 5.8 Bar inches Rock Gorge? No W less than 25 0 718 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Mixed Trees** Herbaceous Stream Type: C 2.1 Bankfull Width 13 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant **Mixed Trees** None Bed Material: Gravel 2.2 Max Depth (ft) 1.30 No 2 3.3 Riparian Corridor Subclass Slope: **b** 2.3 Mean Depth (ft) 1.00 5.4 Stream Ford or Animal No Corridor Land Left Right Bed Form: Riffle-Pool 5.5 Straightening With Windrowing 2.4 Floodprone Width (ft) 495 **Forest Pasture** Field Measured Slope: Dominant 1.372 Straightening Length: Notes: Crop Sub-dominant Residential 2.15 Reference Stream Type 5.5 Dredging None Channel appears to have been moved from Mass Failures 0 0 (if different from Phase 1) mid-filed to edge of valley relatively recently. Height 0 Note: Step 1.6 - Grade Controls Bed covered in loose till. Appears to have Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions been a heacut travel up through and stop at Length **Failures** None 0.00 are on The second page of this the Brown Hill Road culvert upstream of Height 0.00 report - with Steps 6 through 7. reach. Short berm on right for part of reach. Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T6.04 Stream: **High Knob Brook** Segment: A Completion Date: August 29, 2008 Organization: Why Not assessed: Rain: Yes Lewis Creek Association Observers: j.clark, m.lyttle Segment Location: tractor crossing at beginning of straightening along feild, across field to treeline at Segment Length (ft): 644 QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 1.65 ft. 4.1 Springs / Seeps None 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Subreach 4.2 Adjacent Wetlands None 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 10.81 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 21.58 1.3 Corridor Encroachments Material Type Boulder/Cobbl Boulder/Cobbl 4.5 Flow Regulation Type 2.8 Incision Ratio 1.00 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Low 0 0 height Material Type Sand Sand Impoundmt, Location 2.10 Riffles Type Sedimented 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 33 0 height 0 (old) Upstrm Flow Reg None Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 height 0 0 Bedrock 0% Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 Boulder 0% Revetmt. Type None None 0 0 height Cobble 0% 0 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 2% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 92% 4.9 # of Beaver Dams Dominant Herbaceous **Deciduous** Hillside Slope Flat Steep 0 Affected Length (ft) Sand 5% Sub-dominant **Pasture** Herbaceous Continuous w/ **Never Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 1% Bank Canopy Left Right W/in 1 Bankfill Never Always 5.1 Bar Types 1-25 76-100 Canopy % Silt/Clav Present? Yes Texture Not Evalua **Boulder** Mid Point Side Mid-Channel Canopy Open Detritus 1 % 1.5 Valley Features 2 2 1 3.2 Riparian Buffer 3 # Large Woody Valley Width (ft) 1,080 Diagonal Delta Island **Buffer Width** Left Right 2.13 Average Largest Particle on Width Determination Measured 0 0 0 0-25 Dominant 51-100 Bed 256.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant **Braiding** None None Bar 72.0 mm Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous **Deciduous** Stream Type: E 2.1 Bankfull Width 13 Steep Riffles **Head Cuts** Trib Rejuv. Sub-dominant None Shrubs/Saplin Bed Material: Gravel 2.2 Max Depth (ft) 1.65 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 1.23 5.4 Stream Ford or Animal Yes Corridor Land Left Riaht Bed Form: Riffle-Pool 5.5 Straightening Straightening 2.4 Floodprone Width (ft) 287 **Pasture Forest** Field Measured Slope: Dominant 481 Straightening Length: Notes: Sub-dominant None **Pasture** 2.15 Reference Stream Type 5.5 Dredging None This is a subreach, with an E type channel Mass Failures 0 0 (if different from Phase 1) versus the C type channel reference for the Height 0 Note: Step 1.6 - Grade Controls reach and upstream section. The valley width Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions greatly increases. This reach was extensively Length **Failures** None 0.00 are on The second page of this straightened historically. Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T6.04 Stream: **High Knob Brook** Segment: B Completion Date: August 20, 2008 **Lewis Creek Association** Why Not assessed: Rain: Yes Organization: Observers: j.clark, m.lyttle Segment Location: Includes both channel along both homes upstream of Brown Hill Crossing downs to tractor Segment Length (ft): 2.263 QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 2.45 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Undercut 1.1 Segmentation Subreach 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 14.83 Upper 1 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.66 1.3 Corridor Encroachments Material Type Boulder/Cobbl Boulder/Cobbl 4.5 Flow Regulation Type 2.8 Incision Ratio 1.81 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Low 0 0 height Material Type Boulder/Cobbl Boulder/Cobbl Impoundmt, Location 2.10 Riffles Type Complete 199 745 Roads Cohesive Cohesive 4.6 Up/Down strm flow reg Consistency None 2.11 Riffle/Step Spacing (ft) 68 6 height 6 (old) Upstrm Flow Reg None Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 93 0 0 0 Bedrock height 0% Erosion Height (ft) 2.36 0.00 Improved Paths 0 0 Boulder 0% Revetmt. Type Rip-Rap Rip-Rap 0 0 height Cobble 2% 151 Revetmt. Length (ft) 113 33 Development 157 Coarse Gravel 58% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 34% 4.9 # of Beaver Dams Dominant **Deciduous Deciduous** Hillside Slope Hilly Hilly 0 Affected Length (ft) Sand 5% Sub-dominant Lawn Lawn Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 1% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 26-50 76-100 Canopy % Silt/Clav Present? Yes **Boulder** Texture **Boulder** Mid Point Side Mid-Channel Canopy Closed Detritus 3 % 1.5 Valley Features 5 5 3 3.2 Riparian Buffer 8 # Large Woody Valley Width (ft) 390 Diagonal Delta Island Left **Buffer Width** Right 2.13 Average Largest Particle on Width Determination Measured 0 1 Dominant >100 >100 Bed 362.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant 0-25 0-25 **Braiding** Bar 107.0 mm Rock Gorge? No W less than 25 359 0 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Deciduous Deciduous** Stream Type: B 2.1 Bankfull Width 18 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Herbaceous Herbaceous Bed Material: Gravel 2.2 Max Depth (ft) 1.35 No 3.3 Riparian Corridor Subclass Slope: C 1.18 5.4 Stream Ford or Animal No 2.3 Mean Depth (ft) Corridor Land Left Riaht Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 29 5.5 Straightening **Forest Forest** Field Measured Slope: Dominant 1.095 Straightening Length: Notes: Sub-dominant Residential Residential 2.15 Reference Stream Type 5.5 Dredging None Two channel constrictions. Channel narrows Mass Failures 0 0 (if different from Phase 1) near homes when buffer is encroached upon Height 0 Note: Step 1.6 - Grade Controls by lawn. Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Length **Failures** None 0.00 are on The second page of this K.Underwood, 3/3/10: Revised segment Height 0.00 report - with Steps 6 through 7. sensitivity from High to Very High due to Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T6.05 Stream: **High Knob Brook** Segment: A Completion Date: August 26, 2008 **Lewis Creek Association** Why Not assessed: Organization: Observers: r.schiff, j.clark Rain: No Segment Location: Upstream of 1127 Big Hollow Road to the next home on right, approximately half way to Segment Length (ft): 3.858 QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 2.5 Aband. Floodpln Step 1. Valley and Floodplain 1.30 ft. 4.1 Springs / Seeps **Abundant** 3.1 Stream Banks Typical Bank Slope Steep 4.2 Adjacent Wetlands **Abundant** 1.1 Segmentation Depositional Features 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 22.87 Upper 11 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.43 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type None 2.8 Incision Ratio 1.18 Length (ft) One Both 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity Moderate 0 0 height Material Type Gravel Gravel Impoundmt, Location 2.10 Riffles Type Sedimented 0 0 Roads Consistency Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 200 0 height 0 (old) Upstrm Flow Reg None Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 0 0 Bedrock height 0% Erosion Height (ft) 0.00 0.00 Improved Paths 0 Boulder 0% None Revetmt. Type None 0 0 height Cobble 9% 0 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 24% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 53% 4.9 # of Beaver Dams Dominant **Deciduous Deciduous** Hillside Slope Very Steep Steep 0 Affected Length (ft) Sand 13% Sub-dominant Coniferous Coniferous Continuous w/Sometimes Never Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Closed Detritus 5 % 1.5 Valley Features 11 18 11 3.2 Riparian Buffer 38 # Large Woody 300 Valley Width (ft) Diagonal Delta Island **Buffer Width** Left Right 2.13 Average Largest Particle on Width Determination Measured 5 0 Dominant >100 >100 Bed 5.1 inches Confinement Type Very Broad 5.2 Other Features Sub-dominant **Braiding** Bar 4.1 inches Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Deciduous Deciduous** Stream Type: B 2.1 Bankfull Width 20 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Coniferous Coniferous Bed Material: Gravel 2.2 Max Depth (ft) 1.10 No 3.3 Riparian Corridor Subclass Slope: C 2.3 Mean Depth (ft) 0.87 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 28 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant Residential Residential 2.15 Reference Stream Type 5.5 Dredging None Migration is common in this reach in the form Mass Failures 0 0 (if different from Phase 1) of braiding, avulsions, and floodchutes. 0 Height Note: Step 1.6 - Grade Controls Widening is occurring in locations, possibly Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions not well captured at the representative cross Length **Failures** None 0.00 are on The second page of this section. Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T6.05 Stream: **High Knob Brook** Segment: B Completion Date: August 26, 2008 **Lewis Creek Association** Why Not assessed: Organization: Observers: r.schiff, j.clark Rain: No Segment Location: Upstream of tributary and Stokes Hill Road down to just upstream of home on rigth Segment Length (ft): 2.378 QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 1.20 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Steep 4.2 Adjacent Wetlands **Abundant** 1.1 Segmentation Depositional Features 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 29.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 4.00 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type None 2.8 Incision Ratio 1.09 Length (ft) One Both Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat 0.00 0 0 Berms Lower Impoundments None 2.9 Sinuosity Low 0 0 height Material Type Gravel Gravel Impoundmt, Location 2.10 Riffles Type Sedimented 496 312 Roads Consistency Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 45 height 12 10 (old) Upstrm Flow Reg None Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 82 104 4.7 StormwaterInputs 0 0 Bedrock 0% height Erosion Height (ft) 2.55 2.98 Improved Paths 0 0 Road Ditch 1 Boulder 0% Field Ditch 0 Revetmt. Type Multiple Rip-Rap 0 0 Tile Drain 0 height Other 0 Cobble 23% Revetmt. Length (ft) 137 59 376 0 Development Urb Strm Wtr Pipe 2 Overland Flow 0 Coarse Gravel 48% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 21% 4.9 # of Beaver Dams Deciduous Dominant **Deciduous** Hillside Slope Very Steep Hilly 0 Affected Length (ft) Sand 7% Sub-dominant Coniferous Herbaceous Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 51-75 76-100 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Closed Detritus 5 % 1.5 Valley Features 1 10 10 3.2 Riparian Buffer 6 # Large Woody 165 Valley Width (ft) Diagonal Delta Island Left **Buffer Width** Right 2.13 Average Largest Particle on Width Determination Measured 0 Dominant >100 >100 Bed 5.7 inches Confinement Type Very Broad 5.2 Other Features Sub-dominant None 0-25 **Braiding** Bar 6.6 inches Rock Gorge? No W less than 25 110 170 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Deciduous Deciduous** Stream Type: C 2.1 Bankfull Width 15 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Coniferous Coniferous Bed Material: Gravel 2.2 Max Depth (ft) 1.10 No 1 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 0.50 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 58 5.5 Straightening **Forest Forest** Field Measured Slope: Dominant 1.888 Straightening Length: Notes: Sub-dominant Residential Residential 2.15 Reference Stream Type 5.5 Dredging None Extreme upstream end (approximately 250 Mass Failures 0 0 (if different from Phase 1) feet) in beaver influenced wetland area, very 0 Height Note: Step 1.6 - Grade Controls similar to T6.06A. Historic straightening along Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions almost entire reach, either on right or left Length None 0.00 are on The second page of this valley wall. **Failures** Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T6.06 Stream: **High Knob Brook** Segment: A Completion Date: August 20, 2008 Organization: **Lewis Creek Association** Why Not assessed: Rain: Yes Observers: j.clark, m.lyttle Segment Length (ft): 2.887 Segment Location: Starting downstream of the first tributary upstream of Dugway Lane down to upstream of QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 1.90 ft. 4.1 Springs / Seeps **Abundant** 3.1 Stream Banks Typical Bank Slope Undercut 1.1 Segmentation Corridor Encroachment 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 12.11 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 16.25 1.3 Corridor Encroachments Material Type Silt Silt 4.5 Flow Regulation Type None 2.8 Incision Ratio 1.00 Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 0 Lower Impoundments None 2.9 Sinuosity Moderate 0 0 height Material Type Gravel Gravel Impoundmt, Location 2.10 Riffles Type **Sedimented** 1.791 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 60 height 10 0 (old) Upstrm Flow Reg None Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 0 0 Bedrock height 0% Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 Boulder 0% Revetmt. Type None None 0 0 height Cobble 5% 0 0 Revetmt. Length (ft) 333 0 Development Coarse Gravel 47% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 6 Fine Gravel 26% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Extremely Extremely 910 Affected Length (ft) Sand 2% Sub-dominant Shrubs/Saplin Shrubs/Saplin Continuous w/Sometimes **Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 20% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 1-25 1-25 Canopy % Silt/Clav Present? Yes Gravel Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 5 % 1.5 Valley Features 7 0 4 3.2 Riparian Buffer 9 # Large Woody 240 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination Measured 0 0 Dominant >100 >100 Bed 128.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant 26-50 **Braiding** None Bar 139.0 mm Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Shrubs/Saplin Shrubs/Saplin Stream Type: E 2.1 Bankfull Width 15 Steep Riffles Trib Rejuv. Head Cuts Sub-dominant Mixed Trees Mixed Trees Bed Material: Gravel 2.2 Max Depth (ft) 1.90 No 1 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 1.22 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool 5.5 Straightening With Windrowing 2.4 Floodprone Width (ft) 240 Shrubs/Saplin Shrubs/Saplin Field Measured Slope: Dominant 448 Straightening Length: Notes: Sub-dominant Residential Residential 2.15 Reference Stream Type 5.5 Dredging None Multiple beaver dams - only active ones Mass Failures 0 0 (if different from Phase 1) included in FIT, many more breached or 0 Height Note: Step 1.6 - Grade Controls historic. Channel flow path differs from VHD Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions and USGS mapping at Dugway Road home. Length **Failures** None 0.00 are on The second page of this Channel flows under road for approximately 200 feet and crosses back. Tributary T6.6S1 Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T6.06 Stream: **High Knob Brook** Segment: B Completion Date: August 5, 2008 Observers: r.schiff, j.clark, n.sibley Rain: Yes Organization: Lewis Creek Association Why Not assessed: 3.677 Segment Location: Most upstream home along Big Hollow Road down to behind home and barn on right Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 1.10 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Corridor Encroachment 4.2 Adjacent Wetlands Abundant 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Hiah 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 12.62 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 6.64 1.3 Corridor Encroachments Material Type Gravel Gravel 4.5 Flow Regulation Type Small Run of 2.8 Incision Ratio 1.22 Length (ft) One Both Recreation 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments Small 2.9 Sinuosity Low 0 0 height Material Type Sand Sand Impoundmt, Location In Reach 2.10 Riffles Type Sedimented 2.285 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 100 height 9 0 (old) Upstrm Flow Reg Run-of-river Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 4.7 StormwaterInputs 0 0 Bedrock height 0% Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 Road Ditch 2 Boulder 0% Field Ditch 0 Revetmt. Type None None 0 0 Tile Drain 0 height Other 0 Cobble 29% 0 0 Revetmt. Length (ft) 0 Development 686 Urb Strm Wtr Pipe 0 Overland Flow 0 Coarse Gravel 21% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 48% 4.9 # of Beaver Dams Dominant **Pasture Pasture** Hillside Slope Extremely Extremely 0 Affected Length (ft) Sand 3% Sub-dominant Herbaceous Herbaceous Continuous w/Sometimes **Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 1-25 1-25 Canopy % Silt/Clav Present? No Gravel Texture Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 2 % 1.5 Valley Features 1 0 0 3.2 Riparian Buffer 0 # Large Woody Valley Width (ft) 258 Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination Measured 0 4 0-25 0-25 Dominant Bed 99.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant 51-100 26-50 **Braiding** Bar N/A mm Rock Gorge? No W less than 25 2.779 2.783 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous Herbaceous Stream Type: E 2.1 Bankfull Width 8 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: Gravel 0.90 2.2 Max Depth (ft) No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 0.61 5.4 Stream Ford or Animal Yes Corridor Land Left Right Bed Form: Riffle-Pool Straightening 2.4 Floodprone Width (ft) 51 5.5 Straightening **Pasture Pasture** Field Measured Slope: Dominant 182 Straightening Length: Notes: Sub-dominant Shrubs/Saplin Shrubs/Saplin 2.15 Reference Stream Type 5.5 Dredging None New culvert after initial assessment took Mass Failures 0 0 (if different from Phase 1) place behind home and barn near 0 Height Note: Step 1.6 - Grade Controls downstream end of reach. Much of this reach Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions is open cow pasture, cows have complete Length **Failures** None 0.00 are on The second page of this access. Segment assessed during high flows, Height 0.00 report - with Steps 6 through 7. some bars and bed features may have been Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T6.06 Stream: **High Knob Brook** Segment: C Completion Date: August 5, 2008 **Lewis Creek Association** Rain: Yes Organization: Observers: j.clark, r.schiff, n.sibley Why Not assessed:wetland Segment Length (ft): 1.918 Segment Location: Most upstream segment, upstream of last home on Big Hollow Road QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 0.00 ft. Step 1. Valley and Floodplain 2.5 Aband. Floodpln 4.1 Springs / Seeps Abundant 3.1 Stream Banks 1.1 Segmentation Other Reason Typical Bank Slope 4.2 Adjacent Wetlands Abundant 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Hiah 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 0.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 0.00 1.3 Corridor Encroachments Material Type 4.5 Flow Regulation Type 2.8 Incision Ratio 0.00 None Length (ft) One Both 0.00 Consistency Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments None 2.9 Sinuosity 0 0 height Material Type Impoundmt. Location 2.10 Riffles Type 1.918 0 Roads 4.6 Up/Down strm flow reg Consistency None 2.11 Riffle/Step Spacing (ft) 0 height 6 0 (old) Upstrm Flow Reg Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 height 0 0 Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 Revetmt. Type None None 0 0 height 0 0 Revetmt. Length (ft) Development 115 0 Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Extremely **Extremely** 0 Affected Length (ft) Sub-dominant Continuous w/ Never Never Step 5. Channel Bed and Planform Changes Bank Canopy Left Right W/in 1 Bankfill Never Never 5.1 Bar Types 0 0 Canopy % Silt/Clav Present? Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 0 % 1.5 Valley Features 0 0 0 3.2 Riparian Buffer 0 # Large Woody 258 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination Measured 0 0 26-50 Dominant >100 Bed 0.0 Confinement Type Very Broad 5.2 Other Features Sub-dominant **Braiding** 51-100 0.0 Bar Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? Yes Left Buffer Veg. Type Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Herbaceous Herbaceous Stream Type: 2.1 Bankfull Width 0 Steep Riffles **Head Cuts** Trib Rejuv. Sub-dominant **Coniferous** Bed Material: 2.2 Max Depth (ft) 0.00 n 3.3 Riparian Corridor Subclass Slope: 0.00 5.4 Stream Ford or Animal Yes 2.3 Mean Depth (ft) Corridor Land Left Riaht Bed Form: 5.5 Straightening None 2.4 Floodprone Width (ft) 0 Dominant **Forest** Residential Field Measured Slope: Straightening Length: Notes: Sub-dominant 2.15 Reference Stream Type 5.5 Dredging None Mass Failures 0 0 (if different from Phase 1) Height O Note: Step 1.6 - Grade Controls Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Length None 0.00 are on The second page of this Failures

Height

0.00

Gullies

None

0.00

report - with Steps 6 through 7.

**Phase 2 Segment Summary** Reach # **T4.01** Stream: **Hollow Brook** Segment: A Completion Date: August 18, 2008 Observers: KLU (SMRC); JC (MMI) Organization: Lewis Creek Association Why Not assessed: Rain: No 4.415 Segment Location: Downstream half of reach from wetlands downstream to confluence with Lewis Creek at top Segment Length (ft): QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 2.45 ft. Abundant 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 25.12 Upper 6 4.4 # of Debris Jams 2.7 Entrenchment Ratio 33.12 1.3 Corridor Encroachments Material Type Sand Sand 4.5 Flow Regulation Type 2.8 Incision Ratio 1.00 None Length (ft) One Both 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity Hiah 0 0 height Material Type Silt Silt Impoundmt, Location 2.10 Riffles Type Not Applicable 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 0 height 0 (old) Upstrm Flow Reg Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 239 Erosion Length (ft) 61 0 0 Bedrock 0% height Erosion Height (ft) 3.20 4.00 Improved Paths 0 0 Boulder 0% Revetmt. Type Rip-Rap Rip-Rap 0 0 height Cobble 1% 30 53 Revetmt. Length (ft) 0 Development 289 Coarse Gravel **59**% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 2 Fine Gravel 20% 4.9 # of Beaver Dams Dominant Herbaceous Herbaceous Hillside Slope Hilly Hilly 202 Affected Length (ft) Sand 20% Sub-dominant Shrubs/Saplin Shrubs/Saplin Continuous w/ Never Never Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right W/in 1 Bankfill Never Never 5.1 Bar Types 1-25 1-25 Canopy % Silt/Clav Present? Yes Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 2 % 1.5 Valley Features 3 17 1 3.2 Riparian Buffer 18 # Large Woody 950 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0 Dominant >100 >100 Bed N/A Confinement Type Very Broad 5.2 Other Features Sub-dominant 0-25 0-25 **Braiding** N/A Bar Rock Gorge? No W less than 25 264 286 Flood Neck Cutoff Avulsion **Not Evaluated** Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Shrubs/Saplin Shrubs/Saplin Stream Type: C 2.1 Bankfull Width 31 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Deciduous **Deciduous** Bed Material: Gravel 2.2 Max Depth (ft) 2.45 No 1 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 1.25 5.4 Stream Ford or Animal Yes Corridor Land Left Riaht Bed Form: Dune-Ripple Straightening 2.4 Floodprone Width (ft) 1.040 5.5 Straightening Shrubs/Saplin Shrubs/Saplin Field Measured Slope: Dominant 232 Straightening Length: Notes: Sub-dominant **Forest** Forest 2.15 Reference Stream Type 5.5 Dredging Dredging Updated in Dec 2008 relying primarily on Mass Failures 0 0 (if different from Phase 1) August 2008 field observations and additional 0 Ε 4 Non Dune-Ripple Height Note: Step 1.6 - Grade Controls cross sections to supplement original Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions assessment in July and Sept of 2002. Length None 0.00 are on The second page of this Wetlands (NWI) and hydric soils mapped Failures Height 0.00 report - with Steps 6 through 7. contiguous to the channel. Several Gullies 0.00 None

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Project:

**Lewis Creek** 

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T4.01 Stream: **Hollow Brook** Segment: B Completion Date: August 18, 2008 Observers: KLU (SMRC); JC (MMI) Why Not assessed: Organization: Lewis Creek Association Rain: No 5.235 Segment Location: From Hinesburg sand and gravel quarry along Hinesburg Hollow Rd, crossing under Rt 116, Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 2.80 ft. **Abundant** 3.1 Stream Banks Typical Bank Slope Undercut 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 3.30 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan Yes 2.6 Width/Depth Ratio 38.24 Upper 4 4.4 # of Debris Jams 2.7 Entrenchment Ratio 28.92 1.3 Corridor Encroachments Material Type Gravel Gravel 4.5 Flow Regulation Type 2.8 Incision Ratio 1.47 None Length (ft) One Both 1.74 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat 791 125 Berms Lower Impoundments 2.9 Sinuosity Moderate 5 4 height Material Type Gravel Gravel Impoundmt, Location 2.10 Riffles Type Sedimented 1.021 0 Roads Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg Consistency None 2.11 Riffle/Step Spacing (ft) 120 7 0 height (old) Upstrm Flow Reg Left Bank Frosion Right 2.12 Substrate Composition Railroads 0 0 736 Erosion Length (ft) 791 0 0 Bedrock height 0% Erosion Height (ft) 3.24 2.78 Improved Paths 0 0 Boulder 0% Revetmt. Type Multiple Multiple 0 0 height Cobble 43% 259 232 Revetmt. Length (ft) Development 238 178 Coarse Gravel 38% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 11% 4.9 # of Beaver Dams Dominant **Deciduous Deciduous** Hillside Slope Hilly Steep 0 Affected Length (ft) Sand 8% Sub-dominant Coniferous Coniferous Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Closed Detritus 2 % 1.5 Valley Features 7 6 15 3.2 Riparian Buffer 48 # Large Woody 850 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 Dominant >100 >100 Bed 135.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant 0-25 0-25 **Braiding** Bar 220.0 mm Rock Gorge? No W less than 25 1.350 1,455 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Deciduous Deciduous** Stream Type: C 2.1 Bankfull Width 33 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Coniferous Coniferous Bed Material: Gravel 2.2 Max Depth (ft) 1.90 No 6 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 0.85 5.4 Stream Ford or Animal Yes Corridor Land Left Right Bed Form: Plane Bed Straightening 2.4 Floodprone Width (ft) 940 5.5 Straightening **Forest Forest** Field Measured Slope: Dominant 1.112 Straightening Length: Notes: Sub-dominant Residential Hay 2.15 Reference Stream Type 5.5 Dredging Dredging Updated in Dec 2008 relying primarily on Mass Failures 77 0 (if different from Phase 1) August 2008 field observations and additional 30 Height Note: Step 1.6 - Grade Controls cross sections to supplement original Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions assessment in July and Sept of 2002. Length Multiple 26.50 are on The second page of this Upstream end of reach represents a **Failures** Height 0.00 report - with Steps 6 through 7. transition to Very Broad confinement, Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T4.02 Stream: **Hollow Brook** Segment: A Completion Date: October 10, 2008 Lewis Creek Association Why Not assessed: Organization: Observers: KLU (SMRC); JC (MMI) Rain: Yes 4.509 Segment Location: From LB residences downstream along the north side of Hinesburg Hollow Rd to the sand Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 5.70 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands None 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 14.35 Upper 2 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.84 1.3 Corridor Encroachments Material Type Gravel Gravel 4.5 Flow Regulation Type 2.8 Incision Ratio 2.28 None Length (ft) One Both 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 0 Lower Impoundments 2.9 Sinuosity Low 0 0 height Material Type Gravel Gravel Impoundmt. Location **Eroded** 2.10 Riffles Type 4.118 0 Roads Consistency Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 height 9 0 (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 695 Erosion Length (ft) 499 0% 4.7 StormwaterInputs 0 0 Bedrock height Erosion Height (ft) 3.24 2.90 Improved Paths 0 0 Road Ditch 3 Boulder 27% Field Ditch 0 Revetmt. Type Rip-Rap Rip-Rap 0 0 Tile Drain 0 height Other 0 Cobble 36% 955 Revetmt. Length (ft) 71 94 Development 424 Urb Strm Wtr Pipe 0 Overland Flow 0 Coarse Gravel 14% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 11% 4.9 # of Beaver Dams Dominant **Deciduous Deciduous** Hillside Slope Extremely **Very Steep** 0 Affected Length (ft) Sand 12% Sub-dominant Shrubs/Saplin Coniferous Continuous w/Sometimes **Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Right Left **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Closed Detritus 2 % 1.5 Valley Features 7 0 2 3.2 Riparian Buffer 12 # Large Woody 120 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 0-25 Dominant >100 Bed 300.0 mm Confinement Type Narrow 5.2 Other Features Sub-dominant 51-100 26-50 **Braiding** Bar 118.0 mm Rock Gorge? No W less than 25 2.153 1,516 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Deciduous **Deciduous** Stream Type: B 2.1 Bankfull Width 24 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Coniferous Bed Material: Cobble 2.2 Max Depth (ft) 2.50 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 1.70 5.4 Stream Ford or Animal Yes Corridor Land Left Right Bed Form: Plane Bed Straightening 2.4 Floodprone Width (ft) 45 5.5 Straightening **Forest Forest** Field Measured Slope: Dominant 2.827 Straightening Length: Notes: Sub-dominant Residential None 2.15 Reference Stream Type 5.5 Dredging Dredging Updated in Dec 2008 relying primarily on field Mass Failures 80 190 (if different from Phase 1) observations and additional cross sections Height 4 14 Note: Step 1.6 - Grade Controls gathered in August and October 2008, to Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions supplement original July 2005 assessment. Length **Failures** Multiple 12.00 are on The second page of this Reference valley confinement varies from SC to BD, averaging BD. Where the channel Height 0.00 report - with Steps 6 through 7. Gullies None 0.00

Stream: **Hollow Brook** Segment: B Completion Date: October 10, 2008 Lewis Creek Association Observers: KLU (SMRC); JC (MMI) Why Not assessed: Organization: Rain: Yes 1.746 Segment Location: From triple-culvert driveway crossing downstream to LB residential buildings. Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 3.10 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Subreach 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 21.98 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 2.03 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 1.41 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity Moderate 0 0 height Material Type Boulder/Cobbl Boulder/Cobbl Impoundmt, Location 2.10 Riffles Type Complete 1.451 0 Roads Non-cohesive 4.6 Up/Down strm flow reg Consistency Non-cohesive None 2.11 Riffle/Step Spacing (ft) 100 height 12 0 (old) Upstrm Flow Reg Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 346 Erosion Length (ft) 90 4.7 StormwaterInputs 0 0 Bedrock height 0% Erosion Height (ft) 3.31 2.00 Improved Paths 0 0 Road Ditch 0 Boulder 13% Field Ditch 0 Revetmt. Type Other None 0 0 Tile Drain 0 height 48% Other 0 Cobble 88 0 Revetmt. Length (ft) 51 Development 720 Urb Strm Wtr Pipe 0 Overland Flow 2 Coarse Gravel 29% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 4% 4.9 # of Beaver Dams Shrubs/Saplin Shrubs/Saplin Dominant Hillside Slope Very Steep **Very Steep** 0 Affected Length (ft) Sand 6% Sub-dominant **Deciduous Deciduous** Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 51-75 51-75 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Closed Detritus 10 % 1.5 Valley Features 2 3 2 3.2 Riparian Buffer # Large Woody 1 Valley Width (ft) 70 Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination Measured 0 3 Dominant 51-100 >100 Bed 456.0 mm Confinement Type Semi-confined 5.2 Other Features Sub-dominant 0-25 0-25 **Braiding** Bar 175.0 mm Rock Gorge? No W less than 25 887 466 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Shrubs/Saplin Shrubs/Saplin Stream Type: B 2.1 Bankfull Width 29 Steep Riffles Trib Rejuv. Head Cuts Sub-dominant Deciduous **Deciduous** Bed Material: Cobble 2.2 Max Depth (ft) 2.20 No 1 3.3 Riparian Corridor Subclass Slope: C 2.3 Mean Depth (ft) 1.32 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Riffle-Pool None 2.4 Floodprone Width (ft) 59 5.5 Straightening Residential Shrubs/Saplin Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant Shrubs/Saplin Forest 2.15 Reference Stream Type 5.5 Dredging None Original July 2005 assessment updated with Mass Failures 0 37 (if different from Phase 1) repeat assessment, including additional cross 0 В 3 С Riffle-Pool Height 15 Note: Step 1.6 - Grade Controls sections, in Oct 2008. Subreach of alternate Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions stream type - Bc. Valley width varies from Length One 15.00 are on The second page of this Narrowly-confined to Semi-confined. Valley **Failures** Height 0.00 report - with Steps 6 through 7. side slopes (high terraces) comprised of Gullies 0.00 None

**Phase 2 Segment Summary** 

Reach # T4.02

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Project:

**Lewis Creek** 

Project: page 1 of 2 March 3, 2010 SGAT Version: 4.56 **Lewis Creek Phase 2 Segment Summary** Reach # T4.02 Stream: **Hollow Brook** Segment: C Completion Date: October 10, 2008 Observers: KLU (SMRC); JC (MMI) Why Not assessed:beaver dam Organization: Lewis Creek Association Rain: Yes Segment Length (ft): 764 Segment Location: Uppermost 764 ft, upstream of triple-culvert driveway crossing. QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 0.00 ft. 4.1 Springs / Seeps None 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Flow Status 4.2 Adjacent Wetlands **Abundant** 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 0.00 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 0.00 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 0.00 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 0 Lower Impoundments 2.9 Sinuosity 0 0 height Material Type Boulder/Cobbl Boulder/Cobbl Impoundmt, Location 2.10 Riffles Type 164 0 Roads Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg Consistency None 2.11 Riffle/Step Spacing (ft) 0 height 8 0 (old) Upstrm Flow Reg Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 height 0 0 Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 None Revetmt. Type None 0 0 height 0 0 Revetmt. Length (ft) Development 0 0 Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 2 4.9 # of Beaver Dams Shrubs/Saplin Shrubs/Saplin Dominant Hillside Slope Very Steep Very Steep 375 Affected Length (ft) Sub-dominant Herbaceous Herbaceous Continuous w/ Never Never Step 5. Channel Bed and Planform Changes Bank Canopy Left Right W/in 1 Bankfill Never Never 5.1 Bar Types 1-25 1-25 Canopy % Silt/Clav Present? Texture Not Evalua Not Evalua Mid Point Side Mid-Channel Canopy Open Detritus 0 % 1.5 Valley Features 0 0 0 3.2 Riparian Buffer 0 # Large Woody 380 Valley Width (ft) Diagonal Delta Island Buffer Width Left Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant >100 >100 Bed 0.0 Confinement Type **Broad** 5.2 Other Features Sub-dominant 51-100 **Braiding** 51-100 0.0 Bar Rock Gorge? No W less than 25 190 0 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Deciduous Shrubs/Saplin Stream Type: 2.1 Bankfull Width 0 Steep Riffles **Head Cuts** Trib Rejuv. Sub-dominant Shrubs/Saplin Herbaceous Bed Material: 2.2 Max Depth (ft) 0.00 3.3 Riparian Corridor Subclass Slope: 2.3 Mean Depth (ft) 0.00 5.4 Stream Ford or Animal No Corridor Land Left Right Bed Form: 5.5 Straightening None 2.4 Floodprone Width (ft) 0 Forest Shrubs/Saplin Dominant Field Measured Slope: Straightening Length: Notes: Sub-dominant Shrubs/Saplin Forest 2.15 Reference Stream Type 5.5 Dredging None Mass Failures 0 0 (if different from Phase 1) 0 Height Note: Step 1.6 - Grade Controls Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Length None 0.00 are on The second page of this Failures Height 0.00 report - with Steps 6 through 7. Gullies 0.00 None

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T4.3S6.01 Stream: Unnamed Trib to Hollow Brook Segment: A Completion Date: September 5, 2001 Observers: SP. SH. JT. EL. MI Why Not assessed: Organization: Lewis Creek Association Rain: Yes 4.840 Segment Location: From Mason Hill N. Rd downstream along Big Hollow Rd to confluence with Lewis Creek Segment Length (ft): QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 1.75 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Steep 4.2 Adjacent Wetlands Minimal 1.1 Segmentation Property Access 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 14.62 Upper 5 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.05 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 1.00 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat 0 Berms 0 Lower Impoundments 2.9 Sinuosity Hiah 0 0 height Material Type Mix Mix Impoundmt, Location 2.10 Riffles Type Complete 3.115 299 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg None 2.11 Riffle/Step Spacing (ft) 0 5 height 9 (old) Upstrm Flow Reg Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 319 0 **5**% 4.7 StormwaterInputs 0 0 Bedrock height Erosion Height (ft) 4.75 0.00 Improved Paths 0 0 Road Ditch 5 Boulder 20% Field Ditch 0 Revetmt. Type None None 0 0 Tile Drain 0 height **30**% Other 0 Cobble 0 0 Revetmt. Length (ft) 853 370 Development Urb Strm Wtr Pipe 0 Overland Flow 0 Coarse Gravel 15% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 15% 4.9 # of Beaver Dams Dominant **Deciduous Deciduous** Hillside Slope Extremely Extremely 0 Affected Length (ft) Sand 15% Sub-dominant None None Continuous w/Sometimes **Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Closed Detritus 0 % 1.5 Valley Features 3 3 0 3.2 Riparian Buffer 0 # Large Woody 25 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant 26-50 >100 Bed 24.0 inches Confinement Type **Narrowly** 5.2 Other Features Sub-dominant 0-25 0-25 **Braiding** Bar 10.0 inches Rock Gorge? No W less than 25 1.268 1.105 Flood Neck Cutoff Avulsion Human-caused Change? No Left Buffer Veg. Type Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant **Mixed Trees** Mixed Trees Stream Type: A 2.1 Bankfull Width 19 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant None None Bed Material: Cobble 2.2 Max Depth (ft) 1.75 No 3.3 Riparian Corridor Subclass Slope: None 2.3 Mean Depth (ft) 1.30 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Step-Pool Straightening 2.4 Floodprone Width (ft) 20 5.5 Straightening **Forest Forest** Field Measured Slope: Dominant 1.574 Straightening Length: Notes: Sub-dominant Residential Residential 2.15 Reference Stream Type 5.5 Dredging None Assessment data from 9/5/2001 Mass Failures 0 0 (if different from Phase 1) (VTDEC/LCA) entered into 2007 database: 0 Height Note: Step 1.6 - Grade Controls select parameters not measured under Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions protocols current at the time have blank fields Length **Failures** None 0.00 are on The second page of this in this 2007 database. 2007 update primarily Height 0.00 report - with Steps 6 through 7. conducted to clarify segmentation due to Gullies 0.00 None

Reach # T4.3S6.01 page 1 of 2 Segment: B Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** 

Stream: **Unnamed Trib to Hollow Brook** Segment: B Completion Date: September 5, 2001 Observers: SP, SH Organization: **Lewis Creek Association** Why Not assessed:no property access Rain: Yes

Segment Length (ft): 2,905 Segment Location: Upstream portion of reach above Mason Hill N Rd.

QC Status - Staff: Pro		ns	Provision		2. (Contued)	Sten 3. Rina	rian Features		Step 4. Flow & Flow Modifiers
Step 1. Valley a				nd. Floodpln	0.00 ft.	3.1 Stream Banks			4.1 Springs / Seeps
1.1 Segmentation				Elev Floodpl		Typical Bank Slope			4.2 Adjacent Wetlands
<del>-</del>	lone			h/Depth Rati		Bank Texture	Left	Right	4.3 Flow Status
1.3 Corridor Encroachm	ents			enchment Ra		Upper			4.4 # of Debris Jams <b>0</b>
Length (ft)	One	Both	2.8 Incis	sion Ratio	0.00	Material Type			4.5 Flow Regulation Type None
Berms	0	0	Human I	Elevated Inc	Rat <b>0.00</b>	Consistency			Flow Regulation Use
height	0	0	2.9 Sinu	osity		Lower			Impoundments
Roads	2,128	0	2.10 Riff	fles Type		Material Type			Impoundmt. Location
height	9	0	2.11 Riff	fle/Step Spac	cing (ft) 0	Consistency			4.6 Up/Down strm flow reg None
Railroads	0	0	2.12 Sub	bstrate Comp	oosition	Bank Erosion	<u>Left</u>	Right	(old) Upstrm Flow Reg
height	0	0				Erosion Length (ft)	0	0	
Improved Paths	0	0				Erosion Height (ft)	0.00	0.00	
height	0	0				Revetmt. Type	None	None	
Development	0	155				Revetmt. Length (ft)	0	0	
1.4 Adjacent Side	Left	Right				Near Bank Veg. Type	<u>Left</u>	Right	4.9 # of Beaver Dams 0
Hillside Slope						Dominant			Affected Length (ft) 0
Continuous w/						Sub-dominant			Step 5. Channel Bed and Planform Change
W/in 1 Bankfill						Bank Canopy	<u>Left</u>	Right	5.1 Bar Types
Texture			1	Present?		Canopy %			Mid Point Side
1.5 Valley Features			Detritus		0 %	Mid-Channel Canopy			0 0 0
Valley Width (ft)	0		# Large	Woody	0	3.2 Riparian Buffer		D: 14	Diagonal Delta Island
Width Determination			2.13 Ave	erage Larges	t Particle on	Buffer Width	<u>Left</u>	Right	0 0 0
Confinement Type			Bed	0.0		Dominant Sub-dominant			5.2 Other Features \ Braiding
Rock Gorge?			Bar	0.0		W less than 25	1,209	1,392	Flood Neck Cutoff Avulsion 0
Human-caused Change	?					Buffer Veg. Type	Left	Right	$\frac{1000}{0} \frac{\text{Neck Catoli}}{0} \frac{\text{Avaision}}{0}$
Step 2. Stream C				eam Type		Dominant	Leit	IXIGIII	5.3 Steep Riffles and Head Cuts
2.1 Bankfull Width	0		Str	ream Type:		Sub-dominant			Steep Riffles Head Cuts Trib Rejuv.
2.2 Max Depth (ft)	0.00			ed Material:		3.3 Riparian Corridor			0 0
2.3 Mean Depth (ft)	0.00			lass Slope:		Corridor Land	l oft	Right	5.4 Stream Ford or Animal <b>No</b>
2.4 Floodprone Width (			1	Bed Form:			<u>Left</u>	Right	5.5 Straightening Straightening
Notes:	·-,			leasured Slo		Dominant Sub-dominant			Straightening Length: 1,480
NOIGS.				ference Stream		Sub-dominant	0	_	5.5 Dredging None
			(if dif	fferent from F	Phase 1)	Mass Failures	0	0	
						Height Gullies	0	0	Note: Step 1.6 - Grade Controls
			3.3 old	Amount	Mean Height		0		and Step 4.8 - Channel Constrictions
			Failures	None	0.00	Length	0		are on The second page of this
			Gullies	None	0.00	Height	0.00		report - with Steps 6 through 7.

**Phase 2 Segment Summary** Reach # T4.05 Stream: **Hollow Brook** Segment: A Completion Date: September 8, 2005 Observers: KLU (SMRC), SHP (VTDEC) Organization: Lewis Creek Association Why Not assessed: Rain: No 905 Segment Location: Downstream end of reach alongside Lazy Brook mobile home park. Segment Length (ft): QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers 4.1 Springs / Seeps Step 1. Valley and Floodplain 2.5 Aband. Floodpln 3.60 ft. Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands None 7.30 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan Yes 2.6 Width/Depth Ratio 16.40 Upper 0 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.22 1.3 Corridor Encroachments Material Type Gravel Gravel 4.5 Flow Regulation Type 2.8 Incision Ratio 2.40 None Length (ft) One Both Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat 4.87 437 Berms 0 Lower Impoundments 2.9 Sinuosity Low 7 0 height Material Type Boulder/Cobbl Boulder/Cobbl Impoundmt. Location **Eroded** 2.10 Riffles Type 562 0 Roads Non-cohesive 4.6 Up/Down strm flow reg Consistency Non-cohesive None 2.11 Riffle/Step Spacing (ft) 0 7 0 height (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 129 Erosion Length (ft) 44 4.7 StormwaterInputs 0 0 Bedrock 0% height Erosion Height (ft) 3.00 8.00 Improved Paths 0 0 Road Ditch 0 Boulder 20% Field Ditch 0 Revetmt. Type Rip-Rap None 0 0 Tile Drain 0 height **29**% Other 0 Cobble 232 0 Revetmt. Length (ft) 0 Development 476 Urb Strm Wtr Pipe 0 Overland Flow 1 Coarse Gravel 15% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 20% 4.9 # of Beaver Dams Dominant **Deciduous** Coniferous Hillside Slope Very Steep Very Steep 0 Affected Length (ft) Sand 16% Sub-dominant Coniferous **Deciduous** Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 51-75 76-100 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Closed Detritus 2 % 1.5 Valley Features 0 0 0 3.2 Riparian Buffer 0 # Large Woody 250 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0-25 Dominant >100 Bed 350.0 mm Confinement Type Very Broad 5.2 Other Features Sub-dominant >100 **Braiding** 51-100 Bar N/A mm Rock Gorge? No W less than 25 561 0 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Coniferous Stream Type: F 2.1 Bankfull Width 16 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant **Deciduous Deciduous** Bed Material: Gravel 2.2 Max Depth (ft) 1.50 No 1 3.3 Riparian Corridor Subclass Slope: a 2.3 Mean Depth (ft) 1.00 5.4 Stream Ford or Animal No Corridor Land Left Right Bed Form: Plane Bed Straightening 2.4 Floodprone Width (ft) 20 5.5 Straightening Residential **Forest** Field Measured Slope: Dominant 583 Straightening Length: Notes: Sub-dominant **Forest** None 2.15 Reference Stream Type 5.5 Dredging None Updated Dec 2008 relying principally on Sept Mass Failures 47 0 (if different from Phase 1) 2005 assessment, with some additional field С b Step-Pool Height 10 4 Note: Step 1.6 - Grade Controls observations and cross sections collected in Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions July 2008. Subreach of broader valley Length One 10.00 are on The second page of this confinement and reduced channel gradient **Failures** Height 0.00 report - with Steps 6 through 7. ("alluvial fan"). Driveways providing access Gullies 0.00 None

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page 1 of 2

Project:

**Lewis Creek** 

Project: March 3, 2010 SGAT Version: 4.56 **Lewis Creek** page 1 of 2 **Phase 2 Segment Summary** Reach # T4.05 Stream: **Hollow Brook** Segment: B Completion Date: September 8, 2005 Observers: KLU (SMRC), SHP (VTDEC) Why Not assessed: Organization: Lewis Creek Association Rain: No 1.851 Segment Location: From bedrock gorge downstream to Lazy Brook Mobile Home Park Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 4.40 ft. 4.1 Springs / Seeps Abundant 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands None 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 24.44 Upper 5 4.4 # of Debris Jams 2.7 Entrenchment Ratio 1.28 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type 2.8 Incision Ratio 2.59 None Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity Low 0 0 height Material Type Boulder/Cobbl Boulder/Cobbl Impoundmt. Location 2.10 Riffles Type Complete 0 0 Roads Non-cohesive 4.6 Up/Down strm flow reg Consistency Non-cohesive None 2.11 Riffle/Step Spacing (ft) 75 0 height 0 (old) Upstrm Flow Reg Bank Frosion Left Right 2.12 Substrate Composition Railroads 0 0 **268** Erosion Length (ft) 389 0 0 Bedrock height 0% Erosion Height (ft) 2.57 2.36 Improved Paths 0 Boulder 15% None Revetmt. Type None 0 0 height Cobble 36% 0 0 Revetmt. Length (ft) 0 Development 0 Coarse Gravel 23% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 22% 4.9 # of Beaver Dams Dominant Coniferous Coniferous Hillside Slope Extremely Extremely 0 Affected Length (ft) Sand 4% Sub-dominant **Deciduous Deciduous** Continuous w/Sometimes **Sometimes** Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Closed Detritus 3 % 1.5 Valley Features 1 1 1 3.2 Riparian Buffer 24 # Large Woody 45 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 2 1 0 Dominant >100 >100 Bed 300.0 mm Confinement Type **Narrowly** 5.2 Other Features Sub-dominant **Braiding** None None Bar N/A mm Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Coniferous Stream Type: F 2.1 Bankfull Width 24 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant **Deciduous Deciduous** Bed Material: Cobble 2.2 Max Depth (ft) 1.70 No 3.3 Riparian Corridor Subclass Slope: a 2.3 Mean Depth (ft) 0.99 5.4 Stream Ford or Animal No Corridor Land Left Right Bed Form: Step-Pool 5.5 Straightening None 2.4 Floodprone Width (ft) 31 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant None None 2.15 Reference Stream Type 5.5 Dredging None Channel is closely confined by steep, 76 Mass Failures 84 (if different from Phase 1) forested valley walls generally located within 35 Height 100 Note: Step 1.6 - Grade Controls one bankfull width of the channel. Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Occasionally, narrow terraces are present Length Multiple 53.33 are on The second page of this along the side of the channel - usually at a **Failures** 

Height

0.00

thalweg height between 2 & 3 times the max

Gullies

None

0.00

report - with Steps 6 through 7.

Project: page 1 of 2 March 3, 2010 SGAT Version: 4.56 **Lewis Creek Phase 2 Segment Summary** Reach # T4.05 Stream: **Hollow Brook** Segment: C Completion Date: September 8, 2005 Observers: KLU (SMRC), SHP (VTDEC) Why Not assessed:bedrock gorge Organization: Lewis Creek Association Rain: No 750 Segment Location: Bedrock gorge, mid-reach. Segment Length (ft): QC Status - Staff: Provisional Cons **Provisional** Step 2. (Contued) Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 0.00 ft. 4.1 Springs / Seeps Minimal 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands None 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 0.00 Upper 1 4.4 # of Debris Jams 2.7 Entrenchment Ratio 0.00 1.3 Corridor Encroachments Material Type Mix Mix 4.5 Flow Regulation Type None 2.8 Incision Ratio 0.00 Length (ft) One Both 0.00 Consistency Cohesive Cohesive Flow Regulation Use Human Elevated Inc Rat Berms 0 0 Lower Impoundments 2.9 Sinuosity 0 0 height Material Type **Bedrock Bedrock** Impoundmt, Location 2.10 Riffles Type 0 0 Roads Consistency Cohesive Cohesive 4.6 Up/Down strm flow reg **Up Stream** 2.11 Riffle/Step Spacing (ft) 0 height 0 0 (old) Upstrm Flow Reg Right Bank Frosion Left 2.12 Substrate Composition Railroads 0 0 Erosion Length (ft) 0 0 height 0 0 Erosion Height (ft) 0.00 0.00 Improved Paths 0 0 Revetmt. Type None None 0 0 height 0 0 Revetmt. Length (ft) Development 0 0 Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 4.9 # of Beaver Dams Dominant Bare Bare Hillside Slope Extremely Extremely 0 Affected Length (ft) Sub-dominant Coniferous Coniferous Continuous w/ Always **Always** Step 5. Channel Bed and Planform Changes Bank Canopy Left Right W/in 1 Bankfill Always **Always** 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? **Bedrock Bedrock** Texture Mid Point Side Mid-Channel Canopy Closed Detritus 0 % 1.5 Valley Features 0 0 0 3.2 Riparian Buffer 0 # Large Woody 40 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 Dominant >100 >100 Bed 0.0 Confinement Type **Narrowly** 5.2 Other Features Sub-dominant 51-100 **Braiding** None 0.0 Bar Rock Gorge? No W less than 25 0 0 Flood Neck Cutoff Avulsion Human-caused Change? No Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Coniferous Coniferous Stream Type: B 2.1 Bankfull Width 0 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant None None Bed Material: Bedrock 2.2 Max Depth (ft) 0.00 No 3.3 Riparian Corridor Subclass Slope: a 2.3 Mean Depth (ft) 0.00 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Cascade 5.5 Straightening None 2.4 Floodprone Width (ft) 0 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant None None 2.15 Reference Stream Type 5.5 Dredging None Subreach of bedrock gorge. Mass Failures 0 0 (if different from Phase 1) Height 0 Note: Step 1.6 - Grade Controls Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions Length None 0.00 are on The second page of this Failures

Height

0.00

Gullies

None

0.00

report - with Steps 6 through 7.

Lewis Creek Association Observers: KLU (SMRC), SHP (VTDEC) Organization: Why Not assessed: Rain: No 4.373 Segment Location: From upstream reach break at Lincoln Hill Road crossing, downstream to bedrock gorge. Segment Length (ft): QC Status - Staff: Provisional Cons Step 2. (Contued) Provisional Step 3. Riparian Features Step 4. Flow & Flow Modifiers Step 1. Valley and Floodplain 2.5 Aband. Floodpln 2.50 ft. 4.1 Springs / Seeps **Abundant** 3.1 Stream Banks Typical Bank Slope Steep 1.1 Segmentation Channel Dimensions 4.2 Adjacent Wetlands Minimal 0.00 ft. Human Elev Floodpln Bank Texture Left Right 4.3 Flow Status Moderate 1.2 Alluvial Fan None 2.6 Width/Depth Ratio 20.98 Upper 3 4.4 # of Debris Jams 2.7 Entrenchment Ratio 9.07 1.3 Corridor Encroachments Material Type Gravel Gravel 4.5 Flow Regulation Type **Small Store** 2.8 Incision Ratio 1.56 Length (ft) One Both Other 0.00 Consistency Non-cohesive Non-cohesive Flow Regulation Use Human Elevated Inc Rat 0 0 Berms Lower Impoundments 2.9 Sinuosity Moderate 0 0 height Material Type Gravel Gravel Impoundmt, Location 2.10 Riffles Type **Eroded** 179 359 Roads Non-cohesive Non-cohesive 4.6 Up/Down strm flow reg Consistency None 2.11 Riffle/Step Spacing (ft) 0 height 15 (old) Upstrm Flow Reg Left Right Bank Frosion 2.12 Substrate Composition Railroads 0 0 <del>307</del> Erosion Length (ft) 452 4.7 StormwaterInputs 0 0 Bedrock 0% height Erosion Height (ft) 2.94 2.23 Improved Paths 0 0 Road Ditch 1 Boulder 8% Field Ditch 0 Revetmt. Type Rip-Rap None 0 0 Tile Drain 0 height 38% Other 0 Cobble 0 Revetmt. Length (ft) 113 272 129 Development Urb Strm Wtr Pipe 0 Overland Flow 0 Coarse Gravel 32% Near Bank Veg. Type Left Right 1.4 Adjacent Side Left Right 0 Fine Gravel 8% 4.9 # of Beaver Dams Dominant **Deciduous Deciduous** Hillside Slope Steep Steep 0 Affected Length (ft) Sand 14% Sub-dominant Shrubs/Saplin Shrubs/Saplin Continuous w/Sometimes Sometimes Step 5. Channel Bed and Planform Changes Silt and smaller 0% Bank Canopy Left Right **Sometimes** W/in 1 Bankfill Sometimes 5.1 Bar Types 76-100 76-100 Canopy % Silt/Clav Present? No Not Evalua Texture Not Evalua Mid Point Side Mid-Channel Canopy Closed Detritus 2 % 1.5 Valley Features 1 1 1 3.2 Riparian Buffer 5 # Large Woody 150 Valley Width (ft) Diagonal Delta Island Left Buffer Width Right 2.13 Average Largest Particle on Width Determination **Estimated** 0 0 1 Dominant >100 >100 Bed 302.0 mm Confinement Type Narrow 5.2 Other Features Sub-dominant 0-25 0-25 **Braiding** Bar N/A mm Rock Gorge? No W less than 25 741 394 Flood Neck Cutoff Avulsion Human-caused Change? Yes Buffer Veg. Type Left Right 2.14 Stream Type Step 2. Stream Channel 5.3 Steep Riffles and Head Cuts Dominant Deciduous **Deciduous** Stream Type: C 2.1 Bankfull Width 19 Trib Rejuv. Steep Riffles Head Cuts Sub-dominant Shrubs/Saplin Shrubs/Saplin Bed Material: Gravel 2.2 Max Depth (ft) 1.60 No 3.3 Riparian Corridor Subclass Slope: **b** 2.3 Mean Depth (ft) 0.92 5.4 Stream Ford or Animal No Corridor Land Left Riaht Bed Form: Plane Bed 5.5 Straightening None 2.4 Floodprone Width (ft) 175 **Forest Forest** Field Measured Slope: Dominant Straightening Length: Notes: Sub-dominant Residential Residential 2.15 Reference Stream Type 5.5 Dredging Dredging Subreach of reference Cb channel in an Mass Failures 28 0 (if different from Phase 1) otherwise Ba reach. Valley confinement 15 С 4 b Riffle-Pool Height Note: Step 1.6 - Grade Controls varies from SC to BD, but averages Narrow. Gullies 0 3.3 old Amount Mean Height and Step 4.8 - Channel Constrictions No significant human-caused change in Length 0 **Failures** One 15.00 are on The second page of this valley width. Roads are driveways at grade Height 0.00 report - with Steps 6 through 7. which pass by channel for short distances. Gullies 0.00 None

**Phase 2 Segment Summary** 

Reach # T4.05

March 3, 2010 SGAT Version: 4.56

Completion Date: September 8, 2005

page 1 of 2

Segment: **D** 

Project:

Stream:

**Lewis Creek** 

**Hollow Brook** 

March 3, 2010 Project: **Phase 2 Reach Summary Lewis Creek** page 2 of 2 Completion Date: September 27, Stream: **Lewis Creek** Reach # M01 Segment: 0 **Lewis Creek Association** Observers: KLU, EE, MI Rain: **Yes** Organization: Segment Location: Downstream-most reach of Lewis Creek main stem, extending 1.3 miles downstream Segment Length (ft): 6,693 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Type Location Total **Above Water** Channel Evolution Model Channel Evolution Stage **Geomorphic Condition** Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions None GPS Photo Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? **Habitat Stream Condition** Narrative:

March 3, 2010 Project: **Phase 2 Reach Summary Lewis Creek** page 2 of 2 Completion Date: September 27, Stream: **Lewis Creek** Reach # M02 Segment: 0 **Lewis Creek Association** Observers: KLU, EE, MI Rain: **Yes** Organization: Segment Location: From Greenbush Rd crossing downstream to VT Railway bridge crossing. Segment Length (ft): 4,092 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Type Location Total **Above Water** Channel Evolution Model Channel Evolution Stage **Geomorphic Condition** Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions Photo **GPS** Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? Bridge 61.0 Yes Yes Yes Yes Problem None **Habitat Stream Condition** Narrative:

Project: **Lewis Creek Phase 2 Reach Summary** page 2 of 2 March 3, 2010

Stream: Lewis Creek Reach # M03 Segment: 0 Completion Date: September 17,

Organization: Lewis Creek Association Observers: KLU, BOS Rain: Yes

Segment Length (ft): 5,471 Segment Location: From Greenbush Road downstream to the railroad bridge crossing.

1.6 Gra	ade Controls None				Step 7. Rapid G	eomorphic A	ssessment Da	ta
		Tatal	Total Height	Photo Take GPSTaken		nconfined		<u></u>
Гуре	pe Location Total Above Water GPSTaken		Sco	re STD	Historic			
					7.1 Channel Degradation	18	None	No
					7.2 Channel Aggradation	13	None	No
					7.3 Widening Channel	16	i	No
					7.4 Change in Planform	13	}	No
					Total So	core 60	)	
					Geomorphic Ra	ating <b>0.7</b>	5	
					Channel Evolution M	odel <b>F</b>		
					Channel Evolution St	tage <b>I</b>		
					Geomorphic Condi	ition <b>Goo</b>	I	
					Stream Sensit	ivity <b>High</b>		
					Step 6. Rapid Habitat	Assessment	Data	
4.8 Cha	nnel Constrictions				Stream Gradient Type	Low		

4.8 Char	nnel Cons	trictions			
		Photo	GPS	Channel	Floodprone
Type	Width	Taken?	Taken?	Constriction?	Constriction?
Bridge	93.0	Yes	Yes	No	Yes
Pr	roblem I	None			
<b>Bridge</b>	70.0	Yes	No	No	Yes
Pr	oblem I	None			

Stream Gradient Type	Low
	Score
6.1 Epifaunal Substrate - Available Cover	11
6.2 Pool Substrate	16
6.3 Pool Variability	5
6.4 Sediment Deposition	16
6.5 Channel Flow Status	16
6.6 Channel Alteration	11
6.7 Channel Sinuosity	10
6.8 Bank Stability	Left: 7 Right: 9
6.9 Bank Vegetation Protection	Left: 6 Right: 8
6.10 Riparian Vegetation Zone Width	Left: 4 Right: 4
Total Score	123
Habitat Rating	0.615

Fair

**Habitat Stream Condition** 

Narrative:

Minor planform adjustment (flood chutes) with potential for avulsion and minor aggradation from instream and upstream sediment sources.

Project: **Lewis Creek Phase 2 Reach Summary** page 2 of 2 March 3, 2010 Stream: Reach # M04 Segment: 0 Completion Date: September 25, **Lewis Creek** Organization: **Lewis Creek Association** Observers: KLU, EE Rain: Yes Segment Length (ft): Segment Location: From vicinity of Rt 7 crossing downstream to Greenbush Rd crossing. 5,344 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height **Unconfined** Confinement Type Type Total Location **Above Water** Score STD Historic 7.1 Channel Degradation 16 No None 7.2 Channel Aggradation 13 None No 7.3 Widening Channel 13 No 7.4 Change in Planform 5 No 47 **Total Score** Geomorphic Rating 0.5875 Channel Evolution Model D Channel Evolution Stage IIc **Geomorphic Condition** Fair Stream Sensitivity **Extreme** Step 6. Rapid Habitat Assessment Data Stream Gradient Type Low 4.8 Channel Constrictions None Score Photo **GPS** Channel Floodprone 6.1 Epifaunal Substrate - Available Cover **13** Type Width Taken? Taken? Constriction? Constriction? 6.2 Pool Substrate 13 6.3 Pool Variability 10 6.4 Sediment Deposition 10 6.5 Channel Flow Status 18 6.6 Channel Alteration 18 **13** 6.7 Channel Sinuosity Left: 4 Right: 4 6.8 Bank Stability 6.9 Bank Vegetation Protection Left: 4 Right: 4 6.10 Riparian Vegetation Zone Width Left: 9 Right: 9 **Total Score** 129

Narrative:

Moderate PF (migration, FCs); minor widening and min to moderate aggr local to DJs & LWD & tight bends. Regionally, aggr & PF in part due to decreasing gradient (decr sed transp capac) as channel transitions to Lk Champlain.

**Habitat Rating** 

**Habitat Stream Condition** 

0.645

Good

Project: Lewis Creek Phase 2 Reach Summary page 2 of 2 March 3, 2010

Stream: Lewis Creek Reach # M05 Segment: 0 Completion Date: September 25,

Organization: Lewis Creek Association Observers: KLU, EE Rain: Yes

Segment Length (ft): 2,394 Segment Location: Short channel section crossed by VT Route 7.

1.6 Grade	e Controls				
Туре	Location	Total	Total Height Above Wate	Photo r	Take - GPSTaken
Ledge	Mid-segment	2.00	1.00	Yes	Yes
Waterfall	Mid-segment	3.00	1.00	Yes	Yes

Confinement Type <b>Uncon</b>	fined			
	Score	STD	Historic	
7.1 Channel Degradation	10	None	Yes	
7.2 Channel Aggradation	13	None	No	
7.3 Widening Channel	10		Yes	
7.4 Change in Planform	15		No	
Total Score	48			
Geomorphic Rating	0.6			
Channel Evolution Model	F			
Channel Evolution Stage	III			
Geomorphic Condition	Fair			
Stream Sensitivity	High			

Step 7. Rapid Geomorphic Assessment Data

4.8 C	hannel Cons	trictions				
Туре	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	
Old	<b>62.5</b> Problem		Yes	Yes	Yes	

Stream Gradient Type	High	
	S	core
6.1 Epifaunal Substrate - Available Cover	:	11
6.2 Embeddedness	:	16
6.3 Velocity/Depth Patterns	:	13
6.4 Sediment Deposition	:	16
6.5 Channel Flow Status	:	18
6.6 Channel Alteration	:	16
6.7 Frequency of Riffles/Steps	:	13
6.8 Bank Stability	Left: 7	Right: 9
6.9 Bank Vegetation Protection	Left: 9	Right: 9
6.10 Riparian Vegetation Zone Width	Left: 9	Right: 9
Total Score	1	55
Habitat Rating	0.	775

Good

**Habitat Stream Condition** 

Step 6. Rapid Habitat Assessment Data

Narrative:

Slight planform adjustment (meander migration) and aggradation are active in the reach. Moderate historic incision and widening.

Project: Lewis Creek Phase 2 Reach Summary page 2 of 2 March 3, 2010

Stream: Lewis Creek Reach # M06 Segment: 0 Completion Date: October 2, 2004

Organization: Lewis Creek Association Observers: KLU, EE Rain: Yes

Segment Length (ft): 5,831 Segment Location: From Old Hollow Rd crossing in North Ferrisburg village to the Route 7 crossing.

1.6 Grade Controls

Step 7. Rapid Geomorphic Assessment Data

Type	Location	Total	Total Height Above Water	Photo Tal	<€ <sup>-</sup> GPSTaken	
Ledge	Mid-segment	1.00	1.00	No	No	7

4.8 Cha	annel Cons	strictions	None			
		Photo	GPS	Channel	Floodprone	
Type	Width	Taken?	Taken?	Constriction?	Constriction?	6.1 Ep

Step 7. Rapid Geomorphic Assessment Data							
Confinement Type Unconfined							
	Score	STD	Historic				
7.1 Channel Degradation	7	None	Yes				
7.2 Channel Aggradation	8	None	No				
7.3 Widening Channel	13		Yes				
7.4 Change in Planform	8		No				
Total Score	36						
Geomorphic Rating	0.45						
Channel Evolution Model	F						
Channel Evolution Stage	III						
Geomorphic Condition	Fair						
Stream Sensitivity	High						

## Step 6. Rapid Habitat Assessment Data Stream Gradient Type High Score 6.1 Epifaunal Substrate - Available Cover **15** 6.2 Embeddedness 18 6.3 Velocity/Depth Patterns 15 6.4 Sediment Deposition 18 6.5 Channel Flow Status 18 6.6 Channel Alteration 11 6.7 Frequency of Riffles/Steps 16 6.8 Bank Stability Left: 7 Right: 6 6.9 Bank Vegetation Protection Left: 9 Right: 7 6.10 Riparian Vegetation Zone Width Left: 9 Right: 9 **Total Score** 158 **Habitat Rating** 0.79

Good

**Habitat Stream Condition** 

Narrative:

Planform adjustment is active including bifurcated channel becoming braided in one location, and a recent avulsion (post1995, pre2003). Minor to moderate (localized) aggradation. Historic incision and widening.

Project: **Lewis Creek Phase 2 Reach Summary** March 3, 2010 page 2 of 2

Completion Date: November 16, Stream: **Lewis Creek** Reach # M07 Segment: 0

**Lewis Creek Association** Observers: Brendan OShea, Thomas Baines Rain: Yes Organization:

9,124 Segment Location: Largely forested reach from vicinity (south of) Spear Street and Guinea Rd intersection Segment Length (ft):

1.6 Grade	: Controls			
Туре	Location	Total	Total Height Above Water	Photo Take GPSTaken
Waterfall	Mid-segment	30.00	28.00	Yes
Waterfall	Mid-segment	10.00	8.00	Yes

7.3 Widening Channel	18	No
7.4 Change in Planform	18	No
Total Score	71	
Geomorphic Rating	0.8875	
Channel Evolution Model	D	
Channel Evolution Stage	I	
Geomorphic Condition	Referenc	
Stream Sensitivity	High	
Step 6. Rapid Habitat Asse	coment Data	
Step 0. Rapid Habitat Asse	SSITICITE Data	

4.8 Chan	inel Cons	trictions			
			GPS		Floodprone
Type	Width	Taken?	Taken?	Constriction?	Constriction?
Bridge	72.0	Yes	Yes	Yes	Yes
Problem <b>None</b>					

Stream Gradient Type	High
	Score
6.1 Epifaunal Substrate - Available Cover	16
6.2 Embeddedness	18
6.3 Velocity/Depth Patterns	18
6.4 Sediment Deposition	15
6.5 Channel Flow Status	18
6.6 Channel Alteration	18
6.7 Frequency of Riffles/Steps	18
6.8 Bank Stability	Left: 9 Right: 9
6.9 Bank Vegetation Protection	Left: 9 Right: 9
6.10 Riparian Vegetation Zone Width	Left: 9 Right: 9
Total Score	175
Habitat Rating	0.875

**Habitat Stream Condition** 

Step 7. Rapid Geomorphic Assessment Data **Confined** 

Score

18

17

STD

None

None

Referen

Historic

No

No

Confinement Type

7.1 Channel Degradation

7.2 Channel Aggradation

Narrative:

None. Bedrock controls, well developed forested buffers.

Project: **Lewis Creek Phase 2 Reach Summary** page 2 of 2 March 3, 2010

Stream: Lewis Creek Reach # M08 Segment: 0 Completion Date: September 17,

Organization: Lewis Creek Association Observers: KLU, SHPytlik Rain: Yes

Segment Length (ft): 6,484 Segment Location: From 1/4 mile upstream of Quinlan Covered Bridge to nearly one mile downstream of

1.6 Grad	e Controls				
Туре	Location	Total	Total Heig Above Wa	Jht Photo Ta Iter	ke - GPSTaken
Ledge	Mid-segment	1.00	1.00	Yes	Yes
Ledge	Mid-segment	1.00	1.00	Yes	Yes
Ledge	Mid-segment	1.00	1.00	Yes	Yes
Ledge	Mid-segment	1.00	1.00	Yes	Yes
Ledge	Mid-segment	1.00	1.00	Yes	Yes
Ledge	Mid-segment	1.00	0.00	No	Yes

Step 7. Rapid Geomo	rphic Assess	sment Data	<u>a</u>	
Confinement Type Unconfined				
	Score	STD	Historic	
7.1 Channel Degradation	18	None	No	
7.2 Channel Aggradation	15	None	No	
7.3 Widening Channel	15		No	
7.4 Change in Planform	13		No	
Total Score	61			
Geomorphic Rating	0.7625			
Channel Evolution Model	D			
Channel Evolution Stage	I			
Geomorphic Condition	Good			
Stream Sensitivity	High			

4.8 Channel Constrictions
Photo GP

Photo GPS Channel Floodprone Width Taken? Taken? Constriction? Constriction?

Bridge 69.2 Yes Yes Yes Yes

Problem **Deposition Above, Alignment** 

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type **High** 

Narrative:

Type

Habitat Stream Condition Good

Minor aggradation and planform adjustment (meander extension); localized widening (downstream of bridge) enhanced by ice jams. Vertical adjustments moderated by channel-spanning bedrock.

Project: **Lewis Creek Phase 2 Reach Summary** page 2 of 2 March 3, 2010

Completion Date: September 17, Stream: **Lewis Creek** Reach # M09 Segment: A

Rain: Yes Organization: **Lewis Creek Association** Observers: KLU, SHPytlik

Segment Length (ft): 1,004 Segment Location: From just below Scott Pond Dam to approximately 1/4 mile upstream of the Quinlan

1.6 Grade Controls None Photo Take GPSTaken Total Height Type Location Total **Above Water** 

Confinement Type **Confined** STD Score Historic 7.1 Channel Degradation 3 B to F Yes 7.2 Channel Aggradation 10 Yes None 7.3 Widening Channel 9 Yes 15 7.4 Change in Planform Yes **Total Score** 37

Step 7. Rapid Geomorphic Assessment Data

Geomorphic Rating 0.4625

Channel Evolution Model F Channel Evolution Stage II Geomorphic Condition Fair Stream Sensitivity **Extreme** 

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

4.8 Channel Constrictions None

Photo GPS Floodprone Channel Width Constriction? Constriction? Taken? Taken?

Narrative:

Type

Minor aggradation; historic widening and incision. Bc to F STD.

**Habitat Stream Condition** 

Project: **Phase 2 Reach Summary** March 3, 2010 **Lewis Creek** page 2 of 2 Stream: **Lewis Creek** Reach # M09 Segment: **B** Completion Date: **September 17**, **Lewis Creek Association** Observers: KLU, SHPytlik Rain: **Yes** Organization: Segment Location: Upstream end of reach comprising Scott Pond Dam, upstream impoundment, and Segment Length (ft): 301 1.6 Grade Controls Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Total Type Location **Above Water** 3.00 Dam 6.00 Yes Yes Mid-segment Ledge Yes Yes Mid-segment 4.00 2.00 Ledge Mid-segment 2.00 1.00 Yes Yes Channel Evolution Model Channel Evolution Stage **Geomorphic Condition** Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions Photo **GPS** Floodprone Channel Type Width Taken? Taken? Constriction? Constriction? 65.0 Yes Other Yes No Yes Problem **Deposition Above Habitat Stream Condition** Narrative:

Project: **Phase 2 Reach Summary** March 3, 2010 **Lewis Creek** page 2 of 2 Completion Date: August 18, 2009 Stream: **Lewis Creek** Reach # M10 Segment: A **Lewis Creek Association** Observers: KLU, MI Rain: **Yes** Organization: Segment Location: Downstream end of reach representing approximate former mill pond extent and Segment Length (ft): 1,016 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Type Location Total **Above Water** Channel Evolution Model Channel Evolution Stage **Geomorphic Condition** Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions None GPS Photo Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? **Habitat Stream Condition** Narrative:

Project: **Lewis Creek Phase 2 Reach Summary** March 3, 2010 page 2 of 2 Completion Date: August 18, 2009 Reach # M10 Stream: **Lewis Creek** Segment: **B** Organization: **Lewis Creek Association** Observers: KLU, MI Rain: Yes Segment Length (ft): 3,535 Segment Location: From downstream of RB sand / gravel quarry downstream past Barlow hay field to

1.6 Gra	ade Controls None			Step 7. Rapid Geomorphic Assessment D				a	
Tuno	Lagation	Total	Total Height	Photo Take GPSTaken	Confinement Type	Unconf	fined		_
Type	Location	Total	Above Water	GPSTaken			Score	STD	Historic
					7.1 Channel Degradation		8	None	Yes
					7.2 Channel Aggradation		11	None	No
					7.3 Widening Channel		10		No
					7.4 Change in Planform		8		No
					Total S	Score	37		
					Geomorphic F	Rating	0.4625		
					Channel Evolution I	Model	F		
					Channel Evolution	Stage	III		
					Geomorphic Con	ndition	Fair		
					Stream Sens	sitivity	Very High		
					Step 6. Rapid Habita	at Asses	ssment Data		

4.8 Channel Constrictions None

Type Width Photo GPS Channel Floodprone Constriction? Constriction?

Habitat Stream Condition

Stream Gradient Type

Narrative:

Moderate planform adjust (FCs, braid, island, migr); min to mod aggrad (contributions from tribs, quarry/ mass failure). Hist incis, wid. Current floodplain widening mostly accomplished by PF change.

Stream: Lewis Creek Reach # M10 Segment: C Completion Date: November 15,

Organization: Lewis Creek Association Observers: B Oshea, T Baines (11/06) Rain: Yes

Segment Length (ft): 2,701 Segment Location: Mid-reach section of narrower valley confinement extending approx 2700 ft upstream

1.6 Grade Controls **None**Type Location Total Height Photo Take GPSTaken

Total Height Photo Take GPSTaken

Confinement Type **Confined** Score STD Historic 7.1 Channel Degradation 9 None Yes 7.2 Channel Aggradation 13 None No 7.3 Widening Channel Yes 13

Step 7. Rapid Geomorphic Assessment Data

16

No

Total Score 51
Geomorphic Rating 0.6375

Channel Evolution Model
Channel Evolution Stage
Geomorphic Condition
Fair

Stream Sensitivity Very High

4.8 Channel Constrictions None

Width

Photo GPS Channel Floodprone Taken? Taken? Constriction? Constriction?

Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

7.4 Change in Planform

Narrative:

Type

**Habitat Stream Condition** 

Minor aggradation. Historic (possibly post-glacial) incision; historic widening. Condition score (Fair) on cusp with Good.

Stream: Lewis Creek Reach # M10 Segment: D Completion Date: August 18, 2009

Organization: Lewis Creek Association Observers: KLU, MI (8/09); B Oshea, T Baines Rain: Yes

Segment Length (ft): 4,868 Segment Location: Mid-reach section extending approx 4800 feet downstream of point where Roscoe Rd

1.6 Grade Controls **None**Type Location Total Height Photo Take GPSTaken

Above Water

Confinement Type	Unconfined			
	Score	STD	Historic	
7.1 Channel Degradation	8	None	Yes	
7.2 Channel Aggradation	11	None	No	
7.3 Widening Channel	13		Yes	

Step 7. Rapid Geomorphic Assessment Data

11

No

Total Score 43
Geomorphic Rating 0.5375

7.4 Change in Planform

Channel Evolution Model
Channel Evolution Stage
Geomorphic Condition
Fair

Stream Sensitivity Very High

4.8 Channel Constrictions None

Width

Photo GPS Channel Floodprone
Taken? Taken? Constriction? Constriction?

Step 6. Rapid Habitat Assessment Data Stream Gradient Type

Habitat Stream Condition

Narrative:

Type

Minor to mod aggr & PF (flood chutes). Historic (possibly post-glacial) incision. Historic widening.

Project: **Phase 2 Reach Summary** page 2 of 2 March 3, 2010 **Lewis Creek** Completion Date: August 19, 2009 Stream: **Lewis Creek** Reach # M10 Segment: **E Lewis Creek Association** Observers: KLU, MI (8/09); B Oshea, T Baines Rain: Yes Organization: Segment Location: From Sequin covered bridge to a point approx 1200 ft downstream, along Roscoe Segment Length (ft): 1,149 1 6 Crada Controls No

1.6 Grad	le Controls None				Step 7. Rapid Geom	orphic Asses	sment Data	<u>1</u>
Type	Location	Total	Total Height	Photo Take GPSTaken	Confinement Type Uncor	nfined		_
Type	LOCATION	Total	Above Water	GPSTaken		Score	STD	Historic
					7.1 Channel Degradation	8	None	Yes
					7.2 Channel Aggradation	14	None	No
					7.3 Widening Channel	13		No
					7.4 Change in Planform	13		Yes
					Total Score	48		
					Geomorphic Rating	0.6		
					Channel Evolution Model	F		
					Channel Evolution Stage	II		
					Geomorphic Condition	Fair		
					Stream Sensitivity	High		
					Step 6. Rapid Habitat Asse	essment Data	<u>a</u>	

4.8 Channel Constrictions None

Type Width Photo GPS Channel Floodprone Type Width Taken? Taken? Constriction? Constriction?

Stream Gradient Type

Narrative:

**Habitat Stream Condition** 

Min to moderate aggrad, widening, PF change (partly resisted by cohesive banks, armoring, revetments). Hist incision, hist PF change (channelization). High potential for catastrophic adjustment.

Project: **Phase 2 Reach Summary Lewis Creek** page 2 of 2 March 3, 2010 Stream: **Lewis Creek** Reach # M10 Segment: **F** Completion Date: August 19, 2009 Organization: **Lewis Creek Association** Observers: KLU, MI (8/09); B Oshea, T Baines Rain: Yes Segment Location: Upstream 500+ ft of reach dominated by bedrock controls, including small waterfall Segment Length (ft): 564 1.6 Grade Controls Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Total Type Location **Above Water** 7.00 Waterfall 8.00 Yes Yes **Mid-segment** Ledge 0.00 Yes No Mid-segment 1.00 Channel Evolution Model Channel Evolution Stage Geomorphic Condition Good Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions Photo **GPS** Floodprone Channel Type Width Taken? Taken? Constriction? Constriction? Bedrock 25.0 Yes Yes Yes Yes Problem **Deposition Above, Scour Below Bridge** 70.0 Yes Yes Yes Yes Problem None **Habitat Stream Condition** Narrative:

Project: Lewis Creek Phase 2 Reach Summary page 2 of 2 March 3, 2010
Stream: Lewis Creek Reach # M11 Segment: 0 Completion Date: October 18, 2004
Organization: Lewis Creek Association Observers: KLU, EE (SMRC)
Rain: Yes

1.6 Grad	de Controls				
Туре	Location	Total	Total Height Above Water	Photo Ta	ake - GPSTaken
Ledge	Mid-segment	1.00	0.00	No	No

3,341

Confinement Type Uncon	fined		
	Score	STD	Historic
7.1 Channel Degradation	8	None	Yes
7.2 Channel Aggradation	15	None	No
7.3 Widening Channel	10		No
7.4 Change in Planform	13		No
Total Score	46		
Geomorphic Rating	0.575		
Channel Evolution Model	F		
Channel Evolution Stage	III		
Geomorphic Condition	Fair		
Stream Sensitivity	Very High		

Step 7. Rapid Geomorphic Assessment Data

Segment Location: From Cedar Brook confluence downstream to the Charlotte town line, just upstream of

4.8 Channel Constrictions
Photo GPS Channel Floodprone

Step 6. Rapid Habitat Assessment Data
Stream Gradient Type

Constriction? Constriction?

Narrative:

Type

Width

Taken? Taken?

Segment Length (ft):

**Habitat Stream Condition** 

Historic incision; minor to moderate widening leading to apparent STD from E to C. Minor aggr local to DJs, beaver dams, and bedrock grade control.

Project: **Phase 2 Reach Summary** March 3, 2010 **Lewis Creek** page 2 of 2 Completion Date: October 18, 2004 Stream: **Lewis Creek** Reach # M12 Segment: A **Lewis Creek Association** Observers: **KLU, EE** Rain: **Yes** Organization: Segment Location: Downstream quarter of the reach from Baldwin Rd bridge to the Cedar Brook Segment Length (ft): 3,632 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Type Location Total **Above Water** Channel Evolution Model Channel Evolution Stage Geomorphic Condition Good Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions None GPS Photo Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? **Habitat Stream Condition** Narrative:

Project:	<b>Lewis Creek</b>				Phase 2 Read	ch Summary	page 2 of 2				March 3, 2010
Stream:	Lewis Cre	ek		Reach #	M12		Segment: <b>B</b>		Completion	on Date:	October 21, 2004
Organizat	ion: Lewis Cree	k Associatio	n (	Observers:	KLU (SMRC),	, Carrie & Dave	Fenn			Rain:	Yes
Segment	Length (ft):	1,161	Segment	t Location:	Short section	n upstream of B	aldwin Road cro	ssing.			
1.6 Gr	ade Controls None						Step 7. Rap	id Geomo	rphic Assess	ment Dat	a a
Typo	Location	Total	Total Height	Photo Ta	lk€ - GPSTaken	Co	onfinement Type	Unconf	fined		_
Type	Location	Total	Above Water		GPSTaken				Score	STD	Historic
						7.1 Channel I	Degradation		8	C to B	Yes
						7.2 Channel	Aggradation		15	None	No
						7.3 Widening	Channel		16		No
						7.4 Change in	n Planform		16		Yes
							Tota	al Score	55		
							Geomorphi	c Rating	0.6875		
							Channel Evolutio	n Model	F		
							Channel Evolution		II		
							Geomorphic C	_	Good		
							Stream Se	ensitivity	Very High	1	
							Step 6. Rapid Hab	oitat Asses	ssment Data	1	
4.8 Cha	annel Constrictions					9	Stream Gradient Ty			-	
	Photo	GPS Ch	annel Flo	oodprone							
Type	Width Taken?			onstriction?							
Bridge	65.5 Yes	No	No	Yes							
	Problem Scour Be	low									

Narrative:

Habitat Stream Condition

Historic incision. Minor to negligible current adjustments. Lateral adjustments likely moderated by cohesive sediments in bed / banks. Locally, steeper gradient and partly entrenched condition (transport-dominated) have minimized aggradation.

Project: **Phase 2 Reach Summary** March 3, 2010 **Lewis Creek** page 2 of 2 Completion Date: October 21, 2004 Stream: **Lewis Creek** Reach # M12 Segment: C **Lewis Creek Association** Observers: KLU (SMRC), Carrie & Dave Fenn Rain: Yes Organization: Segment Location: 1.8 mile segment downstream of Pond Brook confluence. Segment Length (ft): 9,501 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Type Location Total **Above Water** Channel Evolution Model Channel Evolution Stage **Geomorphic Condition** Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions None Photo **GPS** Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? **Habitat Stream Condition** Narrative:

Project: **Phase 2 Reach Summary** March 3, 2010 **Lewis Creek** page 2 of 2 Completion Date: October 21, 2004 Stream: **Lewis Creek** Reach # M13 Segment: A **Lewis Creek Association** Observers: KLU (SMRC), Carrie & Dave Fenn Rain: **Yes** Organization: Segment Location: From Silver Street crossing to Pond Bk confluence. Segment Length (ft): 3,802 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Type Location Total **Above Water** Channel Evolution Model Channel Evolution Stage Geomorphic Condition Fair Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions None GPS Photo Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? **Habitat Stream Condition** Narrative:

Stream: Lewis Creek Reach # M13 Segment: B Completion Date: June 15, 2005

Organization: Lewis Creek Association Observers: KLU, EE (SMRC) Rain: Yes

Segment Length (ft): 4,042 Segment Location: From Lewis Creek Rd downstream to Silver Street bridge.

1.6 Grade Controls **None**Type Location Total Total Height Photo Take GPSTaken

Step 71 Hapia Geomorphia 7 to septimente Data										
Confinement Type <b>Uncon</b>	fined									
	Score	STD	Historic							
7.1 Channel Degradation	7	None	Yes							
7.2 Channel Aggradation	13	None	No							
7.3 Widening Channel	11		Yes							
7.4 Change in Planform	16		Yes							
Total Score	47									
Geomorphic Rating	0.5875									
Channel Evolution Model	F									
Channel Evolution Stage	II									
Geomorphic Condition	Fair									
Stream Sensitivity	Very High	1								

Step 7. Rapid Geomorphic Assessment Data

Step 6. Rapid Habitat Assessment Data Stream Gradient Type

4.8 Channel Constrictions

Type Width Photo GPS Channel Floodprone Type Width Taken? Taken? Constriction? Constriction?

Bridge 84.0 Yes No No Yes

Problem **None** 

Narrative:

Habitat Stream Condition

Minor, localized aggradation. Historic incision and widening. Cohesive banks, bed have likely moderated widening, planform adjustment.

Stream: Lewis Creek Reach # M14 Segment: 0 Completion Date: November 29,

Organization: Lewis Creek Association Observers: SH, Peter, KU

Segment Length (ft): 3,003 Segment Location: Reach is parallel to Lewis Creek Road, east of intersection with Silver Street, and

Ledge	Mid-segment	1.00	0.00	Yes					
Ledge	Mid-segment	1.00	0.00	No					
Туре	Location	Total	Total Height Above Water						
1.6 Grade Controls									

4.8 Chan	nel Cons	strictions			
Туре	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?
<b>Bridge</b> Pr	<b>41.0</b> oblem I		No on Above	Yes Scour Below	Yes

Step 7. Rapid Geomorphic Assessment Data									
Confinement Type <b>Confined</b>									
	Score	STD	Historic						
7.1 Channel Degradation	18	None	No						
7.2 Channel Aggradation	15	None	No						
7.3 Widening Channel	15		No						
7.4 Change in Planform	18		No						
Total Score	66								
Geomorphic Rating	0.825								
Channel Evolution Model	D								
Channel Evolution Stage	I								
Geomorphic Condition	Good								
Stream Sensitivity	Moderate								

Step 6. Rapid Habitat Ass	essment Data
Stream Gradient Type	High
	Score
6.1 Epifaunal Substrate - Available Cover	8
6.2 Embeddedness	13
6.3 Velocity/Depth Patterns	11
6.4 Sediment Deposition	15
6.5 Channel Flow Status	18
6.6 Channel Alteration	18
6.7 Frequency of Riffles/Steps	17
6.8 Bank Stability	Left: 10 Right: 8
6.9 Bank Vegetation Protection	Left: 9 Right: 8
6.10 Riparian Vegetation Zone Width	Left: 10 Right: 7
Total Score	152
Habitat Rating	0.76
Habitat Stream Condition	on <b>Good</b>

Narrative:

None.

Project: **Lewis Creek Phase 2 Reach Summary** page 2 of 2 March 3, 2010 Reach # **M15** Segment: A Completion Date: November 29, Stream: **Lewis Creek Lewis Creek Association** Observers: KLU, BOS Rain: No Organization: Segment Length (ft): Segment Location: Extends from just above the Monkton / Hinesburg line downstream to the end of the 6,162 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height **Unconfined** Confinement Type Type Total Location **Above Water** Score STD Historic 7.1 Channel Degradation 18 No None 7.2 Channel Aggradation 10 No None 7.3 Widening Channel 13 No 7.4 Change in Planform 8 No 49 **Total Score** Geomorphic Rating 0.6125 Channel Evolution Model F Channel Evolution Stage IV **Geomorphic Condition** Fair Stream Sensitivity **Extreme** Step 6. Rapid Habitat Assessment Data Stream Gradient Type High 4.8 Channel Constrictions None Score Photo **GPS** Channel Floodprone **15** 6.1 Epifaunal Substrate - Available Cover Type Width Taken? Taken? Constriction? Constriction? 6.2 Embeddedness 13 6.3 Velocity/Depth Patterns 13 6.4 Sediment Deposition 11 6.5 Channel Flow Status 15 6.6 Channel Alteration 9 6.7 Frequency of Riffles/Steps 16 Left: 5 Right: 7 6.8 Bank Stability 6.9 Bank Vegetation Protection Left: 5 Right: 7 6.10 Riparian Vegetation Zone Width Left: 10 Right: 9 **Total Score** 135 **Habitat Rating** 0.675

#### Narrative:

Moderate planform adjustment (flood chutes, meander extension & migration, recent avulsion) and aggradation in response to historic straightening and delivery of sediments from upstream sources (erosion, tributaries, stormwater inputs).

**Habitat Stream Condition** 

Good

Project:	Lewis Creek	-1-		D	Phase 2 Read	ch Summary	page 2 of 2		Commission	D-1	March 3, 2010
Stream: Organizati	Lewis Cree		on	Reach #	M15 KLU, BOS		Segment: <b>B</b>		Completion	Nate:	November 29,
_	Length (ft):	3,989			•	Brook conflue	ence downstream	under th	e Tvler Brid		
	ade Controls None								rphic Assessm		
1.0 010			Total Height	Photo Ta	νε <i>-</i> -		Confinement Type	Unconf	-	ient Dat	<u>a</u>
Type	Location	Total	Above Water	. FIIOLO TA	ke GPSTaken		commence Type	Oncom	Score	STD	Historic
						7.1 Channe	l Degradation		16	None	Yes
						7.2 Channe	l Aggradation		11	None	No
						7.3 Widenir	ng Channel		10		No
						7.4 Change	in Planform		6		No
							Tot Geomorphi	al Score c Rating	43 0.5375		
							Channel Evolution Channel Evolution Geomorphic C	on Stage	F IV Fair		
							Stream Se		Very High		
							Step 6. Rapid Hal	oitat Asses	sment Data		
4 8 Cha	annel Constrictions						Stream Gradient Ty	/pe <b>F</b>	ligh		
110 CHG	Photo	GPS C	Channel Fl	loodprone				•	S	core	
Type	Width Taken?	_		onstriction?		6.1 Epifaunal	Substrate - Availabl	e Cover		13	
Bridge	62.0 Yes	No	No	Yes			6.2 Embedo	ledness		10	
	Problem <b>Deposition</b>		110	103			6.3 Velocity/Depth F	atterns		13	
	•						6.4 Sediment De	position		6	
							6.5 Channel Flow	/ Status		8	
							6.6 Channel Al	teration		8	
						6.7	Frequency of Riffle	s/Steps		18	
							6.8 Bank 9	Stability	Left: 6	Right:	<b>7</b>
						6.9	Bank Vegetation Pro	otection	Left: 6	Right:	6
						6.10 Ripa	rian Vegetation Zon	e Width	Left: 8	Right:	10
							Tota	al Score	1	.19	
							Habitat	Rating	0.	595	

# Narrative:

Moderate to major planform adjustment (recent avulsion, flood chutes, meander extension) and moderate widening and aggradation in response to historic channelization, recent avulsion, and delivery of sediments from upstream erosion and tributaries.

**Habitat Stream Condition** 

Fair

Project: **Lewis Creek Phase 2 Reach Summary** page 2 of 2 March 3, 2010 Stream: Reach # M16 Segment: 0 Completion Date: June 24, 2005 **Lewis Creek** Organization: **Lewis Creek Association** Observers: **KLU** Rain: Yes Segment Length (ft): Segment Location: West of Route 116, from Mitch Kelly farm at M16S1 confluence downstream to Hollow 6,559 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type **Unconfined** Type Total Location **Above Water** Score STD Historic 7.1 Channel Degradation 16 Yes None 7.2 Channel Aggradation 11 None No 7.3 Widening Channel 6 No 7.4 Change in Planform 11 No **Total Score** 44 0.55 Geomorphic Rating Channel Evolution Model F Channel Evolution Stage III **Geomorphic Condition** Fair Stream Sensitivity **Very High** Step 6. Rapid Habitat Assessment Data Stream Gradient Type High 4.8 Channel Constrictions None Score Photo **GPS** Channel Floodprone 6.1 Epifaunal Substrate - Available Cover 8 Type Width Taken? Taken? Constriction? Constriction? 6.2 Embeddedness 11

Habitat Stream Condition

**Habitat Rating** 

**Total Score** 

6.3 Velocity/Depth Patterns

6.7 Frequency of Riffles/Steps

6.9 Bank Vegetation Protection

6.10 Riparian Vegetation Zone Width

6.4 Sediment Deposition

6.5 Channel Flow Status

6.6 Channel Alteration

6.8 Bank Stability

Fair

16

15

15

13

18 Left: 7 Right: 4

Left: 7 Right: 4

Left: 2 Right: 2

122

0.61

#### Narrative:

Active widening and planform adjustment. Minor degree of historic incision. Active incision moderated by cohesive soils, varved clays exposed at thalweg. VH sens due to STD, E to C str type.

March 3, 2010 **Lewis Creek Phase 2 Reach Summary** Project: page 2 of 2 **Lewis Creek** Reach # **M17** Segment: A Completion Date: September 21, Stream:

Organization: **Lewis Creek Association** Observers: LU, LD Rain: **Yes** 

1.6 Gra	ade Controls	None				Step 7. Rapid	Geomo	orphic Asses	sment Data	
īvno.	Locatio	cation Total		Total Heig		Confinement Type Unco		nconfined		
ype	LUCALIU	111	1016	Above Wat	er GPSTaken			Score	STD	Historic
						7.1 Channel Degradation		15	None	Yes
						7.2 Channel Aggradation		13	None	No
						7.3 Widening Channel		15		No
						7.4 Change in Planform		11		No
						Total	Score	54		
						Geomorphic I	Rating	0.675		
						Channel Evolution	Model	F		
						Channel Evolution	Stage	I		
						Geomorphic Cor	_	Good		
						Stream Sen	sitivity	High		
						Step 6. Rapid Habit	at Asse	ssment Dat	a	
4.8 Cha	nnel Constri	ictions				Stream Gradient Type	e l	Low	_	
110 0110		Photo	GPS	Channel	Floodprone				Score	
Type		Посо Гакеп?	Taken?	Constriction?	Constriction?	6.1 Epifaunal Substrate - Available (	Cover		15	
Bridge		No	No	Yes	Yes	6.2 Pool Subs	strate		15	
	roblem <b>Sc</b>	_	_	163	163	6.3 Pool Varia	ability		11	
						6.4 Sediment Depo	sition		13	
						6.5 Channel Flow S	Status		16	
						6.6 Channel Alter	ration		16	
						6.7 Channel Sinu	uosity		12	
						6.8 Bank Sta	-	Left:	7 Right: 7	7
						6.9 Bank Vegetation Prote	•		5 Right: 5	
						6.10 Riparian Vegetation Zone \			4 Right: 1	
						Total 9			127	
						Habitat R			0.635	

**Habitat Stream Condition** 

Fair

Narrative:

Minor planform adjustment (meander extension and migration).

Project: Stream: Organizatio	on: <b>Le</b>	ewis Cre wis Cree	k Associa		Reach # Observers:	KLU	•	page 2 of 2 Segment: <b>B</b>		•	Rain: `	
Segment L			8,552	Segme	ent Location:	From 1000 ft	downstrean	n of States Prison H				
1.6 Gra	ade Contro	ols <b>None</b>		Total Usiak	a <b>.</b>			Step 7. Rap		•	sment Dat	<u>a</u>
Type	Locat	tion	Tota	Total Heigh Above Wat	ा Photo Ta er	<sup>lk€ ¯</sup> GPSTaken		Confinement Type	Uncon	Score	STD	Historic
							7.2 Chann 7.3 Wideni	el Degradation el Aggradation ng Channel e in Planform		18 11 15 8	None None	No No No No
									al Score c Rating	52 0.65		
								Channel Evolutio Channel Evolutio Geomorphic C Stream Se	on Stage Condition	F IV Good High		
								Step 6. Rapid Hab			<u>a</u>	
4.8 Cha	nnel Cons	trictions						Stream Gradient Ty	/pe I	Low	6	
Tuno	\\ <i>\!</i> :d <b>+</b> b	Photo	GPS	Channel	Floodprone		6 1 Eniforms	I Cubatrata Available	o Cover		Score	
Type	Width	Taken?	Taken?	Constriction?	Constriction?		6.1 Epirauna	l Substrate - Available 6.2 Pool Su			16 16	
Bridge	18.0		No	Yes	Yes			6.3 Pool Va			13	
Р	roblem <b>L</b>	Depositio	on Above,	Scour Below				6.4 Sediment Dep	•		10	
								6.5 Channel Flow			13	
								6.6 Channel Alt			13	
								6.7 Channel Si			11	
								6.8 Bank 9	•	Left:	7 Right:	7
							6.9	Bank Vegetation Pro	otection	Left:	6 Right:	6
							6.10 Ripa	arian Vegetation Zone	e Width	Left: 1	0 Right:	10
								Tota	al Score		138	
								Habitat	Rating		0.69	
Narrativ <i>e</i>	0.							Habitat Stream	Condition	1	Good	

Narrative:

Moderate planform adjustment (meander extension, meander migration, neck cutoffs, flood chutes) and minor aggradation. Potential incis / wid in response to past channelization & armoring may have been moderated by cohesive soils, offset by aggrad.

Stream: Lewis Creek Reach # M17 Segment: C Completion Date: September 10,

Organization: Lewis Creek Association Observers: KLU Rain: Yes

Segmen	t Length (ft):	2,005	Segme	ent Location	: Upstream se	gment from base of bedrock go	rge alon	g States Pr	ison Hol	low Road,
1.6 (	Grade Controls None	9				Step 7. Rapi	id Geomo	rphic Assess	ment Dat	a
Туре	Location	Total	Total Heigh Above Wat	nt Photo T er	¯ak <i>є ¯</i> GPSTaken	Confinement Type	Uncon		STD	- Historic
						7.1 Channel Degradation		10	None	Yes
						7.2 Channel Aggradation		15	None	No
						7.3 Widening Channel		11		No
						7.4 Change in Planform		13		Yes
						Tota	al Score	49		
						Geomorphic	c Rating	0.6125		
						Channel Evolutio	n Model	F		
						Channel Evolution		III		
						Geomorphic C	_	Fair		
						Stream Se	ensitivity	Very High	l	
						Step 6. Rapid Hab	oitat Asse	ssment Data		
480	hannel Constrictions					Stream Gradient Ty	/pe	High		
1.0 C	Photo		Channel	Floodprone		,	•	-	Score	
Type	Width Taken?		Constriction?	Constriction	1?	6.1 Epifaunal Substrate - Available	e Cover		8	
Bridge		No	No	Yes		6.2 Embedd	ledness		13	
bridge	Problem <b>None</b>	140	140	163		6.3 Velocity/Depth P	atterns		13	
Old	45.0 No	No	No	Yes		6.4 Sediment Dep	oosition		13	
	Problem <b>None</b>					6.5 Channel Flow	Status		15	
						6.6 Channel Alt	eration		8	
						6.7 Frequency of Riffles	s/Steps		18	
						6.8 Bank S	Stability	Left: 8	Right:	7
						6.9 Bank Vegetation Pro	tection	Left: 8	Right:	6
						6.10 Riparian Vegetation Zone	e Width	Left: 8	Right:	3
						Tota	al Score		128	
						Habitat	Rating		0.64	

#### Narrative:

Minor widening and planform adjustment in response to inferred historic channelization & incision. Bedrock grade controls in upstream reach would limit upstream migration of nick points. Wid moderated by cohesive soils and tree buffer (LB)

**Habitat Stream Condition** 

Fair

Stream: Lewis Creek Reach # M18 Segment: 0 Completion Date: August 10, 2002

Organization: Lewis Creek Association Observers: Staci Pomeroy, B. Eliason, Joe Z. Rain: No

Segment Length (ft): 1,446 Segment Location: From States Prison Hollow Road crossing downstream to States Prison Hollow Road

1.6 Grad	le Controls			
Туре	Location	Total	Total Height Above Water	THE TAIK COCTOLOR
Waterfall	Mid-segment	20.00	19.00	No
Waterfall	Mid-segment	15.00	14.00	No
Waterfall	Mid-segment	5.00	4.00	No
Waterfall	Mid-segment	20.00	19.00	No
Waterfall	Mid-segment	5.00	4.00	No
Waterfall	Mid-segment	5.00	4.00	No

4.8 Channel Cor	strictions			
Type Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?
-	No	No	No	Yes
Problem <b>Bridge</b> 60.0  Problem	Yes	No	No	Yes

Step 7. Rapid Geomo	rphic Assessi	ment Data	<u>a</u>	
Confinement Type Confin	ed			
	Score	STD	Historic	
7.1 Channel Degradation	18	None	No	
7.2 Channel Aggradation	15	None	No	
7.3 Widening Channel	13		No	
7.4 Change in Planform	16		No	
Total Score	62			
Geomorphic Rating	0.775			
Channel Evolution Model	D			
Channel Evolution Stage	I			
Geomorphic Condition	Good			
Stream Sensitivity	Very Low			

Step 6. Rapid Habitat Ass	essment Data
Stream Gradient Type	High
	Score
6.1 Epifaunal Substrate - Available Cover	15
6.2 Embeddedness	18
6.3 Velocity/Depth Patterns	18
6.4 Sediment Deposition	19
6.5 Channel Flow Status	19
6.6 Channel Alteration	19
6.7 Frequency of Riffles/Steps	20
6.8 Bank Stability	Left: 10 Right: 10
6.9 Bank Vegetation Protection	Left: 10 Right: 10
6.10 Riparian Vegetation Zone Width	Left: 8 Right: 10
Total Score	186
Habitat Rating	0.93

Referen

**Habitat Stream Condition** 

Narrative:

None (minor adjustment). Bedrock offers grade control.

Project: Lewis Creek Phase 2 Reach Summary page 2 of 2 March 3, 2010 Stream: Lewis Creek Reach # M19 Segment: A Completion Date: October 16, 2002

Organization: Lewis Creek Association Observers: SP, SH, KLU, Steve, Ethan, Nel Rain: Yes

Segment Length (ft): Segment Location: Downstream portion of reach at Cota Ballfields off States Prison Hollow Road. 2,808 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height **Unconfined** Confinement Type Type Total Location **Above Water** Score STD Historic 7.1 Channel Degradation 18 No None 7.2 Channel Aggradation 15 None No 7.3 Widening Channel 16 No 7.4 Change in Planform 11 No **Total Score** 60 0.75 Geomorphic Rating Channel Evolution Model D Channel Evolution Stage Ι **Geomorphic Condition** Good Stream Sensitivity High Step 6. Rapid Habitat Assessment Data Stream Gradient Type High 4.8 Channel Constrictions None Score Photo **GPS** Channel Floodprone 6.1 Epifaunal Substrate - Available Cover 8 Type Width Taken? Taken? Constriction? Constriction? 6.2 Embeddedness 13 6.3 Velocity/Depth Patterns 13 6.4 Sediment Deposition 15 6.5 Channel Flow Status 18 6.6 Channel Alteration 13 6.7 Frequency of Riffles/Steps **13** Left: 7 Right: 7 6.8 Bank Stability 6.9 Bank Vegetation Protection Left: 7 Right: 4 6.10 Riparian Vegetation Zone Width Left: 10 Right: 5 **Total Score** 133 **Habitat Rating** 0.665

#### Narrative:

Minor to moderate planform adjustment (meander extension, meander translation). Segment is a response zone immediately upstream of bedrock grade control of the downstream bedrock gorge (reach M18).

**Habitat Stream Condition** 

Good

Project: **Phase 2 Reach Summary** March 3, 2010 **Lewis Creek** page 2 of 2 Stream: **Lewis Creek** Reach # M19 Segment: **B** Completion Date: September 18,

**Lewis Creek Association** Observers: SP, SH, Christa, Mike, KLU Rain: No Organization:

Segment Location: From farm bridge at upstream end of reach to Cota Ballfields; west of Route 116 and Segment Length (ft): 8,077 1 6 Grade Controls None Stan 7 Panid Geomorphic Assessment Data

1.0 Grac	de Controls None				Step 7. Rapid Geome	orpnic Asses	sment Data	_	
Type	Location	Total	Total Height	Photo Take GPSTaken	Confinement Type Uncon	fined			
Type	Location	Total	Above Water	GPSTaken		Score	STD	Historic	
					7.1 Channel Degradation	13	None	Yes	
					7.2 Channel Aggradation	13	None	No	
					7.3 Widening Channel	13		No	
					7.4 Change in Planform	11		No	
					Total Score	50			
					Geomorphic Rating	0.625			
					Channel Evolution Model	F			
					Channel Evolution Stage	III			
					Geomorphic Condition	Fair			

4.8 Chan	nel Cons	trictions			
_		Photo	GPS	Channel	Floodprone
Type	Width	Taken?	Taken?	Constriction?	Constriction?
Bridge	39.0	Yes	No	No	Yes
_					
Pr	oblem I	Depositio	n Above		
Pr <b>Bridge</b>		Deposition Yes	n Above No	No	Yes

Step 6. Rapid Habitat Ass	essment Data	
Stream Gradient Type	High	
	9	Score
6.1 Epifaunal Substrate - Available Cover		13
6.2 Embeddedness		13
6.3 Velocity/Depth Patterns		13
6.4 Sediment Deposition		11
6.5 Channel Flow Status		15
6.6 Channel Alteration		6
6.7 Frequency of Riffles/Steps		15
6.8 Bank Stability	Left: 7	Right: 8
6.9 Bank Vegetation Protection	Left: 6	Right: 6
6.10 Riparian Vegetation Zone Width	Left: 6	Right: 6
Total Score	1	.25
Habitat Rating	0.	625

Good

**Habitat Stream Condition** 

Stream Sensitivity Very High

#### Narrative:

Moderate planform adjustment (neck cutoff, meander extension) and minor aggradation in response to past channelization (more pronounced in downstream half of the segment, where channelized planform is no longer being actively maintained.

Project: Stream: Organization Segment Le		_		Reach # Observers: ent Location:	KLU, BOS	-	page 2 of 2 Segment: <b>A</b> which crosses ur	nder Pars	·	Rain:	-
1.6 Grad	le Controls <b>None</b> Location	Total	Total Heigl Above Wat	nt Photo Ta	ke - GPSTaken	C	Step 7. Rap onfinement Type	id Geomo Uncon		ment Da	_
			Above wat	.c.i		7.1 Channel 7.2 Channel 7.3 Widening 7.4 Change i	Aggradation Channel		Score 8 11 13 8	None None	Yes No No No
								on Model on Stage Condition ensitivity	40 0.5 F IV Fair Very High		
4.8 Chan	nel Constrictions Photo	GPS	Channel	Floodprone		9	Stream Gradient Ty	ype <b>I</b>	High	Score	
Type <b>Bridge</b> Pro	Width Taken?  40.0 Yes oblem Scour Bel	Taken? <b>No</b>	Constriction? Yes	Constriction? Yes		6.7 l	6.2 Embedo 6.2 Embedo .3 Velocity/Depth F 6.4 Sediment Dep 6.5 Channel Flow 6.6 Channel Ali Frequency of Riffle 6.8 Bank Stank Vegetation Protan Tota Habitat	dedness Patterns position V Status teration s/Steps Stability otection e Width al Score	Left: 2	6 8 8 10 13 7 18 3 Right 7 Right 2 Right 110 0.55	:: 7

# Narrative:

Moderate planform adjustment (flood chutes, meander migration) and minor aggradation in response to inferred historic channelization and incision. Upstream erosion and tributary sources contributing to aggradation.

**Habitat Stream Condition** 

Fair

Stream: Lewis Creek Reach # M20 Segment: B Completion Date: November 7,

Organization: Lewis Creek Association Observers: KU, BOS Rain: No Segment Length (ft): 1,738 Segment Location: Forested upstream half of M20 from confluence of High Knob tributary (T6)

1.6 Gra	ade Controls None				Step 7. Rapid Geo	morphic Asses	sment Dat	a
Туре	Location	Total	Total Height Above Water	Photo Take GPSTaken	Confinement Type Unc	onfined Score	STD	- Historic
					7.1 Channel Degradation	5	C to F	Yes
					7.2 Channel Aggradation	10	None	No
					7.3 Widening Channel	10		No
					7.4 Change in Planform	13		Yes
					Total Sco	re <b>38</b>		
					Geomorphic Ratio	ng <b>0.475</b>		
					Channel Evolution Mod	el <b>F</b>		
					Channel Evolution Sta	je <b>II</b>		
					Geomorphic Condition	n <b>Fair</b>		
					Stream Sensitiv	ty <b>Extreme</b>		
					Step 6. Rapid Habitat A	ssessment Dat	a	

4.8 Channel Constrictions			None		
		Photo	GPS	Channel	Floodprone
Туре	Width	Taken?	Taken?	Constriction?	Constriction?

Stream Gradient Type	High
	Score
6.1 Epifaunal Substrate - Available Cover	10
6.2 Embeddedness	13
6.3 Velocity/Depth Patterns	13
6.4 Sediment Deposition	10
6.5 Channel Flow Status	13
6.6 Channel Alteration	9
6.7 Frequency of Riffles/Steps	16
6.8 Bank Stability	Left: 10 Right: 10
6.9 Bank Vegetation Protection	Left: 10 Right: 10
6.10 Riparian Vegetation Zone Width	Left: 10 Right: 9
Total Score	143
Habitat Rating	0.715

Good

**Habitat Stream Condition** 

### Narrative:

Moderate widening in response to inferred historic incision, moderated by well-developed forested buffers, coarse bed and bank materials. Moderate aggradation in response to upstream erosion and sedimentation from High Knob tributary.

**Lewis Creek Phase 2 Reach Summary** March 3, 2010 Project: page 2 of 2

Reach # M21 Completion Date: **November 7**, Stream: **Lewis Creek** Segment: A

Organization: **Lewis Creek Association** Observers: **KLU, BOS** Rain: **Yes** 

Segment I	_ength (ft):	1,280	Segmen	t Location: Short section	n of semi-confined channel along	gside Ca	mp Commo	n Groun	d, crossing
1.6 Gr	ade Controls None				Step 7. Rapid Geomorphic Assessment Data				
Tuno	Location	Total	Total Height	CDCTakes	Confinement Type	Confin	ed		-
Type	Location	Total	Above Water	. GPSTAKEH			Score	STD	Historic
					7.1 Channel Degradation		10	None	Yes
					7.2 Channel Aggradation		13	None	No
					7.3 Widening Channel		10		No
					7.4 Change in Planform		13		No
					Tota	al Score	46		
					Geomorphic	c Rating	0.575		
					Channel Evolutio	n Model	F		
					Channel Evolution	n Stage	III		
					Geomorphic Co	_	Fair		
					Stream Se	ensitivity	High		
					Step 6. Rapid Hab	oitat Asses	ssment Data		
4 8 Cha	nnel Constrictions			-	Stream Gradient Ty	/pe <b>i</b>	High		
110 0110	Photo	GPS	Channel Fl	loodprone			S	core	
Type	Width Taken?			onstriction?	6.1 Epifaunal Substrate - Available	e Cover		8	
Bridge	30.0 Yes	Yes	Yes	Yes	6.2 Embedd	ledness		13	
	Problem None	163	163	165	6.3 Velocity/Depth P	atterns		8	
•	Toblem Herie				6.4 Sediment Dep	osition		15	
					6.5 Channel Flow	Status		13	
					6.6 Channel Alt	eration		15	
					6.7 Frequency of Riffles	s/Steps		3	
					6.8 Bank S	Stability	Left: 9	Right:	9
					6.9 Bank Vegetation Pro	tection	Left: 9	Right:	9
					6.10 Riparian Vegetation Zone	e Width	Left: 5	Right:	9
					Tota	al Score	1	.25	
					Habitat	Rating	0.	625	
Narrativ	re:				Habitat Stream	Condition	١	Fair	

Minor widening, historic incision. Well developed tree buffers on banks. Coarse material in bed and banks.

Stream: Lewis Creek Reach # M21 Segment: B Completion Date: November 7,

Organization: Lewis Creek Association Observers: KLU, BOS Rain: Yes

Segment Length (ft): 3,118 Segment Location: Downstream of Meadow Lark Lane crossing extending to Camp Common Ground.

1.6 Gr	ade Controls None				Step 7. Rapid Geo	morphic Asses	sment Dat	a
Гуре	Location	Total	Total Height Above Water	Photo Take GPSTaken	Confinement Type <b>Unc</b>	onfined Score	STD	- Historic
					7.1 Channel Degradation	8	None	Yes
					7.2 Channel Aggradation	11	None	No
					7.3 Widening Channel	13		No
					7.4 Change in Planform	6		No
					Total Sco	re <b>38</b>		
					Geomorphic Ratio	g <b>0.475</b>		
					Channel Evolution Mod	el <b>F</b>		
					Channel Evolution Stag	je <b>IV</b>		
					Geomorphic Condition	n <b>Fair</b>		
					Stream Sensitivi	y Very Hig	h	
					Step 6. Rapid Habitat A	sessment Data	3	
4.8 Cha	nnel Constrictions N	one			Stream Gradient Type	High	_	
			Shamad Ele	odpropo			Score	

Type Width Photo GPS Channel Floodprone Constriction? Constriction?

Stream Gradient Type	High
	Score
6.1 Epifaunal Substrate - Available Cover	8
6.2 Embeddedness	8
6.3 Velocity/Depth Patterns	11
6.4 Sediment Deposition	8
6.5 Channel Flow Status	8
6.6 Channel Alteration	10
6.7 Frequency of Riffles/Steps	16
6.8 Bank Stability	Left: 7 Right: 5
6.9 Bank Vegetation Protection	Left: 7 Right: 5
6.10 Riparian Vegetation Zone Width	Left: 10 Right: 8
Total Score	111
Habitat Rating	0.555

**Habitat Stream Condition** 

Fair

### Narrative:

Significant, recent planform adjustment (neck cutoffs, meander migration, meander translation, flood chute) and moderate aggradation in response to past channelization and upstream sediment sources. Aggradation enhanced locally by debris jams & LWD.

Stream: Lewis Creek Reach # M22 Segment: 0 Completion Date: August 29, 2002

Organization: Lewis Creek Association Observers: DF/CF/MI/KU/SP Rain: No

Segment Length (ft): 7,944 Segment Location: From upstream of Hillsboro Road crossing, downstream under Route 116, Meadowlark

1.6 Gr	ade Controls None				Step 7. Rapid Geo	morphic Asses	sment Dat	a
Туре	Location	Total	Total Height	Photo Take GPSTaken	Confinement Type Unc	confined	0.70	_
71-			Above Water			Score	STD	Historic
					7.1 Channel Degradation	11	None	Yes
					7.2 Channel Aggradation	11	None	No
					7.3 Widening Channel	11		No
					7.4 Change in Planform	8		No
					Total Sco	re <b>41</b>		
					Geomorphic Ratir	ng <b>0.5125</b>		
					Channel Evolution Mod	lel <b>F</b>		
					Channel Evolution Stag	ge <b>III</b>		
					Geomorphic Condition	on <b>Fair</b>		
					Stream Sensitivi	ity <b>Very Hig</b> l	h	

4.8 Char	nel Cons	trictions			
		Photo	GPS	Channel	Floodprone
Type	Width	Taken?	Taken?	Constriction?	Constriction?
Bridge	36.5	Yes	No	No	Yes
Pr	oblem I	None			
Bridge	29.6	Yes	No	Yes	Yes
Pr	oblem /	Alignmer	nt		
Bridge	25.5	Yes	No	Yes	Yes
Pr	oblem \$	Scour Be	low		

Step 6. Rapid Habitat Ass	essment Data
Stream Gradient Type	High
	Score
6.1 Epifaunal Substrate - Available Cover	8
6.2 Embeddedness	13
6.3 Velocity/Depth Patterns	13
6.4 Sediment Deposition	10
6.5 Channel Flow Status	8
6.6 Channel Alteration	8
6.7 Frequency of Riffles/Steps	15
6.8 Bank Stability	Left: 6 Right: 7
6.9 Bank Vegetation Protection	Left: 6 Right: 7
6.10 Riparian Vegetation Zone Width	Left: 2 Right: 2
Total Score	105
Habitat Rating	0.525

Fair

**Habitat Stream Condition** 

### Narrative:

Moderate planform adjustment (meander extension and translation) and localized aggradation / widening (enhanced by beaver activity). Historic incision inferred as a result of straightening (especially in u/s half) and encroachment (berms, armoring).

Project:	Lewis C	Creek				Phase 2 Reac	h Summary	page 2 of 2				March 3, 2010
Stream:		ewis Cre			Reach #	_		Segment: 0		Completio		July 8, 2008
Organizat			ek Associa			KLU (SMRC);					Rain:	
Segment	Length (ft):	1	4,505	Segm	nent Location:	Flows to the	southwest alo	ong Ireland Road	passing i	intersection	n with M	eehan Rd.
	ade Contro		<b>.</b>	, Total Heig	Jht Photo Ta	k€ - GPSTaken	(	Step 7. Rap Confinement Type	id Geomo Uncon	rphic Assess <b>fined</b>	ment Dat	a
Type	Locati	on	Tota	Above Wa	ter	GPSTaken				Score	STD	Historic
							7.1 Channe	l Degradation		3	C to F	Yes
							7.2 Channe	l Aggradation		11	None	No
							7.3 Widenin	g Channel		12		No
							7.4 Change	in Planform		13		No
								Tota	al Score	39		
								Geomorphi	c Rating	0.4875		
								Channel Evolutio	n Model	F		
								Channel Evolution	n Stage	II		
								Geomorphic C	ondition	Fair		
								Stream Se	ensitivity	Extreme		
								Step 6. Rapid Hab	itat Asses	ssment Data		
4.8 Cha	annel Const	rictions						Stream Gradient Ty	/pe			
		Photo	GPS	Channel	Floodprone					1	Score	
Type	Width	Taken?	Taken?	Constriction?	Constriction?		6.1 Epifaunal	Substrate - Available	e Cover		0	
Bridge	28.5	Yes	Yes	Yes	Yes		6.2 Embed	ddedness (high) <br< td=""><td>/&gt;Pool</td><td></td><td>0</td><td></td></br<>	/>Pool		0	
	Problem N		105	. 65	. 65		6.3 Velocity	y/Depth Patterns (hi	gh) <br< td=""><td></td><td>0</td><td></td></br<>		0	
								6.4 Sediment Dep	osition		0	
								6.5 Channel Flow	Status		0	
								6.6 Channel Alt	eration		0	
							6.7 Frequency	y of Riffles/Steps (hi	gh) <br< td=""><td></td><td>0</td><td></td></br<>		0	
								6.8 Bank S	Stability	Left: 0	) Right:	: <b>0</b>
							6.9	Bank Vegetation Pro	tection	Left: 0	) Right:	: 0
							6.10 Ripar	rian Vegetation Zone	e Width	Left: 0	) Right:	: 0

Narrative:

Moderate aggradation. Localized widening. Historic incision (Cb to F STD). Coarseness of bed and bank materials likely of glaciofluvial (kame terrace) origin may offer boundary resistance that has moderated widening, planform adjustment.

Total Score

Habitat Rating

**Habitat Stream Condition** 

0

0

Stream: Cedar Lake Reach # T2.01 Segment: 0 Completion Date: November 14,

Organization: Lewis Creek Association Observers: BOS, TB Rain: Yes

Segment Length (ft): 3,202 Segment Location: Forested downstream-most reach of Cedar Brook which joins the Lewis Creek at the

1.6 Grade	Controls			
Туре	Location	Total	Total Height Above Water	Photo Take GPSTaken
Waterfall	Mid-segment	35.00	34.00	Yes
Ledge	Mid-segment	2.00	1.00	Yes
Ledge	Mid-segment	2.00	1.00	Yes

4.8 Char	nel Cons	strictions				
		Photo	GPS	Channel	Floodprone	
Type	Width	Taken?	Taken?	Constriction?	Constriction?	
Bedrock	16.0	Yes	Yes	Yes	Yes	
Pr	oblem	None				
Bedrock	12.0	Yes	Yes	Yes	Yes	
Pr	oblem	None				
Bedrock		Yes	Yes	Yes	Yes	
Pr	oblem	None				

Step 7. Rapid Geomorphic Assessment Data									
Confinement Type <b>Confined</b>									
	Score	STD	Historic						
7.1 Channel Degradation	18	None	No						
7.2 Channel Aggradation	18	None	No						
7.3 Widening Channel	17		No						
7.4 Change in Planform	17		No						
Total Score	70								
Geomorphic Rating	0.875								
Channel Evolution Model	D								
Channel Evolution Stage Geomorphic Condition	I Referenc								

Moderate

Step 6. Rapid Habitat Ass	sessment Data
Stream Gradient Type	High
	Score
6.1 Epifaunal Substrate - Available Cover	18
6.2 Embeddedness	15
6.3 Velocity/Depth Patterns	14
6.4 Sediment Deposition	15
6.5 Channel Flow Status	15
6.6 Channel Alteration	18
6.7 Frequency of Riffles/Steps	16
6.8 Bank Stability	Left: 9 Right: 9
6.9 Bank Vegetation Protection	Left: 10 Right: 10
6.10 Riparian Vegetation Zone Width	Left: 10 Right: 10
Total Score	169
Habitat Rating	0.845

Stream Sensitivity

Habitat Stream Condition Good

Narrative:

None.

Stream: Pond Brook Reach # T3.01 Segment: A Completion Date: September 8,

Organization: Lewis Creek Association Observers: KLU (SMRC); JC (MMI) Rain: No

Segment Length (ft): 3,199 Segment Location: From farm road culvert crossing downstream to confluence with Lewis Creek at the

egment L	zerigeri (reji	3,199		ene zocaciom Trom rami	road culvert crossing downstream		iluciice wit		ar con at the
1.6 Gr	ade Controls <b>None</b>	<b>!</b>			Step 7. Rapid	d Geomo	rphic Assessn	nent Data	
Гуре	Location	Tota	Total Heigl	CDCTakon	Confinement Type	Uncon			
, pc	Location	100	al Above Wat	ter			Score	STD	Historic
					7.1 Channel Degradation		18	None	No
					7.2 Channel Aggradation		11	None	No
					7.3 Widening Channel		15		No
					7.4 Change in Planform		10		No
					Tota	al Score	54		
					Geomorphic	Rating	0.675		
					Channel Evolution	n Model	F		
					Channel Evolution	n Stage	I		
					Geomorphic Co	ondition	Good		
					Stream Se	nsitivity	High		
					Step 6. Rapid Hab	itat Asses	ssment Data		
4 8 Cha	nnel Constrictions	None			Stream Gradient Ty	pe			
1.0 CH	Photo	GPS	Channel	Floodprone	,	•	9	Score	
Туре	Width Taken?		Constriction?	Constriction?	6.1 Epifaunal Substrate - Available	Cover		0	<del></del>
			construction.		6.2 Embeddedness (high) br	/>Pool		0	
					6.3 Velocity/Depth Patterns (high	gh) <br< td=""><td></td><td>0</td><td></td></br<>		0	
					6.4 Sediment Dep	osition		0	
					6.5 Channel Flow	Status		0	
					6.6 Channel Alte	eration		0	
					6.7 Frequency of Riffles/Steps (high	gh) <br< td=""><td></td><td>0</td><td></td></br<>		0	
					6.8 Bank S	tability	Left: 0	Right:	0
					6.9 Bank Vegetation Prof	tection	Left: 0	Right:	0
					6.10 Riparian Vegetation Zone			Right:	
					Total	l Score		0	
					Habitat	Rating		0	
Narrativ					Habitat Stream	Condition	1		

Moderate planform adjustment (meander extension, translation). Localized aggradation, enhanced by transitory beaver impoundments. Good floodplain access.

roject: tream: Organization		k Association			KLU (SMRC);	JC (MMI)	page 2 of 2 Segment: <b>B</b>	P	·	Rain:	-
egment Le 1.6 Grad	de Controls <b>None</b>	1,840	Segment	Location:	In pasture and	a nay rieids, i	mid-segment, end Step 7. Rap		rphic Assess		<del>_</del>
Гуре	Location	Lotal	Total Height Above Water	Photo Ta	ike - GPSTaken	(	Confinement Type	Unconf	<b>fined</b> Score	STD	— Historic
						7.2 Channe 7.3 Widenin	el Degradation el Aggradation ng Channel e in Planform		10 13 8 10	None None	Yes No Yes No
						7.4 Change		al Score c Rating	41 0.5125		NO
							Channel Evolution Channel Evolution Geomorphic C	on Stage	F III Fair		
							Stream Se		Very High		
4.8 Chan	nel Constrictions						Step 6. Rapid Hab Stream Gradient Ty				
Typo			_	odprone		6 1 Eniformal	Substrate - Available	2 Cover		Score <b>0</b>	
Type	raitem			nstriction?		•	ddedness (high) <br< td=""><td></td><td></td><td>0</td><td></td></br<>			0	
Culvert	5.00 Yes	Yes	Yes	Yes			y/Depth Patterns (hi	•		0	
PIO	oblem Scour Abo	ove, scour Be	iow,Alignmei	ıt		015 Velocie	6.4 Sediment Dep			0	
							6.5 Channel Flow			0	
							6.6 Channel Alt	teration		0	
						6.7 Frequence	y of Riffles/Steps (hi	igh) <br< td=""><td></td><td>0</td><td></td></br<>		0	
						-	6.8 Bank 9		Left: 0	) Right	: 0
						6.9	Bank Vegetation Pro	otection	Left: 0	) Right	: 0
						6.10 Ripa	rian Vegetation Zone	e Width	Left: 0	Right	: 0
							Tota	al Score	<u> </u>	0	
							Habitat	Rating		0	

# Narrative:

Minor aggradation and moderate planform adjustment. Historic incision and historic widening associated with channelization / dredging that cut off several highly sinuous meanders. Channel adjustments likely moderated by cohesive soils, low gradient

**Habitat Stream Condition** 

Stream: Pond Brook Reach # T3.01 Segment: C Completion Date: September 8,

Organization: Lewis Creek Association Observers: KLU (SMRC); JC (MMI) Rain: No

Segment Length (ft): 4,363 Segment Location: **Upstream half of the reach; spans Silver Street.** 

1.6 Gr	ade Controls <b>None</b>				Step 7. Rap	id Geomorphic Asses	sment Data	 }	
Timo	Location	Total	Total Height	Photo Take GPSTaken	Confinement Type	Unconfined		-	
Type	Location	Total	Above Water	GPSTaken		Score	STD	Historic	
					7.1 Channel Degradation	16	None	No	
					7.2 Channel Aggradation	11	None	No	
					7.3 Widening Channel	11		No	

Total Score 48
Geomorphic Rating 0.6

Stream Gradient Type

7.4 Change in Planform

Channel Evolution Model F
Channel Evolution Stage I
Geomorphic Condition Fair

Stream Sensitivity Very High

10

0

No

4.8 Channel Constrictions Photo **GPS** Floodprone Channel Type Width Constriction? Taken? Taken? Constriction? **Bridge** 23.0 Yes Yes Yes Yes Problem Scour Below 15.5 Yes Culvert Yes Yes Yes Problem **Alignment** 

# Step 6. Rapid Habitat Assessment Data

	Score
6.1 Epifaunal Substrate - Available Cover	0
6.2 Embeddedness (high) < br / > Pool	0
6.3 Velocity/Depth Patterns (high) <br< td=""><td>0</td></br<>	0
6.4 Sediment Deposition	0
6.5 Channel Flow Status	0
6.6 Channel Alteration	0
6.7 Frequency of Riffles/Steps (high) < br	0
6.8 Bank Stability	Left: 0 Right: 0
6.9 Bank Vegetation Protection	Left: 0 Right: 0
6.10 Riparian Vegetation Zone Width	Left: 0 Right: 0
Total Score	0

**Habitat Stream Condition** 

Habitat Rating

#### Narrative:

Moderate planform adjustment (flood chutes, bifurcations). Moderate (localized) widening and aggradation. Good floodplain connection.

Project: Stream:	Lewis Creek Hollow E	Brook		Reach #	Phase 2 Reach	Summary	page 2 of 2 Segment: <b>A</b>		Completio	n Date:	March 3, 2010 <b>August 18, 2008</b>
Organizatio		ek Associatio	n O		KLU (SMRC); J	IC (MMI)				Rain:	
Segment L		4,415					from wetlands do	wnstrea	m to conflu	ence wi	ith Lewis Creek
1.6 Gra	de Controls None	<u> </u>					Step 7. Rap	id Geomo	rphic Assessi	ment Dat	
			Total Height	Photo Ta	ke - GPSTaken		Confinement Type	Unconf	•		<u></u>
Type	Location	Total	Above Water	111000 10	··· GPSTaken		7,1		Score	STD	Historic
						7.1 Channe	el Degradation		16	None	No
						7.2 Channe	el Aggradation		10	None	No
						7.3 Widenir	ng Channel		8		Yes
						7.4 Change	e in Planform		8		No
							Tot	al Score	42		
							Geomorphi	c Rating	0.525		
							Channel Evolution	n Model	D		
							Channel Evolution		IIc		
							Geomorphic C	_	Fair		
							Stream Se		Very High		
							Step 6. Rapid Hal	nitat Asses			
40.0							Stream Gradient Ty		bornerie Bata		
4.8 Char	nnel Constrictions	GDG	. =				Stream Gradient Ty	γpe		Score	
Type	Photo Width Taken?		-	odprone	-	6 1 Enifaunal	Substrate - Available	- Cover		0	
	rancin			nstriction?		•	eddedness (high) <br< td=""><td></td><td></td><td>0</td><td></td></br<>			0	
Bridge	22.0 Yes	Yes	Yes	Yes			y/Depth Patterns (hi			0	
PI	roblem Scour Be	elow,Alignme	ent			ors versere	6.4 Sediment Dep			0	
							6.5 Channel Flow			0	
							6.6 Channel Alt			0	
						6.7 Frequenc	y of Riffles/Steps (hi			0	
							6.8 Bank S		Left: 0	-	: 0
						6.9	Bank Vegetation Pro	•	Left: 0	_	
							rian Vegetation Zone			Right	
					-	<u> </u>		al Score		0	
							Habitat	Rating		0	
								_			

# Narrative:

Moderate planform adjustment, widening, and aggradation, locally enhanced at beaver dam sites and debris jams. Cohesiveness of bed (e.g., varved clays) and low overall gradient may have moderated potential for incision.

**Habitat Stream Condition** 

Stream: Hollow Brook Reach # T4.01 Segment: B Completion Date: August 18, 2008

Organization: Lewis Creek Association Observers: KLU (SMRC); JC (MMI) Rain: No

Segment Length (ft): 5,235 Segment Location: From Hinesburg sand and gravel quarry along Hinesburg Hollow Rd, crossing under Rt

1.6 Grade Cor	ntrols <b>None</b>		
		Total Height	DI+- T-

T	Landina	Tatal	Total Height	Photo Take GPSTaken
Type	Location	rotai	Above Water	GPSTaken

4.8 Chan	nel Cons	trictions			
		Photo	GPS	Channel	Floodprone
Type	Width	Taken?	Taken?	Constriction?	Constriction?
Bridge	47.0	Yes	Yes	No	Yes
Pr	oblem \$	Scour Be	low,Align	ment	
Bridge	24.8	Yes	Yes	Yes	Yes
Pr	oblem I	Depositio	on Above		
Bridge	12.9	Yes	Yes	Yes	Yes
Pr	oblem I	None			

Step 7. Rapid Geomorphic Assessment Data							
Confinement Type Unconfined							
	Score	STD	Historic				
7.1 Channel Degradation	6	None	Yes				
7.2 Channel Aggradation	11	None	No				
7.3 Widening Channel	7		No				
7.4 Change in Planform	10		No				
Total Score	34						
Geomorphic Rating	0.425						
Channel Evolution Model	F						
Channel Evolution Stage	IV						
Geomorphic Condition Fair							
Stream Sensitivity	Very High	1					

# Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

	Score
6.1 Epifaunal Substrate - Available Cover	0
6.2 Embeddedness (high) < br />Pool	0
6.3 Velocity/Depth Patterns (high) <br< td=""><td>0</td></br<>	0
6.4 Sediment Deposition	0
6.5 Channel Flow Status	0
6.6 Channel Alteration	0
6.7 Frequency of Riffles/Steps (high) <br< td=""><td>0</td></br<>	0
6.8 Bank Stability	Left: 0 Right: 0
6.9 Bank Vegetation Protection	Left: 0 Right: 0
6.10 Riparian Vegetation Zone Width	Left: 0 Right: 0
Total Score	0
Habitat Rating	0

**Habitat Stream Condition** 

Narrative:

Moderate planform adjustment and aggradation. Moderate degree of historic incision.

Stream: Hollow Brook Reach # T4.02 Segment: A Completion Date: October 10, 2008

Organization: Lewis Creek Association Observers: KLU (SMRC); JC (MMI) Rain: Yes

Segment Length (ft): 4,509 Segment Location: From LB residences downstream along the north side of Hinesburg Hollow Rd to the

1.6 Grade	e Controls				
Туре	Location	Total	Total Height Above Wate	Photo r	Take GPSTaken
Waterfall	Mid-segment	25.00	24.00	Yes	Yes
Ledge	Mid-segment	1.00	1.00	No	Yes

Confinement Type <b>Uncon</b>	fined		
	Score	STD	Historic
7.1 Channel Degradation	3	C to B	Yes
7.2 Channel Aggradation	13	None	No
7.3 Widening Channel	16		No
7.4 Change in Planform	13		Yes
Total Score	45		
Geomorphic Rating	0.5625		
Channel Evolution Model	F		
Channel Evolution Stage	II		
Geomorphic Condition	Fair		
Stream Sensitivity	High		

Step 7. Rapid Geomorphic Assessment Data

#### 4.8 Channel Constrictions Photo **GPS** Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? Bridge 34.0 Yes Yes No Yes Problem Scour Below, Alignment

Stream Gradient Type				
	Score			
6.1 Epifaunal Substrate - Available Cover	0			
6.2 Embeddedness (high) Pool	0			
6.3 Velocity/Depth Patterns (high) < br	0			
6.4 Sediment Deposition	0			
6.5 Channel Flow Status	0			
6.6 Channel Alteration	0			
6.7 Frequency of Riffles/Steps (high) <br< td=""><td>0</td></br<>	0			
6.8 Bank Stability	Left: 0 Right: 0			
6.9 Bank Vegetation Protection	Left: 0 Right: 0			
6.10 Riparian Vegetation Zone Width	Left: 0 Right: 0			
Total Score	0			
Habitat Rating	0			

Step 6. Rapid Habitat Assessment Data

**Habitat Stream Condition** 

Narrative:

Minor (localized) aggradation, widening, and planform adjustments. Historic incision.

Project: Stream: Pragnization	Lewis Creek Hollow B			Reach #		•	page 2 of 2 Segment: <b>B</b>		Completio		March 3, 201 October 10, 2008
Organization: Lewis Creek Association Observers: KLU (SMRC) Segment Length (ft): 1,746 Segment Location: From triple-				• • • • • • • • • • • • • • • • • • • •	); JC (MMI) Rain: Yes •culvert driveway crossing downstream to LB residential buildings.						
	de Controls None		- Joginene	2004:0111					rphic Assess		
2.0 0.00		-	Total Height	Photo Tak	ke - GPSTaken		Confinement Type	Confin	•	mene bac	<u>u</u>
Type	Location	Total	Above Water	111000 10	" GPSTaken		7,42		Score	STD	Historic
					7.1	7.1 Chann	el Degradation		10	None	Yes
					7.2 Chann	el Aggradation		13	None	No	
				7.3	7.3 Wideni	ng Channel		15		No	
						7.4 Change	e in Planform		11		No
							Tota	al Score	49		
							Geomorphi	c Rating	0.6125		
							Channel Evolutio	n Model	F		
							Channel Evolution	n Stage	II		
							Geomorphic C	ondition	Fair		
							Stream Se	ensitivity	High		
						Step 6. Rapid Hab	oitat Asses	ssment Data			
4 8 Chan	nel Constrictions						Stream Gradient Ty	/pe			
Photo GPS Channel Floodprone Type Width Taken? Taken? Constriction? Constriction?									Score		
					6.1 Epifaunal Substrate - Available Cover				0		
			Yes		6.2 Embe	eddedness (high) <br< td=""><td>/&gt;Pool</td><td></td><td>0</td><td></td></br<>	/>Pool		0		
Problem Deposition Above, Scour Above, Scour					6.3 Velocity/Depth Patterns (high) <br< td=""><td></td><td>0</td><td></td></br<>			0			
			6.4 Sediment Deposition			0					
				6.5 Channel Flow			0				
		6.6 Channel Alter		eration		0					
			6.7 Frequency of Riffles/Steps (high)		- /		0				
				6.8 Bank S	-		) Right:				
				Bank Vegetation Pro		Left: 0	_				
			6.10 Ripa	arian Vegetation Zone		Left: 0		0			
							Tota	al Score		0	

# Narrative:

Historic incision. Moderate planform adjustments (flood chutes, bifurcation). Minor aggradation. Lateral adjustment moderated by revegetating buffers, occasional bedrock exposed in channel banks.

0

Habitat Rating

**Habitat Stream Condition** 

Project: **Lewis Creek Phase 2 Reach Summary** March 3, 2010 page 2 of 2 Reach # **T4.02** Completion Date: October 10, 2008 Stream: **Hollow Brook** Segment: C **Lewis Creek Association** Observers: KLU (SMRC); JC (MMI) Rain: Yes Organization: 764 Segment Location: Uppermost 764 ft, upstream of triple-culvert driveway crossing. Segment Length (ft): 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Type Location Total **Above Water** Channel Evolution Model Channel Evolution Stage **Geomorphic Condition** Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions None GPS Photo Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? **Habitat Stream Condition** Narrative:

Stream: Hollow Brook Reach # T4.05 Segment: A Completion Date: September 8,

Organization: Lewis Creek Association Observers: KLU (SMRC), SHP (VTDEC) Rain: No

Segment Length (ft): 905 Segment Location: Downstream end of reach alongside Lazy Brook mobile home park.

1.6 Gr	ade Controls <b>None</b>				Step 7. Rapid Geomorphic Assessment Data
Tuno	Location	Total	Total Height	Photo Take GPSTaken	Confinement Type Unconfined
Type	Location	Total	Above Water	GPSTaken	Score STD

Confinement Type Uncon	fined		
	Score	STD	Historic
7.1 Channel Degradation	3	C to F	Yes
7.2 Channel Aggradation	15	None	No
7.3 Widening Channel	15		No
7.4 Change in Planform	13		Yes
Total Score	46		
Geomorphic Rating	0.575		
Channel Evolution Model	F		
Channel Evolution Stage	II		
Geomorphic Condition	Fair		
Stream Sensitivity	Extreme		

4.8 Channel Constrictions			None		
		Photo	U. U		Floodprone
Гуре	Width	Taken?	Taken?	Constriction?	Constriction?

Stream Gradient Type	
	Score
6.1 Epifaunal Substrate - Available Cover	0
6.2 Embeddedness (high) < br />Pool	0
6.3 Velocity/Depth Patterns (high) <br< td=""><td>0</td></br<>	0
6.4 Sediment Deposition	0
6.5 Channel Flow Status	0
6.6 Channel Alteration	0
6.7 Frequency of Riffles/Steps (high) <br< td=""><td>0</td></br<>	0
6.8 Bank Stability	Left: 0 Right: 0
6.9 Bank Vegetation Protection	Left: 0 Right: 0
6.10 Riparian Vegetation Zone Width	Left: 0 Right: 0
Total Score	0
Habitat Rating	0

Step 6. Rapid Habitat Assessment Data

**Habitat Stream Condition** 

Narrative:

None. Historic incision and channelization. Cb to Fa STD inferred.

Stream: Hollow Brook Reach # T4.05 Segment: B Completion Date: September 8,

Organization: Lewis Creek Association Observers: KLU (SMRC), SHP (VTDEC) Rain: No

Segment Length (ft): 1,851 Segment Location: From bedrock gorge downstream to Lazy Brook Mobile Home Park

1.6 Gra	de Controls					Step 7. Rapi	id Geomorphic Asse	essment Data
Туре	Location	Total	Total Height Above Water		ak€- GPSTaken	Confinement Type	Confined Score	STD
Ledge	Mid-segment	1.00	0.00	No	Yes	7.1 Channel Degradation	5.016	B to F
	_					7.1 Channel Aggradation	13	None

Total Score 43
Geomorphic Rating 0.5375

7.3 Widening Channel

7.4 Change in Planform

Channel Evolution Model
Channel Evolution Stage
Geomorphic Condition
Stream Sensitivity
Fair
Extreme

10

15

Historic

Yes No

Yes

No

4.8 Channel Constrictions
Photo GPS Channel Floodprone
Type Width Taken? Taken? Constriction? Constriction?

## Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

Score
0
0
0
0
0
0
0
Left: 0 Right: 0
Left: 0 Right: 0
Left: 0 Right: 0
0
0

Habitat Stream Condition

#### Narrative:

Moderate aggradation localized to mass failure sites & debris jams. Minor planform adjustment (limited by close valley confinement). Historic incision inferred from occas. adjacent terraces w/in 2 to 3 x bankfull depth. See report, more discussion

Project: **Lewis Creek Phase 2 Reach Summary** page 2 of 2 March 3, 2010 Stream: **Hollow Brook** Reach # **T4.05** Segment: C Completion Date: September 8, **Lewis Creek Association** Observers: KLU (SMRC), SHP (VTDEC) Rain: No Organization: **750** Segment Location: Bedrock gorge, mid-reach. Segment Length (ft): 1.6 Grade Controls Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Type Total Location **Above Water** 2.00 1.00 Waterfall Yes Yes **Mid-segment** Waterfall 3.00 Yes Yes Mid-segment 5.00 Waterfall **Mid-segment** 40.00 40.00 Yes Yes Channel Evolution Model Channel Evolution Stage Geomorphic Condition Referenc Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions None Photo **GPS** Floodprone Channel Type Width Taken? Taken? Constriction? Constriction? **Habitat Stream Condition** Narrative:

Project: **Lewis Creek Phase 2 Reach Summary** March 3, 2010 page 2 of 2 Reach # **T4.05** Completion Date: September 8, Stream: **Hollow Brook** Segment: **D Lewis Creek Association** Observers: **KLU (SMRC), SHP (VTDEC)** Rain: No Organization: Segment Length (ft): Segment Location: From upstream reach break at Lincoln Hill Road crossing, downstream to bedrock 4,373 1.6 Grade Controls Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height **Unconfined** Confinement Type Total Type Location **Above Water** Score STD Historic 5.00 Yes Yes Dam 6.00 **Mid-segment** 7.1 Channel Degradation 8 Yes None Yes **Dam** 3.00 2.00 Yes 7.2 Channel Aggradation 10 No **Mid-segment** None 7.3 Widening Channel 15 No 7.4 Change in Planform 11 No 44 **Total Score** Geomorphic Rating 0.55 Channel Evolution Model F Channel Evolution Stage III Geomorphic Condition Fair Stream Sensitivity **Very High** Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions Score **GPS** Photo Floodprone Channel 6.1 Epifaunal Substrate - Available Cover 0 Type Width Taken? Taken? Constriction? Constriction? 6.2 Embeddedness (high) < br />Pool 0 Culvert 4.00 Yes Yes Yes Yes 6.3 Velocity/Depth Patterns (high)<br 0 Problem Deposition Above, Deposition Below, Scour 6.4 Sediment Deposition 0 5.00 Yes Yes Yes Culvert Yes Problem Scour Below, Alignment 6.5 Channel Flow Status 0 8.00 Yes Yes Yes Yes Bridge 6.6 Channel Alteration 0 Problem **Deposition Above, Scour Below** 6.7 Frequency of Riffles/Steps (high) < br 0 Culvert 2.00 Yes Yes Yes Yes Left: 0 Right: 0 6.8 Bank Stability Problem Deposition Above, Scour Below 6.9 Bank Vegetation Protection Left: 0 Right: 0

#### Narrative:

Moderate aggradation, especially localized above impoundments. Minor to moderate planform adjustment (meander extension, flood chutes). Historic incision.

6.10 Riparian Vegetation Zone Width

**Total Score** 

Habitat Rating

Habitat Stream Condition

Left: 0 Right: 0

0

0

Project: **Lewis Creek Phase 2 Reach Summary** March 3, 2010 page 2 of 2

Stream: **Unnamed Trib to Hollow Brook** Reach # **T4.3S6.01** Segment: A Completion Date: September 5,

Organization: **Lewis Creek Association** Observers: SP, SH, JT, EL, MI Rain: **Yes** 

Segment Length (ft):	4,840	4,840 Segment Location: From Mason Hill N. Rd downstream along Big Hollow Rd to confluence with Lewis					
1.6 Grade Controls None	e			Step 7. Rapid Geomorphic Assessment Data			
Type Location	Total	Total Height Above Water	Photo Take GPSTaken	Confinement Type Cor	nfined Score	STD	Historic
				7.1 Channel Degradation	18	None	No
				7.2 Channel Aggradation	8	None	No
				7.3 Widening Channel	13		No
				7.4 Change in Planform	11		No
				Total Sco	ore <b>50</b>		
				Geomorphic Rati	ng <b>0.625</b>		
				Channel Evolution Mod	del <b>F</b>		
				Channel Evolution Sta			
				Geomorphic Conditi	-		
				Stream Sensitiv	ity <b>Very High</b>	1	
				Step 6. Rapid Habitat A	ssessment Data		
4.8 Channel Constrictions	•			Stream Gradient Type	High	-	
Photo	-	Channel Flo	oodprone	,,	_	Score	
Type Width Taken?			nstriction?	6.1 Epifaunal Substrate - Available Cove	er	8	<del></del>
Culvert 3.00 No	No	Yes	Yes	6.2 Embeddednes		3	
Problem <b>Deposit</b>		165	165	6.3 Velocity/Depth Patterr	ıs	8	
Culvert 0.00 No	No	Yes	Yes	6.4 Sediment Deposition	n	3	
Problem None				6.5 Channel Flow Statu	IS	8	
Culvert 0.00 No	No	Yes	Yes	6.6 Channel Alteration	n	9	
Problem None				6.7 Frequency of Riffles/Step	)S	18	
Culvert 4.00 No	No	Yes	Yes	6.8 Bank Stabilit	y <b>Left: 8</b>	3 Right: 9	9
Problem Scour A Culvert 6.00 No	No No	Yes	Yes	6.9 Bank Vegetation Protection	n <b>Left:</b> 7	7 Right: 7	7
Problem None	NO	163	163	6.10 Riparian Vegetation Zone Widt	th <b>Left: 4</b>	4 Right: 8	8
Troblem Hone				Total Scor	·e	100	_
				Habitat Ratin	g	0.5	

## Narrative:

Moderate aggradation from road sediment runoff, upstream pasturing, and high bank failures where stream impinges on valley walls. Widening moderated by reasonable-width forested buffers and coarsenes of bed and bank material.

**Habitat Stream Condition** 

Fair

Project: **Lewis Creek Phase 2 Reach Summary** March 3, 2010 page 2 of 2 Stream: **Unnamed Trib to Hollow Brook** Reach # **T4.3S6.01** Segment: **B** Completion Date: September 5, **Lewis Creek Association** Observers: SP, SH Rain: **Yes** Organization: Segment Location: Upstream portion of reach above Mason Hill N Rd. Segment Length (ft): 2,905 1.6 Grade Controls Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Type Location Total **Above Water** Channel Evolution Model Channel Evolution Stage **Geomorphic Condition** Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions Photo **GPS** Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? **Habitat Stream Condition** Narrative:

Stream: **High Knob Brook** Reach # **T6.01** Segment: **0** Completion Date: **September 24,** 

Organization: Lewis Creek Association Observers: j.clark, s.pytlik Rain: No

Segment Length (ft):	5,649	Segment Location:	From the bottom of the gorge upstream	of Freedom Acres (private road) to the
----------------------	-------	-------------------	---------------------------------------	--

1.6 Grad	e Controls			
Туре	Location	Total	Total Height Above Wate	1 11000 Talk Charaltan
Ledge	Mid-segment	0.00	0.00	Yes
Ledge	Mid-segment	3.00	2.00	Yes
Ledge	Mid-segment	0.00	0.00	Yes
Ledge	Mid-segment	2.00	2.00	Yes
Ledge	Mid-segment	2.00	1.00	Yes
Ledge	Mid-segment	0.00	0.00	No
Ledge	Mid-segment	0.00	0.00	No

4.8 Chan	nel Cons	strictions				
Type	Width	Photo	GPS	Channel	Floodprone	
Type	width	Taken?	Taken?	Constriction?	Constriction?	
<b>Bedrock</b>	25.0	Yes	Yes	No	Yes	
Pro	oblem	Depositio	n Above			
Culvert	9.70	Yes	Yes	Yes	Yes	
Pro	oblem	Depositio	n Above			
<b>Bedrock</b>	40.0	Yes	Yes	No	Yes	
Pro	oblem	None				
Culvert	6.00	Yes	Yes	Yes	Yes	
Pro	oblem	Depositio	n Above			
Bedrock			Yes	No	Yes	
Pro	oblem	Depositio	n Above			

## Narrative:

Channel very stable due to bedrock outcroppings within reach.

Step 7. Rapid Geomorphic Assessment Data							
Confinement Type Unconfined							
	Score	STD	Historic				
7.1 Channel Degradation	19	None	No				
7.2 Channel Aggradation	15	None	No				
7.3 Widening Channel	17		No				
7.4 Change in Planform	19		No				
Total Score	70						
Geomorphic Rating	0.875						
Channel Evolution Model	D						
Channel Evolution Stage	I						
Geomorphic Condition	Referenc						
Stream Sensitivity	High						

## Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

	Score		
6.1 Epifaunal Substrate - Available Cover	0		
6.2 Embeddedness (high) Pool	0		
6.3 Velocity/Depth Patterns (high) <br< td=""><td colspan="3">0</td></br<>	0		
6.4 Sediment Deposition	0		
6.5 Channel Flow Status	0		
6.6 Channel Alteration	0		
6.7 Frequency of Riffles/Steps (high) <br< td=""><td>0</td></br<>	0		
6.8 Bank Stability	Left: 0 Right: 0		
6.9 Bank Vegetation Protection	Left: 0 Right: 0		
6.10 Riparian Vegetation Zone Width	Left: 0 Right: 0		
Total Score	0		
Habitat Rating	0		

**Habitat Stream Condition** 

Project: **Lewis Creek Phase 2 Reach Summary** page 2 of 2 March 3, 2010 Stream: **High Knob Brook** Reach # **T6.02** Segment: A Completion Date: November 6, **Lewis Creek Association** Observers: J.Clark, R.Schiff Rain: No Organization: Segment Length (ft): 760 Segment Location: Bedrock gorge between Big Hollow Road and Freedom Acres private Road 1.6 Grade Controls Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Type Total Location **Above Water** Ledge 1.00 3.00 Yes **Mid-segment** Waterfall 6.00 Yes Mid-segment 9.00 Waterfall 8.00 4.00 Yes Mid-segment 8.00 Waterfall 9.00 Yes **Mid-segment** Waterfall Yes Mid-segment 7.00 5.00 Waterfall 7.00 6.00 Yes Mid-segment Channel Evolution Model Channel Evolution Stage Geomorphic Condition Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions Photo **GPS** Floodprone Channel Type Width Constriction? Constriction? Taken? Taken? **Habitat Stream Condition** Narrative:

Stream: **High Knob Brook** Reach # **T6.02** Segment: **B** Completion Date: **November 6,** 

Organization: Lewis Creek Association Observers: j.clark, r.schiff Rain: No

Segment Length (ft): 1,094 Segment Location: Start of bedrock grade control down to end of bedrock gorge, in between Big Hollow

1.6 Gra	de Controls			
Туре	Location	Total	Total Height Above Water	
Ledge	Mid-segment	2.00	1.00	Yes
Ledge	Mid-segment	2.00	1.00	Yes
Ledge	Mid-segment	3.00	1.00	Yes
Ledge	Mid-segment	2.00	1.00	Yes

	Problem I	None			
Old	21.0	Yes	Yes	No	Yes
Type	Width	Photo	GPS Taken?	Channel Constriction?	Floodprone Constriction?
480	hannel Cons	trictions			

Step 7. Rapid Geomorphic Assessment Data							
Confinement Type Confine	ed						
	Score	STD	Historic				
7.1 Channel Degradation	18	None	No				
7.2 Channel Aggradation	18	None	No				
7.3 Widening Channel	18		No				
7.4 Change in Planform	19		No				
Total Score	73						
Geomorphic Rating	0.9125						

## Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

Score			
0			
0			
0			
0			
0			
0			
0			
Left: 0 Right: 0			
Left: 0 Right: 0			
Left: 0 Right: 0			
0			
0			

**Habitat Stream Condition** 

#### Narrative:

Narrow valley. channel with lots of grade control, very stable. Possibly no channel evolution model due to widespread grade control and confinement from bedrock outcrops.

Stream: **High Knob Brook** Reach # **T6.03** Segment: **A** Completion Date: **November 6,** 

Organization: Lewis Creek Association Observers: j.clark, s.bonney, r.schiff Rain: Yes

Segment Length (ft): 2,068 Segment Location: Downstream end of last field on left bank, downstream from Big Hollow Road to the

1.6 Grade Controls								
Туре	Location	Total	Total Height Above Wate	CDCTakes				
Ledge	Mid-segment	3.00	2.00	Yes				
Ledge	Mid-segment	1.00	0.00	Yes				
Ledge	Mid-segment	1.00	1.00	Yes				
Ledge	Mid-segment	2.00	1.00	Yes				

Step 7. Rapid Geomorphic Assessment Data							
Confinement Type Unconf	_						
	Score	STD	Historic				
7.1 Channel Degradation	13	None	Yes				
7.2 Channel Aggradation	13	None	No				
7.3 Widening Channel	13		No				
7.4 Change in Planform	18		No				
Total Score	57						
Geomorphic Rating	0.7125						

Channel Evolution Model
Channel Evolution Stage
Geomorphic Condition
Fair

Stream Sensitivity Very High

4.8 Channel Constrictions			None		
		Photo	GPS	Channel	Floodprone
Гуре	Width	Taken?	Taken?	Constriction?	Constriction?

# Step 6. Rapid Habitat Assessment Data Stream Gradient Type

Stream Gradiene Type				
	Score			
6.1 Epifaunal Substrate - Available Cover	0			
6.2 Embeddedness (high) < br />Pool	0			
6.3 Velocity/Depth Patterns (high) <br< td=""></br<>				
6.4 Sediment Deposition	0			
6.5 Channel Flow Status	0			
6.6 Channel Alteration	0			
6.7 Frequency of Riffles/Steps (high) <br< td=""><td>0</td></br<>	0			
6.8 Bank Stability	Left: 0 Right: 0			
6.9 Bank Vegetation Protection	Left: 0 Right: 0			
6.10 Riparian Vegetation Zone Width	Left: 0 Right: 0			
Total Score	0			
Habitat Rating	0			

**Habitat Stream Condition** 

Narrative:

Stable channel with grade control at downstream end, some historic incision, sedimentaion and steep riffles, sections with gravel aggradation

Stream: **High Knob Brook** Reach # **T6.03** Segment: **B** Completion Date: **August 29, 2008** 

Organization: Lewis Creek Association Observers: j.clark, s.bonney Rain: Yes

Segment Length (ft): 1,370 Segment Location: Along back pasture between Butler Pond and High Knob, after end of straightened

1.6 Gr	ade Controls None				Step 7. Rapid Geom	orphic Asses	sment Dat	a
Turno.	Logation	Total	Total Height	Photo Take GPSTaken	Confinement Type <b>Unco</b>	nfined		
Туре	Location	Total	Above Water	GPSTaken		Score	STD	Historic
					7.1 Channel Degradation	14	None	No
					7.2 Channel Aggradation	13	None	No
					7.3 Widening Channel	13		No
					7.4 Change in Planform	14		No
					Total Score	54		
					Geomorphic Rating	0.675		
					Channel Evolution Model	F		
					Channel Evolution Stage	I		
					Geomorphic Condition	Good		
					Stream Sensitivity	High		
					Step 6. Rapid Habitat Ass	essment Dat	 а	
	annal Constrictions N				Stream Gradient Type	Joseph Circ Dut	<u>-</u>	

|--|

		Photo	GPS	Channel	Floodprone
Type	Width	Taken?	Taken?	Constriction?	Constriction?

Score
0
0
0
0
0
0
0
Left: 0 Right: 0
Left: 0 Right: 0
Left: 0 Right: 0
0
0

**Habitat Stream Condition** 

Narrative:

subreach E in C overall reach. Vertically stable reach - although some lateral migration.

Stream: **High Knob Brook** Reach # **T6.04** Segment: **A** Completion Date: **August 29, 2008** 

Organization: Lewis Creek Association Observers: j.clark, m.lyttle Rain: Yes

Segment Length (ft): 644 Segment Location: tractor crossing at beginning of straightening along feild, across field to treeline at

1.6 Gr	ade Controls None				Step 7. Rapid	d Geomo	rphic Asses	sment Data	 B
Tuno	Location	Total	Total Height	Photo Take GPSTaken		Unconf	•		_
Type	Location	Total	Above Water	GPSTaken			Score	STD	Historic
					7.1 Channel Degradation		15	None	No
					7.2 Channel Aggradation		11	None	No
					7.3 Widening Channel		16		No
					7.4 Change in Planform		18		No
					Tota	I Score	60		
					Geomorphic	Rating	0.75		
					Channel Evolution	n Model	F		
					Channel Evolution	n Stage	I		

4.8 Channel Co	None		
	Photo	GPS	

Type Width Photo GPS Channel Floodprone Constriction? Constriction?

Step 6. Rapid Habitat Assessment Data
Stream Gradient Type

Stream Sensitivity High

Good

Geomorphic Condition

, , , , , , , , , , , , , , , , , , ,	
	Score
6.1 Epifaunal Substrate - Available Cover	0
6.2 Embeddedness (high) Pool	0
6.3 Velocity/Depth Patterns (high) <br< td=""><td>0</td></br<>	0
6.4 Sediment Deposition	0
6.5 Channel Flow Status	0
6.6 Channel Alteration	0
6.7 Frequency of Riffles/Steps (high) <br< td=""><td>0</td></br<>	0
6.8 Bank Stability	Left: 0 Right: 0
6.9 Bank Vegetation Protection	Left: 0 Right: 0
6.10 Riparian Vegetation Zone Width	Left: 0 Right: 0
Total Score	0
Habitat Rating	0

**Habitat Stream Condition** 

Narrative:

Although historically straightened this reach has maintained its reference E stream type.

Stream: **High Knob Brook** Reach # **T6.04** Segment: **B** Completion Date: **August 20, 2008** 

Organization: Lewis Creek Association Observers: j.clark, m.lyttle Rain: Yes

Segment Length (ft): 2,263 Segment Location: Includes both channel along both homes upstream of Brown Hill Crossing downs to

1.6 Gr	ade Controls None			
Туре	Location	Total	Total Height Above Water	Photo Take GPSTaken

Confinement Type Unconf	fined		
	Score	STD	Historic
7.1 Channel Degradation	5	C to B	Yes
7.2 Channel Aggradation	17	None	No
7.3 Widening Channel	13		No
7.4 Change in Planform	16		No
Total Score	51		
Geomorphic Rating	0.6375		
Channel Evolution Model	F		
Channel Evolution Stage	II		
Geomorphic Condition	Fair		
Stream Sensitivity	Very High		

Step 7. Rapid Geomorphic Assessment Data

4.8 Chan	nel Cons	strictions			
		Photo	GPS	Channel	Floodprone
Type	Width	Taken?	Taken?	Constriction?	Constriction?
Bridge	11.0	Yes	Yes	Yes	Yes
Pr	oblem I	Depositio	on Above		
Culvert	9.00	Yes	Yes	Yes	Yes
Dr	oblem I	None			

Stream Gradient Type	
	Score
6.1 Epifaunal Substrate - Available Cover	0
6.2 Embeddedness (high) Pool	0
6.3 Velocity/Depth Patterns (high) <br< td=""><td>0</td></br<>	0
6.4 Sediment Deposition	0
6.5 Channel Flow Status	0
6.6 Channel Alteration	0
6.7 Frequency of Riffles/Steps (high) <br< td=""><td>0</td></br<>	0
6.8 Bank Stability	Left: 0 Right: 0
6.9 Bank Vegetation Protection	Left: 0 Right: 0
6.10 Riparian Vegetation Zone Width	Left: 0 Right: 0
Total Score	0
Habitat Rating	0

**Habitat Stream Condition** 

Narrative:

Channel departed from C to B due to incision.

Project: **Lewis Creek Phase 2 Reach Summary** March 3, 2010 page 2 of 2

Reach # **T6.05** Segment: A Completion Date: August 26, 2008 Stream: **High Knob Brook** 

**Lewis Creek Association** Observers: **r.schiff, j.clark** Rain: No Organization:

Segment Location: Upstream of 1127 Big Hollow Road to the next home on right, approximately half way Segment Length (ft): 3,858

Ledge	Mid-seament	0.00	0.00	No
Туре	Location	Total	Total Height Above Water	Photo Take GPSTaken
1.6 Grade	Controls			

	7.4 Change in Planform	10	No
	Total Score	e <b>21</b>	
	Geomorphic Ratin	<b>0.2625</b>	
	Channel Evolution Mode	<b>F</b>	
	Channel Evolution Stag	e III	
	Geomorphic Conditio	n <b>Poor</b>	
	Stream Sensitivit	/ Very High	
	Step 6. Rapid Habitat As	sessment Data	
4.8 Channel Constrictions None	Stream Gradient Type		

4.8 Channel Constrictions			None		
		Photo	GPS	Channel	Floodprone
Type	Width	Taken?	Taken?	Constriction?	Constriction?

ı	ou carri or a arcrit 17pc	
		Score
	6.1 Epifaunal Substrate - Available Cover	0
	6.2 Embeddedness (high) Pool	0
	6.3 Velocity/Depth Patterns (high) <br< th=""><th>0</th></br<>	0
	6.4 Sediment Deposition	0
	6.5 Channel Flow Status	0
	6.6 Channel Alteration	0
	6.7 Frequency of Riffles/Steps (high) <br< th=""><th>0</th></br<>	0
	6.8 Bank Stability	Left: 0 Right: 0
	6.9 Bank Vegetation Protection	Left: 0 Right: 0
	6.10 Riparian Vegetation Zone Width	Left: 0 Right: 0
	Total Score	0
	Habitat Rating	0
ı		

Step 7. Rapid Geomorphic Assessment Data **Unconfined** 

Score

3

3

5

STD

C to B

None

Historic

No

No

No

Confinement Type

7.1 Channel Degradation

7.2 Channel Aggradation

7.3 Widening Channel

**Habitat Stream Condition** 

Narrative:

Channel is widening and aggrading with multiple floodchutes, avulsions and areas with multiple flow paths.

Stream: **High Knob Brook** Reach # **T6.05** Segment: **B** Completion Date: **August 26, 2008** 

Organization: Lewis Creek Association Observers: r.schiff, j.clark Rain: No

Segment Length (ft): 2,378 Segment Location: Upstream of tributary and Stokes Hill Road down to just upstream of home on rigth

1.6 Gr	ade Controls <b>None</b>				Step 7. Rap	id Geomorphic Asses	sment Data	1	
Time	Location	Total	Total Height	Photo Take GPSTaken	Confinement Type	Unconfined		-	
Type	Location	Total	Above Water	GPSTaken		Score	STD	Historic	
					7.1 Channel Degradation	13	None	Yes	
					7.2 Channel Aggradation	13	None	No	
					7.3 Widening Channel	13		No	

Total Score 53
Geomorphic Rating 0.6625

7.4 Change in Planform

Channel Evolution Model
Channel Evolution Stage
Geomorphic Condition
Stream Sensitivity

F

Good
High

14

No

 Step 6. Rapid Habitat Assessment Data

 4.8 Channel Constrictions
 Stream Gradient Type

 Photo GPS Channel Floodprone
 Floodprone

 Type Width Taken? Taken? Constriction? Constriction?
 6.1 Epifaunal Substrate - Available Cover

Culvert 8.00 Yes Yes Yes Yes
Problem Deposition Above
Bridge 8.00 Yes Yes Yes Yes

Problem None

	Score
6.1 Epifaunal Substrate - Available Cover	0
6.2 Embeddedness (high) Pool	0
6.3 Velocity/Depth Patterns (high) <br< td=""><td>0</td></br<>	0
6.4 Sediment Deposition	0
6.5 Channel Flow Status	0
6.6 Channel Alteration	0
6.7 Frequency of Riffles/Steps (high) <br< td=""><td>0</td></br<>	0
6.8 Bank Stability	Left: 0 Right: 0
6.9 Bank Vegetation Protection	Left: 0 Right: 0
6.10 Riparian Vegetation Zone Width	Left: 0 Right: 0
Total Score	0
Habitat Rating	0

**Habitat Stream Condition** 

### Narrative:

Channel experiencing moderate widening in locations and historically straightened, although relatively stable.

Project: **Lewis Creek Phase 2 Reach Summary** March 3, 2010 page 2 of 2

Reach # **T6.06** Completion Date: August 20, 2008 Stream: **High Knob Brook** Segment: A

**Lewis Creek Association** Observers: j.clark, m.lyttle Rain: **Yes** Organization:

2,887 Segment Location: Starting downstream of the first tributary upstream of Dugway Lane down to upstream Segment Length (ft):

1.6 Gra	ade Controls None			
Туре	Location	Total	Total Height	Photo Take GPSTake

Photo Take Charles	
GPSTaken	
	GPSTaken

		Photo	GPS	Channel	Floodprone
Type	Width	Taken?	Taken?	Constriction?	Constriction?
Culvert	5.00	Yes	Yes	Yes	Yes
Pr	oblem I	Depositio	on Above	,Alignment	
Culvert	5.50	Yes	Yes	Yes	Yes
Problem <b>Deposition Above, Scour Below, Alignment</b>					

Step 7. Rapid Geomo	rphic Asses	sment Data	<u>a</u>	
Confinement Type <b>Uncon</b>	fined			
	Score	STD	Historic	
7.1 Channel Degradation	16	None	No	
7.2 Channel Aggradation	15	None	No	
7.3 Widening Channel	17		No	
7.4 Change in Planform	16		No	
Total Score	64			
Geomorphic Rating	8.0			
Channel Evolution Model	F			
Channel Evolution Stage	I			
Geomorphic Condition	Good			
Stream Sensitivity	High			

## Step 6. Rapid Habitat Assessment Data

Stream Gradient Type

	Score
6.1 Epifaunal Substrate - Available Cover	0
6.2 Embeddedness (high) Pool	0
6.3 Velocity/Depth Patterns (high) <br< td=""><td>0</td></br<>	0
6.4 Sediment Deposition	0
6.5 Channel Flow Status	0
6.6 Channel Alteration	0
6.7 Frequency of Riffles/Steps (high) < br	0
6.8 Bank Stability	Left: 0 Right: 0
6.9 Bank Vegetation Protection	Left: 0 Right: 0
6.10 Riparian Vegetation Zone Width	Left: 0 Right: 0
Total Score	0
Habitat Rating	0

**Habitat Stream Condition** 

Narrative:

Channel is stable with no adjustment process occuring. No signs of historic adjustment.

Stream: **High Knob Brook** Reach # **T6.06** Segment: **B** Completion Date: **August 5, 2008** 

Organization: Lewis Creek Association Observers: r.schiff, j.clark, n.sibley Rain: Yes

Segment Length (ft): 3,677 Segment Location: Most upstream home along Big Hollow Road down to behind home and barn on right

1.6 Grade	Controls None				
Туре	Location	Total	Total Height Above Water	Photo Take GPSTaken	

,,,,		 Above water			Score	STD	Historic	
				7.1 Channel Degradation	11	None	No	
				7.2 Channel Aggradation	6	None	No	
				7.3 Widening Channel	13		No	
				7.4 Change in Planform	15		No	
				Total Score	45			
				Geomorphic Rating	0.5625			
				Channel Evolution Model	F			
				Channel Evolution Stage	III			
				Geomorphic Condition	Fair			
				Stream Sensitivity	Very High			
				Step 6. Rapid Habitat Asse	ssment Data			
4.8 Chann	el Constrictions			Stream Gradient Type				

4.8 Chan	nel Cons	trictions			
		Photo	GPS	Channel	Floodprone
Type	Width	Taken?	Taken?	Constriction?	Constriction?
Culvert	3.00	Yes	Yes	Yes	Yes
Pro	oblem I	None			

or carri Gradieric Type	
	Score
6.1 Epifaunal Substrate - Available Cover	0
6.2 Embeddedness (high) Pool	0
6.3 Velocity/Depth Patterns (high) <br< td=""><td>0</td></br<>	0
6.4 Sediment Deposition	0
6.5 Channel Flow Status	0
6.6 Channel Alteration	0
6.7 Frequency of Riffles/Steps (high) <br< td=""><td>0</td></br<>	0
6.8 Bank Stability	Left: 0 Right: 0
6.9 Bank Vegetation Protection	Left: 0 Right: 0
6.10 Riparian Vegetation Zone Width	Left: 0 Right: 0
Total Score	0
Habitat Rating	0

Step 7. Rapid Geomorphic Assessment Data

**Unconfined** 

Confinement Type

**Habitat Stream Condition** 

Narrative:

moderate to high width to depth ratio for an E channel and aggradation occuring

Project: **Lewis Creek Phase 2 Reach Summary** March 3, 2010 page 2 of 2 Reach # **T6.06** Completion Date: August 5, 2008 Stream: **High Knob Brook** Segment: C **Lewis Creek Association** Observers: j.clark, r.schiff, n.sibley Rain: **Yes** Organization: Segment Location: Most upstream segment, upstream of last home on Big Hollow Road Segment Length (ft): 1,918 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height Confinement Type Type Location Total **Above Water** Channel Evolution Model Channel Evolution Stage **Geomorphic Condition** Stream Sensitivity Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions Photo **GPS** Channel Floodprone Type Width Taken? Taken? Constriction? Constriction? **Habitat Stream Condition** Narrative:

Project: **Lewis Creek Phase 2 Reach Summary** page 2 of 2 March 3, 2010 Completion Date: November 6, Stream: **Unnamed Trib to High Knob** Reach # **T6.3S1.01** Segment: 0 Observers: j.clark, r.schiff **Lewis Creek Association** Rain: No Organization: Segment Length (ft): Segment Location: Downstream of Brown Hill Road Crossing to Beginning of field before confluence with 1,568 1.6 Grade Controls None Step 7. Rapid Geomorphic Assessment Data Photo Take GPSTaken Total Height **Unconfined** Confinement Type Type Total Location Above Water Score STD Historic 7.1 Channel Degradation 8 Yes None 7.2 Channel Aggradation 9 None No 7.3 Widening Channel 9 No 7.4 Change in Planform 13 No **Total Score** 39 Geomorphic Rating 0.4875 Channel Evolution Model F Channel Evolution Stage III **Geomorphic Condition** Fair Stream Sensitivity **Very High** Step 6. Rapid Habitat Assessment Data Stream Gradient Type 4.8 Channel Constrictions Score Photo **GPS** Channel Floodprone 6.1 Epifaunal Substrate - Available Cover 0 Type Width Taken? Taken? Constriction? Constriction? 6.2 Embeddedness (high) < br />Pool 0 **Bridge** 24.0 Yes Yes No Yes 6.3 Velocity/Depth Patterns (high)<br 0 Problem None 6.4 Sediment Deposition 0 6.5 Channel Flow Status 0 6.6 Channel Alteration 0 6.7 Frequency of Riffles/Steps (high) < br 0 Left: 0 Right: 0 6.8 Bank Stability Left: 0 Right: 0 6.9 Bank Vegetation Protection 6.10 Riparian Vegetation Zone Width Left: 0 Right: 0 **Total Score** 0 0 **Habitat Rating Habitat Stream Condition** 

Narrative:

incising, aggrading and widening appears to have been a headcut travel through and stop at upstream culvert - this headcut is upstream of the top of the reach and identification is unclear due to culvert