Second Branch Corridor Plan 2019-2021
Appendices

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– Appendix 1 –

Phase II Reach/Segment:
Rapid Geomorphic Assessment (RGA) Scores,
Channel Geometry Data, and
Rapid Habitat Assessment (RHA) Scores

Phase 2 - Rapid Geomorphic Assessment

White River - Second Branch

			Degradation			Aggradation			Widening		Planform								
Reach	Seg-ment	Sub Rch?	Score	STD	Historic	Score	STD	Historic	Score	Historic	Score	Historic	Geo Score	Geo Condition	Evol. Stage	Confin. Type	Sensitivity	QC Staff	QC Auto
M01	0	No	5	None	Yes	15	None	No	13	No	11	Yes	0.55	Fair	IV	VB	Very High	F	F
M02	0	No	9	None	Yes	12	None	No	10	No	12	Yes	0.54	Fair	III	NC	Very High	F	F
M03	0	No	10	E To C	Yes	10	E To C	No	10	No	11	No	0.51	Fair	III	VB	Very High	F	F
M04	0	No	9	None	No	8	None	No	9	No	10	Yes	0.45	Fair	III	BD	Extreme	F	F
M05	0	No	12	None	No	7	None	No	10	No	5	No	0.43	Fair	III	VB	Very High	F	F
M06	0	No	11	None	No	7	None	No	5	No	6	No	0.36	Fair	III	BD	Extreme	F	F
M07	0	No	9	E To C	Yes	10	E To C	No	8	No	6	No	0.41	Fair	III	VB	Very High	F	F
M08	0	No	8	None	Yes	11	None	No	13	No	8	No	0.50	Fair	III	NW	Very High	F	F
M09	0	No	7	None	Yes	8	None	No	9	No	7	No	0.39	Fair	III	BD	Very High	F	F
M10	0	No	10	None	Yes	10	None	No	8	No	6	No	0.43	Fair	III	BD	Very High	F	F
M11	A	No	5	C to F	Yes	9	None	No	9	No	8	No	0.39	Fair	III	SC	Extreme	F	F
M11	B	No	6	None	Yes	6	None	No	4	No	4	No	0.25	Poor	III	NW	Extreme	F	F
M11	C	No	5	C to B	Yes	6	None	No	9	No	10	No	0.38	Fair	III	SC	Extreme	F	F
M12	0	No	13	E To C	Yes	9	None	No	10	No	10	No	0.53	Fair	IV	VB	Very High	F	F
M13	0	No	15	None	No	10	None	No	13	No	7	No	0.56	Fair	IV	VB	Very High	F	F
M14	0	No	11	None	No	12	None	No	13	No	11	No	0.59	Fair	III	VB	Very High	F	F
M15	0	No	9	None	No	11	None	No	12	No	7	No	0.49	Fair	III	VB	Very High	F	F
M16	A	No	11	None	No	11	None	No	13	No	10	No	0.56	Fair	IV	VB	Very High	F	F
M16	B	No											0.00					F	F
M17	A	Yes	6	None	No	8	None	No	10	No	9	No	0.41	Fair	III	BD	Extreme	F	F
M17	B	No	11	None	Yes	11	None	No	13	No	10	No	0.56	Fair	IV	NW	Very High	F	F
M17	C	No											0.00			VB		F	F

Phase 2 - Stream Geometry Data

White River - Second Branch

		Phase 2 Stream Type					Phase 1 Data			Phase 2 Channel Data												
Reach	Seg-ment	Stream Type	Bed Material	Bedform	Subcl. Slope	Sub Rch?	Channel Slope	Channel Width	Bankfull Width	Max Depth	Mean Depth	Floodpr Width	Recnt Abandn Fldpln	Width Depth Ratio	Entrench-ment Ratio	Incision Ratio	Channel Evolution Stage	Channel Evolution Model	Geo Assess Condition	Hab Assess Condition	QC Staff	QC Auto
M01	0	C	Gravel	Riffle-Pool	None	No	0.13		62.6	6	4.43	678	13.3	14.13	10.83	2.22	IV	F	Fair		F	F
M02	0	B	Sand	Dune-Ripple	c	No	0.11		68.8	5.8	4.84	118.2	7	14.21	1.72	1.21	III	F	Fair		F	F
M03	0	C	Gravel	Riffle-Pool	None	No	0.16		61.1	5.8	4.39	798.1	8.6	13.92	13.06	1.48	III	F	Fair		F	F
M04	0	C	Sand	Dune-Ripple	None	No	0.19		53	5.6	4.31	740	7.8	12.30	13.96	1.39	III	F	Fair		F	F
M05	0	E	Sand	Dune-Ripple	None	No	0.04		54	5.6	4.33	1419	6.4	12.47	26.28	1.14	III	F	Fair		F	F
M06	0	C	Sand	Dune-Ripple	None	No	0.28		68.6	4.6	2.39	696.8	5.7	28.70	10.16	1.24	III	F	Fair		F	F
M07	0	C	Gravel	Riffle-Pool	None	No	0.09		54.8	5.7	4.2	711.8	8.8	13.05	12.99	1.54	III	F	Fair		F	F
M08	0	C	Gravel	Riffle-Pool	None	No	0.38		55.4	6.1	4.81	291.9	8.2	11.52	5.27	1.34	III	F	Fair		F	F
M09	0	C	Sand	Riffle-Pool	None	No	0.30		69.3	5.4	3.17	419.3	8.6	21.86	6.05	1.59	III	F	Fair		F	F
M10	0	C	Gravel	Riffle-Pool	None	No	0.04		55.5	5.1	3.04	333.5	6.4	18.26	6.01	1.25	III	F	Fair		F	F
M11	A	F	Gravel	Riffle-Pool	None	No	0.58		60.5	3.4	2.61	67.5	8.3	23.18	1.12	2.44	III	F	Fair		F	F
M11	C	B	Sand	Dune-Ripple	c	No	0.58		63.8	4.2	1.98	86.4	8.4	32.22	1.35	2.00	III	F	Fair		F	F
M11	B	C	Gravel	Riffle-Pool	None	No	0.58		79.2	3.2	1.59	554.2	5.1	49.81	7.00	1.59	III	F	Poor		F	F
M12	0	C	Sand	Dune-Ripple	None	No	0.07		46.4	5	2.2	1535	6	21.09	33.08	1.20	IV	None	Fair		F	F
M13	0	C	Gravel	Riffle-Pool	None	No	0.13		40.9	4	2.52	1568	4	16.23	38.34	1.00	IV	F	Fair		F	F
M14	0	C	Gravel	Riffle-Pool	None	No	0.33		37.3	3.1	2.13	793	3.8	17.51	21.26	1.23	III	F	Fair		F	F
M15	0	E	Sand	Dune-Ripple	None	No	0.11		20	3.7	2.53	795	3.7	7.91	39.75	1.00	III	F	Fair		F	F
M16	B					No	1.33							0.00	0.00	0.00					F	F
M16	A	C	Gravel	Riffle-Pool	None	No	1.33		23	3.2	2.28	803	3.2	10.09	34.91	1.00	IV	F	Fair		F	F
M17	A	E	Sand	Dune-Ripple	None	Yes	0.73		20.5	2.6	1.36	155.5	2.6	15.07	7.59	1.00	III	F	Fair		F	F
M17	B	C	Gravel	Riffle-Pool	None	No	0.73		26.3	1.7	0.97	136.4	1.7	27.11	5.19	1.00	IV	None	Fair		F	F
M17	C					No	0.73							0.00	0.00	0.00					F	F

Phase 2 - Rapid Habitat Assessment Scores

White River - Second Branch

Explanation of codes used in table header

6.1	Woody Debris Cover	**6.5**	Hydrologic Characteristics
6.2	Bed Substrate Cover	**6.6**	Connectivity
6.3	Scour and Deposition Features	**6.7**	River Banks
6.4	Channel Morphology	**6.8**	Riparian Area

Reach	Reference Stream Type	Bed-form	Habitat Departure	Reach Length	6.1	6.2	6.3	6.4	6.5	6.6	6.7 Left	6.7 Right	6.8 Left	6.8 Right	Total Score	Percent-age	Habitat Condition
M01-0	Riffle-Pool	Riffle-Pool	None	3,779	13	11	10	8	12	15	4	5	4	4	86	54	Fair (Major Departure)
M02-0	Riffle-Pool	Dune-Ripple	None	9,245	15	9	10	8	11	9	8	8	6	7	91	57	Fair (Major Departure)
M03-0	Dune-Ripple	Riffle-Pool	Dune-Ripple	8,939	12	8	6	10	13	10	4	6	4	4	77	48	Fair (Major Departure)
M04-0	Dune-Ripple	Dune-Ripple	Dune-Ripple	10,807	13	8	5	9	11	5	4	4	5	6	70	44	Fair (Major Departure)
M05-0	Dune-Ripple	Dune-Ripple	None	11,266	9	9	10	9	8	10	4	4	4	4	71	44	Fair (Major Departure)
M06-0	Dune-Ripple	Dune-Ripple	None	9,815	9	10	10	8	7	11	5	5	4	4	73	46	Fair (Major Departure)
M07-0	Riffle-Pool	Riffle-Pool	None	14,323	15	9	11	7	11	10	4	4	7	3	81	51	Fair (Major Departure)
M08-0	Riffle-Pool	Riffle-Pool	None	3,162	17	11	9	11	11	11	4	5	8	9	96	60	Fair (Major Departure)
M09-0	Riffle-Pool	Dune-Ripple	None	6,067	11	6	7	7	9	5	4	3	4	1	57	36	Fair (Major Departure)
M10-0	Riffle-Pool	Riffle-Pool	None	7,595	11	7	11	10	8	9	2	2	3	2	65	41	Fair (Major Departure)
M11-A	Riffle-Pool	Riffle-Pool	None	3,158	13	8	10	5	11	11	7	6	6	6	83	52	Fair (Major Departure)
M11-B	Riffle-Pool	Riffle-Pool	None	2,491	3	9	8	4	8	9	3	3	4	2	53	33	Poor (Severe Departure)
M11-C	Riffle-Pool	Riffle-Pool	None	2,396	14	10	10	5	12	12	8	7	8	4	90	56	Fair (Major Departure)
M12-0	Dune-Ripple	Dune-Ripple	None	13,706	15	13	13	11	12	12	8	7	6	6	103	64	Fair (Major Departure)
M13-0	Riffle-Pool	Dune-Ripple	None	7,421	7	7	13	12	8	10	5	5	3	3	73	46	Fair (Major Departure)
M14-0	Riffle-Pool	Riffle-Pool	None	9,611	11	13	13	10	12	12	4	4	3	3	85	53	Fair (Major Departure)
M15-0	Riffle-Pool	Dune-Ripple	None	6,398	5	7	8	10	10	10	5	4	3	1	63	39	Fair (Major Departure)
M16-A	Riffle-Pool	Dune-Ripple	Riffle-Pool	3,218	16	11	11	14	13	13	7	6	5	4	100	63	Fair (Major Departure)
M16-B		Dune-Ripple	None	5,001											0	0	Poor (Severe Departure)
M17-A	Dune-Ripple	Riffle-Pool	None	6,303	13	13	13	12	12		4	6	5	7	85	53	Fair (Major Departure)
M17-B	Riffle-Pool	Riffle-Pool	None	3,823	17	14	13	12	13	8	4	4	8	7	100	63	Fair (Major Departure)
M17-C		Riffle-Pool	None	4,065											0	0	Poor (Severe Departure)

– Appendix 2 –

Phase 1 Reach:
Summary Reports

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M01**
SGAT Version: **4.56**
Date Last Edited: **March, 12 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location

1.1 Reach Description: **Begins at confluence with the White River (Intersection of Rt 107 and Rt 14). Ends .5 mi N on Rt 14 from intersection with Rt 107.**

1.2 Towns: **Royalton**

1.3 Downstream Latitude: **43.82505**

1.3 Downstream Longitude: **-72.56665**

Step 2. Stream Type

2.1 Elevation Upstream: **490**
2.1 Elevation Downstream: **485**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **3,379.0** ft. **0.64** Miles
2.3 Valley Slope: **0.1**
2.4 Channel Length: **3,779.0** ft. **0.72** Miles
2.5 Channel Slope: **0.13 %**
2.6 Sinuosity: **1.12**
2.7 Watershed Area: **74.3** Square Miles
2.8 Channel Width: **87.2** feet
2.9 Valley Width: **680.0** feet
2.10 Confinement Ratio: **7.8**
2.10 Confinement Type: **Broad**
2.11 Reference Stream Type: **C**
Bedform: **Riffle-Pool**
Sub-Class Slope: **None**
Bed Material: **Gravel**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **None**
3.3 Dominant Geological Mat.: **Ice-Contact** **62.5** %
3.3 Sub-dom. Geological Mat.: **Alluvial**
3.4 Valley Slope Left: **Very Steep**
3.4 Valley Slope Right: **Steep**
3.5 Soils
Hydrologic Group: **A** **50.8** %
Flooding: **None/Rare** **63.6** %
Water Table Deep: **6.0** **66.3** %
Water Table Shallow: **6.0** **66.3** %
Erodibility: **Moderate** **49.0** %
7.4 Comments:

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **75.8** %
Current Sub-Dominant Land Cover: **Field**
4.2 Corridor
Historic Land Cover:: **Field**
Current Dominant Land Cover: **Forest** **33.8** %
Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**0-25**	**>100**
Sub-dominant:	**>100**	**0-25**
Length w / less than 25 ft.:	**1,227.0** ft.	**1,014.0** ft.

4.4 Ground Water Inputs: **Minimal**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old):
Type: **None**
Use:
5.2 Bridges and Culverts: **3** **52.9** %
5.3 Bank Armoring: **72.7** **1.9** %
Left: **53.9** ft. Right: **18.8** ft.
5.4 Channel Straightening: **769.5** **20.4** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **2,035.4** ft. **53.9**

	One Side	Both Sides
Road:	**893.1** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**0.0** ft.	**0.0** ft.
Improved Path:	**2,035.4** ft.	**0.0** ft.

6.2 Development: **633.4** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **None**
6.5 Meander Width: **ft.** Rato: **0.0**
6.6 Wavelength: **ft.** Ratio: **0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **228.1347351** ft
7.2 Bank Height: **3** ft
7.3 Ice/Debris Jam Potential: **Shallow**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	2 High	0 N.S.	2 High	0 N.S.	2 High	1 Low	0 N.S.	0 N.S.	0 N.D.	0 N.D.	1 Low	1 Low	15

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M02**
SGAT Version: **4.56**
Date Last Edited: **January, 14 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins .5 mi N on Rt 14 from intersection with Rt 107. Ends at intersection of Rt 14 and Waterman rd.**

1.1 Reach Description:
1.2 Towns: **Royalton**
1.3 Downstream Latitude: **43.83179**
1.3 Downstream Longitude: **-72.57287**

Step 2. Stream Type

2.1 Elevation Upstream: **500**
2.1 Elevation Downstream: **490**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **8,614.0** ft. **1.63** Miles
2.3 Valley Slope: **0.1**
2.4 Channel Length: **9,245.0** ft. **1.75** Miles
2.5 Channel Slope: **0.11 %**
2.6 Sinuosity: **1.07**
2.7 Watershed Area: **72.6** Square Miles
2.8 Channel Width: **86.3** feet
2.9 Valley Width: feet
2.10 Confinement Ratio: **0.0**
2.10 Confinement Type: **Narrowly Confined**
2.11 Reference Stream Type: **B**
Bedform: **Dune-Ripple**
Sub-Class Slope: **c**
Bed Material: **Sand**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **None**
3.3 Dominant Geological Mat.: **Ice-Contact** **50.6** %
3.3 Sub-dom. Geological Mat.: **Till**
3.4 Valley Slope Left: **Very Steep**
3.4 Valley Slope Right: **Steep**
3.5 Soils
Hydrologic Group: **B** **49.5** %
Flooding: **None/Rare** **87.5** %
Water Table Deep: **6.0** **74.9** %
Water Table Shallow: **6.0** **74.9** %
Erodibility: **Very Severe** **87.5** %
7.4 Comments:

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **75.7** %
Current Sub-Dominant Land Cover: **Field**
4.2 Corridor
Historic Land Cover:: **Forest**
Current Dominant Land Cover: **Forest** **46.8** %
Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**>100**	**0-25**
Sub-dominant:	**0-25**	**>100**
Length w / less than 25 ft.:	**3,279.0** ft.	**1,839.0** ft.

4.4 Ground Water Inputs: **Minimal**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old): **No Data**
Type: **None**
Use:
5.2 Bridges and Culverts: **1** **7.8** %
5.3 Bank Armoring: **639.8** **6.9** %
Left: **421.5** ft. Right: **218.2** ft.
5.4 Channel Straightening: **2,442.8** **26.4** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **6,555.2** ft. **70.9**

	One Side	Both Sides
Road:	**6,224.0** ft.	**331.2** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**0.0** ft.	**0.0** ft.
Improved Path:	**0.0** ft.	**0.0** ft.

6.2 Development: **304.7** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **None**
6.5 Meander Width: **ft.** Rato: **0.0**
6.6 Wavelength: **ft.** Ratio: **0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **1333.8891602** ft
7.2 Bank Height: **4** ft
7.3 Ice/Debris Jam Potential: **Debris**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	1 Low	1 Low	2 High	0 N.S.	2 High	0 N.S.	0 N.S.	0 N.S.	0 N.D.	0 N.D.	1 Low	1 Low	14

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M03**
SGAT Version: **4.56**
Date Last Edited: **April, 30 2020**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins at intersection of Rt 14 and Waterman rd. Ends .15 mi S of intersection of Rt 14 and Russ Hill Rd.**

1.1 Reach Description:
1.2 Towns: **Bethel, Royalton**
1.3 Downstream Latitude: **43.84871**
1.3 Downstream Longitude: **-72.58758**

Step 2. Stream Type

2.1 Elevation Upstream: **514**
2.1 Elevation Downstream: **500**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **5,875.0** ft. **1.11** Miles
2.3 Valley Slope: **0.2**
2.4 Channel Length: **8,939.0** ft. **1.69** Miles
2.5 Channel Slope: **0.16 %**
2.6 Sinuosity: **1.52**
2.7 Watershed Area: **69.4** Square Miles
2.8 Channel Width: **84.6** feet
2.9 Valley Width: **777.0** feet
2.10 Confinement Ratio: **9.2**
2.10 Confinement Type: **Broad**
2.11 Reference Stream Type: **E**
Bedform: **Riffle-Pool**
Sub-Class Slope: **None**
Bed Material: **Sand**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **Waterfall**
3.3 Dominant Geological Mat.: **Alluvial** **60.9** %
3.3 Sub-dom. Geological Mat.: **Ice-Contact**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Very Steep**
3.5 Soils
Hydrologic Group: **B** **68.6** %
Flooding: **None/Rare** **39.1** %
Water Table Deep: **6.0** **43.5** %
Water Table Shallow: **6.0** **43.5** %
Erodibility: **Moderate** **31.6** %
7.4 Comments:

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **75.7** %
Current Sub-Dominant Land Cover: **Field**
4.2 Corridor
Historic Land Cover:: **Field**
Current Dominant Land Cover: **Forest** **45.5** %
Current Sub-Dominant Land Cover: **Field**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**>100**	**0-25**
Sub-dominant:	**0-25**	**>100**
Length w / less than 25 ft.:	**4,262.0** ft.	**4,237.0** ft.

4.4 Ground Water Inputs: **Minimal**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old): **Impoundment**
Type: **None**
Use:
5.2 Bridges and Culverts: **1** **9.2** %
5.3 Bank Armoring: **162.7** **1.8** %
Left: **162.7** ft. Right: **0.0** ft.
5.4 Channel Straightening: **2,239.9** **25.1** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **388.2** ft. **4.3**

	One Side	Both Sides
Road:	**0.0** ft.	**388.2** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**0.0** ft.	**0.0** ft.
Improved Path:	**0.0** ft.	**0.0** ft.

6.2 Development: **0.0** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **Avulsion**
6.5 Meander Width: **430 ft.** Rato: **5.1**
6.6 Wavelength: **495 ft.** Ratio: **5.8**

Step 7. Windshield Survey

7.1 Bank Erosion: **3812.4118652** ft
7.2 Bank Height: **3** ft
7.3 Ice/Debris Jam Potential: **Debris**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	1 Low	0 N.S.	2 High	0 N.S.	0 N.S.	0 N.S.	0 N.S.	2 High	0 N.S.	2 High	2 High	1 Low	16

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M04**
SGAT Version: **4.56**
Date Last Edited: **March, 13 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins .15 mi S on Rt 14 from intersection with Russ Hill rd. Ends .1 mi S of Kingsbury Covered bridge.**

1.1 Reach Description:

1.2 Towns: **Bethel, Randolph, Royalton**

1.3 Downstream Latitude: **43.86073**

1.3 Downstream Longitude: **-72.58201**

Step 2. Stream Type

2.1 Elevation Upstream: **535**
2.1 Elevation Downstream: **514**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **8,366.0** ft. **1.58** Miles
2.3 Valley Slope: **0.3**
2.4 Channel Length: **10,807.0** ft. **2.05** Miles
2.5 Channel Slope: **0.19 %**
2.6 Sinuosity: **1.29**
2.7 Watershed Area: **66.8** Square Miles
2.8 Channel Width: **83.2** feet
2.9 Valley Width: **508.0** feet
2.10 Confinement Ratio: **6.1**
2.10 Confinement Type: **Broad**
2.11 Reference Stream Type: **E**
Bedform: **Dune-Ripple**
Sub-Class Slope: **None**
Bed Material: **Sand**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **Multiple**
3.3 Dominant Geological Mat.: **Alluvial** **37.8** %
3.3 Sub-dom. Geological Mat.: **Ice-Contact**
3.4 Valley Slope Left: **Very Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **B** **45.5** %
Flooding: **None/Rare** **62.2** %
Water Table Deep: **6.0** **60.6** %
Water Table Shallow: **6.0** **60.6** %
Erodibility: **Severe** **50.9** %
7.4 Comments:
Sandy Banks - Steep - Mass Failure Potential.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **75.7** %
Current Sub-Dominant Land Cover: **Field**
4.2 Corridor
Historic Land Cover:: **Field**
Current Dominant Land Cover: **Forest** **36.2** %
Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**0-25**	**0-25**
Sub-dominant:	**>100**	**51-100**
Length w / less than 25 ft.:	**5,189.0** ft.	**5,640.0** ft.

4.4 Ground Water Inputs: **Minimal**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old): **Impoundment**
Type: **None**
Use:
5.2 Bridges and Culverts: **2** **7.6** %
5.3 Bank Armoring: **1,382.9** **12.8** %
Left: **1,231.1** ft. Right: **151.7** ft.
5.4 Channel Straightening: **3,477.8** **32.2** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **4,018.6** ft. **37.2**

	One Side	Both Sides
Road:	**4,018.6** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**278.4** ft.	**0.0** ft.
Improved Path:	**0.0** ft.	**0.0** ft.

6.2 Development: **371.0** ft. **539.7** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **None**
6.5 Meander Width: **83 ft.** Rato: **1.0**
6.6 Wavelength: **83 ft.** Ratio: **1.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **1879.3582764** ft
7.2 Bank Height: **4** ft
7.3 Ice/Debris Jam Potential: **Shallow**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	1 Low	1 Low	2 High	0 N.S.	2 High	1 Low	0 N.S.	0 N.S.	2 High	2 High	1 Low	1 Low	19

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M05**
SGAT Version: **4.56**
Date Last Edited: **January, 20 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins .1 mi S of Kingsbury Bridge. Ends S of intersection of Rt 14 and S Randolph Rd.**

1.1 Reach Description:

1.2 Towns: **Randolph**

1.3 Downstream Latitude: **43.88005**

1.3 Downstream Longitude: **-72.58211**

Step 2. Stream Type

2.1 Elevation Upstream: **540**
2.1 Elevation Downstream: **535**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **7,306.0** ft. **1.38** Miles
2.3 Valley Slope: **0.1**
2.4 Channel Length: **11,266.0** ft. **2.13** Miles
2.5 Channel Slope: **0.04 %**
2.6 Sinuosity: **1.54**
2.7 Watershed Area: **63.7** Square Miles
2.8 Channel Width: **81.5** feet
2.9 Valley Width: feet
2.10 Confinement Ratio: **0.0**
2.10 Confinement Type: **Broad**
2.11 Reference Stream Type: **E**
Bedform: **Dune-Ripple**
Sub-Class Slope: **None**
Bed Material: **Sand**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **None**
3.3 Dominant Geological Mat.: **Alluvial** **73.3** %
3.3 Sub-dom. Geological Mat.: **Glacial Lake**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **B** **51.8** %
Flooding: **Frequent** **73.3** %
Water Table Deep: **1.5** **40.0** %
Water Table Shallow: **1.5** **42.1** %
Erodibility: **slight** **23.3** %
7.4 Comments:
Bank Failure!

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **75.9** %
Current Sub-Dominant Land Cover: **Field**
4.2 Corridor
Historic Land Cover:: **Shrub**
Current Dominant Land Cover: **Forest** **67.6** %
Current Sub-Dominant Land Cover: **Crop**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**>100**	**0-25**
Sub-dominant:	**51-100**	**51-100**
Length w / less than 25 ft.:	**3,715.0** ft.	**6,221.0** ft.

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old):
Type: **None**
Use:
5.2 Bridges and Culverts: **3** **15.3** %
5.3 Bank Armoring: **796.9** **7.1** %
Left: **582.1** ft. Right: **214.8** ft.
5.4 Channel Straightening: **939.6** **8.3** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **2,200.2** ft. **19.5**

	One Side	Both Sides
Road:	**2,200.2** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**0.0** ft.	**0.0** ft.
Improved Path:	**818.0** ft.	**0.0** ft.

6.2 Development: **0.0** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **Avulsion**
6.5 Meander Width: **470 ft.** Rato: **5.8**
6.6 Wavelength: **280 ft.** Ratio: **3.4**

Step 7. Windshield Survey

7.1 Bank Erosion: **2573.0871582** ft
7.2 Bank Height: **3** ft
7.3 Ice/Debris Jam Potential: **Debris**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	1 Low	1 Low	1 Low	0 N.S.	1 Low	0 N.S.	0 N.S.	2 High	0 N.S.	2 High	2 High	1 Low	17

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M06**
SGAT Version: **4.56**
Date Last Edited: **January, 16 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location

1.1 Reach Description: **Begins S of intersection of Rt 14 and s Randolph Rd. Ends .25 mi N of intersection between Rt 14 and Dugout Rd.**

1.2 Towns: **Randolph**

1.3 Downstream Latitude: **43.89251**

1.3 Downstream Longitude: **-72.57602**

Step 2. Stream Type

2.1 Elevation Upstream: **567**
2.1 Elevation Downstream: **540**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **6,284.0** ft. **1.19** Miles
2.3 Valley Slope: **0.4**
2.4 Channel Length: **9,815.0** ft. **1.86** Miles
2.5 Channel Slope: **0.28 %**
2.6 Sinuosity: **1.56**
2.7 Watershed Area: **55.5** Square Miles
2.8 Channel Width: **76.7** feet
2.9 Valley Width: **541.0** feet
2.10 Confinement Ratio: **7.1**
2.10 Confinement Type: **Broad**
2.11 Reference Stream Type: **E**
Bedform: **Dune-Ripple**
Sub-Class Slope: **None**
Bed Material: **Sand**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **None**
3.3 Dominant Geological Mat.: **Alluvial** **74.2** %
3.3 Sub-dom. Geological Mat.: **Glacial Lake**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **B** **84.1** %
Flooding: **Frequent** **74.2** %
Water Table Deep: **3.0** **71.6** %
Water Table Shallow: **1.5** **77.9** %
Erodibility: **Moderate** **25.1** %
7.4 Comments:

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **77.3** %
Current Sub-Dominant Land Cover: **Field**
4.2 Corridor
Historic Land Cover:: **Field**
Current Dominant Land Cover: **Forest** **48.4** %
Current Sub-Dominant Land Cover: **Field**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**0-25**	**0-25**
Sub-dominant:	**>100**	**>100**
Length w / less than 25 ft.:	**1,221.0** ft.	**4,932.0** ft.

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old): **No Data**
Type: **None**
Use:
5.2 Bridges and Culverts: **4** **10.4** %
5.3 Bank Armoring: **382.2** **3.9** %
Left: **139.9** ft. Right: **242.2** ft.
5.4 Channel Straightening: **0.0** **0.0** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **1,754.4** ft. **17.9**

	One Side	Both Sides
Road:	**1,754.4** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**338.7** ft.	**0.0** ft.
Improved Path:	**273.4** ft.	**0.0** ft.

6.2 Development: **183.1** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **Avulsion**
6.5 Meander Width: **410 ft.** Rato: **5.3**
6.6 Wavelength: **585 ft.** Ratio: **7.6**

Step 7. Windshield Survey

7.1 Bank Erosion: **5818.4497070** ft
7.2 Bank Height: **3** ft
7.3 Ice/Debris Jam Potential: **Bend**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	1 Low	0 N.S.	0 N.S.	0 N.S.	1 Low	0 N.S.	0 N.S.	2 High	0 N.S.	1 Low	2 High	1 Low	14

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M07**
SGAT Version: **4.56**
Date Last Edited: **January, 16 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins .25 mi N of intersection between Rt 14 and Dugout Rd. Ends at Gifford Bridge.**

1.1 Reach Description:

1.2 Towns: **Randolph**

1.3 Downstream Latitude: **43.90402**

1.3 Downstream Longitude: **-72.56084**

Step 2. Stream Type

2.1 Elevation Upstream: **580**
2.1 Elevation Downstream: **567**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **10,850.0** ft. **2.05** Miles
2.3 Valley Slope: **0.1**
2.4 Channel Length: **14,323.0** ft. **2.71** Miles
2.5 Channel Slope: **0.09 %**
2.6 Sinuosity: **1.32**
2.7 Watershed Area: **53.5** Square Miles
2.8 Channel Width: **75.4** feet
2.9 Valley Width: **538.0** feet
2.10 Confinement Ratio: **7.1**
2.10 Confinement Type: **Broad**
2.11 Reference Stream Type: **C**
Bedform: **Riffle-Pool**
Sub-Class Slope: **None**
Bed Material: **Gravel**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **None**
3.3 Dominant Geological Mat.: **Alluvial** **64.4** %
3.3 Sub-dom. Geological Mat.: **Till**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **B** **77.5** %
Flooding: **Frequent** **64.4** %
Water Table Deep: **3.0** **62.5** %
Water Table Shallow: **1.5** **67.2** %
Erodibility: **Moderate** **31.5** %
7.4 Comments:
Cows in Stream!

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **77.2** %
Current Sub-Dominant Land Cover: **Field**
4.2 Corridor
Historic Land Cover:: **Field**
Current Dominant Land Cover: **Forest** **32.1** %
Current Sub-Dominant Land Cover: **Crop**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**0-25**	**>100**
Sub-dominant:	**51-100**	**26-50**
Length w / less than 25 ft.:	**3,162.0** ft.	**5,722.0** ft.

4.4 Ground Water Inputs: **Minimal**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old):
Type: **None**
Use:
5.2 Bridges and Culverts: **5** **12.2** %
5.3 Bank Armoring: **1,631.9** **11.4** %
Left: **506.4** ft. Right: **1,125.4** ft.
5.4 Channel Straightening: **0.0** **0.0** %
5.5 Dredging History: **Gravel Mining**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **4,037.1** ft. **28.2**

	One Side	Both Sides
Road:	**263.5** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**0.0** ft.	**0.0** ft.
Improved Path:	**4,037.1** ft.	**0.0** ft.

6.2 Development: **1,748.3** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **Multiple**
6.5 Meander Width: **405 ft.** Rato: **5.4**
6.6 Wavelength: **682 ft.** Ratio: **9.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **4051.2985840** ft
7.2 Bank Height: **2** ft
7.3 Ice/Debris Jam Potential: **None**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	1 Low	1 Low	0 N.S.	1 Low	2 High	1 Low	0 N.S.	2 High	0 N.S.	0 N.S.	2 High	0 N.S.	16

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M08**
SGAT Version: **4.56**
Date Last Edited: **January, 14 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins at Gifford Bridge. Ends just W of Tunbridge Rd and Rt 14 intersection.**

1.1 Reach Description:
1.2 Towns: **Randolph**
1.3 Downstream Latitude: **43.92862**
1.3 Downstream Longitude: **-72.55535**

Step 2. Stream Type

2.1 Elevation Upstream: **592**
2.1 Elevation Downstream: **580**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **2,406.0** ft. **0.46** Miles
2.3 Valley Slope: **0.5**
2.4 Channel Length: **3,162.0** ft. **0.60** Miles
2.5 Channel Slope: **0.38 %**
2.6 Sinuosity: **1.31**
2.7 Watershed Area: **47.0** Square Miles
2.8 Channel Width: **71.3** feet
2.9 Valley Width: **305.0** feet
2.10 Confinement Ratio: **4.3**
2.10 Confinement Type: **Narrow**
2.11 Reference Stream Type: **C**
Bedform: **Riffle-Pool**
Sub-Class Slope: **None**
Bed Material: **Gravel**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **None**
3.3 Dominant Geological Mat.: **Ice-Contact** **46.5** %
3.3 Sub-dom. Geological Mat.: **Alluvial**
3.4 Valley Slope Left: **Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **A** **46.5** %
Flooding: **None/Rare** **64.2** %
Water Table Deep: **6.0** **56.9** %
Water Table Shallow: **6.0** **56.9** %
Erodibility: **Severe** **64.2** %
7.4 Comments:
Scour at bridge crossing.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **78.4** %
Current Sub-Dominant Land Cover: **Field**
4.2 Corridor
Historic Land Cover:: **Forest**
Current Dominant Land Cover: **Forest** **51.9** %
Current Sub-Dominant Land Cover: **Field**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**>100**	**>100**
Sub-dominant:	**0-25**	**0-25**
Length w / less than 25 ft.:	**989.0** ft.	**239.0** ft.

4.4 Ground Water Inputs: **Minimal**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old): **No Data**
Type: **None**
Use:
5.2 Bridges and Culverts: **0** **0.0** %
5.3 Bank Armoring: **256.1** **8.1** %
Left: **31.3** ft. Right: **224.8** ft.
5.4 Channel Straightening: **0.0** **0.0** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **324.5** ft. **10.3**

	One Side	Both Sides
Road:	**0.0** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**0.0** ft.	**0.0** ft.
Improved Path:	**324.5** ft.	**0.0** ft.

6.2 Development: **221.8** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **None**
6.5 Meander Width: **ft.** Rato: **0.0**
6.6 Wavelength: **ft.** Ratio: **0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **809.2888184** ft
7.2 Bank Height: **3** ft
7.3 Ice/Debris Jam Potential: **Debris**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	0 N.S.	1 Low	0 N.S.	0 N.S.	1 Low	1 Low	0 N.S.	0 N.S.	0 N.D.	0 N.D.	2 High	1 Low	12

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M09**
SGAT Version: **4.56**
Date Last Edited: **January, 16 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins just W of Rt 14 intersection with Tunbridge Rd. Ends .49 mi N of Rt 14 intersection with Rt 66.**

1.1 Reach Description:
1.2 Towns: **Randolph**
1.3 Downstream Latitude: **43.93514**
1.3 Downstream Longitude: **-72.55580**

Step 2. Stream Type

2.1 Elevation Upstream: **610**
2.1 Elevation Downstream: **592**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **4,620.0** ft. **0.88** Miles
2.3 Valley Slope: **0.4**
2.4 Channel Length: **6,067.0** ft. **1.15** Miles
2.5 Channel Slope: **0.30 %**
2.6 Sinuosity: **1.31**
2.7 Watershed Area: **46.3** Square Miles
2.8 Channel Width: **70.8** feet
2.9 Valley Width: **544.0** feet
2.10 Confinement Ratio: **7.7**
2.10 Confinement Type: **Broad**
2.11 Reference Stream Type: **C**
Bedform: **Dune-Ripple**
Sub-Class Slope: **None**
Bed Material: **Sand**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **Dam**
3.3 Dominant Geological Mat.: **Alluvial** **83.6** %
3.3 Sub-dom. Geological Mat.: **Ice-Contact**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **B** **71.3** %
Flooding: **Frequent** **83.6** %
Water Table Deep: **3.0** **67.8** %
Water Table Shallow: **1.5** **69.0** %
Erodibility: **slight** **14.2** %
7.4 Comments:

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **78.5** %
Current Sub-Dominant Land Cover: **Field**
4.2 Corridor
Historic Land Cover:: **Field**
Current Dominant Land Cover: **Forest** **29.7** %
Current Sub-Dominant Land Cover: **Field**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**0-25**	**>100**
Sub-dominant:	**>100**	**51-100**
Length w / less than 25 ft.:	**2,827.0** ft.	**3,900.0** ft.

4.4 Ground Water Inputs: **Minimal**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old): **Impoundment**
Type: **None**
Use:
5.2 Bridges and Culverts: **2** **10.7** %
5.3 Bank Armoring: **1,561.1** **25.7** %
Left: **374.7** ft. Right: **1,186.4** ft.
5.4 Channel Straightening: **834.2** **13.7** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **1,837.5** ft. **30.3**

	One Side	Both Sides
Road:	**1,837.5** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**0.0** ft.	**0.0** ft.
Improved Path:	**863.4** ft.	**0.0** ft.

6.2 Development: **302.0** ft. **757.6** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **Avulsion**
6.5 Meander Width: **430 ft.** Rato: **6.1**
6.6 Wavelength: **510 ft.** Ratio: **7.2**

Step 7. Windshield Survey

7.1 Bank Erosion: **1917.2015381** ft
7.2 Bank Height: **3** ft
7.3 Ice/Debris Jam Potential: **None**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	1 Low	2 High	1 Low	0 N.S.	2 High	1 Low	0 N.S.	1 Low	0 N.S.	1 Low	2 High	0 N.S.	17

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M10**
SGAT Version: **4.56**
Date Last Edited: **August, 27 2020**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins .49 mi N on Rt 14 from intersection with Rt 66. Ends 1.44 mi up Rt 14 from intersection with Rt 66.**

1.1 Reach Description:
1.2 Towns: **Randolph**
1.3 Downstream Latitude: **43.94689**
1.3 Downstream Longitude: **-72.55246**

Step 2. Stream Type

2.1 Elevation Upstream: **613**
2.1 Elevation Downstream: **610**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **5,460.0** ft. **1.03** Miles
2.3 Valley Slope: **0.1**
2.4 Channel Length: **7,595.0** ft. **1.44** Miles
2.5 Channel Slope: **0.04 %**
2.6 Sinuosity: **1.39**
2.7 Watershed Area: **38.9** Square Miles
2.8 Channel Width: **65.6** feet
2.9 Valley Width: **659.0** feet
2.10 Confinement Ratio: **10.0**
2.10 Confinement Type: **Very Broad**
2.11 Reference Stream Type: **C**
Bedform: **Riffle-Pool**
Sub-Class Slope: **None**
Bed Material: **Gravel**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **None**
3.3 Dominant Geological Mat.: **Alluvial** **78.6** %
3.3 Sub-dom. Geological Mat.: **Ice-Contact**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **B** **77.9** %
Flooding: **Frequent** **78.6** %
Water Table Deep: **3.0** **72.9** %
Water Table Shallow: **1.5** **73.7** %
Erodibility: **slight** **20.5** %
7.4 Comments:

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **78.9** %
Current Sub-Dominant Land Cover: **Field**
4.2 Corridor
Historic Land Cover:: **Field**
Current Dominant Land Cover: **Forest** **36.1** %
Current Sub-Dominant Land Cover: **Field**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**0-25**	**>100**
Sub-dominant:	**51-100**	**0-25**
Length w / less than 25 ft.:	**2,226.0** ft.	**3,779.0** ft.

4.4 Ground Water Inputs: **Minimal**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old):
Type: **None**
Use:
5.2 Bridges and Culverts: **4** **10.2** %
5.3 Bank Armoring: **1,641.4** **21.6** %
Left: **204.4** ft. Right: **1,437.0** ft.
5.4 Channel Straightening: **2,522.0** **33.2** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **2,943.7** ft. **38.8**

	One Side	Both Sides
Road:	**2,943.7** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**0.0** ft.	**0.0** ft.
Improved Path:	**0.0** ft.	**0.0** ft.

6.2 Development: **497.7** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **Multiple**
6.5 Meander Width: **345 ft.** Rato: **5.3**
6.6 Wavelength: **535 ft.** Ratio: **8.2**

Step 7. Windshield Survey

7.1 Bank Erosion: **4356.0004883** ft
7.2 Bank Height: **4** ft
7.3 Ice/Debris Jam Potential: **None**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	1 Low	2 High	2 High	0 N.S.	2 High	1 Low	0 N.S.	1 Low	0 N.S.	0 N.S.	2 High	0 N.S.	17

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M11**
SGAT Version: **4.56**
Date Last Edited: **January, 16 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins 1.44 mi N on Rt 14 from intersection with Rt 66. Ends .21 mi N on Rt 14 from N Randolph.**

1.1 Reach Description:
1.2 Towns: **Randolph**
1.3 Downstream Latitude: **43.96021**
1.3 Downstream Longitude: **-72.55134**

Step 2. Stream Type

2.1 Elevation Upstream: **660**
2.1 Elevation Downstream: **613**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **6,815.0** ft. **1.29** Miles
2.3 Valley Slope: **0.7**
2.4 Channel Length: **8,046.0** ft. **1.52** Miles
2.5 Channel Slope: **0.58 %**
2.6 Sinuosity: **1.18**
2.7 Watershed Area: **31.0** Square Miles
2.8 Channel Width: **59.4** feet
2.9 Valley Width: **344.0** feet
2.10 Confinement Ratio: **5.8**
2.10 Confinement Type: **Narrow**
2.11 Reference Stream Type: **C**
Bedform: **Riffle-Pool**
Sub-Class Slope: **None**
Bed Material: **Gravel**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **Multiple**
3.3 Dominant Geological Mat.: **Ice-Contact** **44.0** %
3.3 Sub-dom. Geological Mat.: **Alluvial**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **A** **42.1** %
Flooding: **None/Rare** **70.5** %
Water Table Deep: **6.0** **47.2** %
Water Table Shallow: **6.0** **47.2** %
Erodibility: **Severe** **63.3** %
7.4 Comments:

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **76.7** %
Current Sub-Dominant Land Cover: **Field**
4.2 Corridor
Historic Land Cover:: **Forest**
Current Dominant Land Cover: **Forest** **45.3** %
Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**>100**	**>100**
Sub-dominant:	**0-25**	**51-100**
Length w / less than 25 ft.:	**3,642.0** ft.	**2,954.0** ft.

4.4 Ground Water Inputs: **Minimal**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old): **Impoundment**
Type: **None**
Use:
5.2 Bridges and Culverts: **4** **15.9** %
5.3 Bank Armoring: **562.2** **7.0** %
Left: **141.0** ft. Right: **421.2** ft.
5.4 Channel Straightening: **2,393.5** **29.7** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **1,124.0** ft. **14.0**

	One Side	Both Sides
Road:	**1,124.0** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**0.0** ft.	**0.0** ft.
Improved Path:	**653.9** ft.	**0.0** ft.

6.2 Development: **1,078.8** ft. **196.2** ft.
6.3 Channel Bars: **mid-channel**
6.4 Meander Migration: **Multiple**
6.5 Meander Width: **57 ft.** Rato: **1.0**
6.6 Wavelength: **57 ft.** Ratio: **1.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **1919.5357666** ft
7.2 Bank Height: **3** ft
7.3 Ice/Debris Jam Potential: **None**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	1 Low	1 Low	2 High	0 N.S.	1 Low	1 Low	1 Low	2 High	2 High	2 High	2 High	0 N.S.	21

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M12**
SGAT Version: **4.56**
Date Last Edited: **January, 16 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins .21 mi N on Rt 14 from N Randolph. Ends 1.8 mi N on Rt 14 from N Randolph.**

1.1 Reach Description:

1.2 Towns: **Brookfield, Randolph**

1.3 Downstream Latitude: **43.97658**

1.3 Downstream Longitude: **-72.55540**

Step 2. Stream Type

2.1 Elevation Upstream: **670**
2.1 Elevation Downstream: **660**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **8,173.0** ft. **1.55** Miles
2.3 Valley Slope: **0.1**
2.4 Channel Length: **13,706.0** ft. **2.60** Miles
2.5 Channel Slope: **0.07 %**
2.6 Sinuosity: **1.68**
2.7 Watershed Area: **26.1** Square Miles
2.8 Channel Width: **55.1** feet
2.9 Valley Width: **850.0** feet
2.10 Confinement Ratio: **15.4**
2.10 Confinement Type: **Very Broad**
2.11 Reference Stream Type: **E**
Bedform: **Dune-Ripple**
Sub-Class Slope: **None**
Bed Material: **Sand**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **None**
3.3 Dominant Geological Mat.: **Alluvial** **82.6** %
3.3 Sub-dom. Geological Mat.: **Ice-Contact**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **C** **73.1** %
Flooding: **Frequent** **81.7** %
Water Table Deep: **1.5** **69.2** %
Water Table Shallow: **0.0** **75.9** %
Erodibility: **slight** **6.1** %
7.4 Comments:
Beaver Dams. Lots of LWD - Long culvert!

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **78.9** %
Current Sub-Dominant Land Cover: **Crop**
4.2 Corridor
Historic Land Cover:: **Shrub**
Current Dominant Land Cover: **Forest** **41.6** %
Current Sub-Dominant Land Cover: **Crop**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**>100**	**>100**
Sub-dominant:	**51-100**	**51-100**
Length w / less than 25 ft.:	**10,210.0** ft.	**8,765.0** ft.

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old): **Impoundment**
Type: **None**
Use:
5.2 Bridges and Culverts: **3** **5.5** %
5.3 Bank Armoring: **281.9** **2.1** %
Left: **0.0** ft. Right: **281.9** ft.
5.4 Channel Straightening: **0.0** **0.0** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **330.7** ft. **2.4**

	One Side	Both Sides
Road:	**330.7** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**57.9** ft.	**0.0** ft.
Improved Path:	**0.0** ft.	**0.0** ft.

6.2 Development: **157.6** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **Multiple**
6.5 Meander Width: **469 ft.** Rato: **8.5**
6.6 Wavelength: **300 ft.** Ratio: **5.4**

Step 7. Windshield Survey

7.1 Bank Erosion: **2677.6286621** ft
7.2 Bank Height: **2** ft
7.3 Ice/Debris Jam Potential: **Debris**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	1 Low	0 N.S.	0 N.S.	0 N.S.	0 N.S.	0 N.S.	0 N.S.	2 High	1 Low	2 High	1 Low	2 High	15

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M13**
SGAT Version: **4.56**
Date Last Edited: **March, 13 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins 1.8 mi N on Rt 14 from N Randolph. Ends 2.72 mi N on Rt 14 from N Randolph.**

1.1 Reach Description:
1.2 Towns: **Brookfield**
1.3 Downstream Latitude: **43.99793**
1.3 Downstream Longitude: **-72.56166**

Step 2. Stream Type

2.1 Elevation Upstream: **680**
2.1 Elevation Downstream: **670**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **4,812.0** ft. **0.91** Miles
2.3 Valley Slope: **0.2**
2.4 Channel Length: **7,421.0** ft. **1.41** Miles
2.5 Channel Slope: **0.13 %**
2.6 Sinuosity: **1.54**
2.7 Watershed Area: **23.9** Square Miles
2.8 Channel Width: **53.0** feet
2.9 Valley Width: **1,450.0** feet
2.10 Confinement Ratio: **27.4**
2.10 Confinement Type: **Very Broad**
2.11 Reference Stream Type: **E**
Bedform: **Dune-Ripple**
Sub-Class Slope: **None**
Bed Material: **Sand**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **None**
3.3 Dominant Geological Mat.: **Alluvial** **78.0** %
3.3 Sub-dom. Geological Mat.: **Ice-Contact**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **C** **79.9** %
Flooding: **Frequent** **74.3** %
Water Table Deep: **1.5** **75.4** %
Water Table Shallow: **0.0** **78.9** %
Erodibility: **slight** **12.9** %
7.4 Comments:

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **78.7** %
Current Sub-Dominant Land Cover: **Field**
4.2 Corridor
Historic Land Cover:: **Field**
Current Dominant Land Cover: **Forest** **33.6** %
Current Sub-Dominant Land Cover: **Crop**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**0-25**	**0-25**
Sub-dominant:	**26-50**	**26-50**
Length w / less than 25 ft.:	**6,303.0** ft.	**6,704.0** ft.

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old):
Type: **None**
Use:
5.2 Bridges and Culverts: **4** **16.8** %
5.3 Bank Armoring: **264.2** **3.6** %
Left: **59.3** ft. Right: **204.8** ft.
5.4 Channel Straightening: **1,132.5** **15.3** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **315.6** ft. **4.3**

	One Side	Both Sides
Road:	**0.0** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**0.0** ft.	**0.0** ft.
Improved Path:	**315.6** ft.	**0.0** ft.

6.2 Development: **0.0** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **Multiple**
6.5 Meander Width: **287 ft.** Ratio: **5.4**
6.6 Wavelength: **302 ft.** Ratio: **5.7**

Step 7. Windshield Survey

7.1 Bank Erosion: **1544.0627441** ft
7.2 Bank Height: **2** ft
7.3 Ice/Debris Jam Potential: **Bend**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	1 Low	0 N.S.	1 Low	0 N.S.	0 N.S.	0 N.S.	0 N.S.	2 High	0 N.S.	2 High	2 High	2 High	16

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M14**
SGAT Version: **4.56**
Date Last Edited: **April, 30 2020**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins 2.72 mi N along Rt 14 from N Randolph. Ends at E Brookfield (intersection of Rt 65 and Rt 14).**

1.1 Reach Description:
1.2 Towns: **Brookfield**
1.3 Downstream Latitude: **44.01056**
1.3 Downstream Longitude: **-72.56830**

Step 2. Stream Type

2.1 Elevation Upstream: **712**
2.1 Elevation Downstream: **680**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **7,841.0** ft. **1.49** Miles
2.3 Valley Slope: **0.4**
2.4 Channel Length: **9,611.0** ft. **1.82** Miles
2.5 Channel Slope: **0.33 %**
2.6 Sinuosity: **1.23**
2.7 Watershed Area: **20.1** Square Miles
2.8 Channel Width: **49.0** feet
2.9 Valley Width: **699.0** feet
2.10 Confinement Ratio: **14.3**
2.10 Confinement Type: **Very Broad**
2.11 Reference Stream Type: **C**
Bedform: **Riffle-Pool**
Sub-Class Slope: **None**
Bed Material: **Gravel**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **None**
3.3 Dominant Geological Mat.: **Alluvial** **79.7** %
3.3 Sub-dom. Geological Mat.: **Ice-Contact**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **B** **47.4** %
Flooding: **Frequent** **72.5** %
Water Table Deep: **3.0** **39.9** %
Water Table Shallow: **1.5** **39.9** %
Erodibility: **slight** **13.7** %
7.4 Comments:

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **79.8** %
Current Sub-Dominant Land Cover: **Crop**
4.2 Corridor
Historic Land Cover:: **Field**
Current Dominant Land Cover: **Forest** **44.6** %
Current Sub-Dominant Land Cover: **Field**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**>100**	**0-25**
Sub-dominant:	**51-100**	**>100**
Length w / less than 25 ft.:	**8,707.0** ft.	**7,413.0** ft.

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old): **No Data**
Type: **None**
Use:
5.2 Bridges and Culverts: **6** **10.8** %
5.3 Bank Armoring: **645.4** **6.7** %
Left: **463.5** ft. Right: **181.9** ft.
5.4 Channel Straightening: **0.0** **0.0** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **654.7** ft. **6.8**

	One Side	Both Sides
Road:	**0.0** ft.	**527.7** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**514.8** ft.	**0.0** ft.
Improved Path:	**654.7** ft.	**0.0** ft.

6.2 Development: **0.0** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **Migration**
6.5 Meander Width: **46 ft.** Rato: **0.9**
6.6 Wavelength: **46 ft.** Ratio: **0.9**

Step 7. Windshield Survey

7.1 Bank Erosion: **1593.6336670** ft
7.2 Bank Height: **2** ft
7.3 Ice/Debris Jam Potential: **Bend**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	1 Low	1 Low	0 N.S.	0 N.S.	1 Low	0 N.S.	0 N.S.	1 Low	2 High	2 High	1 Low	1 Low	16

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M15**
SGAT Version: **4.56**
Date Last Edited: **January, 17 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins at intersection of Rt 14 and Rt 65. Ends .33 mi N of intersection of Rt 14 and Twin Pond brook Rd.**

1.1 Reach Description:
1.2 Towns: **Brookfield**
1.3 Downstream Latitude: **44.02942**
1.3 Downstream Longitude: **-72.56820**

Step 2. Stream Type

2.1 Elevation Upstream: **719**
2.1 Elevation Downstream: **712**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **5,164.0** ft. **0.98** Miles
2.3 Valley Slope: **0.1**
2.4 Channel Length: **6,394.0** ft. **1.21** Miles
2.5 Channel Slope: **0.11 %**
2.6 Sinuosity: **1.24**
2.7 Watershed Area: **11.9** Square Miles
2.8 Channel Width: **39.0** feet
2.9 Valley Width: **1,014.0** feet
2.10 Confinement Ratio: **26.0**
2.10 Confinement Type: **Very Broad**
2.11 Reference Stream Type: **E**
Bedform: **Dune-Ripple**
Sub-Class Slope: **None**
Bed Material: **Sand**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **None**
3.3 Dominant Geological Mat.: **Alluvial** **85.4** %
3.3 Sub-dom. Geological Mat.: **Other**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **C** **74.8** %
Flooding: **Frequent** **81.0** %
Water Table Deep: **1.5** **71.5** %
Water Table Shallow: **0.0** **77.9** %
Erodibility: **slight** **7.1** %
7.4 Comments:

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **82.4** %
Current Sub-Dominant Land Cover: **Crop**
4.2 Corridor
Historic Land Cover:: **Field**
Current Dominant Land Cover: **Forest** **39.2** %
Current Sub-Dominant Land Cover: **Field**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**0-25**	**0-25**
Sub-dominant:	**>100**	**>100**
Length w / less than 25 ft.:	**5,536.0** ft.	**6,393.0** ft.

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old): **No Data**
Type: **None**
Use:
5.2 Bridges and Culverts: **6** **43.8** %
5.3 Bank Armoring: **741.2** **11.6** %
Left: **336.7** ft. Right: **404.5** ft.
5.4 Channel Straightening: **2,901.1** **45.4** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **640.8** ft. **10.0**

	One Side	Both Sides
Road:	**0.0** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**390.8** ft.	**249.9** ft.
Improved Path:	**476.9** ft.	**0.0** ft.

6.2 Development: **218.9** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **Migration**
6.5 Meander Width: **35 ft.** Rato: **0.9**
6.6 Wavelength: **35 ft.** Ratio: **0.9**

Step 7. Windshield Survey

7.1 Bank Erosion: **667.5035400** ft
7.2 Bank Height: **2** ft
7.3 Ice/Debris Jam Potential: **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	7.3	Total
2 High	2 High	2 High	0 N.S.	2 High	1 Low	2 High	0 N.S.	1 Low	0 N.S.	0 N.S.	1 Low	2 High	2 High	1 Low	0 N.S.	18

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M16**
SGAT Version: **4.56**
Date Last Edited: **January, 17 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins .33 mi N of intersection of Rt 14 and Twin Pond Brook Rd. Ends 1.7 mi N of intersection.**

1.1 Reach Description:
1.2 Towns: **Brookfield**
1.3 Downstream Latitude: **44.04472**
1.3 Downstream Longitude: **-72.56529**

Step 2. Stream Type

2.1 Elevation Upstream: **828**
2.1 Elevation Downstream: **719**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **6,855.0** ft. **1.30** Miles
2.3 Valley Slope: **1.6**
2.4 Channel Length: **8,219.0** ft. **1.56** Miles
2.5 Channel Slope: **1.33 %**
2.6 Sinuosity: **1.20**
2.7 Watershed Area: **9.1** Square Miles
2.8 Channel Width: **34.6** feet
2.9 Valley Width: **601.0** feet
2.10 Confinement Ratio: **17.4**
2.10 Confinement Type: **Very Broad**
2.11 Reference Stream Type: **E**
Bedform: **Dune-Ripple**
Sub-Class Slope: **None**
Bed Material: **Sand**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **None**
3.3 Dominant Geological Mat.: **Alluvial** **95.1** %
3.3 Sub-dom. Geological Mat.: **Till**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **D** **62.2** %
Flooding: **Frequent** **94.6** %
Water Table Deep: **0.5** **62.2** %
Water Table Shallow: **0.0** **94.4** %
Erodibility: **slight** **4.9** %
7.4 Comments:
Wetlands

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **85.1** %
Current Sub-Dominant Land Cover: **Urban**
4.2 Corridor
Historic Land Cover:: **Wetland**
Current Dominant Land Cover: **Forest** **30.1** %
Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**>100**	**>100**
Sub-dominant:	**51-100**	**51-100**
Length w / less than 25 ft.:	**405.0** ft.	**755.0** ft.

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old): **No Data**
Type: **None**
Use:
5.2 Bridges and Culverts: **2** **19.5** %
5.3 Bank Armoring: **322.3** **3.9** %
Left: **99.2** ft. Right: **223.0** ft.
5.4 Channel Straightening: **2,737.2** **33.3** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **4,331.5** ft. **52.7**

	One Side	Both Sides
Road:	**4,331.5** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**0.0** ft.	**0.0** ft.
Improved Path:	**0.0** ft.	**0.0** ft.

6.2 Development: **0.0** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **Migration**
6.5 Meander Width: **31 ft.** Rato: **0.9**
6.6 Wavelength: **31 ft.** Ratio: **0.9**

Step 7. Windshield Survey

7.1 Bank Erosion: **487.8862915** ft
7.2 Bank Height: **2** ft
7.3 Ice/Debris Jam Potential: **None**

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	7.3	Total
2 High	2 High	1 Low	0 N.S.	1 Low	0 N.S.	2 High	0 N.S.	2 High	0 N.S.	0 N.S.	1 Low	2 High	2 High	1 Low	0 N.S.	16

White River - Second Branch

Phase 1 - Reach Summary Report

Basin: **White**
Stream Name: **Second Branch of the White River**
Topo Maps: **Brookfield, Randolph Center, S Royalton**
Watershed: **White River**
Sub-watershed: **Second Branch White River**

Reach ID: **M17**
SGAT Version: **4.56**
Date Last Edited: **March, 13 2021**
QA Status: **Step 7 done**
Is Reach An Impoundment?: **#Error**

Step 1. Reach Location **Begins .17 mi N of Rt 14 and Twin Pond Brook Rd intersection. Ends 3.51 mi N of intersection along Rt 14.**

1.1 Reach Description:

1.2 Towns: **Brookfield, Williamstown**

1.3 Downstream Latitude: **44.06380**

1.3 Downstream Longitude: **-72.56522**

Step 2. Stream Type

2.1 Elevation Upstream: **902**
2.1 Elevation Downstream: **828**
2.1 Is Gradient Gentle?: **#Error**
2.2 Valley Length: **9,309.0** ft. **1.76** Miles
2.3 Valley Slope: **0.8**
2.4 Channel Length: **10,080.0** ft. **1.91** Miles
2.5 Channel Slope: **0.73 %**
2.6 Sinuosity: **1.08**
2.7 Watershed Area: **4.7** Square Miles
2.8 Channel Width: **25.9** feet
2.9 Valley Width: **150.0** feet
2.10 Confinement Ratio: **5.8**
2.10 Confinement Type: **Narrow**
2.11 Reference Stream Type: **C**
Bedform: **Riffle-Pool**
Sub-Class Slope: **b**
Bed Material: **Cobble**

Step 3. Basin Charateristicts

3.1 Alluvial Fan: **None**
3.2 Grade Control: **Ledge**
3.3 Dominant Geological Mat.: **Till** **49.8** %
3.3 Sub-dom. Geological Mat.: **Alluvial**
3.4 Valley Slope Left: **Ext. Steep**
3.4 Valley Slope Right: **Ext. Steep**
3.5 Soils
Hydrologic Group: **C** **53.9** %
Flooding: **None/Rare** **54.8** %
Water Table Deep: **0.5** **45.2** %
Water Table Shallow: **0.0** **50.2** %
Erodibility: **Moderate** **49.8** %
7.4 Comments:

Alternating Cobble Stream/Wetland Silt areas with interspersed ledge drops; valley width and stream type updated by field observation thru reach

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
Historic Land Cover: **Forest**
Current Dominant Land Cover: **Forest** **82.4** %
Current Sub-Dominant Land Cover: **Urban**
4.2 Corridor
Historic Land Cover:: **Forest**
Current Dominant Land Cover: **Forest** **44.6** %
Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer	Left Bank	Right Bank
Dominant:	**>100**	**0-25**
Sub-dominant:	**0-25**	**>100**
Length w / less than 25 ft.:	**4,914.0** ft.	**2,048.0** ft.

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old): **No Data**
Type: **None**
Use:
5.2 Bridges and Culverts: **5** **52.1** %
5.3 Bank Armoring: **4,651.5** **46.1** %
Left: **3,808.0** ft. Right: **843.6** ft.
5.4 Channel Straightening: **6,148.6** **61.0** %
5.5 Dredging History: **No Data**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **8,611.0** ft. **85.4**

	One Side	Both Sides
Road:	**8,611.0** ft.	**0.0** ft.
Railroad:	**0.0** ft.	**0.0** ft.
Berm:	**0.0** ft.	**0.0** ft.
Improved Path:	**0.0** ft.	**0.0** ft.

6.2 Development: **0.0** ft. **0.0** ft.
6.3 Channel Bars: **None**
6.4 Meander Migration: **No Data**
6.5 Meander Width: **ft.** Rato: **0.0**
6.6 Wavelength: **ft.** Ratio: **0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **319.8169250** ft
7.2 Bank Height: **3** ft
7.3 Ice/Debris Jam Potential: **Debris**

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	7.3	Total
2 High	2 High	2 High	0 N.S.	2 High	2 High	2 High	0 N.S.	2 High	0 N.S.	0 N.S.	0 N.S.	0 N.D.	0 N.D.	0 N.S.	1 Low	15

– Appendix 3 –

Phase 2 Reach/Segment: Summary Reports

Phase 2 Segment Summary Report White River - Second Branch

Stream:	Second Branch of the White River	SGAT Version:	4.56
Reach:	M01-0	Organization:	White River Partnership
Segment Length(ft):	3,779	Observers:	CP, DR
Rain:	Yes	Completion Date:	7/8/2019
		Qualtiy Control Status - Consultant:	Provisional
		Qualtiy Control Status - Staff:	Provisional

Step 0 - Location: **Mouth of 2nd Branch US to more confined valley beginning near jct Russ Hill Rd/VT Rte 14**

Step 5 - Notes: **Not classic alluvial fan, but reach was likely deltaic formation on a 'finger lake' of glacial Lake Hitchcock, now deeply incised in portions and hemmed in by roads and railroad, highly straightened and cut off from large majority of historic floodplain once shared with mainstem. Mid-reach RB may have had a berm, but obscured by mature trees in diminished buffer and cultivation of cornfields – could just be plow headlands; regardless, helps channel stream toward LVW and through bridges despite cropland in RFPA being FEMA-mapped regulatory floodway.**

Step 7 - Narrative: **Loss of planform and access to RFPA due to channel straightening and long-standing maintenance against LVW; relative stability due to fact that LFPA is still accessible despite significant historic incision. Rte. 107 and RR bridges now cut off access to significant portion of floodplain historically shared with White mainstem.**

Step 1. Valley and Floodplain

1.1 Segmentation: **None**

1.2 Alluvial Fan: **None**

1.3 Corridor Encroachments:

	Length (ft)	One Height	Both	Height
Berm:	0			
Road:	893	13		
Railroad:	0			
Imp. Path:	2,035	3		
Dev.:	633			

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Hilly	Flat
Continuous w/ Bank:	Sometimes	Always
Within 1 Bankfull W:	Sometimes	Always
Texture:	Sand	Silt/Clay

1.5 Valley Features

Valley Width (ft):	650
Width Determination:	Estimated
Confinement Type:	VB
In Rock Gorge:	No
Human Caused Change in Valley Width?:	Yes

1.6 Grade Controls: **None**

Stream: **Second Branch of the White River** Reach: **M01-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**62.60**	2.11 Riffle/Step Spacing:	**335 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**6.00**	2.12 Substrate Composition		Bed:	**8.7**	**inches**
2.3 Mean Depth (tf):	**4.43**	Bedrock:	**0.0 %**	Bar:	**5.7**	**inches**
2.4 Floodprone Width (ft.):	**678.00**	Boulder:	**3.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**13.30**	Cobble:	**44.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**34.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**14.13**	Fine Gravel:	**8.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**10.83**	Sand:	**3.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**2.22**	Silt and Smaller:	**8.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**2.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Eroded**	# Large Woody Debris:	**76**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Steep**

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**101.2**	**126.9**	Dominant:	**Deciduous**	**Deciduous**
Material Type:	**Sand**	**Silt**	Erosion Height (ft.):	**3.2**	**3.2**	Sub-dominant:	**Herbaceous**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**53.9**	**18.8**	Canopy %:	**76-100**	**76-100**
Material Type:	**Sand**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**26-50**	**26-50**
Sub-Dominant	**>100**	**>100**
W less than 25	**1,227**	**1,014**
Buffer Vegitation Type		
Dominant	**Deciduous**	**Deciduous**
Sub-Dominant	**Herbaceous**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Hay**	**Crop**	Mass Failures	**124.80 29**	
Sub-dominant	**Forest**	**Forest**	Height	**25.0**	
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**One**	**25.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M01-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**None**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**None**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Moderate**	Impoundments:	**None**	Other:	Tile Drain:
4.4 # of Debris Jams:	**0**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:	**None**	Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**87**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Below**
Bridge	**70**	**Yes**	**Yes**	**Yes**	**No**	**Scour Below**
Bridge	**85**	**Yes**	**Yes**	**Yes**	**No**	**None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:	**No**		
Mid:	**0**	Delta:	**1**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**0**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**770**
Side:	**3**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic		
7.1 Channel Degradation	**5**	**None**	**Yes**	Geomorphic Rating	**0.55**
7.2 Channel Aggradation	**15**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel	**13**	**None**	**No**	Channel Evolution Stage	**IV**
7.4 Change in Planforml	**11**	**None**	**Yes**	Geomorphic Condition	**Fair**
Total Score	**44**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream: **Second Branch of the White River**
Reach: **M17-C**
Segment Length(ft): **4,065**
Rain: **Yes**

SGAT Version: **4.56**
Organization: **White River Partnership**
Observers: **dr, CP**
Completion Date:
Qualtiy Control Status - Consultant: **Provisional**
Qualtiy Control Status - Staff: **Provisional**
Why Not Assessed: **impounded**

Step 0 - Location: **headwaters Second Branch, by Tripp Rd, DS to outlet of Staples Pond**

Step 5 - Notes: **Wetland complex of mixed human and beaver dams with interspersed residential camps; pasture encroaches on wetlands along RVW, VT Route 14 runs along LVW (appears to have been re-routed here in 1950s after previously running along what is now Tripp Rd; see USGS topoview project, https://ngmdb.usgs.gov/topoview/viewer/#14/44.0803/-72.5675). Staples Pond dam is mostly breached, some of base and abutments still present; Goyette Dam is active further upstream. Staples Pond is not busy but appears to have steady use for fishing due to easy access esp. along Tripp Rd.**

Step 7 - Narrative: **Prominent human and beaver impoundments, no geomorphic assessment possible per protocols.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Flow Status**
1.2 Alluvial Fan:
1.3 Corridor Encroachments:

Length (ft)	One Height	Both Height
Berm:		
Road:		
Railroad:		
Imp. Path:		
Dev.:		

1.4 Adjacent Side	Left	Right
Hillside Slope:	**Very Steep**	**Flat**
Continuous w/ Bank:	**Sometimes**	**Always**
Within 1 Bankfull W:	**Sometimes**	**Always**
Texture:	**Silt/Clay**	**Silt/Clay**

1.5 Valley Features	
Valley Width (ft):	**650**
Width Determination:	**Estimated**
Confinement Type:	**VB**
In Rock Gorge:	**No**
Human Caused Change in Valley Width?:	**Yes**

1.6 Grade Controls: **None**

Phase 2 Segment Summary Report White River - Second Branch

Stream: Second Branch of the White River
Reach: M02-0
Segment Length(ft): 9,245
Rain: Yes

SGAT Version: 4.56
Organization: White River Partnership
Observers: CP, DR
Completion Date: 6/26/2019
Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **confined valley from jct of Russ Hill Rd./VT Rte 14 US to former dam site at Waterman and Morse Rds**

Step 5 - Notes: **Narrow to Semi-confined valley with alternating pockets of floodplain accessible mostly at high flows. Road constricts valley intermittently, reducing to narrowly confined (sometimes naturally narrowly confined as well, particularly at DS end). Terrace/RAF may be historic, but is abetted by road fill as well. Landfill present US of gullies; no red flags, but presence noted from aerials.**

Step 7 - Narrative: **Active widening, moderate planform adjustments following historic incision. FPA has been established at a lower elevation in many areas, but large wood plays a prominent role in both contributing to and moderating widening and planform adjustments.**

Step 1. Valley and Floodplain

1.1 Segmentation: None
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	6,224	6	331	10
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	305		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Extr.Steep	Extr.Steep
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Gravel	Gravel

1.5 Valley Features
Valley Width (ft): 110
Width Determination: Estimated
Confinement Type: NC
In Rock Gorge: No
Human Caused Change in Valley Width?: Yes

1.6 Grade Controls: None

Stream: **Second Branch of the White River** Reach: **M02-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**68.80**	2.11 Riffle/Step Spacing:	**640 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**5.80**	2.12 Substrate Composition		Bed:	**0.92**	**inches**
2.3 Mean Depth (tf):	**4.84**	Bedrock:	**0.0 %**	Bar:	**1.14**	**inches**
2.4 Floodprone Width (ft.):	**118.20**	Boulder:	**0.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**7.00**	Cobble:	**0.0 %**	Stream Type:	**B**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**4.0 %**	Bed Material:	**Sand**	
2.6 Width/Depth Ratio:	**14.21**	Fine Gravel:	**34.0 %**	Subclass Slope:	**c**	
2.7 Entrenchment Ratio:	**1.72**	Sand:	**62.0 %**	Bed Form:	**Dune-Ripple**	
2.8 Incision Ratio:	**1.21**	Silt and Smaller:	**0.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Eroded**	# Large Woody Debris:	**153**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Steep**

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**1,015.0**	**318.9**	Dominant:	**Deciduous**	**Deciduous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**4.2**	**4.0**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**421.5**	**218.2**	Canopy %:	**76-100**	**76-100**
Material Type:	**Sand**	**Sand**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**26-50**	**26-50**
W less than 25	**3,279**	**1,839**
Buffer Vegitation Type		
Dominant	**Deciduous**	**Deciduous**
Sub-Dominant	**Herbaceous**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right
Dominant	**Forest**	**Forest**
Sub-dominant	**Hay**	**Pasture**
(Legacy)	Amount	Mean Hieght
Failures	**Multiple**	**28.3**
Gullies	**Multiple**	**10.0**

	Left	Right
Mass Failures	**734.9494**	**110.7108**
Height	**26.6**	**10.0**
Gullies Number	**2**	
Gullies Length		

Stream: **Second Branch of the White River** Reach: **M02-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Moderate**	Impoundments:	**None**	Other:	Tile Drain:
4.4 # of Debris Jams:	**5**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:	**None**	Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**85**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**
Mid:	**1**	Delta:	**0**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**3**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**2,443**
Side:	**1**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Confined**	Score	STD	Historic		
7.1 Channel Degradation		**9**	**None**	**Yes**	Geomorphic Rating	**0.54**
7.2 Channel Aggradation		**12**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**10**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**12**	**None**	**Yes**	Geomorphic Condition	**Fair**
Total Score		**43**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream:	Second Branch of the White River	SGAT Version:	4.56
Reach:	M03-0	Organization:	White River Partnership
Segment Length(ft):	8,939	Observers:	CP, DR
Rain:	Yes	Completion Date:	7/3/2019
		Qualtiy Control Status - Consultant:	Provisional
		Qualtiy Control Status - Staff:	Provisional

Step 0 - Location: **Trib. south of Post Farm Rd. to Morse Rd. dam**

Step 5 - Notes: **Straightening may be underestimated, no obvious signs but indications that stream has been maintained against valley wall in part through ag practices and plow headlands. Meander scars and old oxbows evident on aerials but rarely evident in field due to intensive ag use. Royalton-5 dam (electric; former Stoughton's Mills, grist and saw) at base of reach was removed, leaving waterfalls with large scour pool beneath; angle of bridge and VT-14 here is almost perpendicular to flow of river, cutting off LFP access and reducing effective width of bridge though not an apparent channel constriction now.**

Step 7 - Narrative: **Aggradation, widening, and planform adjustments following incision. Fine gravel substrate due to erosion of pebbly sands in upstream portion of the reach.**

Step 1. Valley and Floodplain

1.1 Segmentation: **None**

1.2 Alluvial Fan: **None**

1.3 Corridor Encroachments:

Length (ft)	One Height	Both	Height
Berm:		0	
Road:		388	10
Railroad:		0	
Imp. Path:		0	
Dev.:		0	

1.4 Adjacent Side	Left	Right
Hillside Slope:	Hilly	Hilly
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Always
Texture:	Silt/Clay	Silt/Clay

1.5 Valley Features	
Valley Width (ft):	800
Width Determination:	Estimated
Confinement Type:	VB
In Rock Gorge:	No
Human Caused Change in Valley Width?:	Yes

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Waterfall	Mid-segment	15.0	0.0	Yes	No

Stream: **Second Branch of the White River** Reach: **M03-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**61.10**	2.11 Riffle/Step Spacing:	**570 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**5.80**	2.12 Substrate Composition		Bed:	**2.1**	**mm**
2.3 Mean Depth (tf):	**4.39**	Bedrock:	**0.0 %**	Bar:	**1**	**mm**
2.4 Floodprone Width (ft.):	**798.10**	Boulder:	**0.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**8.60**	Cobble:	**0.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**8.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**13.92**	Fine Gravel:	**49.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**13.06**	Sand:	**34.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.48**	Silt and Smaller:	**9.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**1.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Not Evaluated**	# Large Woody Debris:	**157**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Steep**

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**1,760.3**	**2,052.1**	Dominant:	**Herbaceous**	**Deciduous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.5**	**3.9**	Sub-dominant:	**Deciduous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**None**	Bank Canopy		
Lower			Revetment Length:	**162.7**	**0.0**	Canopy %:	**51-75**	**51-75**
Material Type:	**Sand**	**Sand**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**26-50**	**0-25**
Sub-Dominant	**0-25**	**26-50**
W less than 25	**4,262**	**4,237**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Deciduous**	**Deciduous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Pasture**	**Pasture**	Mass Failures	**53.59558**	**141.3372**
Sub-dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Height	**20.0**	**20.0**
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**Multiple**	**20.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M03-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	**0**	Road Ditch:	**1**
4.3 Flow Status:	**High**	Impoundments:		Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**1**	Impoundment Loc.:		Overland Flow:	**0**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:		**0**	
		(old) Upstrm Flow Reg.:		Affected Length (ft):		**0**	

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**80**	**Yes**	**Yes**	**No**	**Yes**	**Scour Below**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features		Neck Cutoff:	**1**	5.4 Stream Ford or Animal Crossing:	**No**	
Mid:	**1**	Delta:	**0**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**12**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**2,240**
Side:	**11**	Braiding:	**1**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**10**	**E To C**	**Yes**	Geomorphic Rating	**0.51**
7.2 Channel Aggradation		**10**	**E To C**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**10**	**Other**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**11**	**Other**	**No**	Geomorphic Condition	**Fair**
Total Score		**41**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream:	Second Branch of the White River	SGAT Version:	4.56
Reach:	M04-0	Organization:	White River Partnership
Segment Length(ft):	10,807	Observers:	CP, DR
Rain:	Yes	Completion Date:	7/3/2019
		Qualtiy Control Status - Consultant:	Provisional
		Qualtiy Control Status - Staff:	Provisional

Step 0 - Location: **East Bethel Village - Hyde Dam to Post Rd. Trib.**

Step 5 - Notes: **Long-standing berm along Store Hill Rd not very evident in field but significantly restricts RFPA access. Deltaic alluvium from trib along Gage Rd likely contributes to fan at edge of glacial Lake Hitchcock - sediments highly erodible. Borderline E stream, but classed as C due to reduced sinuosity - straightening appears long-standing.**

Step 7 - Narrative: **'Other' STD for planform is E to C due to reduced sinuosity, appears long-standing; sediments are highly erodible. Cyclical rapid localized incision offset by aggradation and widening. Downcutting limited by grade controls, planform adjustments limited by road encroachment and placement of vegetated berms pinning stream to VW. Progressive fining exacerbated by impoundment, lack of sediment transport continuity. At time of field assessment, flood chutes obscured by vegetation and ag practices, depositional features obscured by water levels, but gravel apparent in some areas may be post-glacial relic..**

Step 1. Valley and Floodplain

1.1 Segmentation: **None**

1.2 Alluvial Fan: **None**

1.3 Corridor Encroachments:

	Length (ft)	One Height	Both	Height
Berm:	278	15	0	
Road:	4,019	8	0	
Railroad:	0		0	
Imp. Path:	0		0	
Dev.:	371		540	

1.4 Adjacent Side	Left	Right
Hillside Slope:	Hilly	Hilly
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Silt/Clay	Silt/Clay

1.5 Valley Features	
Valley Width (ft):	600
Width Determination:	Estimated
Confinement Type:	BD
In Rock Gorge:	No
Human Caused Change in Valley Width?:	Yes

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Dam	Mid-segment	16.0	13.0	Yes	No

Stream: **Second Branch of the White River** Reach: **M04-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**53.00**	2.11 Riffle/Step Spacing:	**620 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**5.60**	2.12 Substrate Composition		Bed:	**0.98**	**inches**
2.3 Mean Depth (tf):	**4.31**	Bedrock:	**0.0 %**	Bar:	**0.08**	**inches**
2.4 Floodprone Width (ft.):	**740.00**	Boulder:	**0.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**7.80**	Cobble:	**0.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**5.0 %**	Bed Material:	**Sand**	
2.6 Width/Depth Ratio:	**12.30**	Fine Gravel:	**44.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**13.96**	Sand:	**31.0 %**	Bed Form:	**Dune-Ripple**	
2.8 Incision Ratio:	**1.39**	Silt and Smaller:	**20.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**1.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Eroded**	# Large Woody Debris:	**65**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Steep**

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**1,072.9**	**806.4**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Silt**	**Silt**	Erosion Height (ft.):	**4.7**	**4.1**	Sub-dominant:	**Deciduous**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Multiple**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**1,231.1**	**151.7**	Canopy %:	**51-75**	**51-75**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**26-50**	**26-50**
Sub-Dominant	**51-100**	**>100**
W less than 25	**5,189**	**5,640**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Deciduous**	**Deciduous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Hay**	**Hay**	Mass Failures		**553.6281**
Sub-dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Height		**31.1**
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**Multiple**	**33.8**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M04-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**2**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**48**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Below**
Bridge	**68**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Below**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**Yes**
Mid:	**3**	Delta:	**2**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**10**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**3,478**
Side:	**5**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**9**	**None**	**No**	Geomorphic Rating	**0.45**
7.2 Channel Aggradation		**8**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**9**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**10**	**Other**	**Yes**	Geomorphic Condition	**Fair**
Total Score		**36**			Stream Sensitivity	**Extreme**

Phase 2 Segment Summary Report White River - Second Branch

Stream:	Second Branch of the White River	SGAT Version:	4.56
Reach:	M05-0	Organization:	White River Partnership
Segment Length(ft):	11,266	Observers:	CP, DR
Rain:	Yes	Completion Date:	7/2/2019
		Qualtiy Control Status - Consultant:	Provisional
		Qualtiy Control Status - Staff:	Provisional

Step 0 - Location: **Peak Brook mouth DS to trib mouth S of Kingsbury Covered Bridge**

Step 5 - Notes: **Largest particles observed were clay concretions. Strong predominance of very fine sediments overall, extremely dynamic system, bordering on E to C stream type departure due to reduced sinuosity (especially when neck cut-offs or channel avulsions occur, evident from mapped location of VHD streamline and on Google Earth historic imagery), widening and aggradation. Channel adjustments and evolution are rapid however. Upstream end of reach, short distance DS of mouth of Peak Brook, is location of Brickyard Farm; suspect river may have been dredged for brick production historically but no luck finding documentation; incision and vertical banks upstream of here in reach M06 not dramatic but were unexpectedly pronounced.**

Step 7 - Narrative: **Extreme planform change with major widening and aggradation. Multiple neck cuttoffs (recent and impending). Extremely dynamic system. Scoring for Step 7.4 planform adjustments: Extreme adjustments due to extensive lateral bank erosion, impending neck cutoff, evidence of recent avulsions and multiple thread channels. Though no STD noted, borders on E to C STD due to reduced sinuosity and high degree of aggradation and widening.**

Step 1. Valley and Floodplain

1.1 Segmentation: **None**

1.2 Alluvial Fan: **None**

1.3 Corridor Encroachments:

	Length (ft)	One	Height	Both	Height
Berm:		0			
Road:		2,200	8		
Railroad:		0			
Imp. Path:		818	3		
Dev.:		0			

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Hilly	Hilly
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Silt/Clay	Silt/Clay

1.5 Valley Features

Valley Width (ft):	1,400
Width Determination:	Estimated
Confinement Type:	VB
In Rock Gorge:	No
Human Caused Change in Valley Width?:	Yes

1.6 Grade Controls: **None**

Stream: **Second Branch of the White River** Reach: **M05-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**54.00**	2.11 Riffle/Step Spacing:	**450 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**5.60**	2.12 Substrate Composition		Bed:	**1.4**	**inches**
2.3 Mean Depth (tf):	**4.33**	Bedrock:	**%**	Bar:	**1.5**	**inches**
2.4 Floodprone Width (ft.):	**1,419.00**	Boulder:	**%**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**6.40**	Cobble:	**%**	Stream Type:	**E**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**5.0 %**	Bed Material:	**Sand**	
2.6 Width/Depth Ratio:	**12.47**	Fine Gravel:	**36.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**26.28**	Sand:	**45.0 %**	Bed Form:	**Dune-Ripple**	
2.8 Incision Ratio:	**1.14**	Silt and Smaller:	**14.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**73**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Undercut**

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**1,165.2**	**1,407.9**	Dominant:	**Herbaceous**	**Deciduous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.4**	**3.5**	Sub-dominant:	**Deciduous**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**582.1**	**214.8**	Canopy %:	**26-50**	**26-50**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**26-50**	**0-25**
Sub-Dominant	**0-25**	**>100**
W less than 25	**3,715**	**6,221**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Deciduous**	**Deciduous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Hay**	**Hay**	Mass Failures	**135.4649**	
Sub-dominant	**Shrubs/Sapling**	**Forest**	Height	**20.0**	
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**One**	**20.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M05-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**4**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**50**	**Yes**	**Yes**	**Yes**	**No**	**None**
Bridge	**50**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Below**
Bridge	**70**	**Yes**	**Yes**	**Yes**	**No**	**Scour Below**
Bridge	**24**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Below**
Bridge	**28**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features	Neck Cutoff:	**3**	5.4 Stream Ford or Animal Crossing:	**No**		
Mid:	**1**	Delta:	**2**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**27**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**940**
Side:	**6**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic		
7.1 Channel Degradation	**12**	**None**	**No**	Geomorphic Rating	**0.43**
7.2 Channel Aggradation	**7**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel	**10**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml	**5**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score	**34**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream: Second Branch of the White River
Reach: M06-0
Segment Length(ft): 9,815
Rain: Yes

SGAT Version: 4.56
Organization: White River Partnership
Observers: CP, DR
Completion Date: 7/5/2019
Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **0.25 miles N of Dugout Rd. to mouth of Peak Brook**

Step 5 - Notes: **Extremely dynamic system with fine sediments and extensive erosion, E to C STD due to overwidening and reduced sinuosity. Old oxbows in surrounding fields were not easily observable during fieldwork but are apparent on aerials, particularly 1996 vintage. Reach includes site of WRP's highest long-term bacteria readings.**

Step 7 - Narrative: **Extreme widening with major planform adjustments (primarily meander extensions) and aggradation. E to C STD due to overwidening and reduced sinuosity.**

Step 1. Valley and Floodplain

1.1 Segmentation: None
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

	Length (ft)	One Height	Both Height
Berm:	339	7	
Road:	1,754	9	
Railroad:	0		
Imp. Path:	273	3	
Dev.:	183		

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Hilly	Hilly
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Sand	Sand

1.5 Valley Features
Valley Width (ft): 500
Width Determination: Estimated
Confinement Type: BD
In Rock Gorge: No
Human Caused Change in Valley Width?: No

1.6 Grade Controls: None

Stream: **Second Branch of the White River** Reach: **M06-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**68.60**	2.11 Riffle/Step Spacing:	**565 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**4.60**	2.12 Substrate Composition		Bed:	**1.56**	**inches**
2.3 Mean Depth (tf):	**2.39**	Bedrock:	**%**	Bar:	**1.24**	**inches**
2.4 Floodprone Width (ft.):	**696.80**	Boulder:	**%**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**5.70**	Cobble:	**%**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**3.0 %**	Bed Material:	**Sand**	
2.6 Width/Depth Ratio:	**28.70**	Fine Gravel:	**31.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**10.16**	Sand:	**54.0 %**	Bed Form:	**Dune-Ripple**	
2.8 Incision Ratio:	**1.24**	Silt and Smaller:	**12.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**32**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Undercut**

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**2,209.8**	**3,608.6**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Silt**	**Silt**	Erosion Height (ft.):	**3.9**	**3.8**	Sub-dominant:	**Deciduous**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**139.9**	**242.2**	Canopy %:	**51-75**	**51-75**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**26-50**	**0-25**
Sub-Dominant	**0-25**	**26-50**
W less than 25	**1,221**	**4,932**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Deciduous**	**Deciduous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Hay**	**Hay**	Mass Failures	**121.8604**	
Sub-dominant	**Forest**	**Residential**	Height	**50.0**	
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**One**	**50.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M06-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch: **1**	Road Ditch: **0**
4.3 Flow Status:	**Moderate**	Impoundments:		Other: **0**	Tile Drain: **0**
4.4 # of Debris Jams:	**8**	Impoundment Loc.:		Overland Flow: **0**	Urb Strm Wtr Pipe: **0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**28**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above**
Bridge	**38**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Scour Below**
Bridge	**28**	**Yes**	**Yes**	**Yes**	**No**	**None**
Bridge	**45**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Scour Below**
Bridge	**60**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Deposition Below**
Bridge	**50**	**Yes**	**Yes**	**Yes**	**No**	**Scour Below**
Other		**No**	**No**	**No**	**No**	**None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**1**	5.2 Other Features		Neck Cutoff:	**1**	5.4 Stream Ford or Animal Crossing:		**No**
Mid:	**7**	Delta:	**0**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**None**
Point:	**4**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**0**
Side:	**0**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**11**	**None**	**No**	Geomorphic Rating	**0.36**
7.2 Channel Aggradation		**7**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**5**	**Other**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**6**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**29**			Stream Sensitivity	**Extreme**

Phase 2 Segment Summary Report White River - Second Branch

Stream: Second Branch of the White River
Reach: M07-0
Segment Length(ft): 14,323
Rain: Yes

SGAT Version: 4.56
Organization: White River Partnership
Observers: CP, DR
Completion Date: 7/5/2019
Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **Braley Covered Bridge to .35 miles N. of Dugout Rd.**

Step 5 - Notes: **Gifford covered bridge at Hyde Rd will not convey farm machinery; ford just DS of bridge has led to channel avulsion capture of LB cropland, chewing significantly into extremely fine, dark silt. Penny Brook enters off RB immediately US of bridge as well, with indications of sediment slug US of bridge. I-beams under bridge replaced around 2010-2011, Google Earth historic imagery appears to show bridge staged in field along RB of mouth of Penny Brook. Further DS, localized dredging noted streamside in a couple locations. Sand and gravel pit along this stretch is not visible from stream or Rte 14, located at lower elevation than terraces comprising roadside fields.**

Step 7 - Narrative: **Major to extreme planform adjustments with major widening and aggradation following historic degradation. E to C STD due to widening. Fine sediments mean cyclical channel adjustments wash out quickly, and current reduced sensitivity means long-standing straightening is still extensive; channel manipulations quickly undo channel adjustments.**

Step 1. Valley and Floodplain

1.1 Segmentation: None
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

	Length (ft)	One Height	Both	Height
Berm:	0			
Road:	263	10		
Railroad:	0			
Imp. Path:	4,037	4		
Dev.:	1,748			

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Hilly	Hilly
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Gravel	Gravel

1.5 Valley Features

Valley Width (ft):	700
Width Determination:	Estimated
Confinement Type:	VB
In Rock Gorge:	No
Human Caused Change in Valley Width?:	Yes

1.6 Grade Controls: None

Stream: **Second Branch of the White River** Reach: **M07-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**54.80**	2.11 Riffle/Step Spacing:	**420 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**5.70**	2.12 Substrate Composition		Bed:	**4.9**	**inches**
2.3 Mean Depth (tf):	**4.20**	Bedrock:	**%**	Bar:	**6.2**	**inches**
2.4 Floodprone Width (ft.):	**711.80**	Boulder:	**%**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**8.80**	Cobble:	**11.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**46.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**13.05**	Fine Gravel:	**20.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**12.99**	Sand:	**23.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.54**	Silt and Smaller:	**%**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**247**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Steep**

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**2,376.4**	**1,674.9**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**2.5**	**3.4**	Sub-dominant:	**Deciduous**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**506.4**	**1,125.4**	Canopy %:	**51-75**	**51-75**
Material Type:	**Sand**	**Gravel**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**0-25**
Sub-Dominant	**26-50**	**26-50**
W less than 25	**3,162**	**5,722**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Deciduous**	**Deciduous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Hay**	Mass Failures		**86.583**
					43
Sub-dominant	**Hay**	**Shrubs/Sapling**	Height		**20.0**
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**One**	**20.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M07-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:

4.2 Adjacent Wetlands: **Minimal**

4.3 Flow Status: **Moderate**

4.4 # of Debris Jams: **9**

4.5 Flow Regulation Type **None**

Flow Reg. Use:

Impoundments:

Impoundment Loc.:

4.6 Up/Down Strm flow reg.: **None**

(old) Upstrm Flow Reg.:

4.7 Stormwater Inputs

Field Ditch: **0** Road Ditch: **1**

Other: **0** Tile Drain: **0**

Overland Flow: **0** Urb Strm Wtr Pipe: **0**

4.9 # of Beaver Dams: **0**

Affected Length (ft): **0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**34.5**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Scour Below**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types

Mid: **6** Delta: **1**

Point: **26** Island:

Side: **10** Braiding: **0**

Diagonal:

5.2 Other Features

Flood chutes: **2**

5.3 Steep Riffles and Head Cuts

Steep Riffles: **0**

Neck Cutoff: **0**

Avulsion: **0**

Head Cuts: **0**

Trib Rejuv.: **No**

5.4 Stream Ford or Animal Crossing: **Yes**

5.5 Straightening: **None**

Straightening Length (ft.): **0**

5.5 Dredging: **Gravel Mining**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:

6.2 Pool Substrate:

6.3 Pool Variability:

Total Score: **0**

Habitat Rating: **0.00**

Habitat Stream Condition:

6.4 Sediment Deposition:

6.5 Channel Flow Status:

6.6 Channel Alteration:

6.7 Channel Sinuosity:

Stream Gradiant Type Left Right

6.8 Bank Stability:

6.9 Bank Vegetation Protection

6.10 Riparian Veg. Zone Width:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**9**	**E To C**	**Yes**
7.2 Channel Aggradation	**10**	**E To C**	**No**
7.3 Widening Channel	**8**	**None**	**No**
7.4 Change in Planforml	**6**	**None**	**No**
Total Score	**33**		

Geomorphic Rating **0.41**

Channel Evolution Model **F**

Channel Evolution Stage **III**

Geomorphic Condition **Fair**

Stream Sensitivity **Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream:	Second Branch of the White River	SGAT Version:	4.56
Reach:	M08-0	Organization:	White River Partnership
Segment Length(ft):	3,162	Observers:	CP, DR
Rain:	Yes	Completion Date:	7/5/2019
		Qualtiy Control Status - Consultant:	Provisional
		Qualtiy Control Status - Staff:	Provisional

Step 0 - Location: **W of Tunbridge Mtn. Road/Rte 14 JCT 25 to Braley Covered Bridge**

Step 5 - Notes: **Coarser sediments from kame terrace in US half of reach have influenced and contribute to riffle/bar formation, but lake bottom sediments in DS half lend to elevated channel incision due to fines: alluvium on terrace off RB indicative of historic FP abandonment, now well elevated above current channel. Braley covered bridge technically in M07, but long-standing effects of undersized structure influence planform in M08 (this reach).**

Step 7 - Narrative: **Major planform change following primarily historic incision; rate of aggradation and widening moderated by decent buffers and sediment transport discontinuity at Gulf Rd dam (US in M09). Strongly suspect ford or bridge at M09 reach break is now gone (see 1998 aerials), affecting US end of M08; Braley Bridge affects DS end. Good buffers limit rate of widening, but tipped trees tend to take large sections of bank and are primary drivers of planform change.**

Step 1. Valley and Floodplain

1.1 Segmentation: **None**

1.2 Alluvial Fan: **None**

1.3 Corridor Encroachments:

	Length (ft)	One	Height	Both	Height
Berm:		0			
Road:		0			
Railroad:		0			
Imp. Path:		324	8		
Dev.:		222			

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Very Steep	Very Steep
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Gravel	Gravel

1.5 Valley Features

Valley Width (ft):	300
Width Determination:	Estimated
Confinement Type:	NW
In Rock Gorge:	No
Human Caused Change in Valley Width?:	Yes

1.6 Grade Controls: **None**

Stream: **Second Branch of the White River** Reach: **M08-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**55.40**	2.11 Riffle/Step Spacing:	**260 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**6.10**	2.12 Substrate Composition		Bed:	**6.6**	**inches**
2.3 Mean Depth (tf):	**4.81**	Bedrock:	**%**	Bar:	**7**	**inches**
2.4 Floodprone Width (ft.):	**291.90**	Boulder:	**2.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**8.20**	Cobble:	**28.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**42.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**11.52**	Fine Gravel:	**7.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**5.27**	Sand:	**21.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.34**	Silt and Smaller:	**%**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**76**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Steep**

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**463.1**	**346.2**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**2.8**	**5.1**	Sub-dominant:	**Deciduous**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**31.3**	**224.8**	Canopy %:	**51-75**	**76-100**
Material Type:	**Gravel**	**Gravel**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**0-25**	**None**
W less than 25	**989**	**239**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Deciduous**
Sub-Dominant	**Deciduous**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Forest**	Mass Failures	**29.177 59**	
Sub-dominant	**Hay**	**Shrubs/Sapling**	Height	**20.0**	
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**One**	**20.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M08-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**7**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**Up Stream**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:	**Run-of-river Dam**	Affected Length (ft):	**0**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types		Diagonal:		5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:	**No**
Mid:	**1**	Delta:		Flood chutes:	**2**	Avulsion:	**0**	5.5 Straightening:	**None**
Point:	**3**	Island:		5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**0**
Side:	**4**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**8**	**None**	**Yes**	Geomorphic Rating	**0.50**
7.2 Channel Aggradation		**11**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**13**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**8**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**40**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream:	Second Branch of the White River	SGAT Version:	4.56
Reach:	M09-0	Organization:	White River Partnership
Segment Length(ft):	6,067	Observers:	CP, DR
Rain:	Yes	Completion Date:	8/6/2019
		Qualtiy Control Status - Consultant:	Provisional
		Qualtiy Control Status - Staff:	Provisional

Step 0 - Location: **East Randolph: Mouth of Blaisdell Brook DS to W of Tunbridge Mtn. Road**

Step 5 - Notes: **Gulf Rd dam (under Rte 14/Rte 66 bridge) constricts what might otherwise be a VB valley. Originally anticipated segmentation due to this, but US/DS of this dam are remarkably similar, likely due to glacial Lake Hitchcock influence on surficial geology – dominated by fines above and below.**

Step 7 - Narrative: **Major planform adjustments thru aggradation and widening following primarily historic incision.**

Step 1. Valley and Floodplain

1.1 Segmentation: **None**

1.2 Alluvial Fan: **None**

1.3 Corridor Encroachments:

Length (ft)	One Height	Both Height
Berm:	0	0
Road:	1,837 8	0
Railroad:	0	0
Imp. Path:	863 3	0
Dev.:	302	758

1.4 Adjacent Side	Left	Right
Hillside Slope:	Steep	Steep
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Sand	Sand

1.5 Valley Features

Valley Width (ft): **600**

Width Determination: **Estimated**

Confinement Type: **BD**

In Rock Gorge: **No**

Human Caused Change in Valley Width?: **Yes**

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Dam	Mid-segment	0.0	0.0	Yes	No

Stream: **Second Branch of the White River** Reach: **M09-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**69.30**	2.11 Riffle/Step Spacing:	**290 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**5.40**	2.12 Substrate Composition		Bed:	**1.9**	**inches**
2.3 Mean Depth (tf):	**3.17**	Bedrock:	**%**	Bar:	**2.5**	**inches**
2.4 Floodprone Width (ft.):	**419.30**	Boulder:	**%**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**8.60**	Cobble:	**5.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**10.0 %**	Bed Material:	**Sand**	
2.6 Width/Depth Ratio:	**21.86**	Fine Gravel:	**35.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**6.05**	Sand:	**50.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.59**	Silt and Smaller:	**%**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**55**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Steep**

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**903.6**	**1,013.6**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**4.0**	**3.4**	Sub-dominant:	**Deciduous**	**Deciduous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Multiple**	**Multiple**	Bank Canopy		
Lower			Revetment Length:	**374.7**	**1,186.4**	Canopy %:	**26-50**	**1-25**
Material Type:	**Gravel**	**Sand**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**0-25**
Sub-Dominant	**>100**	**26-50**
W less than 25	**2,827**	**3,900**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Deciduous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Hay**	**Hay**	Mass Failures		
Sub-dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M09-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	**1**	Road Ditch:	**0**
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**5**	Impoundment Loc.:		Overland Flow:	**0**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:		**0**	
		(old) Upstrm Flow Reg.:		Affected Length (ft):		**0**	

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**54**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Scour Below**
Bridge	**44**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Scour Below**
Bridge	**32**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Below**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:		5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**
Mid:	**5**	Delta:	**1**	Flood chutes:	**1**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**16**	Island:		5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**834**
Side:	**4**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**7**	**None**	**Yes**	Geomorphic Rating	**0.39**
7.2 Channel Aggradation		**8**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**9**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**7**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**31**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream:	Second Branch of the White River	SGAT Version:	4.56
Reach:	M10-0	Organization:	White River Partnership
Segment Length(ft):	7,595	Observers:	CP, DR
Rain:	Yes	Completion Date:	6/17/2019
		Qualtiy Control Status - Consultant:	Provisional
		Qualtiy Control Status - Staff:	Provisional

Step 0 - Location: **Mouth of Halfway Brook to mouth of Blaisdell Brook.**

Step 5 - Notes: **Reduced sinuosity due to several stretches of revetments and bank armoring (Rte 14 cuts access to large portion of historic RFPA), including mid-reach section of failed tire revetments (outflanked by erosion) that has left numerous tires in channel, plus several undersized bridges. Apparent successive floodplain abandonment, possibly offset by aggradation in Irene and other flood events.**

Step 7 - Narrative: **Major widening and planform adjustments following primarily historic incision. Apparent successive floodplain abandonment (likely older, higher abandoned floodplain noted on RB at x-sec) probably offset by aggradation in Irene and other flash flood events - widening appears as more evident adjustment due to fine sediments and lack of stability in deposits (lends to frequent cycling of widening-aggradation offsetting localized incision).**

Step 1. Valley and Floodplain

1.1 Segmentation: **None**

1.2 Alluvial Fan: **None**

1.3 Corridor Encroachments:

	Length (ft)	One Height	Both Height
Berm:	0		
Road:	2,944	7	
Railroad:	0		
Imp. Path:	0		
Dev.:	498		

1.4 Adjacent Side	Left	Right
Hillside Slope:	Extr.Steep	Extr.Steep
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Sand	Sand

1.5 Valley Features	
Valley Width (ft):	550
Width Determination:	Estimated
Confinement Type:	BD
In Rock Gorge:	No
Human Caused Change in Valley Width?:	Yes

1.6 Grade Controls: **None**

Stream: **Second Branch of the White River** Reach: **M10-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**55.50**	2.11 Riffle/Step Spacing:	**335 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**5.10**	2.12 Substrate Composition		Bed:	**2.7**	**inches**
2.3 Mean Depth (tf):	**3.04**	Bedrock:	**%**	Bar:	**2.4**	**inches**
2.4 Floodprone Width (ft.):	**333.50**	Boulder:	**%**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**6.40**	Cobble:	**5.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**35.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**18.26**	Fine Gravel:	**30.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**6.01**	Sand:	**28.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.25**	Silt and Smaller:	**2.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**2.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**88**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Steep**

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**2,199.7**	**2,156.3**	Dominant:	**Deciduous**	**Deciduous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**4.4**	**4.5**	Sub-dominant:	**Invasives**	**Invasives**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Multiple**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**204.4**	**1,437.0**	Canopy %:	**26-50**	**1-25**
Material Type:	**Sand**	**Mix**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**0-25**
Sub-Dominant	**>100**	**26-50**
W less than 25	**2,226**	**3,779**
Buffer Vegitation Type		
Dominant	**Deciduous**	**Herbaceous**
Sub-Dominant	**Herbaceous**	**Deciduous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Crop**	**Crop**	Mass Failures	**385.5115**	**79.58502**
Sub-dominant	**Forest**	**Residential**	Height	**65.0**	**15.0**
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**Multiple**	**40.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M10-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Abundant**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	**3**	Road Ditch:	**0**
4.3 Flow Status:	**Moderate**	Impoundments:	**None**	Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**3**	Impoundment Loc.:		Overland Flow:	**0**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:		**0**	
		(old) Upstrm Flow Reg.:	**None**	Affected Length (ft):		**0**	

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**34**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Scour Below**
Bridge	**55**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Scour Below**
Bridge	**50**	**Yes**	**No**	**Yes**	**No**	**Deposition Below**
Bridge	**55**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**3**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**	
Mid:	**3**	Delta:	**0**	Flood chutes:	**11**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**14**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**2,522**
Side:	**8**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**10**	**None**	**Yes**	Geomorphic Rating	**0.43**
7.2 Channel Aggradation		**10**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**8**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**6**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**34**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream:	Second Branch of the White River	SGAT Version:	4.56
Reach:	M11-A	Organization:	White River Partnership
Segment Length(ft):	3,158	Observers:	CP, DR
Rain:	Yes	Completion Date:	6/13/2019
		Qualtiy Control Status - Consultant:	Provisional
		Qualtiy Control Status - Staff:	Provisional

Step 0 - Location: **Rt. 14 bridge at Ferrid Rd. DS to Rt. 14 at old creamery building**

Step 5 - Notes: **Historic dam presence (since 1799, no longer present) profoundly influences segment dynamics. Suspect log crib dam was replaced by concrete after 1921 (based on Special Report of Water Resource Commission to VT Legislature, 1921, and presence of ransome bar remnants on-site), then destroyed in 1927 flood and not rebuilt. Stream very entrenched but fine sediments cyclically deposit/wash out and decent buffers actually limit rate of channel evolution – floodplain access likely to remain very limited.**

Step 7 - Narrative: **Stream entrenched following destruction of historic dam, incised through formerly impounded sediments; FP now restricted by degree of incision and remnants of former dam infrastructure.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Valley Width**

1.2 Alluvial Fan: **None**

1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0		0	
Road:	248	15	0	
Railroad:	0		0	
Imp. Path:	654	15	0	
Dev.:	376		196	

1.4 Adjacent Side	Left	Right
Hillside Slope:	Very Steep	Extr.Steep
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Sand	Sand

1.5 Valley Features	
Valley Width (ft):	200
Width Determination:	Estimated
Confinement Type:	SC
In Rock Gorge:	No
Human Caused Change in Valley Width?:	Yes

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Dam	Mid-segment	3.0	0.2	Yes	No

Stream: **Second Branch of the White River** Reach: **M11-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**60.50**	2.11 Riffle/Step Spacing:	**190 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**3.40**	2.12 Substrate Composition		Bed:	**3.7**	**inches**
2.3 Mean Depth (tf):	**2.61**	Bedrock:	**%**	Bar:	**2.7**	**inches**
2.4 Floodprone Width (ft.):	**67.50**	Boulder:	**2.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**8.30**	Cobble:	**12.0 %**	Stream Type:	**F**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**42.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**23.18**	Fine Gravel:	**20.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**1.12**	Sand:	**24.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**2.44**	Silt and Smaller:	**%**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Eroded**	# Large Woody Debris:	**20**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Steep**

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**305.0**	**103.4**	Dominant:	**Deciduous**	**Deciduous**
Material Type:	**Silt**	**Sand**	Erosion Height (ft.):	**4.7**	**6.0**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**69.8**	**174.0**	Canopy %:	**26-50**	**51-75**
Material Type:	**Silt**	**Sand**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**51-100**	**>100**
Sub-Dominant	**0-25**	**0-25**
W less than 25	**1,342**	**162**
Buffer Vegitation Type		
Dominant	**Deciduous**	**Deciduous**
Sub-Dominant	**Herbaceous**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Shrubs/Sapling**	**Forest**	Mass Failures		**163.17 27**
Sub-dominant	**Hay**	**Shrubs/Sapling**	Height		**13.5**
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**Multiple**	**15.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M11-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**2**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**36**	**Yes**	**Yes**	**Yes**	**No**	**None**
Bridge	**45**	**Yes**	**No**	**Yes**	**No**	**None**
Bridge	**50**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Below**
Bridge	**45**	**Yes**	**No**	**Yes**	**No**	**None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**2**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**	
Mid:	**1**	Delta:	**1**	Flood chutes:	**4**	Avulsion:	**0**	5.5 Straightening:	**None**
Point:	**3**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**0**
Side:	**0**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**5**	**C to F**	**Yes**	Geomorphic Rating	**0.39**
7.2 Channel Aggradation		**9**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**9**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**8**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**31**			Stream Sensitivity	**Extreme**

Phase 2 Segment Summary Report White River - Second Branch

Stream: Second Branch of the White River
Reach: M11-B
Segment Length(ft): 2,491
Rain: Yes

SGAT Version: 4.56
Organization: White River Partnership
Observers: CP, DR
Completion Date: 6/14/2019
Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **DS Mouth of Snows Brook where valley widens, DS to Rt. 14 bridge at Ferris Rd.**

Step 5 - Notes: **Significant coarser sediment inputs at mouth of Snows Brook off RB contributes to higher sinuosity and elevated planform adjustments. Second Branch may have shared floodplain with alluvial fan/delta at base of Halfway Brook off LB but has been historically routed under Rte 14, toward RVW and cut off from former floodplain by Ferris Rd.. Large headcut present in alluvial deposits off LB (accounted here as trib rejuvenation) may be due to stormwater inputs from further up LVW along Ferris Rd, not followed to source.**

Step 7 - Narrative: **Extreme aggradation and planform adjustments following historic incision downstream of former dam (likely not replaced after 1927 flood). Neck cut-off at upstream end of segment plugged with coarser sediments discharged from Snow's Brook in April 15, 2019 flooding (and conceivably in other recent floods as well - 2007, 2011, 2013). Historical aerials show rapid meander extensions and multiple neck cut-offs in this segment since 1990s; likely through aggraded sediments upstream of another former dam behind the Creamery (~0.9 mi DS).**

Step 1. Valley and Floodplain

1.1 Segmentation: Planform and Scope
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

	Length (ft)	One	Height	Both	Height
Berm:		0			
Road:		876	12		
Railroad:		0			
Imp. Path:		0			
Dev.:		0			

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Flat	Steep
Continuous w/ Bank:	Always	Sometimes
Within 1 Bankfull W:	Always	Sometimes
Texture:	Sand	Gravel

1.5 Valley Features
Valley Width (ft): 400
Width Determination: Estimated
Confinement Type: NW
In Rock Gorge: No
Human Caused Change in Valley Width?: Yes

1.6 Grade Controls: None

Stream: **Second Branch of the White River** Reach: **M11-B**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**79.20**	2.11 Riffle/Step Spacing:	**205 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**3.20**	2.12 Substrate Composition		Bed:	**4.8**	**inches**
2.3 Mean Depth (tf):	**1.59**	Bedrock:	**%**	Bar:	**3.2**	**inches**
2.4 Floodprone Width (ft.):	**554.20**	Boulder:	**%**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**5.10**	Cobble:	**12.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**33.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**49.81**	Fine Gravel:	**19.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**7.00**	Sand:	**30.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.59**	Silt and Smaller:	**9.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**High**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**24**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Moderate**

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**722.8**	**540.3**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**3.3**	**2.2**	Sub-dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**23.6**	**107.3**	Canopy %:	**1-25**	**1-25**
Material Type:	**Gravel**	**Gravel**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**0-25**
Sub-Dominant	**>100**	**None**
W less than 25	**2,299**	**2,435**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Mass Failures		
Sub-dominant	**Forest**	**None**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M11-B**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps: **Abundant**
4.2 Adjacent Wetlands: **Minimal**
4.3 Flow Status: **Moderate**
4.4 # of Debris Jams: **0**

4.5 Flow Regulation Type **None**
Flow Reg. Use:
Impoundments:
Impoundment Loc.:
4.6 Up/Down Strm flow reg.: **None**
(old) Upstrm Flow Reg.:

4.7 Stormwater Inputs
Field Ditch: **1** Road Ditch: **0**
Other: **0** Tile Drain: **0**
Overland Flow: **0** Urb Strm Wtr Pipe: **0**
4.9 # of Beaver Dams: **0**
Affected Length (ft): **0**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types
Diagonal: **0**
Mid: **3**
Delta: **0**
Point: **5**
Island: **0**
Side: **1**
Braiding: **0**

5.2 Other Features
Flood chutes: **4**
5.3 Steep Riffles and Head Cuts
Steep Riffles: **0**

Neck Cutoff: **1**
Avulsion: **0**
Head Cuts: **0**
Trib Rejuv.: **Yes**

5.4 Stream Ford or Animal Crossing: **No**
5.5 Straightening: **Straightening**
Straightening Length (ft.): **123**
5.5 Dredging: **None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:
6.2 Pool Substrate:
6.3 Pool Variability:
Total Score: **0**
Habitat Rating: **0.00**
Habitat Stream Condition:

6.4 Sediment Deposition:
6.5 Channel Flow Status:
6.6 Channel Alteration:
6.7 Channel Sinuosity:

Stream Gradiant Type — Left — Right
6.8 Bank Stability:
6.9 Bank Vegetation Protection
6.10 Riparian Veg. Zone Width:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	**6**	**None**	**Yes**
7.2 Channel Aggradation	**6**	**None**	**No**
7.3 Widening Channel	**4**	**None**	**No**
7.4 Change in Planforml	**4**	**None**	**No**
Total Score	**20**		

Geomorphic Rating **0.25**
Channel Evolution Model **F**
Channel Evolution Stage **III**
Geomorphic Condition **Poor**
Stream Sensitivity **Extreme**

Phase 2 Segment Summary Report White River - Second Branch

Stream:	Second Branch of the White River	SGAT Version:	4.56
Reach:	M11-C	Organization:	White River Partnership
Segment Length(ft):	2,396	Observers:	CP, DR
Rain:	Yes	Completion Date:	6/14/2019
		Qualtiy Control Status - Consultant:	Provisional
		Qualtiy Control Status - Staff:	Provisional

Step 0 - Location: **N. end of N. Randolph village DS to where valley widens DS of Snows Brook Mouth**

Step 5 - Notes: **Special Report of Water Resource Commission to VT Legislature, 1921: "At North Randolph village a head of about 9 feet is obtained and a 40 horsepower water wheel is used for operating a saw mill, shingle mill, and grist mill." Upstream portion of segment is tail end of mill pond, and most of segment is dominated by very fine silts; former dam remains are now covered by a log bridge and infrastructure from mill buildings and raceway still present DS, esp. on LB. Beers Atlas (1877) indicates grist mill on RB, carriage factory on LB just DS; much of remaining infrastructure would likely have been associated with the carriage factory. High kame terrace on RB is primarily sand and may be susceptible to mass failure.**

Step 7 - Narrative: **Major aggradation cycles with localized scour (highly mobile sediments); active widening and planform adjustments limited by constraints.**
Entrenched former dam location, high sandy kame terrace off RB and LB FP now occupied by remains of former mill-related infrastructure. Ledge grade control gives some vertical stability, substantial stone remains off LB constrain lateral adjustments but RB may be susceptible to mass failures. Upstream portion of segment is tail end of former mill pond (and pluvial lake formation with high silt content) contributing to aggradation.
Assigned Extreme sensitivity due to STD.

Step 1. Valley and Floodplain

1.1 Segmentation: **Valley Width**

1.2 Alluvial Fan: **None**

1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0			
Road:	0			
Railroad:	0			
Imp. Path:	0			
Dev.:	703			

1.4 Adjacent Side	Left	Right
Hillside Slope:	Very Steep	Very Steep
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Gravel	Silt/Clay

1.5 Valley Features	
Valley Width (ft):	160
Width Determination:	Estimated
Confinement Type:	SC
In Rock Gorge:	No
Human Caused Change in Valley Width?:	No

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Ledge	Mid-segment	4.0	0.5	Yes	No

Stream: **Second Branch of the White River** Reach: **M11-C**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**63.80**	2.11 Riffle/Step Spacing:	**245 ft.**	2.13 Average Largest Particle on	
2.2 Max Depth (ft.):	**4.20**	2.12 Substrate Composition		Bed:	**N/A**
2.3 Mean Depth (tf):	**1.98**	Bedrock:	**%**	Bar:	
2.4 Floodprone Width (ft.):	**86.40**	Boulder:	**%**	2.14 Stream Type	
2.5 Aband. Floodpn (ft.):	**8.40**	Cobble:	**%**	Stream Type:	**B**
Human Elev FloodPln (ft.):		Coarse Gravel:	**%**	Bed Material:	**Sand**
2.6 Width/Depth Ratio:	**32.22**	Fine Gravel:	**5.0 %**	Subclass Slope:	**c**
2.7 Entrenchment Ratio:	**1.35**	Sand:	**75.0 %**	Bed Form:	**Dune-Ripple**
2.8 Incision Ratio:	**2.00**	Silt and Smaller:	**20.0 %**	Field Measured Slope:	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type	
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:	
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**27**	Reference Bed Material:	
				Reference Subclass Slope:	
				Reference Bedform:	

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Moderate**

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**39.2**	**208.8**	Dominant:	**Deciduous**	**Deciduous**
Material Type:	**Silt**	**Mix**	Erosion Height (ft.):	**6.0**	**3.5**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**47.7**	**139.9**	Canopy %:	**76-100**	**76-100**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**26-50**
Sub-Dominant	**None**	**51-100**
W less than 25	**0**	**356**
Buffer Vegitation Type		
Dominant	**Deciduous**	**Deciduous**
Sub-Dominant	**Herbaceous**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Shrubs/Sapling**	Mass Failures	**76.453 75**	
Sub-dominant	**Shrubs/Sapling**	**None**	Height	**12.0**	
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**One**	**12.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M11-C**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Abundant**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**2**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions: **None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**1**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:	**No**		
Mid:	**3**	Delta:	**1**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**3**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**2,271**
Side:	**5**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**5**	**C to B**	**Yes**	Geomorphic Rating	**0.38**
7.2 Channel Aggradation		**6**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel		**9**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml		**10**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**30**			Stream Sensitivity	**Extreme**

Phase 2 Segment Summary Report White River - Second Branch

Stream: Second Branch of the White River
Reach: M12-0
Segment Length(ft): 13,706
Rain: Yes

SGAT Version: 4.56
Organization: White River Partnership
Observers: CP, DR
Completion Date: 7/2/2019
Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **Across Rte. 14 from Wheatley Farm (2 min from Randolph Village) DS to N. end of Randolph Village**

Step 5 - Notes: **Rte 14 bisects valley in this reach, cutting historic floodplain in half, but still leaves stream minimally entrenched due to overall valley width and stream frequently distant from road . Extensive straightening may have involved historic ditching but regardless is maintained by multiple bridges and culvert that direct flow toward valley perimeter. Downstream of large Rte 14 culvert is more intact wetland and likely closer to reference for reach, but was not segmented during assessment.**

Step 7 - Narrative: **Major reducing to minor aggradation, widening, and planform change in response to recent flash floods in headwaters.**

Step 1. Valley and Floodplain

1.1 Segmentation: None
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

	Length (ft)	One Height	Both Height
Berm:	58	8	
Road:	331	10	
Railroad:	0		
Imp. Path:	0		
Dev.:	158		

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Flat	Steep
Continuous w/ Bank:	Always	Sometimes
Within 1 Bankfull W:	Always	Sometimes
Texture:	Silt/Clay	Sand

1.5 Valley Features
Valley Width (ft): 1,500
Width Determination: Estimated
Confinement Type: VB
In Rock Gorge: No
Human Caused Change in Valley Width?: Yes

1.6 Grade Controls: None

Stream: **Second Branch of the White River** Reach: **M12-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**46.40**	2.11 Riffle/Step Spacing:	**270 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**5.00**	2.12 Substrate Composition		Bed:	**1.3**	**inches**
2.3 Mean Depth (tf):	**2.20**	Bedrock:	**%**	Bar:	**0.8**	**inches**
2.4 Floodprone Width (ft.):	**1,535.00**	Boulder:	**%**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**6.00**	Cobble:	**%**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**7.0 %**	Bed Material:	**Sand**	
2.6 Width/Depth Ratio:	**21.09**	Fine Gravel:	**25.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**33.08**	Sand:	**56.0 %**	Bed Form:	**Dune-Ripple**	
2.8 Incision Ratio:	**1.20**	Silt and Smaller:	**12.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**High**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**275**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Moderate**

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**1,323.5**	**1,354.1**	Dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**2.4**	**2.2**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**None**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**0.0**	**281.9**	Canopy %:	**1-25**	**1-25**
Material Type:	**Sand**	**Sand**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**0-25**
Sub-Dominant	**26-50**	**26-50**
W less than 25	**10,210**	**8,765**
Buffer Vegitation Type		
Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**
Sub-Dominant	**Herbaceous**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right
Dominant	**Hay**	**Hay**
Sub-dominant	**Shrubs/Sapling**	**Shrubs/Sapling**
(Legacy)	Amount	Mean Hieght
Failures	**None**	
Gullies	**None**	

	Left	Right
Mass Failures		
Height		
Gullies Number	**0**	
Gullies Length	**0**	

Stream: **Second Branch of the White River** Reach: **M12-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	**0**	Road Ditch:	**2**
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**11**	Impoundment Loc.:		Overland Flow:	**0**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:		**0**	
		(old) Upstrm Flow Reg.:		Affected Length (ft):		**0**	

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**25**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Scour Below**
Instream Culvert	**17**	**Yes**	**Yes**	**Yes**	**No**	**None**
Bridge	**21**	**Yes**	**Yes**	**Yes**	**No**	**Scour Below**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**0**	5.2 Other Features	Neck Cutoff:	**6**	5.4 Stream Ford or Animal Crossing:		**No**	
Mid:	**1**	Delta:	**1**	Flood chutes:	**6**	Avulsion:	**0**	5.5 Straightening:	**None**
Point:	**34**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**0**
Side:	**10**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic		
7.1 Channel Degradation	**13**	**E To C**	**Yes**	Geomorphic Rating	**0.52**
7.2 Channel Aggradation	**9**	**None**	**No**	Channel Evolution Model	**None**
7.3 Widening Channel	**10**	**None**	**No**	Channel Evolution Stage	**IV**
7.4 Change in Planforml	**10**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score	**42**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream: Second Branch of the White River
Reach: M13-0
Segment Length(ft): 7,421
Rain: Yes

SGAT Version: 4.56
Organization: White River Partnership
Observers: MR, GR
Completion Date: 6/10/2019
Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **US of McKeage Rd Bridge, DS to approx. 2 mi N. of Randolph Village (valley floor W of Wheatley Farm Rd)**

Step 5 - Notes: **Likely E type stream under reference conditions, but long-term straightening via presence of multiple bridges as well as ditching of valley sidewall tribs and seeps contributes to widened stream with reduced sinuosity in a primarily agricultural setting along the floodplain areas.**

Step 7 - Narrative: **Largely stable, but altered planform - reduced sinuosity with multiple bridges contributing to straightening. Accessible floodplain, low gradient; unplowed, unmowed or scrub-shrub buffers through much of reach keep adjustments at a relatively low level but erosion evident where buffers diminished.**

Step 1. Valley and Floodplain

1.1 Segmentation: None
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

	Length (ft)	One	Height	Both	Height
Berm:		0			
Road:		0			
Railroad:		0			
Imp. Path:		316	3		
Dev.:		0			

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Hilly	Hilly
Continuous w/ Bank:	Never	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Sand	Sand

1.5 Valley Features

Valley Width (ft):	1,500
Width Determination:	Estimated
Confinement Type:	VB
In Rock Gorge:	No
Human Caused Change in Valley Width?:	Yes

1.6 Grade Controls: None

Stream: **Second Branch of the White River** Reach: **M13-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**40.90**	2.11 Riffle/Step Spacing:	**260 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**4.00**	2.12 Substrate Composition		Bed:	**3.5**	**inches**
2.3 Mean Depth (tf):	**2.52**	Bedrock:	**%**	Bar:	**1.3**	**inches**
2.4 Floodprone Width (ft.):	**1,568.00**	Boulder:	**%**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**4.00**	Cobble:	**21.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**21.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**16.23**	Fine Gravel:	**18.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**38.34**	Sand:	**23.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.00**	Silt and Smaller:	**17.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**1.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**67**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Steep**

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**729.0**	**815.1**	Dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Material Type:	**Silt**	**Silt**	Erosion Height (ft.):	**3.1**	**2.6**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**59.3**	**204.8**	Canopy %:	**1-25**	**1-25**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**0-25**
Sub-Dominant	**None**	**None**
W less than 25	**6,303**	**6,704**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Hay**	**Hay**	Mass Failures		
Sub-dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M13-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Minimal**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**Minimal**	Flow Reg. Use:		Field Ditch:	**4**	Road Ditch:	**0**
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**1**	Impoundment Loc.:		Overland Flow:	**0**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:		**0**	
		(old) Upstrm Flow Reg.:		Affected Length (ft):		**0**	

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**18**	**Yes**	**Yes**	**Yes**	**Yes**	**Deposition Above,Deposition Below,Scour Above,Alignment**
Bridge	**16**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Scour Below**
Bridge	**17**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above,Scour Below**
Bridge	**18**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:		5.2 Other Features		Neck Cutoff:	**3**	5.4 Stream Ford or Animal Crossing:		**No**
Mid:	**8**	Delta:		Flood chutes:	**1**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**16**	Island:	5.3 Steep Riffles and Head Cuts			Head Cuts:	**0**	Straightening Length (ft.):	**1,132**
Side:	**3**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**No**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic		
7.1 Channel Degradation	**15**	**None**	**No**	Geomorphic Rating	**0.56**
7.2 Channel Aggradation	**10**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel	**13**	**None**	**No**	Channel Evolution Stage	**IV**
7.4 Change in Planforml	**7**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score	**45**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream: Second Branch of the White River
Reach: M14-0
Segment Length(ft): 9,611
Rain: Yes

SGAT Version: 4.56
Organization: White River Partnership
Observers: CP, DR
Completion Date: 6/24/2019
Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **McKeage Rd., US to mouth of Sunset Brook**

Step 5 - Notes: **Multiple localized constrictions (elevated manure pit near US end of reach, plus 6 bridges) are primary floodplain constraints in what still functions as an otherwise Very Broad valley. Nice design on footbridge in US portions of reach has waste block footers outside scour zone, elevated and set back on banks.**

Step 7 - Narrative: **Straightened planform (6 bridges in reach) lends to cyclic scour/deposition in response to flash flood events, which occur with some frequency due to combination of topographic setting and intermittent encroachments, both here and in upstream reaches, limiting floodplain access by design.**

Step 1. Valley and Floodplain

1.1 Segmentation: None
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

	Length (ft)	One	Height	Both	Height
Berm:	515	6	0		
Road:	0		528	8	
Railroad:	0		0		
Imp. Path:	655	3	0		
Dev.:	0		0		

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Flat	Flat
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Sand	Sand

1.5 Valley Features
Valley Width (ft): 700
Width Determination: Estimated
Confinement Type: VB
In Rock Gorge: No
Human Caused Change in Valley Width?: Yes

1.6 Grade Controls: None

Stream: **Second Branch of the White River** Reach: **M14-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**37.30**	2.11 Riffle/Step Spacing:	**145 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**3.10**	2.12 Substrate Composition		Bed:	**6.3**	**inches**
2.3 Mean Depth (tf):	**2.13**	Bedrock:	**%**	Bar:	**2.7**	**inches**
2.4 Floodprone Width (ft.):	**793.00**	Boulder:	**1.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**3.80**	Cobble:	**29.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**37.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**17.51**	Fine Gravel:	**27.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**21.26**	Sand:	**2.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.23**	Silt and Smaller:	**4.0 %**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**1.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**66**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Steep**

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**871.2**	**722.4**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Mix**	**Mix**	Erosion Height (ft.):	**2.6**	**2.8**	Sub-dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Multiple**	**Multiple**	Bank Canopy		
Lower			Revetment Length:	**463.5**	**181.9**	Canopy %:	**1-25**	**26-50**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Cohesive**	**Cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**0-25**
Sub-Dominant	**26-50**	**>100**
W less than 25	**8,707**	**7,413**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Deciduous**	**Deciduous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Crop**	**Crop**	Mass Failures		
Sub-dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M14-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps: **Minimal**
4.2 Adjacent Wetlands: **Minimal**
4.3 Flow Status: **Moderate**
4.4 # of Debris Jams: **3**

4.5 Flow Regulation Type **None**
Flow Reg. Use:
Impoundments:
Impoundment Loc.:
4.6 Up/Down Strm flow reg.: **None**
(old) Upstrm Flow Reg.:

4.7 Stormwater Inputs
Field Ditch: **0** Road Ditch: **1**
Other: **0** Tile Drain: **0**
Overland Flow: **0** Urb Strm Wtr Pipe: **0**
4.9 # of Beaver Dams: **0**
Affected Length (ft): **0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	18	Yes	Yes	Yes	Yes	Deposition Above,Scour Below
Bridge	12	Yes	Yes	Yes	No	None
Bridge	20	Yes	Yes	Yes	No	None
Bridge	8	Yes	Yes	Yes	Yes	Deposition Above
Bridge	25	Yes	Yes	Yes	Yes	None
Bridge	20	Yes	Yes	Yes	Yes	Scour Below

Step 5. Channel Bed and Planform Changes

5.1 Bar Types
Mid: **5**
Point: **13**
Side: **8**
Diagonal: **2**
Delta:
Island: **1**
Braiding: **2**

5.2 Other Features
Flood chutes: **4**
5.3 Steep Riffles and Head Cuts
Steep Riffles: **0**

Neck Cutoff: **0**
Avulsion: **0**
Head Cuts: **0**
Trib Rejuv.: **No**

5.4 Stream Ford or Animal Crossing: **No**
5.5 Straightening: **None**
Straightening Length (ft.): **0**
5.5 Dredging: **None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:
6.2 Pool Substrate:
6.3 Pool Variability:
Total Score: **0**
Habitat Rating: **0.00**
Habitat Stream Condition:

6.4 Sediment Deposition:
6.5 Channel Flow Status:
6.6 Channel Alteration:
6.7 Channel Sinuosity:

Stream Gradiant Type Left Right
6.8 Bank Stability:
6.9 Bank Vegetation Protection
6.10 Riparian Veg. Zone Width:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	11	None	No
7.2 Channel Aggradation	12	None	No
7.3 Widening Channel	13	None	No
7.4 Change in Planforml	11	None	No
Total Score	47		

Geomorphic Rating **0.59**
Channel Evolution Model **F**
Channel Evolution Stage **III**
Geomorphic Condition **Fair**
Stream Sensitivity **Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream: Second Branch of the White River
Reach: M15-0
Segment Length(ft): 6,398
Rain: Yes

SGAT Version: 4.56
Organization: White River Partnership
Observers: CP, DR
Completion Date: 7/8/2019
Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **East Brookfield - US Sunset Brook; Sprague Ranch**

Step 5 - Notes: **Likely entire reach has been ditched historically, currently entirely occupied by 'home farm' of large dairy farming much of the northern portions of Second Branch valley and surrounding uplands. Extensive altered wetlands, multiple drainage ditches, evidence of windrowing possibly obscured by ag use and tall, uncut hay at time of assessment. Reach is on likely post-glacial alluvial fan or deltaic formation at base of multiple tribs.**

Step 7 - Narrative: **Planform altered by straightening/ditching, adjustments limited by decent floodplain access dissipating energy of flood events. Frequent scour noted around stream x-ings (constrictions) and by several riffles comprised of failed former bank revetments. Beavers active in reach but impacts appear transient.**

Step 1. Valley and Floodplain

1.1 Segmentation: None
1.2 Alluvial Fan: None
1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	391	10	250	5
Road:	0		0	
Railroad:	0		0	
Imp. Path:	477	3	0	
Dev.:	219		0	

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Flat	Flat
Continuous w/ Bank:	Always	Always
Within 1 Bankfull W:	Always	Always
Texture:	Sand	Sand

1.5 Valley Features
Valley Width (ft): 1,000
Width Determination: Estimated
Confinement Type: VB
In Rock Gorge: No
Human Caused Change in Valley Width?: No

1.6 Grade Controls: None

Stream: **Second Branch of the White River** Reach: **M15-0**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**20.00**	2.11 Riffle/Step Spacing:		2.13 Average Largest Particle on			
2.2 Max Depth (ft.):	**3.70**	2.12 Substrate Composition			Bed:	**0.84**	**inches**
2.3 Mean Depth (tf):	**2.53**	Bedrock:	**%**		Bar:	**0.56**	**inches**
2.4 Floodprone Width (ft.):	**795.00**	Boulder:	**%**	2.14 Stream Type			
2.5 Aband. Floodpn (ft.):	**3.70**	Cobble:	**%**	Stream Type:	**E**		
Human Elev FloodPln (ft.):		Coarse Gravel:	**5.0 %**	Bed Material:	**Sand**		
2.6 Width/Depth Ratio:	**7.91**	Fine Gravel:	**45.0 %**	Subclass Slope:	**None**		
2.7 Entrenchment Ratio:	**39.75**	Sand:	**43.0 %**	Bed Form:	**Dune-Ripple**		
2.8 Incision Ratio:	**1.00**	Silt and Smaller:	**7.0 %**	Field Measured Slope:			
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type			
2.9 Sinuosity:	**Low**	Detritus:	**0.0 %**	Reference Stream Type:			
2.10 Riffles Type:	**Not Applicable**	# Large Woody Debris:	**21**	Reference Bed Material:			
				Reference Subclass Slope:			
				Reference Bedform:			

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Shallow**

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**381.0**	**286.5**	Dominant:	**Herbaceous**	**Herbaceous**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**2.4**	**2.4**	Sub-dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**336.7**	**404.5**	Canopy %:	**1-25**	**1-25**
Material Type:	**Sand**	**Sand**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**0-25**	**0-25**
Sub-Dominant	**None**	**None**
W less than 25	**5,536**	**6,393**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right
Dominant	**Hay**	**Crop**
Sub-dominant	**Shrubs/Sapling**	**Hay**
(Legacy)	Amount	Mean Hieght
Failures	**None**	
Gullies	**None**	

	Left	Right
Mass Failures		
Height		
Gullies Number	**0**	
Gullies Length	**0**	

Stream: **Second Branch of the White River** Reach: **M15-0**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps: **Minimal**
4.2 Adjacent Wetlands: **Abundant**
4.3 Flow Status: **Moderate**
4.4 # of Debris Jams: **1**

4.5 Flow Regulation Type **None**
Flow Reg. Use:
Impoundments:
Impoundment Loc.:
4.6 Up/Down Strm flow reg.: **None**
(old) Upstrm Flow Reg.:

4.7 Stormwater Inputs
Field Ditch: **7** Road Ditch: **0**
Other: **0** Tile Drain: **0**
Overland Flow: **0** Urb Strm Wtr Pipe: **0**
4.9 # of Beaver Dams: **0**
Affected Length (ft): **0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Instream Culvert	8	Yes	Yes	Yes	No	None
Bridge	8	Yes	Yes	Yes	No	Deposition Above
Instream Culvert	15	Yes	Yes	Yes	No	Scour Below
Instream Culvert	7	Yes	Yes	Yes	No	None
Bridge	13	Yes	Yes	Yes	No	None
Bridge	15	Yes	Yes	Yes	No	None

Step 5. Channel Bed and Planform Changes

5.1 Bar Types
Diagonal: **4**
Mid: **4**
Delta:
Point: **15**
Island:
Side: **2**
Braiding: **1**

5.2 Other Features
Flood chutes: **3**
5.3 Steep Riffles and Head Cuts
Steep Riffles: **0**

Neck Cutoff: **0**
Avulsion: **0**
Head Cuts: **0**
Trib Rejuv.: **No**

5.4 Stream Ford or Animal Crossing: **No**
5.5 Straightening: **Straightening**
Straightening Length (ft.): **2,901**
5.5 Dredging: **None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:
6.2 Pool Substrate:
6.3 Pool Variability:
Total Score: **0**
Habitat Rating: **0.00**
Habitat Stream Condition:

6.4 Sediment Deposition:
6.5 Channel Flow Status:
6.6 Channel Alteration:
6.7 Channel Sinuosity:

Stream Gradiant Type Left Right
6.8 Bank Stability:
6.9 Bank Vegetation Protection
6.10 Riparian Veg. Zone Width:

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic
7.1 Channel Degradation	9	None	No
7.2 Channel Aggradation	11	None	No
7.3 Widening Channel	12	None	No
7.4 Change in Planforml	7	None	No
Total Score	39		

Geomorphic Rating **0.49**
Channel Evolution Model **F**
Channel Evolution Stage **III**
Geomorphic Condition **Fair**
Stream Sensitivity **Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream: Second Branch of the White River
Reach: M16-A
Segment Length(ft): 3,218
Rain: Yes

SGAT Version: 4.56
Organization: White River Partnership
Observers: CP, DR
Completion Date: 7/9/2019
Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional

Step 0 - Location: **Brookfield, VT: beaver-influenced single thread channel US and DS of Taylor Hill Rd**

Step 5 - Notes: **Stream pinned against RVW (now also occupied by VT Rte 14), probably ditched historically and now maintained in straightened planform by Taylor Hill Rd culvert (large scour pool beneath culvert used as swimming hole, deepened by beaver activity). LVW: heavy sedimentation from flash flood impacts along Taylor Hill Rd, probably in Irene (2011), 2013, July 2017, and again in April 2019; sediments much coarser than those present along mainstem. Significant headcut through these sediments observed on trib not far off LB of mainstem.**

Step 7 - Narrative: **E to C STD due to major straightening, stream pinned against RVW. SW corner of Taylor Hill Rd being undercut, but good buffer vegetation limits other channel adjustments. Headwater streams extremely sensitive (and steep), headcut (trib rejuv) off LB from trib south of Taylor Hill Rd – clearcut for pasture or houselot conversion US on trib may have contributed to greater flows that overwhelmed a small dam at ledges on sharp corner of Taylor Hill Rd. (in Irene?)**

Step 1. Valley and Floodplain

1.1 Segmentation: **Channel Dimensions**
1.2 Alluvial Fan: **None**
1.3 Corridor Encroachments:

	Length (ft)	One Height	Both Height
Berm:	0		
Road:	1,718	15	
Railroad:	0		
Imp. Path:	0		
Dev.:	0		

1.4 Adjacent Side

	Left	Right
Hillside Slope:	Flat	Very Steep
Continuous w/ Bank:	Always	Sometimes
Within 1 Bankfull W:	Always	Sometimes
Texture:	Sand	Sand

1.5 Valley Features
Valley Width (ft): 800
Width Determination: Estimated
Confinement Type: VB
In Rock Gorge: No
Human Caused Change in Valley Width?: Yes

1.6 Grade Controls: None

Stream: **Second Branch of the White River** Reach: **M16-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**23.00**	2.11 Riffle/Step Spacing:	**47 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**3.20**	2.12 Substrate Composition		Bed:	**3.5**	**inches**
2.3 Mean Depth (tf):	**2.28**	Bedrock:	**%**	Bar:	**1.94**	**inches**
2.4 Floodprone Width (ft.):	**803.00**	Boulder:	**1.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**3.20**	Cobble:	**14.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**59.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**10.09**	Fine Gravel:	**7.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**34.91**	Sand:	**19.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.00**	Silt and Smaller:	**%**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**65**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Shallow**

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**142.5**	**345.3**	Dominant:	**Shrubs/Sapling**	**Shrubs/Sapling**
Material Type:	**Sand**	**Sand**	Erosion Height (ft.):	**2.8**	**2.8**	Sub-dominant:	**Herbaceous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**99.2**	**223.0**	Canopy %:	**76-100**	**76-100**
Material Type:	**Silt**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**26-50**	**26-50**
Sub-Dominant	**0-25**	**0-25**
W less than 25	**405**	**755**
Buffer Vegitation Type		
Dominant	**Shrubs/Sapling**	**Herbaceous**
Sub-Dominant	**Herbaceous**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Hay**	**Forest**	Mass Failures		
Sub-dominant	**Shrubs/Sapling**	**Shrubs/Sapling**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**None**		Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M16-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Abundant**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs	**None**
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	Road Ditch:
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	Tile Drain:
4.4 # of Debris Jams:	**2**	Impoundment Loc.:		Overland Flow:	Urb Strm Wtr Pipe:
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:	**0**
		(old) Upstrm Flow Reg.:		Affected Length (ft):	**0**

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Instream Culvert	**6**	**Yes**	**Yes**	**Yes**	**No**	**Scour Below**
Instream Culvert	**8**	**Yes**	**Yes**	**Yes**	**No**	**None**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**3**	5.2 Other Features		Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:		**No**
Mid:	**1**	Delta:	**1**	Flood chutes:	**0**	Avulsion:	**0**	5.5 Straightening:	**Straightening**
Point:	**8**	Island:	**0**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**1,048**
Side:	**2**	Braiding:	**0**	Steep Riffles:	**0**	Trib Rejuv.:	**Yes**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic		
7.1 Channel Degradation	**11**	**None**	**No**	Geomorphic Rating	**0.56**
7.2 Channel Aggradation	**11**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel	**13**	**None**	**No**	Channel Evolution Stage	**IV**
7.4 Change in Planforml	**10**	**Other**	**No**	Geomorphic Condition	**Fair**
Total Score	**45**			Stream Sensitivity	**Very High**

Phase 2 Segment Summary Report White River - Second Branch

Stream: Second Branch of the White River
Reach: M16-B
Segment Length(ft): 5,001
Rain: Yes

SGAT Version: 4.56
Organization: White River Partnership
Observers: CP, dr
Completion Date: 7/2/2019
Qualtiy Control Status - Consultant: Provisional
Qualtiy Control Status - Staff: Provisional
Why Not Assessed: beaver dam

Step 0 - Location: **US end of beaver dominated wetland complex just south of Brookfield-Williamstown Gulf, DS to start of single-thread channel US of Taylor Hill Rd**

Step 5 - Notes: **Segment is likely alluvial fan historically (glacially?), extensively controlled by beavers but somewhat maintained against RVW by presence of driveway and culvert at Brown Dr. Beaver dams in this area were heavily impacted by July 1, 2017 flash flood (this was a 100-year storm in Rochester on West Branch of White, don't have data for Second Branch) when multiple dams broke and heavy sediment discharge was observed all the way to the mouth of the Second Branch (not solely due to beaver dam discharge). Reach excluded from full geomorphic assessment, no x-section data or stream type assigned.**

Step 7 - Narrative: **Extensive beaver impoundment, no geomorphic assessment made**

Step 1. Valley and Floodplain

1.1 Segmentation:

1.2 Alluvial Fan: None

1.3 Corridor Encroachments:

Length (ft)	One	Height	Both	Height
Berm:	0			
Road:	2,614	13		
Railroad:	0			
Imp. Path:	0			
Dev.:	0			

1.4 Adjacent Side — Left — Right
Hillside Slope:
Continuous w/ Bank:
Within 1 Bankfull W:
Texture:

1.5 Valley Features
Valley Width (ft):
Width Determination:
Confinement Type:
In Rock Gorge:
Human Caused Change in Valley Width?:

1.6 Grade Controls:

Phase 2 Segment Summary Report White River - Second Branch

Stream:	Second Branch of the White River	SGAT Version:	4.56
Reach:	M17-A	Organization:	White River Partnership
Segment Length(ft):	6,303	Observers:	CP, DR
Rain:	Yes	Completion Date:	7/2/2019
		Qualtiy Control Status - Consultant:	Provisional
		Qualtiy Control Status - Staff:	Provisional

Step 0 - Location: **mouth of Brookfield-Williamstown Gulf (US Brown Dr), US to N end of beaver meadows by 6274 VT Rte 14**

Step 5 - Notes: **Subreach includes beaver meadows US and DS of a long mid-segment ledge drop, pinned between VT Rte 14 and valley wall continuous with opposite bank, that comprises most of the elevation change (repeat damage area with nowhere to go). Presence of road, bridges, and strategic post-flood windrowing encourage a single-thread channel in what would more likely be a series of connected beaver impoundments and multi-thread channels under reference conditions. Rte 14 cut from VW, may have diminished original FP slightly but FP still largely accessible in intermittent meadows.**

Step 7 - Narrative: **Mid-segment ledge drop and continuous roadside riprap locks channel in beside road, limiting further channel adjustments to cyclic scour/deposition/redistribution in high flows, amplified by the straightening and combined bed and bank armoring. Beaver meadows US and DS of this section moderate these impacts to some extent but bear the brunt of them as well; majority of beaver dams appear quite transitory, and fine sediments are easily moved.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Planform and Scope**

1.2 Alluvial Fan:

1.3 Corridor Encroachments:

	Length (ft)	One Height	Both Height
Berm:			
Road:	5,074	5	
Railroad:			
Imp. Path:			
Dev.:			

1.4 Adjacent Side	Left	Right
Hillside Slope:	Steep	Very Steep
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Sand	Bedrock

1.5 Valley Features	
Valley Width (ft):	170
Width Determination:	Estimated
Confinement Type:	BD
In Rock Gorge:	No

Human Caused Change in Valley Width?: **Yes**

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Ledge	Mid-segment	10.0	0.1	No	No

Stream: **Second Branch of the White River** Reach: **M17-A**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**20.50**	2.11 Riffle/Step Spacing:	**50 ft.**	2.13 Average Largest Particle on	
2.2 Max Depth (ft.):	**2.60**	2.12 Substrate Composition		Bed:	**N/A**
2.3 Mean Depth (tf):	**1.36**	Bedrock:	**%**	Bar:	
2.4 Floodprone Width (ft.):	**155.50**	Boulder:	**%**	2.14 Stream Type	
2.5 Aband. Floodpn (ft.):	**2.60**	Cobble:	**%**	Stream Type:	**E**
Human Elev FloodPln (ft.):		Coarse Gravel:	**%**	Bed Material:	**Sand**
2.6 Width/Depth Ratio:	**15.07**	Fine Gravel:	**32.0 %**	Subclass Slope:	**None**
2.7 Entrenchment Ratio:	**7.59**	Sand:	**55.0 %**	Bed Form:	**Dune-Ripple**
2.8 Incision Ratio:	**1.00**	Silt and Smaller:	**13.0 %**	Field Measured Slope:	
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**Yes**	2.15 Sub-reach Stream Type	
2.9 Sinuosity:	**Moderate**	Detritus:	**5.0 %**	Reference Stream Type:	**E**
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**42**	Reference Bed Material:	**Sand**
				Reference Subclass Slope:	**None**
				Reference Bedform:	**Dune-Ripple**

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Shallow**

Bank Texture			Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper	Left	Right	Erosion Length (ft.):	**37.4**	**25.4**	Dominant:	**Herbaceous**	**Shrubs/Sapling**
Material Type:	**Sand**	**Silt**	Erosion Height (ft.):	**8.0**	**2.0**	Sub-dominant:	**Shrubs/Sapling**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Rip-Rap**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**2,927.4**	**171.9**	Canopy %:	**26-50**	**26-50**
Material Type:	**Sand**	**Silt**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**0-25**	**0-25**
W less than 25	**4,580**	**1,795**
Buffer Vegitation Type		
Dominant	**Herbaceous**	**Herbaceous**
Sub-Dominant	**Shrubs/Sapling**	**Shrubs/Sapling**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Forest**	Mass Failures		
Sub-dominant	**None**	**None**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number		
Failures	**One**	**15.0**	Gullies Length		
Gullies					

Stream: **Second Branch of the White River** Reach: **M17-A**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Abundant**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	**0**	Road Ditch:	**4**
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**2**	Impoundment Loc.:		Overland Flow:	**0**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:			
		(old) Upstrm Flow Reg.:		Affected Length (ft):			

4.8 Channel Constrictions:

Type	Width	Photo Taken?	GPS Taken?	Channel Constriction?	Floodprone Constriction?	Problems
Bridge	**11**	**Yes**	**Yes**	**Yes**	**No**	**None**
Bridge	**8**	**Yes**	**Yes**	**Yes**	**No**	**None**
Bridge	**10**	**Yes**	**Yes**	**Yes**	**No**	**None**
Bridge	**11**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above**
Bridge	**6**	**Yes**	**Yes**	**Yes**	**No**	**Deposition Above**

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal: **0**	5.2 Other Features		Neck Cutoff:		5.4 Stream Ford or Animal Crossing:	
Mid: **1**	Delta: **0**	Flood chutes: **8**		Avulsion:		5.5 Straightening:	**Straightening**
Point: **4**	Island: **0**	5.3 Steep Riffles and Head Cuts		Head Cuts:		Straightening Length (ft.):	**3,780**
Side: **1**	Braiding: **5**	Steep Riffles:		Trib Rejuv.: **No**		5.5 Dredging:	

Step 6. Rapid Habitat Assessment Data

6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

Step 7. Rapid Geomorphic Assessment Data

Confinement Type **Unconfined**

	Score	STD	Historic		
7.1 Channel Degradation	**6**	**None**	**No**	Geomorphic Rating	**0.41**
7.2 Channel Aggradation	**8**	**None**	**No**	Channel Evolution Model	**F**
7.3 Widening Channel	**10**	**None**	**No**	Channel Evolution Stage	**III**
7.4 Change in Planforml	**9**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score	**33**			Stream Sensitivity	**Extreme**

Phase 2 Segment Summary Report White River - Second Branch

Stream:	Second Branch of the White River	SGAT Version:	4.56
Reach:	M17-B	Organization:	White River Partnership
Segment Length(ft):	3,823	Observers:	CP, DR
Rain:	Yes	Completion Date:	7/1/2019
		Qualtiy Control Status - Consultant:	Provisional
		Qualtiy Control Status - Staff:	Provisional

Step 0 - Location: **US end beaver meadows by 6274 VT Rte 14, US to breached remains of former dam at outlet of Staples Pond**

Step 5 - Notes: **Slope accounted mostly in a couple of ledge runs, one below the outlet of Staples Pond (former 10 ft dam is now breached and mostly gone), and a very steep (bordering on waterfalls) run now covered by a concrete culvert underneath VT Rte 14; majority of reach is < 2pct slope. Beers Atlas (1877) indicates sawmill at base of ledges under Rte 14, which may have also been fed by trib from Rood Pond.**

Step 7 - Narrative: **Cyclic scour and deposition following primarily historic incision ("hungry water" effect downstream of dam at Staples Pond, and former mill site along Rte 14). Reference conditions would likely be more extensive beaver complex; instead maintained in a more straightened and constricted setting (single-thread channel) at a lower elevation.**

Step 1. Valley and Floodplain

1.1 Segmentation: **Planform and Scope**

1.2 Alluvial Fan: **None**

1.3 Corridor Encroachments:

	Length (ft)	One	Height	Both	Height
Berm:	0				
Road:	3,537	8			
Railroad:	0				
Imp. Path:	0				
Dev.:	0				

1.4 Adjacent Side	Left	Right
Hillside Slope:	Very Steep	Hilly
Continuous w/ Bank:	Sometimes	Sometimes
Within 1 Bankfull W:	Sometimes	Sometimes
Texture:	Mixed	Bedrock

1.5 Valley Features	
Valley Width (ft):	140
Width Determination:	Estimated
Confinement Type:	NW
In Rock Gorge:	No
Human Caused Change in Valley Width?:	Yes

1.6 Grade Controls:

Type	Location	Total Height	Total Height Above Water	Photo Taken?	GPS Taken?
Ledge	Mid-segment	22.0	0.1	Yes	No

Stream: **Second Branch of the White River** Reach: **M17-B**

Step 2. Stream Channel

2.1Bankfull Width (ft.):	**26.30**	2.11 Riffle/Step Spacing:	**40 ft.**	2.13 Average Largest Particle on		
2.2 Max Depth (ft.):	**1.70**	2.12 Substrate Composition		Bed:	**7.2**	**inches**
2.3 Mean Depth (tf):	**0.97**	Bedrock:	**%**	Bar:	**4.4**	**inches**
2.4 Floodprone Width (ft.):	**136.40**	Boulder:	**4.0 %**	2.14 Stream Type		
2.5 Aband. Floodpn (ft.):	**1.70**	Cobble:	**42.0 %**	Stream Type:	**C**	
Human Elev FloodPln (ft.):		Coarse Gravel:	**37.0 %**	Bed Material:	**Gravel**	
2.6 Width/Depth Ratio:	**27.11**	Fine Gravel:	**11.0 %**	Subclass Slope:	**None**	
2.7 Entrenchment Ratio:	**5.19**	Sand:	**6.0 %**	Bed Form:	**Riffle-Pool**	
2.8 Incision Ratio:	**1.00**	Silt and Smaller:	**%**	Field Measured Slope:		
Human Elevated Inc. Rat.:	**0.00**	Silt/Clay Present:	**No**	2.15 Sub-reach Stream Type		
2.9 Sinuosity:	**Moderate**	Detritus:	**0.0 %**	Reference Stream Type:		
2.10 Riffles Type:	**Sedimented**	# Large Woody Debris:	**74**	Reference Bed Material:		
				Reference Subclass Slope:		
				Reference Bedform:		

Step 3. Riparian Features

3.1 Stream Banks — Typical Bank Slope: **Steep**

Bank Texture	Left	Right	Bank Erosion	Left	Right	Near Bank Vegetation Type	Left	Right
Upper			Erosion Length (ft.):	**35.8**	**221.3**	Dominant:	**Herbaceous**	**Deciduous**
Material Type:	**Mix**	**Mix**	Erosion Height (ft.):	**3.0**	**3.3**	Sub-dominant:	**Deciduous**	**Herbaceous**
Consistency:	**Non-cohesive**	**Non-cohesive**	Revetment Type:	**Multiple**	**Rip-Rap**	Bank Canopy		
Lower			Revetment Length:	**880.6**	**671.7**	Canopy %:	**26-50**	**51-75**
Material Type:	**Mix**	**Mix**				Mid-Channel Canopy:	**Open**	
Consistency:	**Non-cohesive**	**Non-cohesive**						

3.2 Riparian Buffer

Buffer Width	Left	Right
Dominant	**>100**	**>100**
Sub-Dominant	**0-25**	**0-25**
W less than 25	**334**	**252**
Buffer Vegitation Type		
Dominant	**Deciduous**	**Deciduous**
Sub-Dominant	**Herbaceous**	**Herbaceous**

3.3 Riparian Corridor

Corridor Land	Left	Right		Left	Right
Dominant	**Forest**	**Forest**	Mass Failures		
Sub-dominant	**Bare**	**Bare**	Height		
(Legacy)	Amount	Mean Hieght	Gullies Number	**0**	
Failures	**One**	**10.0**	Gullies Length	**0**	
Gullies	**None**				

Stream: **Second Branch of the White River** Reach: **M17-B**

Step 4. Flow & Flow Modifiers

4.1 Springs / Seeps:	**Abundant**	4.5 Flow Regulation Type	**None**	4.7 Stormwater Inputs			
4.2 Adjacent Wetlands:	**Abundant**	Flow Reg. Use:		Field Ditch:	**0**	Road Ditch:	**1**
4.3 Flow Status:	**Moderate**	Impoundments:		Other:	**0**	Tile Drain:	**0**
4.4 # of Debris Jams:	**9**	Impoundment Loc.:		Overland Flow:	**0**	Urb Strm Wtr Pipe:	**0**
		4.6 Up/Down Strm flow reg.:	**None**	4.9 # of Beaver Dams:		**0**	
		(old) Upstrm Flow Reg.:		Affected Length (ft):		**0**	

4.8 Channel Constrictions:

Step 5. Channel Bed and Planform Changes

5.1 Bar Types	Diagonal:	**1**	5.2 Other Features	Neck Cutoff:	**0**	5.4 Stream Ford or Animal Crossing:	**Yes**		
Mid:	**1**	Delta:	**1**	Flood chutes:	**6**	Avulsion:	**0**	5.5 Straightening:	**With Windrowing**
Point:	**7**	Island:	**1**	5.3 Steep Riffles and Head Cuts		Head Cuts:	**0**	Straightening Length (ft.):	**2,369**
Side:	**7**	Braiding:	**1**	Steep Riffles:	**0**	Trib Rejuv.:	**Yes**	5.5 Dredging:	**None**

Step 6. Rapid Habitat Assessment Data

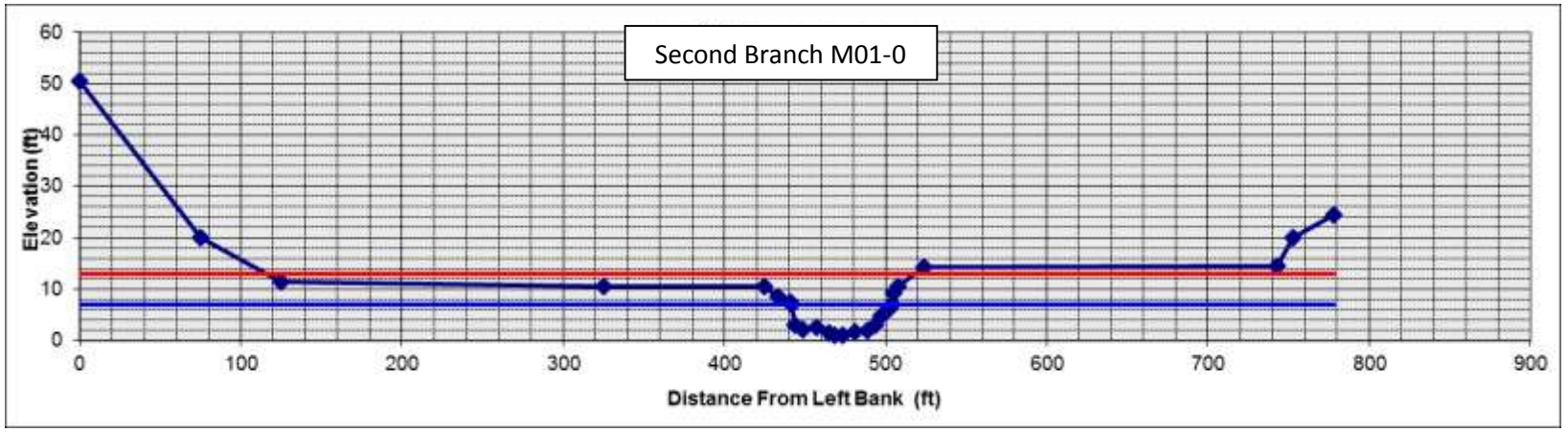
6.1 Epifaunal Substrate - Avl.:		6.4 Sediment Deposition:		Stream Gradiant Type	Left Right
6.2 Pool Substrate:		6.5 Channel Flow Status:		6.8 Bank Stability:	
6.3 Pool Variability:		6.6 Channel Alteration:		6.9 Bank Vegetation Protection	
Total Score:	**0**	6.7 Channel Sinuosity:		6.10 Riparian Veg. Zone Width:	
Habitat Rating:	**0.00**				
Habitat Stream Condition:					

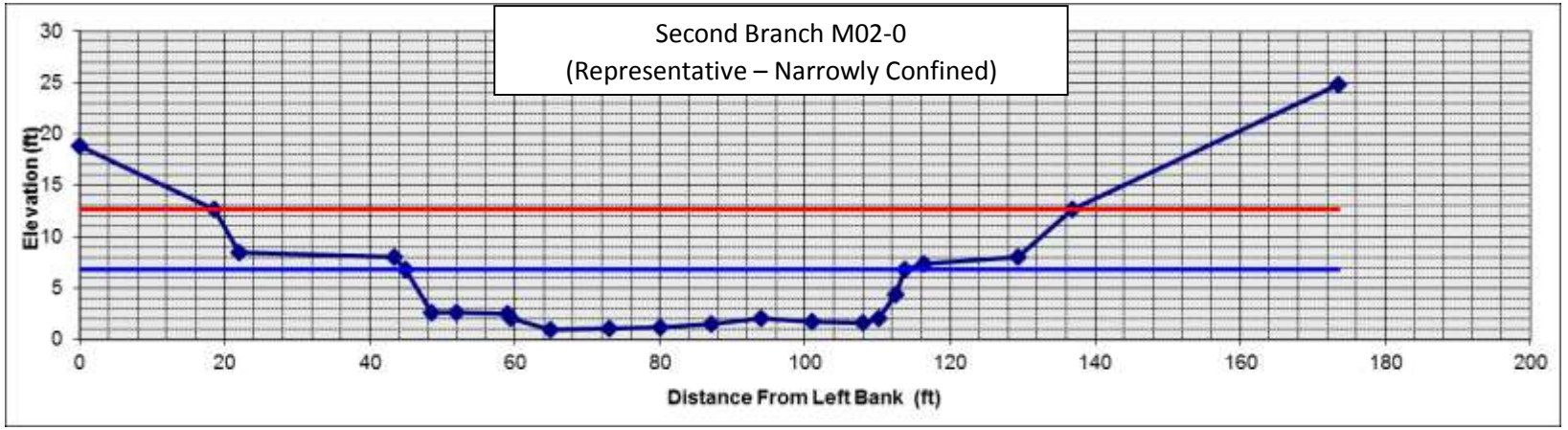
Step 7. Rapid Geomorphic Assessment Data

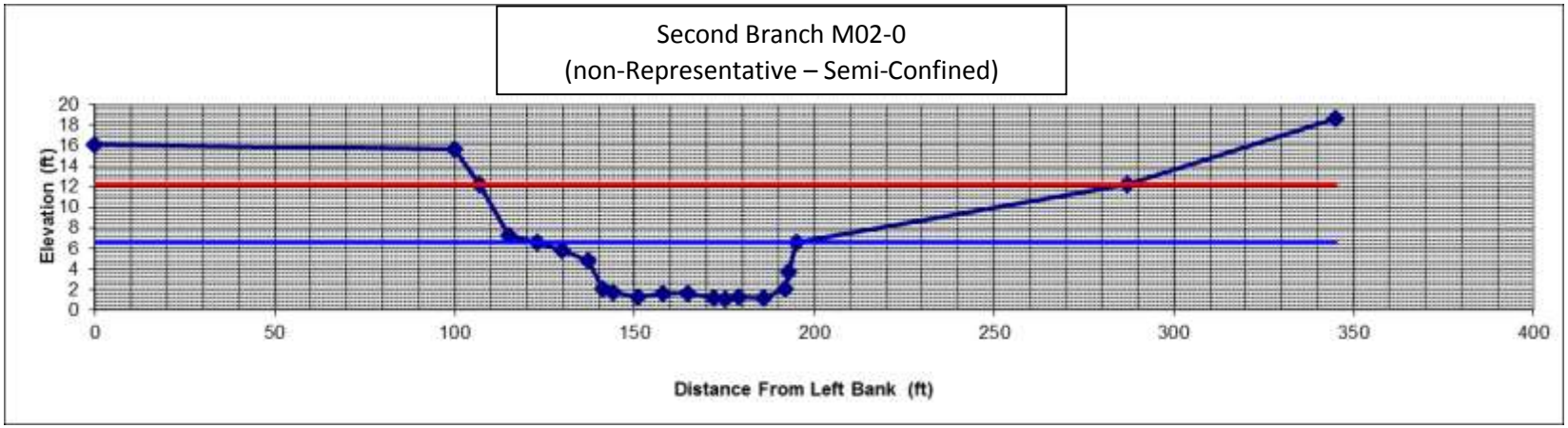
Confinement Type	**Unconfined**	Score	STD	Historic		
7.1 Channel Degradation		**11**	**None**	**Yes**	Geomorphic Rating	**0.56**
7.2 Channel Aggradation		**11**	**None**	**No**	Channel Evolution Model	**None**
7.3 Widening Channel		**13**	**None**	**No**	Channel Evolution Stage	**IV**
7.4 Change in Planforml		**10**	**None**	**No**	Geomorphic Condition	**Fair**
Total Score		**45**			Stream Sensitivity	**Very High**

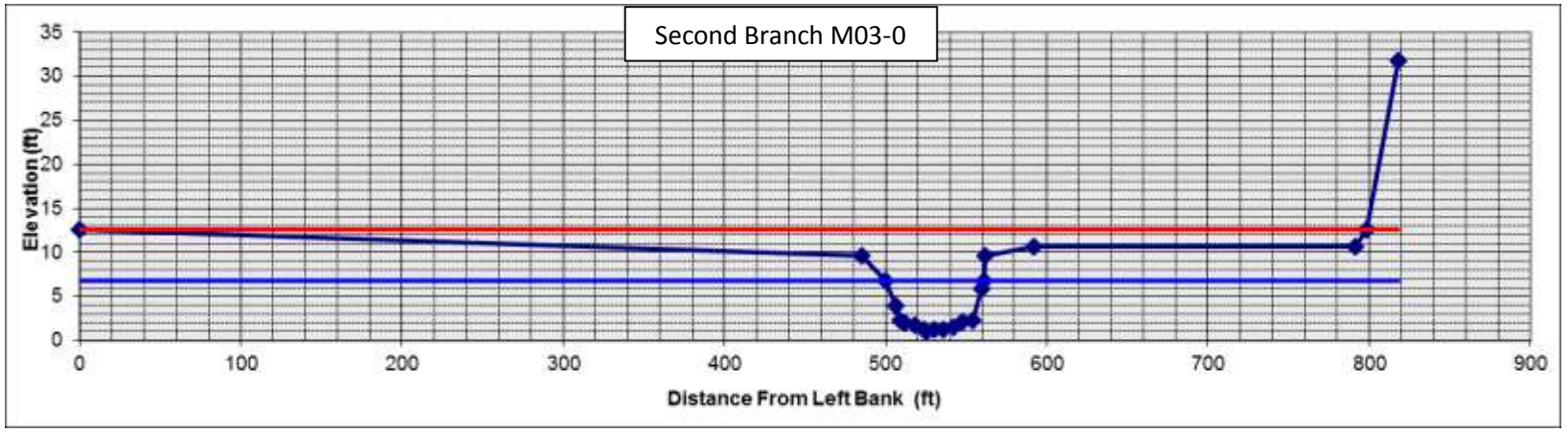
– Appendix 4 –

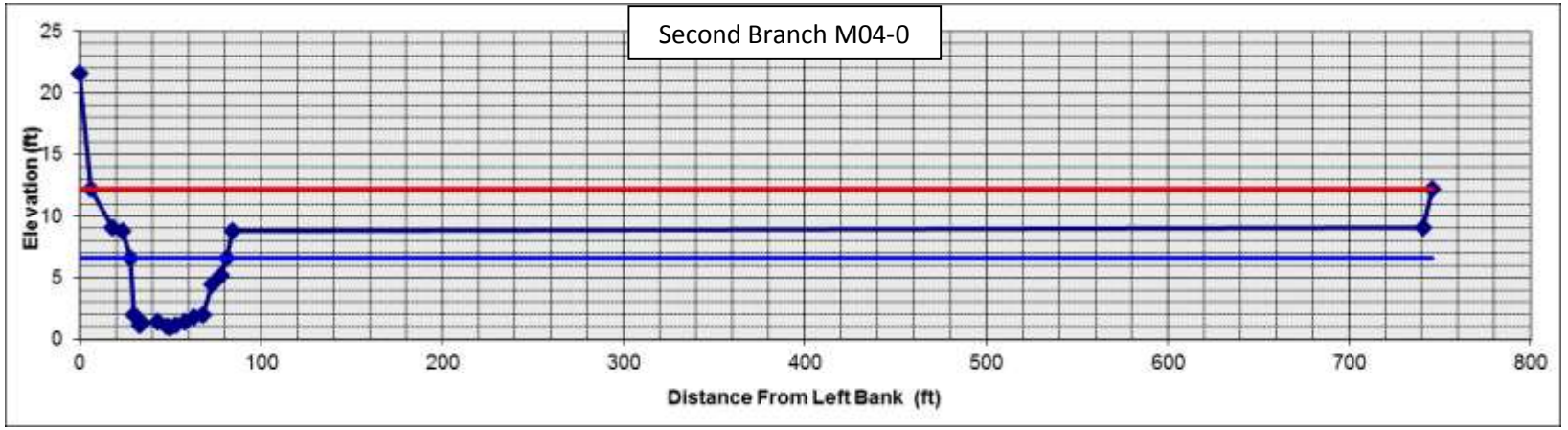
Plots of Channel Cross Sections


Second Branch M01-0
Elevation (ft)
Distance From Left Bank (ft)


Second Branch M02-0
(Representative – Narrowly Confined)
Elevation (ft)
Distance From Left Bank (ft)


Second Branch M02-0
(non-Representative – Semi-Confined)
Elevation (ft)
Distance From Left Bank (ft)


Second Branch M03-0
Elevation (ft)
0
5
10
15
20
25
30
35
0
100
200
300
400
500
600
700
800
900
Distance From Left Bank (ft)


Second Branch M04-0
Elevation (ft)
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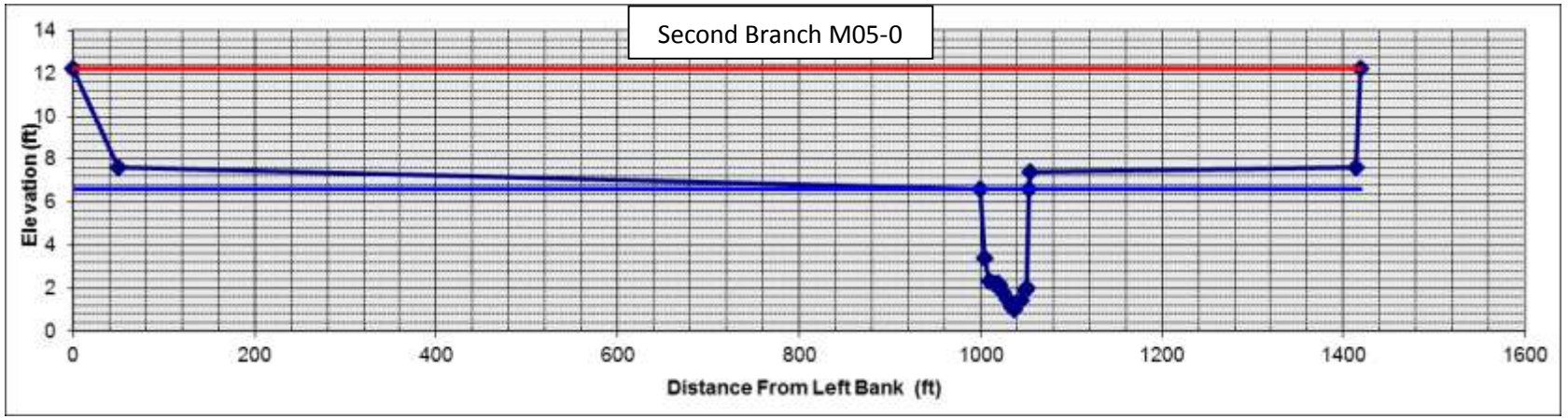
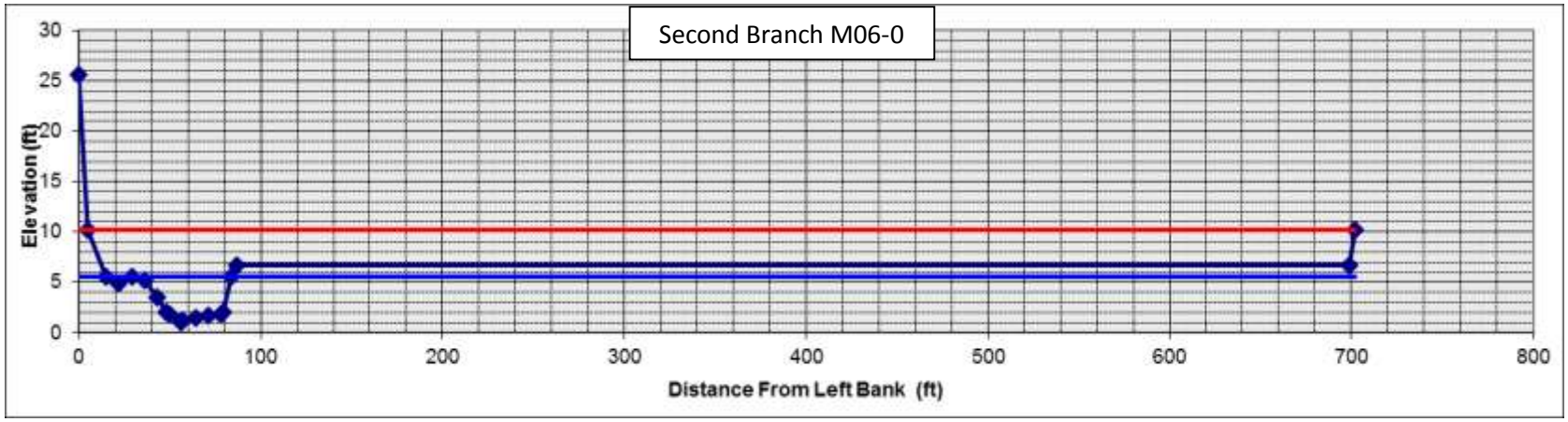
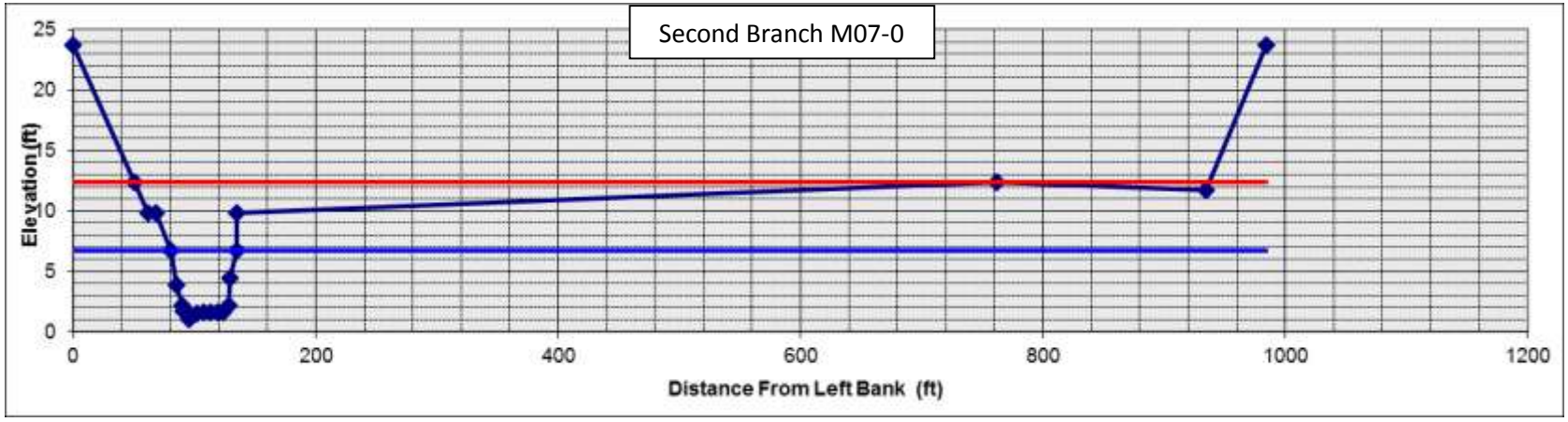
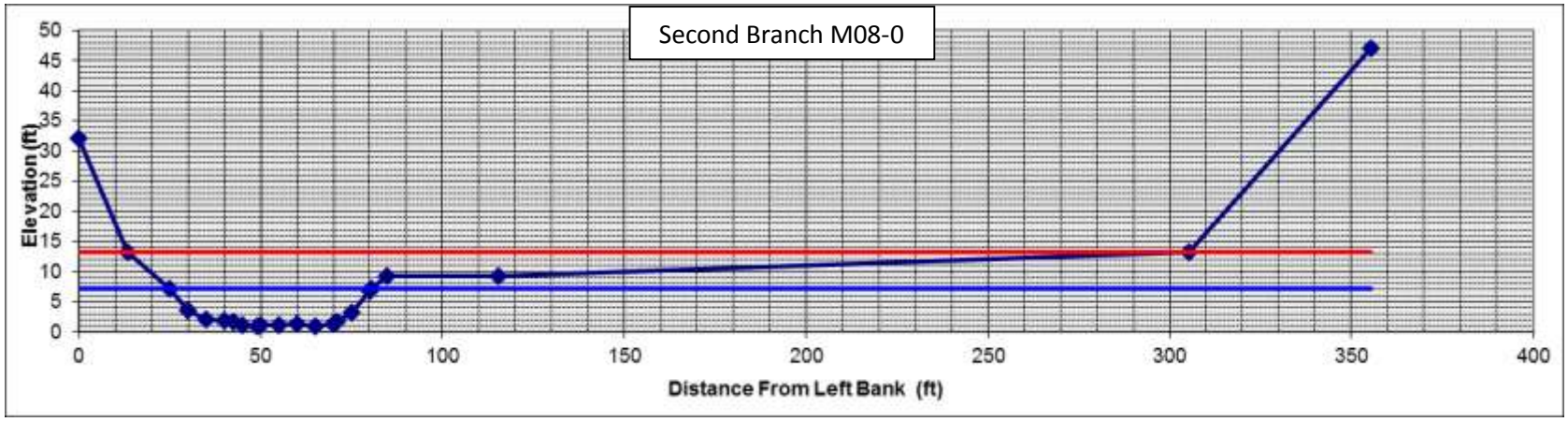
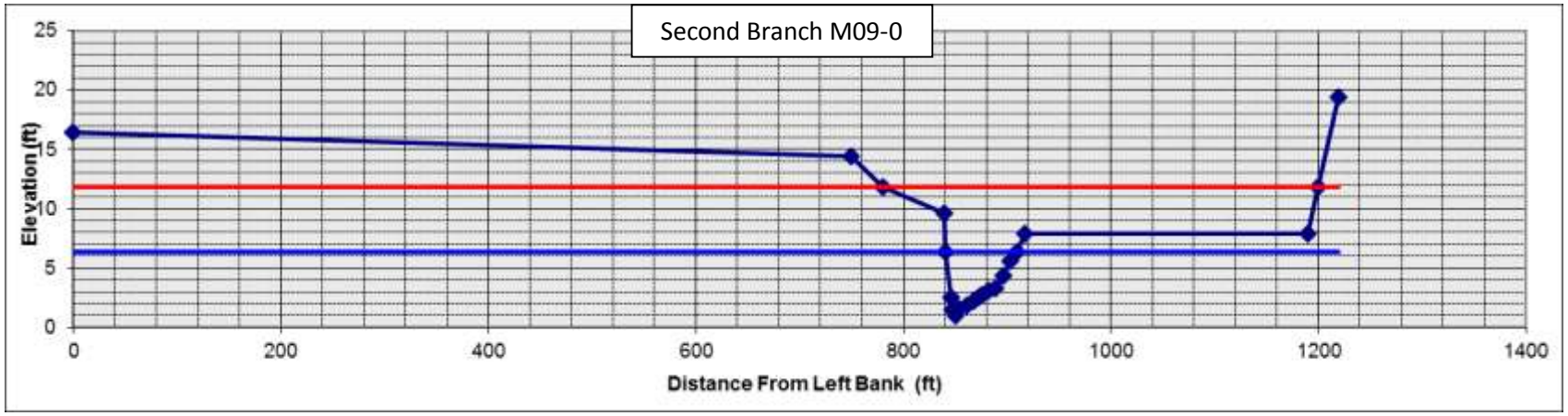
5
10
15
20
25
0
100
200
300
400
500
600
700
800
Distance From Left Bank (ft)


Second Branch M05-0
Elevation (ft)
0
2
4
6
8
10
12
14
0
200
400
600
800
1000
1200
1400
1600
Distance From Left Bank (ft)


Second Branch M06-0
Elevation (ft)
30
25
20
15
10
5
0
0
100
200
300
400
500
600
700
800
Distance From Left Bank (ft)


Second Branch M07-0
Elevation (ft)
25
20
15
10
5
0
0
200
400
600
800
1000
1200
Distance From Left Bank (ft)


Second Branch M08-0
Elevation (ft)
50
45
40
35
30
25
20
15
10
5
0
0
50
100
150
200
250
300
350
400
Distance From Left Bank (ft)


Second Branch M09-0
Elevation (ft)
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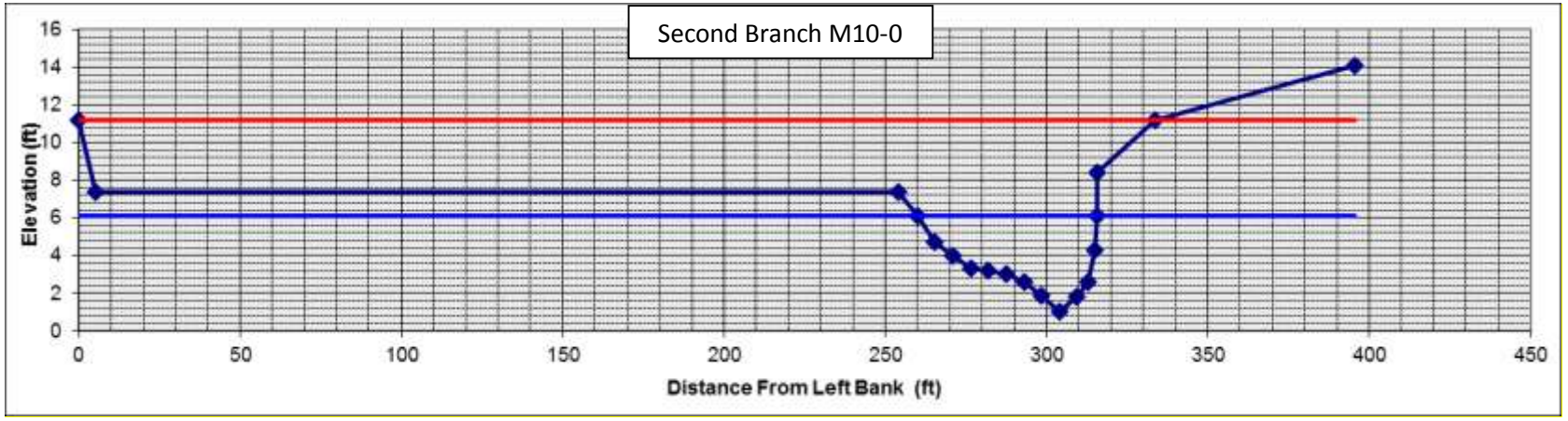
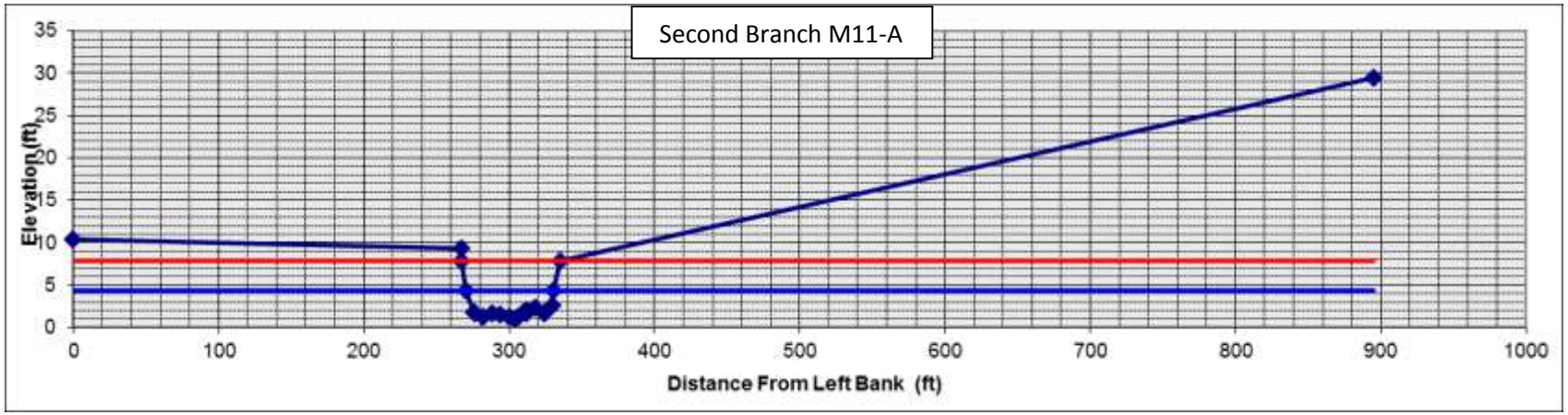
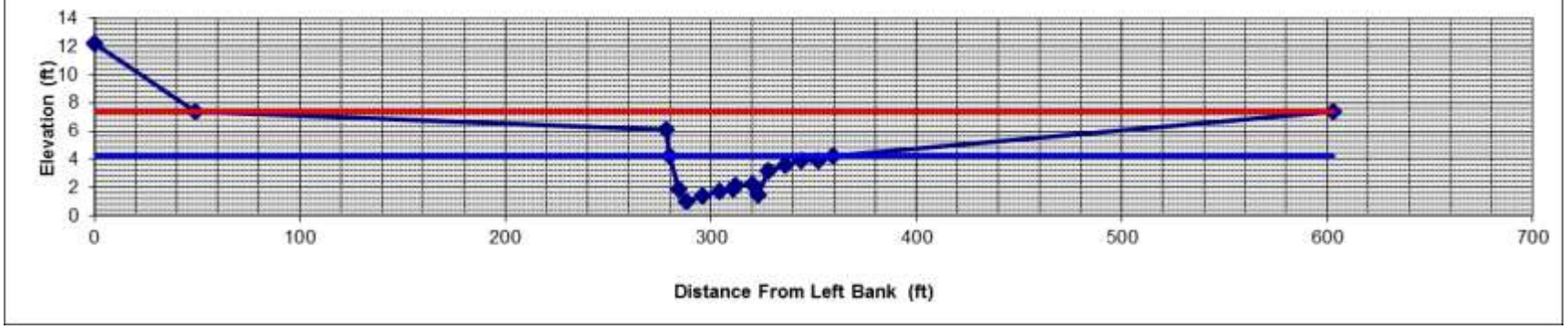
20
15
10
5
0
0
200
400
600
800
1000
1200
1400
Distance From Left Bank (ft)

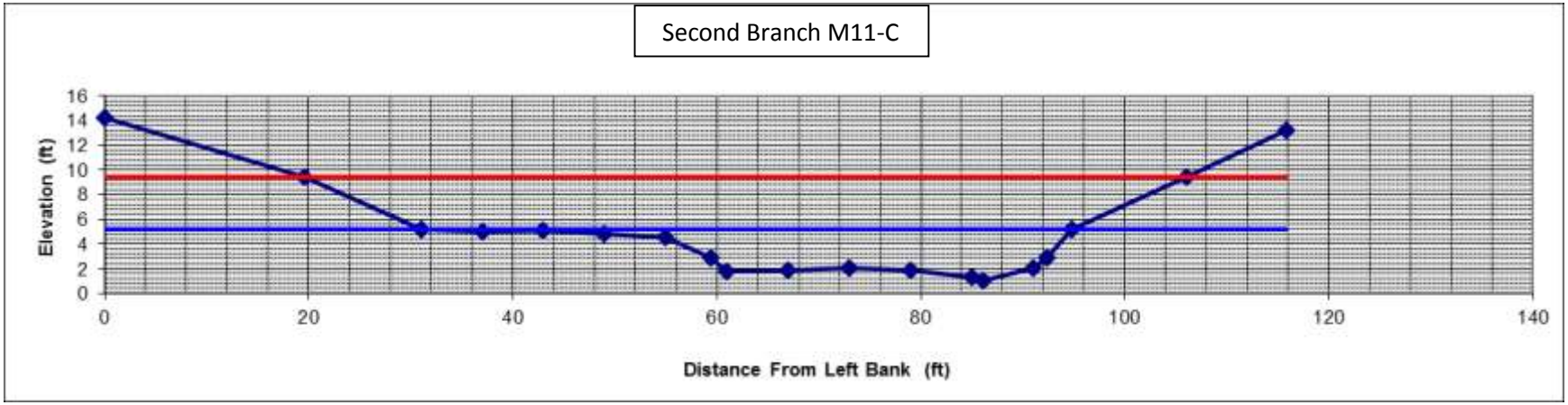

Second Branch M10-0
Elevation (ft)
16
14
12
10
8
6
4
2
0
0
50
100
150
200
250
300
350
400
450
Distance From Left Bank (ft)


Second Branch M11-A
Elevation (ft)
35
30
25
20
15
10
5
0
0
100
200
300
400
500
600
700
800
900
1000
Distance From Left Bank (ft)

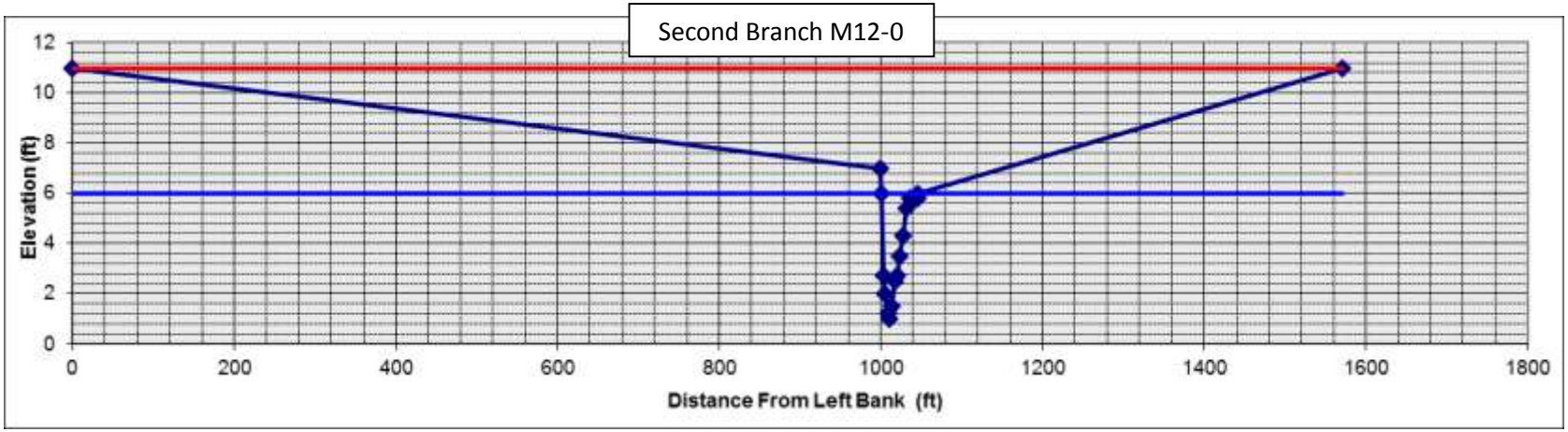
Second Branch M11-B

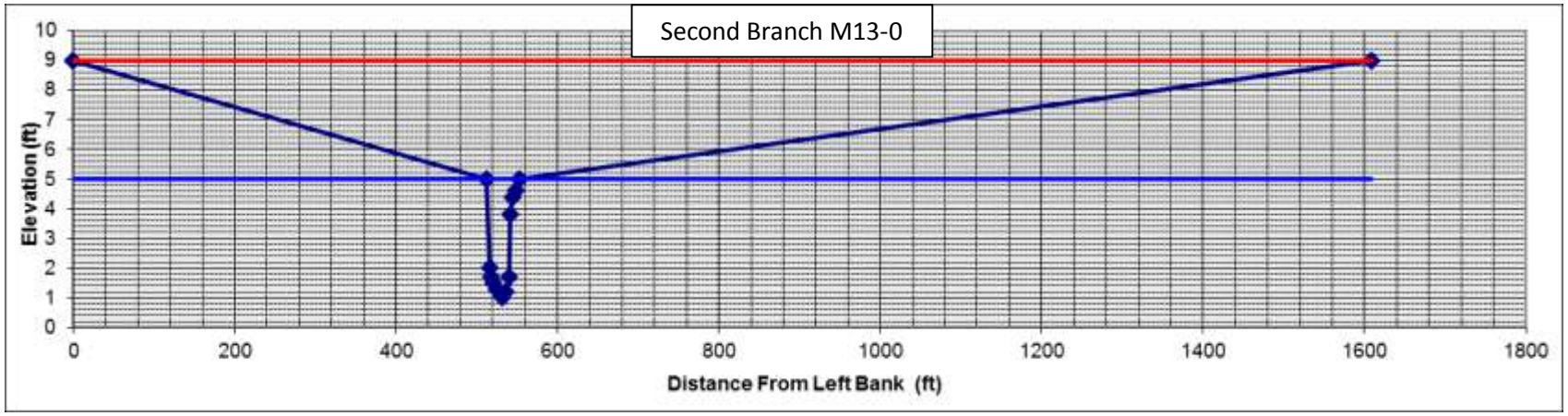


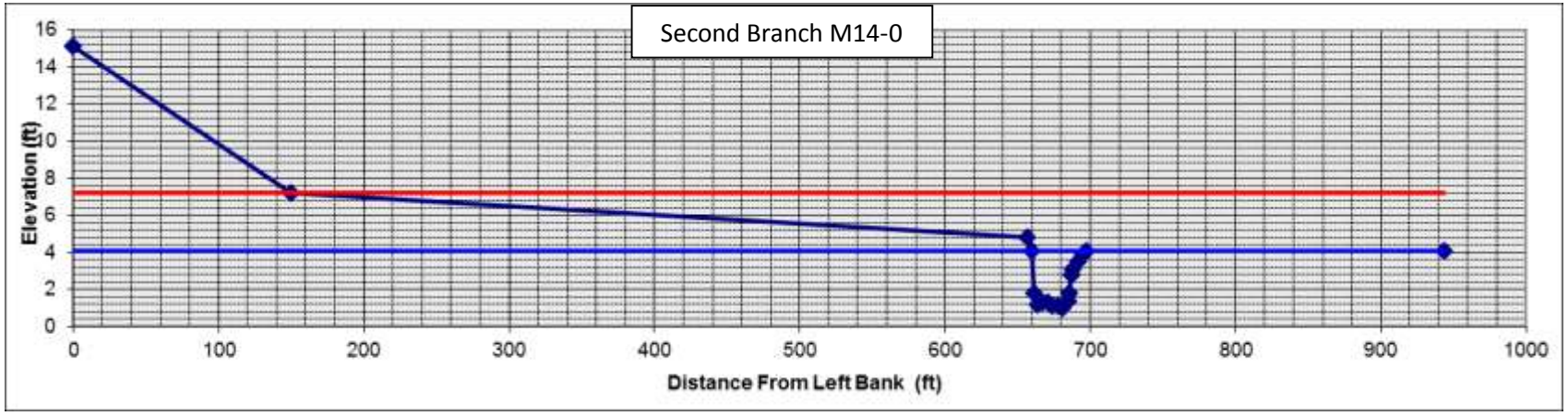
Second Branch M11-C

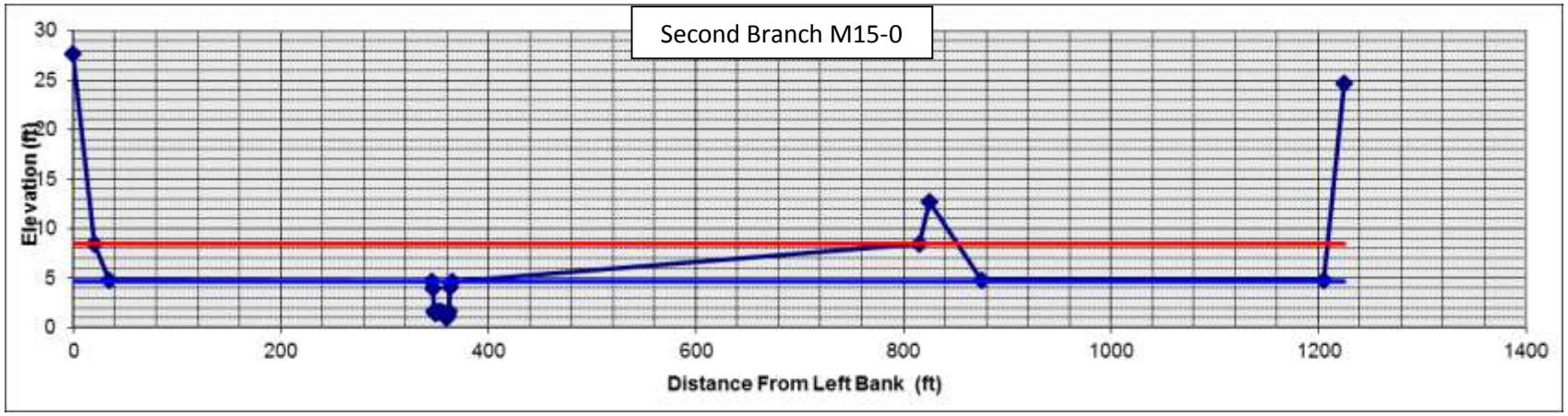


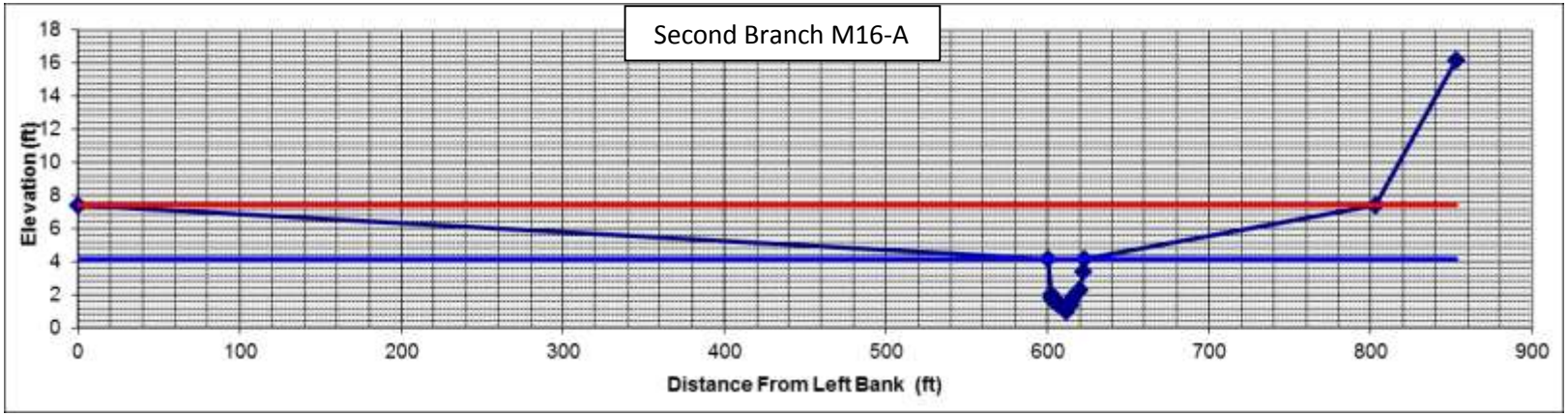
Second Branch M12-0



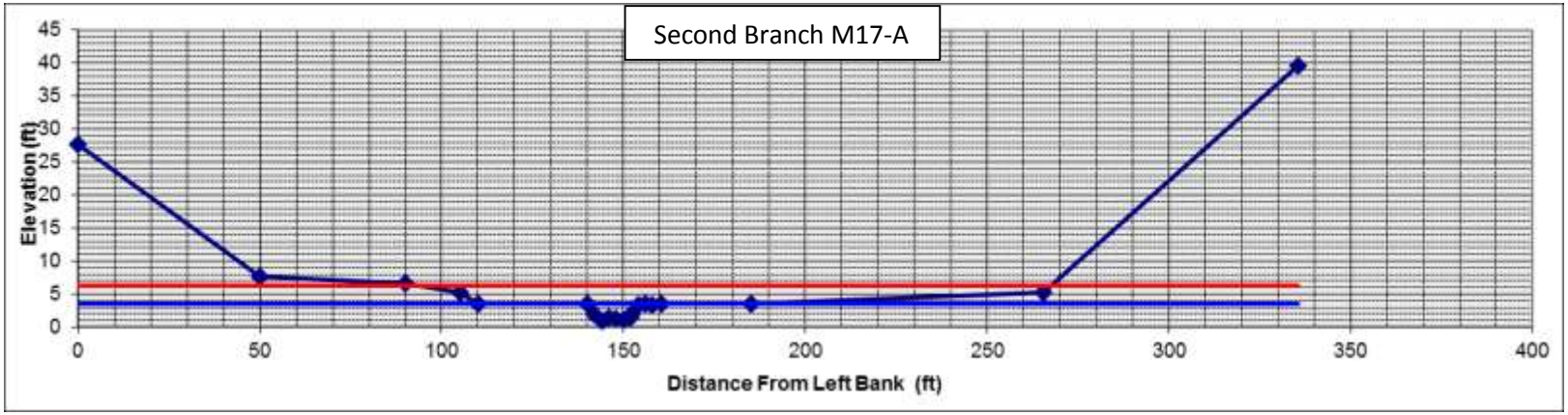

Second Branch M13-0
Elevation (ft)
0
1
2
3
4
5
6
7
8
9
10
0
200
400
600
800
1000
1200
1400
1600
1800
Distance From Left Bank (ft)

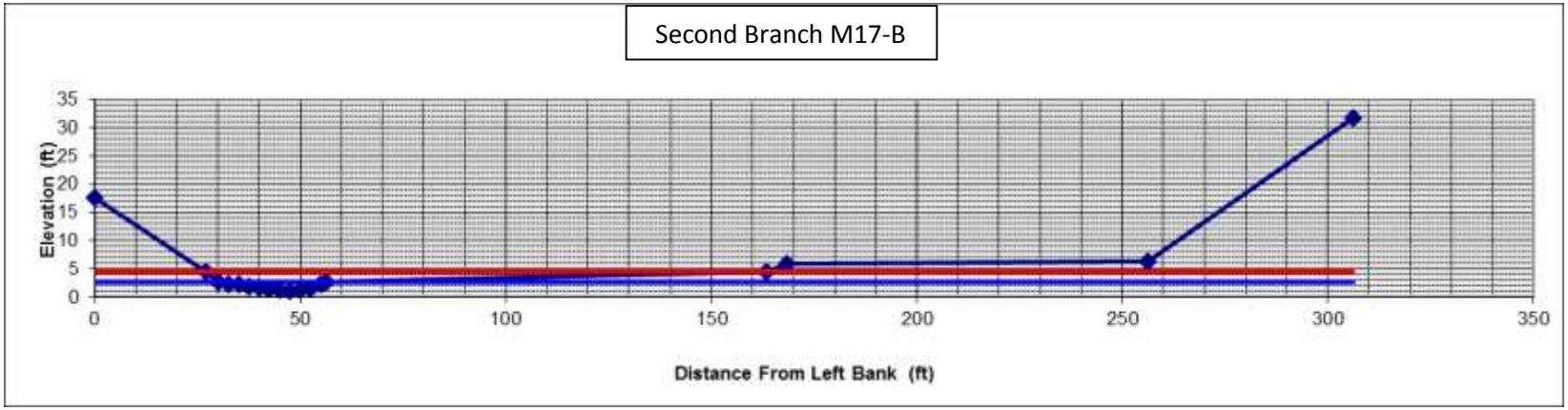

Second Branch M14-0
Elevation (ft)
0
2
4
6
8
10
12
14
16
0
100
200
300
400
500
600
700
800
900
1000
Distance From Left Bank (ft)


Second Branch M15-0
Elevation (ft)
0
5
10
15
20
25
30
0
200
400
600
800
1000
1200
1400
Distance From Left Bank (ft)



No x-section measurement for M16-B (excluded from full geomorphic assessment, per protocols, due to extensive beaver presence)





No x-section measurement for M17-C (excluded from full geomorphic assessment, per protocols, due to ponds and beaver presence)

– Appendix 5 –

QA/QC Reports and documentation

Phase 2 - Quality Control - X.1 Null Fields

White River - Second Branch

Step Number	0	1.3	1.6	2.11	2.13	2.14	3.1			3.3		4.5	4.8	4.9	5.1
Description -> Reach	Assessed	Encroa-chments	Grade Controls	Riffle Spacing	Largest Particle	Stream Type	Texture	Erosion	Revet-ment	Failure Height	Gully Height	Impound-ment	Constricti ons	Beaver Dams	Bar Type
M01-0	Yes				X							X	X		
M02-0	Yes			X											
M03-0	Yes	X		X									X		
M04-0	Yes			X											
M05-0	Yes	X		X											
M06-0	Yes	X		X									X		
M07-0	Yes	X		X									X		X
M08-0	Yes	X		X											X
M09-0	Yes			X									X		X
M10-0	Yes	X		X									X		
M11-A	Yes			X									X		
M11-B	Yes	X		X											
M11-C	Yes	X		X	X										
M12-0	Yes	X		X									X		
M13-0	Yes	X		X											X
M14-0	Yes		X	X	X							X			X
M15-0	Yes														X
M16-A	Yes	X		X											
M16-B	No	X	X	X	X	X							X		
M17-A	Yes	X	X	X	X							X			X
M17-B	Yes	X		X									X		
M17-C	No	X		X	X	X							X	X	

x = Failed Test, blank = Passed Test

Phase 2 - Quality Control

White River - Second Branch

X.2 Null Field Check and X.4 Conflicting Phase 1 vs Phase 2 Data

X.2 Null Fields Check **Status** Provisional

Reach v Step >	0	1	2	3	4	5
M01-0	X	X	X			
M02-0			X			
M03-0			X			
M04-0			X			
M05-0			X		X	
M06-0			X			
M07-0			X		X	
M08-0			X			
M09-0			X			
M10-0			X		X	
M11-A			X			
M11-B			X			
M11-C			X			
M12-0			X			
M13-0			X			
M14-0	X		X			
M15-0						
M16-A			X			
M16-B		X	X			X
M17-A	X	X	X			X
M17-B			X			
M17-C	X	X	X	X	X	X

X.4 Conflicting Phase 1 - Phase 2 data **Status** Provisional

Reach v Step >	P1 2.4 P2 0	P1 2.9 P2 1.5	P1 2.10 P2 1.5	P1 3.1 P2 1.2	P1 5.1 P2 4.5	P1 5.5 P2 5.5	P1 7.1 P2 2.14
M01-0						X	
M02-0						X	
M03-0						X	
M04-0						X	
M05-0						X	
M06-0		X				X	
M07-0							
M08-0						X	
M09-0						X	X
M10-0						X	
M11-A						X	
M11-B						X	
M11-C						X	
M12-0						X	
M13-0						X	X
M14-0						X	
M15-0			X			X	
M16-A						X	
M16-B						X	
M17-A	X					X	
M17-B	X					X	
M17-C	X				X	X	

x = Failed Test, blank = Passed Test

Phase 2 - Quality Control - X.3 Conflicting Phase 2 data

White River - Second Branch

Passed X.3 Test: **Provisional**

Step Numbers		1.3 - 3.3	1.3 - 1.5	1.5 - 2.1	2.14 - 2.11	2.10 - 5.3	2.10 - 5.3	5.3 - 5.3	2.14 - 2.14	3.2 - 3.3	4.1 - 5.3
Reach v	Description >	Encroachments Industriall Land Use	Encroachments Human Caused Change	Valley Width Bankfull Width	Riffle Spacing Plane Bed	Riffle Type Steep Riffles	Riffle Type Head Cutts	Steep Riffles Head Cuts	Dune Ripple Bed Material	Buffer Type Industrial Land Use	Springs/Seeps Tributary Rejuvenation
M07-0											
M08-0											
M01-0											
M02-0					X				X		
M03-0											
M04-0					X				X		
M12-0					X				X		
M13-0											
M14-0											
M15-0									X		
M05-0					X				X		
M09-0											
M06-0		X			X				X		
M10-0		X									
M11-A											X
M16-A											
M17-A					X						
M11-B											
M16-B		X		X	X				X		
M17-B											
M11-C					X				X		
M17-C		X	X	X	X	X	X	X	X		

x = Failed QC Test, blank = passed QC Test

– Appendix 6 –

Consolidated Project Identification Tables (sorted by priority)

River Segment	*Project*	*Reach Priority*	*Watershed Priority*	*Completed Independent of Other Practices*	*Next Steps and Other Project Notes*
M04-0	Protect River Corridors	Very High	Very High	Y	Explore easement status or possibilities - vital step for reach-scale restoration (Hyde Dam removal), ensuing rapid geomorphic adjustments; attenuation asset US of transport reaches with limited attenuation assets; buffer establishment subject to lateral and vertical instability
M04-0	Stream Buffers	Very High	Very High	N	Create/protect buffer, in conjunction with reach-scale restoration; low-cost stock due to vertical and lateral instability; may need fencing also
M04-0	Remove/Replace Structures	Very High	Very High	Y	Remove Hyde Dam; assess possibilities for ridge or large wood bank stabilization or other to address stream ford impacts at Post Farm
M04-0	Watershed Strategies	Very High	Very High	N	Reach-scale restoration in conjunction with Hyde Dam removal: sediment removal, assess need for additional grade controls (one ledge exists US); monitor changes to contiguous wetland, adaptive management for restoration/protection of wetland functions
M09-0	Protect River Corridors	Very High	Very High	Y	Explore easement status or possibilities - vital step for reach-scale restoration (Gulf Dam removal), particular attention to buildings in close proximity to channel as well as dry hydrant above dam; ensuing rapid geomorphic adjustments; attenuation asset US of transport reach with limited attenuation assets; buffer establishment subject to lateral and vertical instability
M09-0	Stream Buffers	Very High	Very High	Y	Create/protect buffer, preferably in conjunction with reach-scale restoration (dam removal); low-cost stock due to vertical and lateral instability; may need fencing also
M09-0	Remove/Replace Structures	Very High	Very High	Y	Explore possibilities for removal of Gulf Road Dam reach
M09-0	Watershed Strategies	Very High	Very High	N	Reach-scale restoration in conjunction with Gulf Road Dam removal: sediment removal, assess need for grade controls (Fire Dept dry hydrant US, buildigs in close proximity to channel)
M10-0	Protect River Corridors	Very High	Very High	Y	Explore easement status or possibilities - vital step for passive reach-scale restoration, tire and brush revetments have failed previously; attenuation asset US of pinch point in valley, may be subject to rapid geomorphic adjustments if Gulf Road Dam removed; buffer establishment subject to lateral and vertical instability
M10-0	Stream Buffers	Very High	Very High	N	Create/protect buffer, in conjunction with reach-scale restoration; low-cost stock and corridor protections due to vertical and lateral instability; may need fencing also
M10-0	Watershed Strategies	Very High	Very High	N	Reach-scale passive restoration may be affected by Gulf Road Dam removal, ensuing channel adjustments; restoration to include tire removal
M11-B	Protect River Corridors	Very High	Very High	Y	Explore easement possibilities - vital step for passive or active reach-scale restoration; high priority buffer establishment subject to high lateral and vertical instability, use low cost stock. Attenuation asset US of transport segment with limited attenuation assets, potential mass failures. Headcuts at trib (and extra stormwater?) on LVW, unclear why sedimets are so deep - glacial influences or sedimentation between historic dams - affects consideration of possible active restoration (lowering FP thru sediment removal)
M11-B	Stream Buffers	Very High	Very High	Y	Create/protect buffer; best as part of corridor protection and reach-scale restoration, recommend low-cost stock due to vertical and lateral instability; clarify stable planform accomodation (FEH zone) is wide due to incision thru formerly impounded sediments; may need fencing also
M11-B	Watershed Strategies	Very High	Very High	N	investigate tributary and possible stormwater influences on Ferris Rd to better understand headcuts on LVW; investigate sediment discharge from Snow's Brook and whether this is an alluvial fan; both factors influence possibilities for active restoration in M11-B (lowering FP thru sediment removal)
M17-A	Protect River Corridors	Very High	Very High	N	Evaluate easement needs/possibilities, particularly in conjunction with berm removal mid-segment, bridge replacement and buffer plantings at US end (leverage likelihood of eventual VT Rte 14 replacement at US end); important attenuation assets for intermittent highly constricted portions along VT Rte 14 (repeat conflict areas now heavily armored)
M17-A	Remove Berms	Very High	Very High	Y	Remove windrow/berm at Brookfield-Willliamstown line, beneath ledge run-constriction point along VT Rte 14; was partially broken in April 2019 flooding, but tries to funnel stream against RVW instead of allowing anabranching planform through beaver meadow
M16-A	Protect River Corridors	Very High	Very High	N	Explore easement possibilities, particularly in conjunction with bridge replacements/removal and buffer plantings (leverage necessity of Tayor Hill Rd replacement); previous easements in place on some DS portions; explore small wetland restoration/protection mosaic for waterfowl flyway, reach has VSWI Class 2 wetlands
M16-A	Remove/Replace Structures	Very High	Very High	Y	Taylor Hill Rd culvert undercutting VT Rte 14, should likely be bridge replacement; opportunity for combo with passive reach-scale protection-restoration; DS bridge duplicative but has social constraints
M16-A	Watershed Strategies	Very High	Very High	N	Explore easement possibilities, particularly in conjunction with bridge replacements/removal and buffer plantings (leverage necessity of Tayor Hill Rd replacement); previous easements in place on some DS portions; explore small wetland restoration/protection mosaic for waterfowl flyway, reach has VSWI Class 2 wetlands
M11-A	Watershed Strategies	Very High	Very High	N	Reach-scale restoration (passive or potential active) in M11-B, as well as further US, to restore/maintain FP access and limit incision, establish/protect buffers will reduce streampower funneled into this segment; develop funding options and design recommendations for private bridges : significant impacts to river dynamics and similar geomorphic conditions along much of 2nd Branch
M03-0	Protect River Corridors	Very High	Next Highest	Y	Explore easement status or possibilities - Attenuation asset US of transport reaches with limited attenuation assets; previous project implementations; explore small wetland restoration/protection mosaic for waterfowl flyway; buffer establishment subject to high lateral and vertical instability

River Segment	*Project*	*Reach Priority*	*Watershed Priority*	*Completed Independent of Other Practices*	*Next Steps and Other Project Notes*
M03-0	Watershed Strategies	Very High	Next Highest	N	reach-scale restoration results: removal of Hyde Dam in M04 will affect hydrologic and sediment inputs; re-assess need for addressing impounded sediments US of former Stoughton Mills-Royalton-5 dam based on equilibirium conditions following that, as well as results of buffer establishment in interim; explore small wetland restoration/protection mosaic for waterfowl flyway
M16-A	Stream Buffers	Very High	Next Highest	Y	Augment buffers, particularly DS RB; scrub-shrub buffers best and may be different from RAPs; best with corridor protection, particularly important near bridges; low-cost stock due to lateral instability; may need fencing also
M17-A	Stream Buffers	Very High	Next Highest	Y	Augment buffers at US end; best with corridor protection and culvert replacement
M17-A	Remove/Replace Structures	Next Highest	Medium	Y	VT Rte 14 culvert is very undersized and low clearance, subject to plugging but overtopping probably doesn't incur much road damage; but erosion DS of culvert advancing, fabric and plantings damaged in 2019 flooding, and above culvert US RB armoring is gardually failing
M16-B	Watershed Strategies	Medium	Medium	N	Segment EXCLUDED from geomorphic assessment due to extensive beaver-controlled wetlands. Consider bridge if issues with culvert replacement, Ainsworth interpretive center/access if property ever sells, but reach is mostly VSWI Class 2 wetlands. Important area for small wetland restoration/protection mosaic for waterfowl flyway.
M16-B	Remove/Replace Structures	Low	Low	Y	Segment EXCLUDED from geommorphic assessment, but culvert was assessed. Brown Dr culvert undersized, slight deformation but in overall decent shape and has integrated stonework; ideally would be bridge replacement for better geomorphic compatibility, but low priority (AOP currently OK)
M14-0	Watershed Strategies	Very High	Very High	N	Develop funding options and design recommendations for private bridges along 2nd Branch: significant impacts to river dynamics and similar geomorphic conditions along much of mainstem; invasives info re bankside gardening
M15-0	Watershed Strategies	Very High	Very High	N	Develop funding options and design recommendations for private bridges along 2nd Branch: significant impacts to river dynamics and similar geomorphic conditions along much of mainstem
M14-0	Remove/Replace Structures	Very High	Next Highest	N	Six bridges in reach; VT Rte 14 structure substantial concrete abutments but showing signs of significant scour, undersized and effective width reduced by angle of alignment; farm and pvt bridges also significantly undersized with geomorphic impacts (scour, erosion) heightened when lacking buffers; one example of pvt bridge in US portion of reach with waste block above scour zone, but primarily a footbridge
M06-0	Remove/Replace Structures	Next Highest	Next Highest	Y	watershed-wide issue with private structures, buffers important near structures; straightened planform and bank armoring increase erosion, lock channel in cyclical adjustments, but getting abutments out of scour zone presents costly engineering challenges; Dugout Rd concrete abutments resilient but structure is undersized and angle of alignement reduces effective width, amplifyng erosion
M07-0	Remove/Replace Structures	Next Highest	Next Highest	Y	Develop long-term plan for covered bridges along 2nd Branch (two in this reach): significant impacts to river dynamics as well as implications for farm and highway equipment access; newer structures in reach (state and town) are sized according to updated standards, much better geomorphic compatibility
M07-0	Watershed Strategies	Next Highest	Next Highest	Y	Develop long-term plan for covered bridges along 2nd Branch; prioritize Penny Brook for future Phase 2 or otherwise identify dynamics contributing to significant sediment discharge that may affect mitigation efforts at ford; support for RAP implementation, particularly buffers
M12-0	Watershed Strategies	Next Highest	Next Highest	N	Develop funding options and design recommendations for private bridges along 2nd Branch: significant impacts to river dynamics and similar geomorphic conditions along much of mainstem; opportunities for potential small wetland restoration mosaic for waterfowl flyway
M13-0	Remove/Replace Structures	Next Highest	Next Highest	N	Farm and pvt bridges significantly undersized with pronounced geomorphic impacts (scour, erosion) heightened with lack of buffers
M13-0	Watershed Strategies	Next Highest	Next Highest	N	Develop funding options and design recommendations for private bridges along 2nd Branch: significant impacts to river dynamics and similar geomorphic conditions along much of mainstem; opportunities for potential small wetland restoration mosaic for waterfowl flyway
M05-0	Watershed Strategies	Medium	Next Highest	Y	Develop long-term plan for covered bridges along 2nd Branch: significant impacts to river dynamics as well as implications for farm and highway equipment access; may see significant adjustments following Hyde Dam removal; important attenuation asset (with likely pressure to mitigate Rte 14 overtopping) and area for potential small wetland restoration/protection mosaic for waterfowl flyway
M11-A	Remove/Replace Structures	Next Highest	Medium	Y	VAST bridge elevations at US and DS ends of segment tied to extended bank armoring DS of Rte 14 bridges, vastly restrict LB FP access and contribute to elevated erosion (esp in areas with diminished buffers); old dam remains behind Creamery diminish valley/FP width but may also be limiting mass failure potential and bed incision (not clear if concrete apron is on natural ledge)
M12-0	Remove/Replace Structures	Next Highest	Medium	N	VT Rte 14 culvert is undersized but it does not appear that AOP is impacted, geomorphic impacts buffered by extensive SS wetland veg; farm bridges US more significantly undersized and geomorphic impacts more pronounced (scour, erosion) likely due to lack of buffers
M15-0	Remove/Replace Structures	Next Highest	Medium	Y	3 bridges, 3 culverts in reach-some in disrepair and not currently in use, plus old remains; primarily are channel constrictions (FP still accessible), significantly undersized with geomorphic impacts (scour, erosion) heightened by lack of buffers; bridge at head of reach duplicative with another in next segment US but appears to have social issues

River Segment	*Project*	*Reach Priority*	*Watershed Priority*	*Completed Independent of Other Practices*	*Next Steps and Other Project Notes*
M05-0	Protect River Corridors	Very High	Next Highest	Y	Explore easement status or possibilities - may see significant adjustments following Hyde Dam removal; likely pressure to mitigate overtopping of Rte 14 (which would likely be detrimental to river dynamics, further restrict floodplain access); important area for potential small wetland restoration/protection mosaic for waterfowl flyway
M05-0	Stream Buffers	Very High	Next Highest	Y	Create/protect buffer; best as part of corridor protection/passive restoration of incised reach, recommend low-cost stock due to vertical and lateral instability; may need fencing also
M06-0	Protect River Corridors	Very High	Next Highest	Y	Explore easement status or possibilities - be clear about likelihood of lateral adjustments (banks surprisingly high in this reach, unclear if missing documentation of a historic dam, or incision US of possible dredging at old brickyard in US portion of M05); potential small wetland restoration/protection in DS end of reach as part of mosaic for waterfowl flyway
M07-0	Protect River Corridors	Very High	Next Highest	Y	Explore easement status or possibilities; best as part of corridor protection/passive restoration of incised reach, including mitigation of ford impacts; LB field has been captured by floodwaters due to combined impacts of undersized bridge, stream ford and lack of buffers
M07-0	Stream Buffers	Very High	Next Highest	Y	Create/protect buffer, along much of reach but particularly DS of Gifford Covered bridge; best as part of corridor protection/passive restoration of incised reach; recommend low-cost stock due to vertical and lateral instability; may need fencing also
M06-0	Watershed Strategies	Next Highest	Next Highest	Y	Develop funding options and design recommendations for private bridges along 2nd Branch: significant impacts to river dynamics and similar geomorphic conditions along much of mainstem; opportunities for potential small wetland restoration/protection mosaic for waterfowl flyway
M14-0	Protect River Corridors	Medium	Next Highest	Y	Explore easement status or possibilities, particularly in conjunction with bridge replacements and buffer plantings; explore small wetland restoration/protection mosaic for waterfowl flyway, valley has VSWI Class 2 wetlands; buffer establishment may be subject to high lateral instability
M10-0	Remove/Replace Structures	Very High	Very High	N	Explore possibilities for removal or replacement of minimally used bridge at DS end of reach, likely accesses a camp (deeded ROW?)
M09-0	Remove/Replace Structures	Very High	Next Highest	Y	Explore possibilities for removal of minimally used farm bridge at US end of reach
M02-0	Watershed Strategies	Very High	Very High	Y	periodic testing at gullies entering RB below Bethel-Royalton landfill
M11-C	Watershed Strategies	Very High	Very High	N	Municipal level corridor protections would increase ERAF match and discourage development in proximity to banks prone to mass failure
M17-A	Watershed Strategies	Very High	Very High	N	Reach-scale corridor protection: intermittent wetlands are important attenuation assets for alternating highly constricted portions along VT Rte 14 (repeat conflict areas); also important area for small wetland restoration/protection mosaic for waterfowl flyway, significant VSWI Class 2 wetlands US and DS; US has increasing encroachment, ag and development pressure around ponds
M17-B	Watershed Strategies	Very High	Very High	N	Buffers are good but are important to keep intact - impacts would be felt quickly in terms of stream stability; well vegetated floodplain in this segment also attenuates impacts US (segment M17-C was EXCLUDED from geomorphic assessment due to ponds, but appears to be under increasing pressure from encroachment, ag and development)
M03-0	Stream Buffers	Very High	Next Highest	Y	Create/protect buffer; best as part of corridor protection, recommend low-cost stock due to vertical and lateral instability; clarify stable planform accomodation (FEH zone) is wide due to incision thru formerly impounded sediments; may need fencing also
M06-0	Stream Buffers	Very High	Next Highest	Y	Create/protect buffer; best as part of corridor protection/passive restoration of incised reach, recommend low-cost stock due to vertical and lateral instability; may need fencing also
M12-0	Protect River Corridors	Very High	Next Highest	Y	Explore easement status or possibilities, particularly US of Rte 14 culvert - Attenuation assets US of transport segment with limited attenuation assets; explore small wetland restoration/protection mosaic for waterfowl flyway, reach has multiple VSWI Class 2 wetlands; buffer establishment subject to high lateral and vertical instability
M12-0	Stream Buffers	Very High	Next Highest	Y	Create/protect buffer, woody buffers best and may be different from RAPs; best as part of corridor protection, low-cost stock due to vertical and lateral instability; may need fencing also
M13-0	Stream Buffers	Very High	Next Highest	Y	Create/protect buffer, woody buffers best and may be different from RAPs; best with corridor protection, particularly important near bridges; low-cost stock due to lateral instability; may need fencing also
M14-0	Stream Buffers	Very High	Next Highest	Y	Create/protect buffer, woody buffers best and may be different from RAPs; best with corridor protection, particularly important near bridges; low-cost stock due to lateral instability; may need fencing also; invasives info re bankside gardening
M15-0	Stream Buffers	Very High	Next Highest	Y	Create/protect buffer, likely scrub-shrub buffers best, may be different from RAPs; best with corridor protection, particularly important near bridges; low-cost stock due to lateral instability; may need fencing also
M15-0	Protect River Corridors	Next Highest	Next Highest	Y	Explore easement possibilities, particularly in conjunction with bridge/culvert replacements/removal and buffer plantings; explore small wetland restoration/protection mosaic for waterfowl flyway, reach has VSWI Class 2 wetlands
M13-0	Protect River Corridors	Medium	Next Highest	Y	Explore easement status or possibilities, particularly in conjunction with bridge replacements and buffer plantings; explore small wetland restoration/protection mosaic for waterfowl flyway, reach has VSWI Class 2 wetlands; buffer establishment may be subject to high lateral instability
M04-0	Remove Berms	Next Highest	Medium	Y	Needs further investigation at Store Hill Rd; not clear there is actually a berm, mature trees in place; could open significantly better floodplain off RB in area where Rte 14 locks LB and is at risk for continued undercuttning. May require too much disturbance, but priority increased due to Rte 14 as primary travel corridor.

River Segment	*Project*	*Reach Priority*	*Watershed Priority*	*Completed Independent of Other Practices*	*Next Steps and Other Project Notes*
M08-0	Watershed Strategies	Medium	Medium	Y	likelihood of adjustments if Gulf Road Dam is ever removed, increases importance of buffers and corridor protections (recommend municipal corridor overlay adoption or similar); sediment continuity would greatly benefit from proper sizing of Braley Covered Bridge abutments
M11-A	Stream Buffers	Medium	Medium	Y	limited opportunities to augment buffers along ag fields in US portion of segment; primary benefits would be limiting erosion rates and shading stream
M11-C	Stream Buffers	Medium	Medium	Y	very limited opportunity to augment buffers along US RB terrace; protection of existing buffers important however, as setting makes VWs prone to mass failure
M17-B	Remove/Replace Structures	Medium	Medium	Y	4 culverts in segment are all undersized (two have multiple inlet/outlets with at least one plugged by sediment), but all are substantial concrete structures that do not appear likely to fail anytime soon (other than plugging) - road more likely to be damaged. Concrete block wingwalls appear to have been replaced at ledge/waterfall above tributary confluence from Rood Pond.
M01-0	Watershed Strategies	Low	Medium	N	M01 largely in Floodway; FEMA maps already updated for Windsor County (North Royalton, East Bethel); include encroachments in Pre-disaster Mitigation Planning, consider FEH overlay; drainage and stormwater management in US reaches
M08-0	Stream Buffers	Next Highest	Low	Y	Create/protect buffer, focused opportunities along ag fields in US portions of reach especially; woody buffers best, may not be same as RAP specs
M01-0	Stream Buffers	Medium	Low	Y	Buffers exist, but wider would increase flood and erosion mitigation, habitat
M01-0	Remove Berms	Medium	Low	Y	Needs further investigation; not clear there is actually a berm, may be cumulative plow headlands; LB still has better floodplain access. May require too much disturbance,reach is close to mouth and armored at multiple structures DS.
M05-0	Remove/Replace Structures	Medium	Low	Y	Rte 14 structure aging; carefully review design considerations as likely pressure to mitigate overtopping of Rte 14 (which would likely be detrimental to river dynamics, further restrict floodplain access); covered bridges along 2nd Br replaced or renovated sortly before changes to Stream Alt permit changes requiring 100 pct bankfull or better; problematic for river dynamics, significant social constraints to address
M08-0	Protect River Corridors	Medium	Low	Y	Municipal level corridor protections would increase ERAF match; ensure RAP compliance
M01-0	Remove/Replace Structures	Low	Low	Y	Railroad and Rte 107 bridges are constrictions but high above river, snowmobile bridge is heavily riparapped but eaily overtopped; none block AOP, would have limited geomorphic advantages this close to mouth
M02-0	Stream Buffers	Low	Low	Y	Some limited-extent opportunities to augment or establish buffers along agricultural fields
M11-C	Remove/Replace Structures	Low	Low	N	Old dam and infrastructure remains restrict some FP access, but gains would be limited and disturbance would likely increase potential for mass failures; does not appear that AOP is impacted

– Appendix 7 –

Bridge and Culvert Survey Reports

COMPARISON SUMMARY REPORTS:
Failure modes: Geomorphic incompatibility
Failure modes: Problem causes
Wildlife passage
Aquatic organism passage (AOP) ratings (*Culverts only,no bridges)*:
Passage, geomorphic compatibility, retrofit potential

Individual Structure Summary Reports

Structure Failure Modes

White River

Explanation of codes used in table header

Failure Modes		Existing Problems	
F1	Concern for structure due to fluvial condition or process	P1	Upstream sediment deposit
F2	Potential failure due to out-flanking	P2	Upstream Scour and/or erosion present
F3	Potential failure due to scour	P3	Downstream Scour and/or erosion present
F4	Potential failure due to ice or debris jam	P4	Inlet obstruction present
F5	Structure related damage due to flooding of adjacent property	P5	Poor location or alignment
F6	Structure related damage due to erosion of adjacent property	P6	Beaver activity
Width	Structure width divided by channel width as a percent (% bankfull width)	P7	Floodplain filled entirely or partially by roadway approaches

X = meets criteria MD = missing data

Town	Road	Stream Name	SgaID / struct_num	Type	F1	F2	F3	F4	F5	F6	P1	P2	P3	P4	P5	P6	P7	Width
Bethel	RANDOLPH CENTER RD	Second Branch White River	100000002014041	Bridge	-	X	-	X	X	X	-	X	X	X	X	-	X	84 %
Bethel	STORE HILL RD	Second Branch White River	100000001914041	Bridge	-	X	X	X	X	X	-	X	X	X	X	-	X	58 %
Brookfield	Locke Lane	Second Branch White River	100000000809031	Bridge	-	X	X	X	X	X	-	-	-	X	-	-	X	42 %
Brookfield	PVT	Second Branch White River	700000000009031	Bridge	-	X	X	X	X	X	-	X	X	-	-	-	X	35 %
Brookfield	PVT	Second Branch White River	700000000109031	Bridge	-	X	X	X	X	X	-	X	X	X	-	-	X	33 %
Brookfield	PVT	Second Branch White River	700000000209031	Bridge	-	X	-	X	-	-	-	-	-	-	-	-	X	31 %

Town	Road	Stream Name	SgaID / struct_num	Type	F1	F2	F3	F4	F5	F6	P1	P2	P3	P4	P5	P6	P7	Width
Brookfield	PVT	Second Branch White River	700000000209033	Bridge	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	48 %
Brookfield	PVT	Second Branch White River	700000000309031	Bridge	-	X	X	X	-	X	-	X	X	-	-	-	X	40 %
Brookfield	PVT	Second Branch White River	700000000309033	Bridge	-	X	-	X	MD	-	-	-	-	-	X	MD	X	40 %
Brookfield	PVT	Second Branch White River	700000000409031	Culvert	-	X	X	X	X	X	-	X	X	X	-	-	X	19 %
Brookfield	PVT	Second Branch White River	700000000409033	Bridge	-	X	X	X	-	X	-	X	X	-	X	-	X	30 %
Brookfield	PVT	Second Branch White River	700000000509031	Bridge	-	X	X	X	X	X	-	X	X	X	-	-	X	32 %
Brookfield	PVT	Second Branch White River	700000000509033	Bridge	-	X	X	X	MD	X	-	-	-	X	-	MD	X	37 %
Brookfield	PVT	Second Branch White River	700000000609031	Bridge	-	X	X	X	X	X	-	-	-	X	-	-	X	48 %
Brookfield	PVT	Second Branch White River	700000000609033	Bridge	-	X	X	X	-	X	-	X	X	X	-	-	-	28 %
Brookfield	PVT	Second Branch White River	700000000709031	Bridge	-	X	X	X	X	X	-	-	-	X	-	-	X	67 %
Brookfield	PVT	Second Branch White River	700000000709033	Bridge	-	-	-	-	-	X	-	-	-	X	-	-	-	84 %
Brookfield	PVT	Second Branch White River	700000000809033	Bridge	-	X	X	X	-	X	-	-	-	X	-	-	-	63 %

Town	Road	Stream Name	SgaID / struct_num	Type	F1	F2	F3	F4	F5	F6	P1	P2	P3	P4	P5	P6	P7	Width
Brookfield	BROWN DR	Second Branch White River	700000000909031	Culvert	-	X	X	X	X	X	-	X	-	X	-	X	X	30 %
Brookfield	MCKEAGE RD	Second Branch White River	400000000009031	Bridge	-	X	X	X	X	X	-	X	X	X	X	-	X	35 %
Brookfield	ROUTE 14	Second Branch White River	200014000009031	Culvert	-	X	X	X	X	X	-	X	X	X	-	-	X	31 %
Brookfield	ROUTE 14	Second Branch White River	200014000109031	Bridge	-	X	X	X	X	X	-	X	X	X	X	-	X	42 %
Brookfield	ROUTE 14	Second Branch White River	200014000209031	Bridge	-	-	-	X	-	X	X	-	-	-	X	-	X	138 %
Randolph	PVT	Second Branch White River	700000000309093	Bridge	-	X	X	X	-	X	-	X	X	-	-	-	X	63 %
Randolph	PVT	Second Branch White River	700000000409093	Bridge	-	X	X	X	-	X	-	X	X	-	-	-	X	31 %
Randolph	PVT	Second Branch White River	700000000509093	Bridge	-	-	-	-	-	X	-	X	X	X	-	-	-	84 %
Randolph	PVT	Second Branch White River	700000000609093	Bridge	-	-	-	-	-	X	-	X	X	X	-	-	-	76 %
Randolph	PVT	Second Branch White River	700000000709093	Bridge	-	X	X	X	-	X	-	X	X	-	-	-	X	82 %
Randolph	KINGSBURY RD	Second Branch White River	100000000709091	Bridge	-	X	X	X	X	X	-	X	X	X	-	-	X	64 %
Randolph	ROUTE 14 N	Second Branch White River	200014000009091	Bridge	-	X	X	X	-	X	X	X	X	-	X	-	X	88 %

Town	Road	Stream Name	SgaID / struct_num	Type	F1	F2	F3	F4	F5	F6	P1	P2	P3	P4	P5	P6	P7	Width
Randolph	ROUTE 14 N	Second Branch White River	200014000009092	Bridge	-	X	X	X	X	X	-	X	X	X	X	-	X	61 %
Randolph	ROUTE 14 N	Second Branch White River	990014000009091	Bridge	-	-	-	-	-	X	-	X	X	X	-	-	X	136 %
Royalton	VRL03	Second Branch White River	700000000114163	Bridge	-	-	-	-	-	X	-	X	X	X	-	-	X	120 %
Royalton	VAST Trail 12	Second Branch White River	700000000214163	Bridge	-	-	-	-	X	X	-	-	-	X	-	-	X	80 %
Royalton	ROUTE 107	Second Branch White River	200107000014162	Bridge	-	-	-	X	-	X	-	X	X	-	-	-	X	172 %
Royalton	ROUTE 14	Second Branch White River	200014000014161	Bridge	-	-	-	-	-	X	X	-	-	X	X	-	X	143 %
Royalton	ROUTE 14	Second Branch White River	200014000114162	Bridge	-	-	-	-	-	X	X	-	-	X	-	-	X	156 %
Williamstown	ROUTE 14	Second Branch White River	200014000009171	Bridge	-	-	-	X	-	X	-	-	-	-	X	-	X	157 %
Williamstown	ROUTE 14	Second Branch White River	200014000109171	Bridge	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	MD	438 %
Williamstown	ROUTE 14	Second Branch White River	200014000209171	Bridge	-	-	-	X	-	-	-	-	-	-	-	-	X	522 %
Williamstown	ROUTE 14	Second Branch White River	990014000009171	Bridge	-	-	-	X	-	X	X	X	X	-	X	-	X	169 %

Failure Modes - Problems and Causes

White River

Explanation of codes used in table header

Upstream Sediment Deposition		Upstream Scour and Erosion		Downstream Scour and Erosion		Poor Locacation or Aligment	
C1	Opening obstructed by sediment	C4	Bank armoring failing	C7	Bank armoring failing	C12	Stream approach angle is sharp bend
C2	Sediment deposits >= half bankfull	C5	Bank erosion high	C8	Bank erosion high	C13	Located at significant valley break
C3	Steep riffle upstream	C6	Scour under structure	C9	Scour under structure	C14	Avulsion follow road
				C10	Banks higher downstream than upstream		
				C11	Culvert outlet is cascade or freefall		

Yes = Condtion exists No = Condition does not exist MD = missing data

						Upstream Sediment Deposition			Upstream Scour and Erosion			Downstream Scour and Erosion					Poor Location or Alignment		
Town	Road	Stream Name	SgaID / struct_num	Type	Bankfull Width Percent	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
Bethel	RANDOLPH CENTER RD	Second Branch White River	100000002014041	Bridge	84 %	No	No	No	Yes	No	No	Yes	No	No	No		Yes	No	No
Bethel	STORE HILL RD	Second Branch White River	100000001914041	Bridge	58 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		Yes	No	No
Brookfield	Locke Lane	Second Branch White River	100000000809031	Bridge	42 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000009031	Bridge	35 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000109031	Bridge	33 %	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No		No	No	No

						Upstream Sediment Deposition			Upstream Scour and Erosion			Downstream Scour and Erosion					Poor Location or Alignment		
Town	Road	Stream Name	SgaID / struct_num	Type	Bankfull Width Percent	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
Brookfield	PVT	Second Branch White River	700000000109031	Bridge	33 %	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000109031	Bridge	33 %	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000109031	Bridge	33 %	No	No	No	Yes	No	Yes	Yes	Yes	Yes	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000209031	Bridge	31 %	No	No	No	No	No	No	No	No	No	Yes		No	No	No
Brookfield	PVT	Second Branch White River	700000000209031	Bridge	31 %	No	No	No	No	No	No	No	No	No	Yes		No	No	No
Brookfield	PVT	Second Branch White River	700000000209033	Bridge	48 %	MD	No	No	Yes	Yes	No	No	Yes	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000309031	Bridge	40 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000309031	Bridge	40 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000309033	Bridge	40 %	No	No	No	No	No	No	No	No	No	No		Yes	No	No
Brookfield	PVT	Second Branch White River	700000000409031	Culvert	19 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No	No	No	No	No
Brookfield	PVT	Second Branch White River	700000000409033	Bridge	30 %	No	No	No	Yes	Yes	Yes	Yes	No	No	No		Yes	No	No

						Upstream Sediment Deposition			Upstream Scour and Erosion			Downstream Scour and Erosion					Poor Location or Alignment		
Town	Road	Stream Name	SgaID / struct_num	Type	Bankfull Width Percent	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
Brookfield	PVT	Second Branch White River	700000000509031	Bridge	32 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000509033	Bridge	37 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000609031	Bridge	48 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000609033	Bridge	28 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000709031	Bridge	67 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000709033	Bridge	84 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Brookfield	PVT	Second Branch White River	700000000809033	Bridge	63 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Brookfield	BROWN DR	Second Branch White River	700000000909031	Culvert	30 %	No	No	No	No	No	Yes	No	No	No	No	No	No	No	No
Brookfield	MCKEAGE RD	Second Branch White River	400000000009031	Bridge	35 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		Yes	No	No
Brookfield	MCKEAGE RD	Second Branch White River	400000000009031	Bridge	35 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		Yes	No	No
Brookfield	MCKEAGE RD	Second Branch White River	400000000009031	Bridge	35 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		Yes	No	No

						Upstream Sediment Deposition			Upstream Scour and Erosion			Downstream Scour and Erosion					Poor Location or Alignment		
Town	Road	Stream Name	SgaID / struct_num	Type	Bankfull Width Percent	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
Brookfield	MCKEAGE RD	Second Branch White River	400000000009031	Bridge	35 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		Yes	No	No
Brookfield	ROUTE 14	Second Branch White River	200014000009031	Culvert	31 %	No	No	No	Yes	No	No	Yes	No	No	No	No	No	No	No
Brookfield	ROUTE 14	Second Branch White River	200014000109031	Bridge	42 %	No	No	No	Yes	No	Yes	Yes	No	Yes	Yes		Yes	No	No
Brookfield	ROUTE 14	Second Branch White River	200014000109031	Bridge	42 %	No	No	No	Yes	No	Yes	Yes	No	Yes	Yes		Yes	No	No
Brookfield	ROUTE 14	Second Branch White River	200014000209031	Bridge	138 %	Yes	No	No	No	No	No	No	No	No	Yes		Yes	No	Yes
Randolph	PVT	Second Branch White River	700000000309093	Bridge	63 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		No	No	No
Randolph	PVT	Second Branch White River	700000000409093	Bridge	31 %	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	No		No	No	No
Randolph	PVT	Second Branch White River	700000000509093	Bridge	84 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No
Randolph	PVT	Second Branch White River	700000000609093	Bridge	76 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No
Randolph	PVT	Second Branch White River	700000000709093	Bridge	82 %	No	No	No	Yes	No	Yes	Yes	No	Yes	No		No	No	No
Randolph	KINGSBURY RD	Second Branch White River	100000000709091	Bridge	64 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No

						Upstream Sediment Deposition			Upstream Scour and Erosion			Downstream Scour and Erosion					Poor Location or Alignment		
Town	Road	Stream Name	SgaID / struct_num	Type	Bankfull Width Percent	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
Randolph	ROUTE 14 N	Second Branch White River	200014000009091	Bridge	88 %	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No		Yes	No	Yes
Randolph	ROUTE 14 N	Second Branch White River	200014000009092	Bridge	61 %	No	No	No	Yes	No	No	Yes	No	No	No		Yes	No	No
Randolph	ROUTE 14 N	Second Branch White River	990014000009091	Bridge	136 %	No	No	No	Yes	Yes	No	Yes	No	No	Yes		No	No	No
Royalton	VRL03	Second Branch White River	700000000114163	Bridge	120 %	No	No	No	Yes	No	No	Yes	No	No	No		No	No	No
Royalton	VAST Trail 12	Second Branch White River	700000000214163	Bridge	80 %	No	No	No	No	No	No	No	No	No	No		No	No	No
Royalton	ROUTE 107	Second Branch White River	200107000014162	Bridge	172 %	No	No	No	Yes	No	No	Yes	Yes	No	No		No	No	No
Royalton	ROUTE 14	Second Branch White River	200014000014161	Bridge	143 %	No	No	Yes	No	No	No	No	No	No	No		Yes	No	No
Royalton	ROUTE 14	Second Branch White River	200014000114162	Bridge	156 %	No	No	Yes	No	No	No	No	No	No	No		No	No	No
Williamstown	ROUTE 14	Second Branch White River	200014000009171	Bridge	157 %	No	No	No	No	No	No	No	No	No	No		Yes	No	Yes
Williamstown	ROUTE 14	Second Branch White River	200014000109171	Bridge	438 %	MD	No	Yes	No	No	No	No	No	No	No		Yes	Yes	No
Williamstown	ROUTE 14	Second Branch White River	200014000209171	Bridge	522 %	No	No	No	No	No	No	No	No	No	No		No	No	No

						Upstream Sediment Deposition			Upstream Scour and Erosion			Downstream Scour and Erosion					Poor Location or Alignment		
Town	Road	Stream Name	SgaID / struct_num	Type	Bankfull Width Percent	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14
Williamstown	ROUTE 14	Second Branch White River	990014000009171	Bridge	169 %	Yes	No	No	Yes	No	No	No	No	No	No		Yes	No	No

Wildlife Passage

White River

Structures Potentially Suitable for Terrestrial Wildlife Movement

Large Wildlife = deer, moose, bear

Medium Wildlife = fisher, otter, coyote, fox

Small Wildlife = herps, small mammals

			X = meets criteria MD = missing data					Wildlife Species Observed		
Town	Road	Stream Name	SgaID / struct_num	Type	Small Wildlife	Medium Wildlife	Large Wildlife	Roadkill	Outside Structure	Inside Structure
Bethel	RANDOLPH CENTER RD	Second Branch White River	100000002014041	Bridge	-	-	MD	---	---	---
Bethel	STORE HILL RD	Second Branch White River	100000001914041	Bridge	-	-	MD	---	Deer - Tracks	---
Brookfield	Locke Lane	Second Branch White River	100000000809031	Bridge	-	-	MD	---	---	---
Brookfield	PVT	Second Branch White River	700000000009031	Bridge	-	-	MD	---	---	---
Brookfield	PVT	Second Branch White River	700000000109031	Bridge	-	-	MD	---	---	---
Brookfield	PVT	Second Branch White River	700000000209031	Bridge	-	-	MD	---	---	---
Brookfield	PVT	Second Branch White River	700000000209033	Bridge	-	-	MD	---	Beaver - Lodge	---
Brookfield	PVT	Second Branch White River	700000000309031	Bridge	-	-	MD	---	---	---
Brookfield	PVT	Second Branch White River	700000000309033	Bridge	-	-	MD	---	Beaver - Feeding Signs	Beaver - Lodge
Brookfield	PVT	Second Branch White River	700000000409031	Culvert	-	-	-	---	---	---
Brookfield	PVT	Second Branch White River	700000000409033	Bridge	-	-	MD	---	---	---
Brookfield	PVT	Second Branch White River	700000000509031	Bridge	-	-	MD	---	---	---

Town	Road	Stream Name	SgaID / struct_num	Type	Small Wildlife	Medium Wildlife	Large Wildlife	Roadkill	Outside Structure	Inside Structure
Brookfield	PVT	Second Branch White River	700000000509033	Bridge	-	-	MD	---	---	---
Brookfield	PVT	Second Branch White River	700000000609031	Bridge	-	-	MD	---	---	---
Brookfield	PVT	Second Branch White River	700000000609033	Bridge	-	-	MD	---	---	---
Brookfield	PVT	Second Branch White River	700000000709031	Bridge	-	-	MD	---	---	---
Brookfield	PVT	Second Branch White River	700000000709033	Bridge	-	-	MD	---	---	---
Brookfield	PVT	Second Branch White River	700000000809033	Bridge	-	-	MD	---	---	---
Brookfield	BROWN DR	Second Branch White River	700000000909031	Culvert	-	-	-	---	---	---
Brookfield	MCKEAGE RD	Second Branch White River	400000000009031	Bridge	-	-	MD	---	Deer - Tracks	---
Brookfield	ROUTE 14	Second Branch White River	200014000009031	Culvert	-	-	-	---	---	---
Brookfield	ROUTE 14	Second Branch White River	200014000109031	Bridge	-	-	MD	---	---	---
Brookfield	ROUTE 14	Second Branch White River	200014000209031	Bridge	X	-	MD	---	Beaver - Sighting	---
Randolph	PVT	Second Branch White River	700000000309093	Bridge	-	-	MD	---	---	---
Randolph	PVT	Second Branch White River	700000000409093	Bridge	-	-	MD	---	---	---
Randolph	PVT	Second Branch White River	700000000509093	Bridge	X	-	MD	---	---	---
Randolph	PVT	Second Branch White River	700000000609093	Bridge	-	-	MD	---	---	---
Randolph	PVT	Second Branch White River	700000000709093	Bridge	-	-	MD	---	---	---
Randolph	KINGSBURY RD	Second Branch White River	100000000709091	Bridge	-	-	MD	---	---	---

Town	Road	Stream Name	SgaID / struct_num	Type	Small Wildlife	Medium Wildlife	Large Wildlife	Roadkill	Outside Structure	Inside Structure
Randolph	ROUTE 14 N	Second Branch White River	200014000009091	Bridge	-	-	MD	---	---	---
Randolph	ROUTE 14 N	Second Branch White River	200014000009092	Bridge	-	-	MD	---	---	---
Randolph	ROUTE 14 N	Second Branch White River	990014000009091	Bridge	-	-	MD	---	---	---
Royalton	VRL03	Second Branch White River	700000000114163	Bridge	X	-	MD	---	---	---
Royalton	VAST Trail 12	Second Branch White River	700000000214163	Bridge	X	-	MD	---	---	---
Royalton	ROUTE 107	Second Branch White River	200107000014162	Bridge	X	-	MD	---	---	---
Royalton	ROUTE 14	Second Branch White River	200014000014161	Bridge	X	-	MD	Turtle	---	---
Royalton	ROUTE 14	Second Branch White River	200014000114162	Bridge	X	-	MD	---	---	---
Williamstown	ROUTE 14	Second Branch White River	200014000009171	Bridge	-	-	MD	---	---	---
Williamstown	ROUTE 14	Second Branch White River	200014000109171	Bridge	X	-	MD	---	---	---
Williamstown	ROUTE 14	Second Branch White River	200014000209171	Bridge	X	-	MD	---	---	---
Williamstown	ROUTE 14	Second Branch White River	990014000009171	Bridge	X	-	MD	---	---	---

VERMONT

Stream Geomorphic Assessment

Agency of Natural Resouces

VT DEC

Vermont.gov

March, 18 2021

Aquatic Organism Passage

White River

Geomorphic Compatibility

Retrofit Potential

Explanation of codes used in table header

Explanation of data acquisition (link)

AOP Coarse Screen		AOP Geomorphic Compatibility		AOP Retrofit Potential	
Green	Full AOP for all aquatic organisms	**Green**	Structure is fully compatable geomorphically 20 < GC < 25	**H**	High probablity the existing culvert can be retrofited
Gray	Reduced AOP for all aquatic organisms	**Light Green**	Structure is mostly compatable geomorphically 15 < GC < 20	**M**	Medium probablity the existing culvert can be retrofited
Orange	No AOP for all aquatic organisms except adult salmonids	**Yellow**	Structure is partially compatable geomorphically 10 < GC < 15	**L**	Low probablity the existing culvert can be retrofited
Red	No AOP for all aquatic organisms including adult salmonids	**Orange**	Structure is mostly incompatable geomorphically 5 < GC < 10	**Pos 1 (left)**	For strong swimmers
		Red	Structure is fully incompatable geomorphically 0 < GC < 5	**Pos2 (Center)**	For moderate swimmers
				Pos 3 (right)	For weak swimmers

Town	Road	Stream Name	SgaID / struct_num	AOP Coarse Screen	AOP Geomorphic Compatibility	AOP Retrofit Potential	Percent Bankfull Width
Brookfield	PVT	Second Branch White River	700000000409031	Full AOP	Partially Compatable	LLL	19 %
Brookfield	BROWN DR	Second Branch White River	700000000909031	Reduced AOP	Mostly Compatable	MLL	30 %
Brookfield	ROUTE 14	Second Branch White River	200014000009031	Full AOP	Partially Compatable	MLL	31 %

VERMONT

Stream Geomorphic Assessment

Agency of Natural Resouces

VT DEC

Vermont.gov

March, 18 2021

Bridge Summary Report

White River

General Information

SgaID	700000000114163	Local SgaID		VOBCIT struct_num	
Observers	WRP-cp,dr	Assessment Date	7/16/2019	Project Name	White River - Second Branch
Town	Royalton	Latitude	43.82534	Longitude	-72.56660
Location	RR bridge near mouth of Second Branch; NECR line VRL03			Reach VTID	M01
Road Name		Road Type	Railroad	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	87.2

Bridge Information

Bridge Width	20	Material	Steel
Bridge Clearance	18	Number of bridge piers/arches	0
Bridge/Arch Span	105		
		Skewed to roadway?	Yes

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Naturally Straight
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Cobble	Cobble
Bedrock Present	Yes	Yes	No
Type of Sediment Deposits	None	Delta	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Deciduous Forest	Shrub/Sapling	
Dominant Vegetation Type - Right	Herbaceous/Grass	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	Yes	Yes	
Vegitation Band -Right	No	No	

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS?	Yes	Photos taken?	Yes

Comments **New England Central RR line, active. Creosoted timbers on steel I-beams. Last bridge before confluence with mainstem**

Bridge Summary Report

White River

General Information

SgaID	100000000709091	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/15/2019	Project Name	White River - Second Branch
Town	Randolph	Latitude	43.88087	Longitude	-72.58202
Location	Kingsbury Covered Bridge is located 4.5 miles north of the VT-100 and VT-14 junction on Kingsbury Road.			Reach VTID	M05
Road Name	KINGSBURY RD	Road Type	Paved	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	79.5

Bridge Information

Bridge Width	15	Material	Timber
Bridge Clearance	7.8	Number of bridge piers/arches	0
Bridge/Arch Span	50.8		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Channelized Straight
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Sand	Sand	Sand
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Road Embankment	Road Embankment	
Dominant Vegetation Type - Right	Herbaceous/Grass	Deciduous Forest	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No	
Vegitation Band -Right	No	No	

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Covered Bridge - wood deck appears to be in good shape. Has a dry hydrant underneath bridge in moderately deep run.**

Bridge Summary Report

White River

General Information

SgaID	**200014000009091**	Local SgaID		VOBCIT struct_num	
Observers	**WRP - cp,dr**	Assessment Date	**7/15/2019**	Project Name	**White River - Second Branch**
Town	**Randolph**	Latitude	**43.89009**	Longitude	**-72.58020**
Location	**Bridge is along VT-14, it is located approximately 2,000 feet south of the VT-14 and South Randolph Road intersection.**			Reach VTID	**M05**
Road Name	**ROUTE 14 N**	Road Type	**Paved**	Stream Name	**Second Branch White River**

High Flow Stage **No** Channel Width **79.16**

Bridge Information

Bridge Width	**21**	Material	**Concrete**
Bridge Clearance	**7.7**	Number of bridge piers/arches	**1**
Bridge/Arch Span	**70**		
		Skewed to roadway?	**No**

Geomorphic Information

General

Floodplain filled by roadway approaches **Entirely**

Structure is located at significant break in valley slope **No**

Upstream

Obstructions at the opening of the structure **Sediment**

Estimated distance avulsion would follow road **500**

Steep riffle present immediately upstream of structure **Yes**

Angle of stream flow approaching structure **Sharp Bend**

If channel avulses, stream will **Follow Road**

Downstream

Pool present immediately downstream of structure **Yes**

Downstream bank heights are substantially higher than upstream bank heights **No**

Pool Depth at point of streamflow entry **No** **0 ft.** **0**

	Upstream	Downstream	In Structure
Dominant Bed Material	**Sand**	**Sand**	**Sand**
Bedrock Present	**No**	**No**	**No**
Type of Sediment Deposits	**Point**	**Side**	**Side**
Elevation of sediment deposits >= 1/2 bankfull	**No**	**No**	**No**
Bank Erosion	**High**	**High**	
Hard Bank Armoring	**Failing**	**Failing**	
Stream bed scour causing undermining around or under structure	**Abutments**	**Abutments**	
Beaver Dam near Structure	**No**	**No**	
Beaver Dam distance (ft.)	**0**	**0**	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	**Herbaceous/Grass**	**Herbaceous/Grass**	
Dominant Vegetation Type - Right	**Road Embankment**	**Herbaceous/Grass**	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	**No**	**No**
Vegitation Band -Right	**No**	**No**

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Bridge with 1 pier. Right bank side of bridge (right side pier opening) is almost completely full of sediment. At low flow, all water is flowing through left pier opening.**

Bridge Summary Report

White River

General Information

SgaID	700000000609093	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/11/2019	Project Name	White River - Second Branch
Town	Randolph	Latitude	43.96557	Longitude	-72.55533
Location	VAST Bridge that is located directly downstream of the RT. 14 state bridge that is approximately 500 feet north of Ferris Rd.			Reach VTID	M11
Road Name		Road Type	Trail	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	58.9

Bridge Information

Bridge Width	6.5	Material	Timber
Bridge Clearance	5.5	Number of bridge piers/arches	0
Bridge/Arch Span	45		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Not Significant	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Naturally Straight
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Cobble	Cobble
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	
Dominant Vegetation Type - Right	Shrub/Sapling	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No

Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **No** Photos taken?

Comments **VAST bridge**

Bridge Summary Report

White River

General Information

SgaID	100000000809031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/11/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.01862	Longitude	-72.57398
Location	This bridge is located on Locke Ln. in Brookfield, VT. The bridge is about .2 miles down Locke Lane from the RT-14 intersection.			Reach VTID	M14
Road Name		Road Type	Gravel	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	47.9

Bridge Information

Bridge Width	14	Material	Timber
Bridge Clearance	5	Number of bridge piers/arches	0
Bridge/Arch Span	20		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Channelized Straight
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Gravel	Gravel
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Intact	Intact	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Shrub/Sapling	
Dominant Vegetation Type - Right	Shrub/Sapling	Herbaceous/Grass	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	Yes	Yes

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Stacked stone abutment with timber bridge.**

Bridge Summary Report

White River

General Information

SgaID	700000000209031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/9/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.03134	Longitude	-72.56850
Location	This bridge is located approximately 800 feet northeast of the RT 65 and RT 14 intersection.			Reach VTID	M15
Road Name		Road Type	Trail	Stream Name	Second Branch White River

High Flow Stage: **No** Channel Width: **38.9**

Bridge Information

Bridge Width	8	Material	Timber
Bridge Clearance	1.5	Number of bridge piers/arches	0
Bridge/Arch Span	12		
		Skewed to roadway?	Yes

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	Wood debris, Deformation	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Channelized Straight
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure		No	
Downstream bank heights are substantially higher than upstream bank heights		Yes	
Pool Depth at point of streamflow entry		No 0 ft.	0

	Upstream	Downstream	In Structure
Dominant Bed Material	Sand	Sand	Gravel
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	Low	Low	
Hard Bank Armoring	None	None	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure

Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass
Dominant Vegetation Type - Right	Herbaceous/Grass	Herbaceous/Grass

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **This timber bridge has a crushed tank culvert underneath it. The culvert no longer functions as intended as water can out flank the structure. Culvert in this state manly acts as an obstruction to the bridge.**

Bridge Summary Report — White River

General Information

SgaID	700000000509031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/9/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.03874	Longitude	-72.56609
Location	Farm Bridge located on Sprague Farm behind their large barns.			Reach VTID	M15
Road Name		Road Type	Trail	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	37.7

Bridge Information

Bridge Width	8	Material	Timber
Bridge Clearance	5	Number of bridge piers/arches	0
Bridge/Arch Span	12		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Mild Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	Yes		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Cobble	Cobble
Bedrock Present	No	No	No
Type of Sediment Deposits	None	Point	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	Footers	Footers	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	
Dominant Vegetation Type - Right	Herbaceous/Grass	Herbaceous/Grass	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Timber farm bridge with wood deck and a metal frame gate/siding on the bridge. Looks to be a cattle bridge.**

Bridge Summary Report

White River

General Information

SgaID	700000000109031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	8/23/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.00422	Longitude	-72.56567
Location	This private bridge is along the trail road that is directly across RT. 14 from Willow Grove Ln. in Brookfield VT.			Reach VTID	M13
Road Name		Road Type	Trail	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	51.9

Bridge Information

Bridge Width	14.5	Material	Steel
Bridge Clearance	6	Number of bridge piers/arches	0
Bridge/Arch Span	17.2		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Mild Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	Yes		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	Yes 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Gravel	Sand
Bedrock Present	No	No	No
Type of Sediment Deposits	Point	Point	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	Low	High	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	Abutments, Footers	Abutments, Footers	
Beaver Dam near Structure	No	No	

Beaver Dam distance (ft.)	0	0

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Shrub/Sapling	Shrub/Sapling	
Dominant Vegetation Type - Right	Shrub/Sapling	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Concrete waste blocks on top of old timbers, then 4 I-beams with a wood deck.**

Bridge Summary Report

White River

General Information

SgaID	700000000214163	Local SgaID		VOBCIT struct_num	
Observers	WRP-cp,dr	Assessment Date	7/16/2019	Project Name	White River - Second Branch
Town	Royalton	Latitude	43.82587	Longitude	-72.56650
Location	VAST Bridge in between Route 107 and Railroad Bridge. 2nd to last bridge before confluence of second branch and main stem.			Reach VTID	M01
Road Name		Road Type	Trail	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	87.2

Bridge Information

Bridge Width	9.5	Material	Steel
Bridge Clearance	11.5	Number of bridge piers/arches	0
Bridge/Arch Span	70		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Mild Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	Yes		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Cobble	Gravel
Bedrock Present	Yes	Yes	Yes
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	Low	None	
Hard Bank Armoring	None	None	
	None	None	

Stream bed scour causing undermining around or under structure		
Beaver Dam near Structure	No	No
Beaver Dam distance (ft.)	0	0

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Deciduous Forest	Shrub/Sapling	
Dominant Vegetation Type - Right	Herbaceous/Grass	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	Yes	Yes
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **I-Beams sitting on large waist-blocks. Timber decking is failing. Saw rainbow trout in pool under bridge.**

Bridge Summary Report

White River

General Information

SgaID	700000000709093	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/29/2019	Project Name	White River - Second Branch
Town	Randolph	Latitude	43.97502	Longitude	-72.55441
Location	Located on private property that is adjacent to RT. 14. The river follows along the right side of RT. 14 (when heading North). The bridge is approximately 350 feet to the left of Rt. 14 and it is located about 500 feet north of N. Randolph Rd.			Reach VTID	M11
Road Name		Road Type	Trail	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	55.17

Bridge Information

Bridge Width	6.5	Material	Timber
Bridge Clearance	3	Number of bridge piers/arches	1
Bridge/Arch Span	45		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	Wood debris	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Naturally Straight
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure		Yes	
Downstream bank heights are substantially higher than upstream bank heights		No	
Pool Depth at point of streamflow entry		No 0 ft.	0

	Upstream	Downstream	In Structure
Dominant Bed Material	Sand	Boulder	Bedrock
Bedrock Present	No	Yes	Yes
Type of Sediment Deposits	None	None	None
	No	No	No

Elevation of sediment deposits >= 1/2 bankfull		
Bank Erosion	Low	Low
Hard Bank Armoring	Failing	Failing
Stream bed scour causing undermining around or under structure	Abutments	Abutments
Beaver Dam near Structure	No	No
Beaver Dam distance (ft.)	0	0

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Deciduous Forest	Deciduous Forest	
Dominant Vegetation Type - Right	Deciduous Forest	Deciduous Forest	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	Yes	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Log stringer bridge. Has a stacked stone pier that is about 20 ft. from river left and 10 ft. from river right. Left abutment is higher than the right abutment. 3 ft. clearance river left, double the clearance on river right.**

Bridge Summary Report — White River

General Information

SgaID	400000000009031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/11/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.00956	Longitude	-72.56774
Location	Bridge along McKeage Rd. in Brookfield, VT.			Reach VTID	M13
Road Name	MCKEAGE RD	Road Type	Gravel	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	51.49

Bridge Information

Bridge Width	16	Material	Steel
Bridge Clearance	5.3	Number of bridge piers/arches	0
Bridge/Arch Span	18		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Sharp Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Gravel	Gravel
Bedrock Present	No	No	No

Type of Sediment Deposits	Side	Side	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	Low	Low	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	Wing walls, Abutments	Wing walls, Abutments	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Shrub/Sapling	
Dominant Vegetation Type - Right	Herbaceous/Grass	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	Deer - Tracks	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **River is littered with old stone upstream, under, and downstream of the bridge. Bridge sits on concrete abutment with steel I-beams and a wood deck.**

Bridge Summary Report

White River

General Information

SgaID	990014000009091	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/11/2019	Project Name	White River - Second Branch
Town	Randolph	Latitude	43.96565	Longitude	-72.55494
Location	Bridge is along RT-14 approximately 500 ft. north of Ferris Rd.			Reach VTID	M11
Road Name	ROUTE 14 N	Road Type	Paved	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	58.85

Bridge Information

Bridge Width	33	Material	Steel
Bridge Clearance	15	Number of bridge piers/arches	0
Bridge/Arch Span	80	Skewed to roadway?	Yes

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Mild Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	Yes		
Downstream bank heights are substantially higher than upstream bank heights	Yes		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure

Dominant Bed Material	Gravel	Cobble	Gravel
Bedrock Present	No	No	No
Type of Sediment Deposits	Point	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	High	None	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	
Dominant Vegetation Type - Right	Shrub/Sapling	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments

Bridge Summary Report

White River

General Information

SgaID	700000000309033	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	8/23/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	43.99492	Longitude	-72.55965
Location	Bridge is located behind auto yard along Rt. 14 that is located just north of Willis Rd. in Brookfield.			Reach VTID	M12
Road Name		Road Type	Trail	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	52.59

Bridge Information

Bridge Width	12	Material	Steel
Bridge Clearance	5.1	Number of bridge piers/arches	0
Bridge/Arch Span	21		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	Wood debris	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Sharp Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure		Yes	
Downstream bank heights are substantially higher than upstream bank heights		No	
Pool Depth at point of streamflow entry		No	0

0 ft.

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Cobble	Sand
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Intact	Intact	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	Yes		
Beaver Dam distance (ft.)	1	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	
Dominant Vegetation Type - Right	Herbaceous/Grass	Herbaceous/Grass	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	Beaver - Feeding Signs	Beaver - Lodge

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Beaver dam at inlet of bridge. Bridge sits on concrete waste blocks with steel I-beams and a wood/grate metal deck. Long timbers span each side of the bridge deck.**

Bridge Summary Report

White River

General Information

SgaID	700000000709033	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/23/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.02465	Longitude	-72.57287
Location	This private bridge sits behind the houses (west of the houses) that have the following address range: 6093-6027 Main St, Brookfield, VT 05036.			Reach VTID	M14
Road Name		Road Type	Trail	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	47.5

Bridge Information

Bridge Width	8	Material	Steel
Bridge Clearance	3.7	Number of bridge piers/arches	0
Bridge/Arch Span	40	Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Not Significant	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Mild Bend
If channel avulses, stream will	Cross Road		

Downstream	
Pool present immediately downstream of structure	Yes
Downstream bank heights are substantially higher than upstream bank heights	No
Pool Depth at point of streamflow entry	No 0 ft.

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Cobble	Cobble
Bedrock Present	No	No	No
Type of Sediment Deposits	Side	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	Low	Low	
Hard Bank Armoring	None	None	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Deciduous Forest	Shrub/Sapling	
Dominant Vegetation Type - Right	Deciduous Forest	Herbaceous/Grass	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Footbridge. Appears to be a pinch point in the river, the bridge does not sit on abutments but instead the banks of each side of the river. Bridge is made of steel I-beams with a deck and railings made of wood.**

Culvert Summary Report — White River

General Information

SgaID	700000000409031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/8/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.03699	Longitude	-72.56611
Location	Culvert on the Sprague Farm property.			Reach VTID	M15
Road Name		Road Type	Trail	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	37.8

Culvert Information

Culvert Length	20	Material	Steel Corrugated
Culvert Height	6.5	Number of culverts	1
Culvert Width	7	Culvert Overflow Pipe	No
		Skewed to roadway?	No

Geomorphic Information

General			
Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No
		Culvert slope as compared with channel slope is significantly	Same
Upstream			
Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
	No	Angle of stream flow approaching structure	

Steep riffle present immediately upstream of structure	Channelized
If channel avulses, stream will	Straight
	Cross Road

Downstream

Pool present immediately downstream of structure	Yes	Water depth in culvert (at outlet)	1.5
Downstream bank heights are substantially higher than upstream bank heights	No	Culvert outlet invert	At Grade
Stepped Footers	1.5 ft.	Backwater Length (measured from outlet)	0
Maximum pool depth	3.5 ft.	Backwater Length (measured from outlet)	0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Cobble	Cobble
Bedrock Present	No	No	
Type of Sediment Deposits	None	Mid-channel	None
Material Present throughout			Yes
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	Low	Low	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	Culvert	Culvert	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	
Dominant Vegetation Type - Right	Herbaceous/Grass	Herbaceous/Grass	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Farm culvert placed on Sprague Farm property. Appears to be no active road over culvert structure.**

Bridge Summary Report

White River

General Information

SgaID	200014000114162	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/15/2019	Project Name	White River - Second Branch
Town	Royalton	Latitude	43.84209	Longitude	-72.58583
Location	Bridge located along VT-14 about 1.5 miles north of VT-14 and VT-107 intersection.			Reach VTID	M02
Road Name	ROUTE 14	Road Type	Paved	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	85.02

Bridge Information

Bridge Width	30	Material	Steel
Bridge Clearance	11.5	Number of bridge piers/arches	0
Bridge/Arch Span	133		
		Skewed to roadway?	Yes

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	Yes	Angle of stream flow approaching structure	Naturally Straight
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Sand	Sand	Sand
Bedrock Present	No	No	No
Type of Sediment Deposits	Side	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	Low	
Hard Bank Armoring	Intact	Intact	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Deciduous Forest	Herbaceous/Grass	
Dominant Vegetation Type - Right	Herbaceous/Grass	Deciduous Forest	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	Yes	No
Vegitation Band -Right	No	Yes

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Bridge Number: VT-27. Stamps on bridge indicate it was constructed/redone in 2015. Rusty crayfish spotted underneath structure.**

Bridge Summary Report

White River

General Information

SgaID	700000000509093	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/11/2019	Project Name	White River - Second Branch
Town	Randolph	Latitude	43.96021	Longitude	-72.55133
Location	This bridge is located 50 feet downstream of the VT-14 bridge that is about 1,500 feet south of Ferris Rd.			Reach VTID	M11
Road Name		Road Type	Trail	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	59.2

Bridge Information

Bridge Width	12.5	Material	Timber
Bridge Clearance	7.5	Number of bridge piers/arches	0
Bridge/Arch Span	50		
		Skewed to roadway?	No

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Stream Geomorphic Assessment

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March, 18 2021

Geomorphic Information

General

Floodplain filled by roadway approaches	Not Significant	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Naturally Straight
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Cobble	Cobble
Bedrock Present	No	No	No
Type of Sediment Deposits	None	Side	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Deciduous Forest	Deciduous Forest	
Dominant Vegetation Type - Right	Deciduous Forest	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	Yes	Yes	
Vegitation Band -Right	Yes	No	

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Wood deck of bridge is deteriorating, appears that deck may be unsafe for crossing.**

Bridge Summary Report

White River

General Information

SgaID	200014000014161	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/15/2019	Project Name	White River - Second Branch
Town	Royalton	Latitude	43.84885	Longitude	-72.58811
Location	This bridge is along VT-14 directly north of Morse Road.			Reach VTID	M03
Road Name	ROUTE 14	Road Type	Paved	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	84.66

Bridge Information

Bridge Width	32	Material	Steel
Bridge Clearance	18	Number of bridge piers/arches	0
Bridge/Arch Span	121		

Skewed to roadway? **Yes**

Geomorphic Information

General

Floodplain filled by roadway approaches	**Entirely**	Structure is located at significant break in valley slope	**No**

Upstream

Obstructions at the opening of the structure	**None**	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	**Yes**	Angle of stream flow approaching structure	**Sharp Bend**
If channel avulses, stream will	**Unsure**		

Downstream

Pool present immediately downstream of structure	**Yes**		
Downstream bank heights are substantially higher than upstream bank heights	**No**		
Pool Depth at point of streamflow entry	**No** **0 ft.**		**0**

	Upstream	Downstream	In Structure
Dominant Bed Material	**Gravel**	**Bedrock**	**Bedrock**
Bedrock Present	**Yes**	**Yes**	**Yes**
Type of Sediment Deposits	**None**	**Side**	**None**
Elevation of sediment deposits >= 1/2 bankfull	**No**	**No**	**No**
Bank Erosion	**Low**	**None**	
Hard Bank Armoring	**Intact**	**Intact**	
Stream bed scour causing undermining around or under structure	**None**	**None**	
Beaver Dam near Structure	**No**	**No**	
Beaver Dam distance (ft.)	**0**	**0**	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	**Herbaceous/Grass**	**Deciduous Forest**	
Dominant Vegetation Type - Right	**Herbaceous/Grass**	**Deciduous Forest**	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	**No**	**Yes**	
Vegitation Band -Right	**Yes**	**No**	

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	**Turtle**	**None**	**None**

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Bridge sits over location of a removed dam. Step ledge slide from start of bridge down to a deep scour pool at bridge outlet. Popular fishing location.**

Bridge Summary Report

White River

General Information

SgaID	**200014000009092**	Local SgaID		VOBCIT struct_num	
Observers	**WRP - cp,dr**	Assessment Date	**7/11/2019**	Project Name	**White River - Second Branch**
Town	**Randolph**	Latitude	**43.96022**	Longitude	**-72.55162**
Location	**Bridge is along Rt. 14 approximately 1,500 feet south of Ferris Rd.**			Reach VTID	**M11**
Road Name	**ROUTE 14 N**	Road Type	**Paved**	Stream Name	**Second Branch White River**
High Flow Stage	**No**			Channel Width	**59.2**

Bridge Information

Bridge Width	**18**	Material	**Concrete**

Bridge Clearance	15	Number of bridge piers/arches	0
Bridge/Arch Span	36		
		Skewed to roadway?	Yes

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Sharp Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Cobble	Cobble
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Deciduous Forest	Deciduous Forest	
Dominant Vegetation Type - Right	Deciduous Forest	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	Yes	Yes	
Vegitation Band -Right	Yes	No	

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS?	Yes	Photos taken?	Yes

Comments **Concrete on bridge (side walls) is crumbling in places.**

Bridge Summary Report

White River

General Information

SgaID	200107000014162	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/15/2019	Project Name	White River - Second Branch
Town	Royalton	Latitude	43.82713	Longitude	-72.56698
Location	VT-107 bridge. At intersection of VT -14 and VT-107.			Reach VTID	M01
Road Name	ROUTE 107	Road Type	Paved	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	87.2

Bridge Information

Bridge Width	30	Material	Steel
Bridge Clearance	35	Number of bridge piers/arches	2
Bridge/Arch Span	150		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	Deformation	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Mild Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure		No	
Downstream bank heights are substantially higher than upstream bank heights		No	
Pool Depth at point of streamflow entry		No 0 ft.	0

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Cobble	Cobble
Bedrock Present	Yes	No	No
Type of Sediment Deposits	Side	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	High	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Deciduous Forest	Deciduous Forest	
Dominant Vegetation Type - Right	Deciduous Forest	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	Yes	Yes
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS?	Yes	Photos taken?	Yes

Comments **Due to size of bridge and traffic while taking measurements, the span of the bridge and the clearance of the bridge were measured using laser distance measure.**

Culvert Summary Report

White River

General Information

SgaID	200014000009031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/11/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	43.98673	Longitude	-72.55705
Location	This culvert crosses RT-14 in Brookfield, VT at approximately 1 mile north of the RT. 14 and N. Randolph Rd. intersection.			Reach VTID	M12
Road Name	ROUTE 14	Road Type	Paved	Stream Name	

March, 18 2021

Second Branch White River

High Flow Stage	No	Channel Width	54.4

Culvert Information

Culvert Length	150	Material	Steel Corrugated
Culvert Height	11.2	Number of culverts	1
Culvert Width	17	Culvert Overflow Pipe	No
		Skewed to roadway?	Yes

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No
		Culvert slope as compared with channel slope is significantly	Same

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Mild Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No	Water depth in culvert (at outlet)	1.2
Downstream bank heights are substantially higher than upstream bank heights	No	Culvert outlet invert	At Grade
Stepped Footers	0 ft.	Backwater Length (measured from outlet)	0
Maximum pool depth	0 ft.	Backwater Length (measured from outlet)	0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Gravel	Cobble
Bedrock Present	No	No	
Type of Sediment Deposits	None	None	None
Material Present throughout			Yes
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	Low	Low	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Shrub/Sapling	Shrub/Sapling	
Dominant Vegetation Type - Right	Shrub/Sapling	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	Yes
Vegitation Band -Right	Yes	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? Yes

Photos taken? Yes

Comments **Upstream bed material in culvert was cobble, transitioned to sand in downstream section of culvert. Culvert width is undersized for stream size.**

Bridge Summary Report

White River

General Information

SgaID	700000000809033	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/11/2019	Project Name	White River - Second Branch

VERMONT

Stream Geomorphic Assessment

Agency of Natural Resouces

VT DEC

Vermont.gov

March, 18 2021

Town	**Brookfield**	Latitude	**44.02603**	Longitude	**-72.57191**
Location	**This farm bridge is set about 200 feet to the west of Rt. 14. The bridge is about 200 feet south of the intersection between Rt. 14 and East Hill Rd.**			Reach VTID	**M14**
Road Name		Road Type	**Trail**	Stream Name	**Second Branch White River**
High Flow Stage	**No**			Channel Width	**47.46**

Bridge Information

Bridge Width	**5**	Material	**Timber**
Bridge Clearance	**4**	Number of bridge piers/arches	**0**
Bridge/Arch Span	**30**		
		Skewed to roadway?	**No**

Geomorphic Information

General

Floodplain filled by roadway approaches	**Not Significant**	Structure is located at significant break in valley slope	**No**

Upstream

Obstructions at the opening of the structure	**None**	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	**No**	Angle of stream flow approaching structure	**Channelized Straight**
If channel avulses, stream will	**Cross Road**		

Downstream

Pool present immediately downstream of structure	**No**		
Downstream bank heights are substantially higher than upstream bank heights	**No**		
Pool Depth at point of streamflow entry	**No** **0 ft.**		**0**

	Upstream	Downstream	In Structure
Dominant Bed Material	**Cobble**	**Cobble**	**Cobble**
Bedrock Present	**No**	**No**	**No**
Type of Sediment Deposits	**None**	**None**	**None**
Elevation of sediment deposits >= 1/2 bankfull	**No**	**No**	**No**
Bank Erosion	**None**	**None**	
Hard Bank Armoring	**None**	**None**	
Stream bed scour causing undermining around or under structure	**None**	**None**	
Beaver Dam near Structure	**No**	**No**	
Beaver Dam distance (ft.)	**0**	**0**	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	**Herbaceous/Grass**	**Herbaceous/Grass**	
Dominant Vegetation Type - Right	**Herbaceous/Grass**	**Herbaceous/Grass**	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	**No**	**No**	
Vegitation Band -Right	**No**	**No**	

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	**None**	**None**	**None**

Other Information

Spatial location data collected with GPS?	**Yes**	Photos taken?	**Yes**

Comments **Farm bridge with concrete blocks as abutments and timbers for the deck. Waste block abutments are placed up out of the stream above the banks (similar to designs seen on GMNF). No established buffer along river stretch but local farmer is trying to reestablish butternut population.**

Bridge Summary Report

White River

VERMONT

Stream Geomorphic Assessment

Agency of Natural Resouces

VT DEC

Vermont.gov

March, 18 2021

General Information

SgaID	200014000109031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/11/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.02673	Longitude	-72.57104
Location	Bridge is along Rt-14, right near the intersection of Rt-14 and East Hill Rd.			Reach VTID	M14
Road Name	ROUTE 14	Road Type	Paved	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	47.16

Bridge Information

Bridge Width	31	Material	Concrete
Bridge Clearance	5.2	Number of bridge piers/arches	0
Bridge/Arch Span	20		
		Skewed to roadway?	Yes

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Sharp Bend
If channel avulses, stream will	Unsure		

Downstream

Pool present immediately downstream of structure	Yes		
Downstream bank heights are substantially higher than upstream bank heights	Yes		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Cobble	Cobble
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	Low	Low	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	Footers	Footers, Wing walls	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	
Dominant Vegetation Type - Right	Shrub/Sapling	Herbaceous/Grass	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS?	Yes	Photos taken?	Yes

Comments **Concrete bridge with large wing walls. Opening is only 20 feet, appears to be very undersized.**

VERMONT

Stream Geomorphic Assessment

Agency of Natural Resouces

VT DEC

Vermont.gov

March, 18 2021

Bridge Summary Report

White River

General Information

SgaID	700000000409033	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	8/23/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	43.99969	Longitude	-72.56357
Location	This farm bridge is set approximately 500 ft. west of the house block of 111-181 Main St Brookfield, VT 05036.			Reach VTID	M13
Road Name		Road Type	Trail	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	53.13

Bridge Information

Bridge Width	15.5	Material	Steel
Bridge Clearance	4.4	Number of bridge piers/arches	0
Bridge/Arch Span	16		
		Skewed to roadway?	Yes

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	Wood debris	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Sharp Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	Yes		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Sand	Sand	Sand
Bedrock Present	No	No	No
Type of Sediment Deposits	Point	Point	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	High	Low	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	Abutments	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	
Dominant Vegetation Type - Right	Herbaceous/Grass	Herbaceous/Grass	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No	
Vegitation Band -Right	No	No	

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS?	Yes	Photos taken?	Yes

Comments **Bed scour upstream, downstream. and in structure. Bridge sits on concrete abutments with steel I-beams and a wood deck.**

Bridge Summary Report

White River

General Information

SgaID	100000002014041	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/15/2019	Project Name	White River - Second Branch
Town	Bethel	Latitude	43.87516	Longitude	-72.58837
Location	Bridge runs along Randolph Center Road. It is located approximately .5 miles upstream of the Hyde Dam. Bridge is near the Lincoln Farm.			Reach VTID	M04
Road Name	RANDOLPH CENTER RD	Road Type	Paved	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	81.9

Bridge Information

Bridge Width	20.5	Material	Steel
Bridge Clearance	13.5	Number of bridge piers/arches	0
Bridge/Arch Span	68.5		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Sharp Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Sand	Sand	Sand
Bedrock Present	No	No	No
Type of Sediment Deposits	None	Side	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Deciduous Forest	Shrub/Sapling	
Dominant Vegetation Type - Right	Herbaceous/Grass	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	Yes	No	
Vegitation Band -Right	No	No	

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species			

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Not many features near bridge. Flat and sandy run. No active erosion at location but can see signs of passed failed rip-rap.**

Bridge Summary Report

White River

General Information

SgaID	**700000000309093**	Local SgaID		VOBCIT struct_num	
Observers	**WRP - cp,dr**	Assessment Date	**8/1/2019**	Project Name	**White River - Second Branch**
Town	**Randolph**	Latitude	**43.88578**	Longitude	**-72.58478**
Location	**Farm Bridge located approximately 600 meters upstream of the Kingsbury Covered Bridge.**			Reach VTID	**M05**
Road Name		Road Type	**Trail**	Stream Name	**Second Branch White River**
High Flow Stage	**No**			Channel Width	**79.3**

Bridge Information

Bridge Width	**13.5**	Material	**Steel**
Bridge Clearance	**5.4**	Number of bridge piers/arches	**0**
Bridge/Arch Span	**50**		
		Skewed to roadway?	**No**

Geomorphic Information

General

Floodplain filled by roadway approaches	**Partially**	Structure is located at significant break in valley slope	**No**

Upstream

Obstructions at the opening of the structure	**Wood debris**	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	**No**	Angle of stream flow approaching structure	**Naturally Straight**
If channel avulses, stream will	**Cross Road**		

Downstream

Pool present immediately downstream of structure		**No**	
Downstream bank heights are substantially higher than upstream bank heights		**No**	
Pool Depth at point of streamflow entry		**No** **0 ft.**	**0**

	Upstream	Downstream	In Structure
Dominant Bed Material	**Sand**	**Sand**	**Sand**
Bedrock Present	**No**	**No**	**No**
Type of Sediment Deposits	**Point**	**Point**	**None**
Elevation of sediment deposits >= 1/2 bankfull	**No**	**No**	**No**
Bank Erosion	**Low**	**Low**	
Hard Bank Armoring	**Failing**	**Failing**	
Stream bed scour causing undermining around or under structure	**Abutments**	**Abutments**	
Beaver Dam near Structure	**No**	**No**	
Beaver Dam distance (ft.)	**0**	**0**	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	**Deciduous Forest**	**Deciduous Forest**	
Dominant Vegetation Type - Right	**Deciduous Forest**	**Deciduous Forest**	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	**No**	**No**
Vegitation Band -Right	**Yes**	**Yes**

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Farm bridge that is along a private trail. As of 8/1/2019 an excavator was sitting next to the bridge. Steel I-beams with wood deck.**

Bridge Summary Report

White River

General Information

SgaID	700000000509033	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/11/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.02148	Longitude	-72.57315
Location	Bridge is along private road that is approximately .2 miles north of Locke Lane in Brookfield, VT.			Reach VTID	M14
Road Name		Road Type	Gravel	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	48.1

Bridge Information

Bridge Width	14	Material	Steel
Bridge Clearance	6.2	Number of bridge piers/arches	0
Bridge/Arch Span	18		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Channelized Straight
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	Yes		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Gravel	Gravel
Bedrock Present	No	No	No
Type of Sediment Deposits	Point	Side	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Intact	Intact	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No		
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	
Dominant Vegetation Type - Right	Herbaceous/Grass	Herbaceous/Grass	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No

Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Concrete abutments with wing wall, steel I-beams and a wood deck. Pins still in concrete - appears to be relatively new.**

Bridge Summary Report

White River

General Information

SgaID	700000000309031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/9/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.03597	Longitude	-72.56666
Location	Bridge is on private farm road that runs through the Sprague Farm property.			Reach VTID	M15
Road Name		Road Type	Trail	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	37.9

Bridge Information

Bridge Width	3	Material	Timber
Bridge Clearance	5	Number of bridge piers/arches	0
Bridge/Arch Span	15		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	Wood debris, Deformation	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Channelized Straight
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	Yes		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Gravel	Gravel
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	Low	Low	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	

Dominant Vegetation Type - Right	Herbaceous/Grass	Herbaceous/Grass

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Farm bridge with crushed culvert underneath. Culvert is not functioning correctly - it is acting like an obstruction to the bridge.**

Bridge Summary Report

White River

General Information

SgaID	700000000709031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/9/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.04404	Longitude	-72.56556
Location	Farm bridge is located east of RT. 14 along Second Branch of White. The bridge is used for a farm road on the property of 499 Main Street, Brookfield VT.			Reach VTID	M15
Road Name		Road Type	Gravel	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	37.14

Bridge Information

Bridge Width	15	Material	Steel
Bridge Clearance	5	Number of bridge piers/arches	0
Bridge/Arch Span	25		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Channelized Straight
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Cobble	Cobble
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Intact	Intact	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	
Dominant Vegetation Type - Right	Herbaceous/Grass	Herbaceous/Grass	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Bridge sits on steel beams with a wood deck. The bridge appears to lead to a sand/gravel pit on the property.**

Bridge Summary Report

White River

General Information

SgaID	990014000009171	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/2/2019	Project Name	White River - Second Branch
Town	Williamstown	Latitude	44.07987	Longitude	-72.57208
Location	Bridge is north of residence at the address 6274 Main St Williamstown, VT 05679.			Reach VTID	M17
Road Name	ROUTE 14	Road Type	Paved	Stream Name	Second Branch White River

High Flow Stage	Yes	Channel Width	22.5

Bridge Information

Bridge Width	10	Material	Concrete
Bridge Clearance	1	Number of bridge piers/arches	2
Bridge/Arch Span	38		
		Skewed to roadway?	Yes

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	Sediment	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Sharp Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Gravel	Cobble
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	Low	Low	
Hard Bank Armoring	Failing	Intact	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	

Beaver Dam distance (ft.)	0	0

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Road Embankment	Deciduous Forest	
Dominant Vegetation Type - Right	Deciduous Forest	Road Embankment	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	Yes
Vegitation Band -Right	Yes	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Bridge with two overflow pipes that are 4 feet and 4.5 feet in width respectively. Overflow culverts are completely blocked by sediment and currently now flow is going through the culverts.**

Culvert Summary Report

White River

General Information

SgaID	700000000909031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/11/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.06078	Longitude	-72.56280
Location	Culvert runs under Brown Drive, a private road that intersects with RT. 14 in Brookfield VT.			Reach VTID	M16
Road Name	BROWN DR	Road Type	Gravel	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	28.8

Culvert Information

Culvert Length	20	Material	Steel Corrugated
Culvert Height	6.8	Number of culverts	1
Culvert Width	8.7	Culvert Overflow Pipe	No
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No
		Culvert slope as compared with channel slope is significantly	Same

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Mild Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	Yes	Water depth in culvert (at outlet)	1.5
Downstream bank heights are substantially higher than upstream bank heights	No	Culvert outlet invert	At Grade
Stepped Footers	1.5 ft.	Backwater Length (measured from outlet)	0
Maximum pool depth	4 ft.	Backwater Length (measured from outlet)	0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Cobble	None
Bedrock Present	No	No	
Type of Sediment Deposits	None	None	None
Material Present throughout			No
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Intact	Intact	

Stream bed scour causing undermining around or under structure	Culvert	None
Beaver Dam near Structure	Yes	Yes
Beaver Dam distance (ft.)	15	15

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left			
Dominant Vegetation Type - Right			

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left

Vegitation Band -Right

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species			

Other Information

Spatial location data collected with GPS?

Photos taken?

Comments

Bridge Summary Report

White River

General Information

SgaID	200014000209171	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/1/2019	Project Name	White River - Second Branch
Town	Williamstown	Latitude	44.08488	Longitude	-72.56654
Location	Along VT-14 at the intersection of Tripp Rd.			Reach VTID	M17
Road Name	ROUTE 14	Road Type	Paved	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	13.4

Bridge Information

Bridge Width	6	Material	Concrete
Bridge Clearance	5	Number of bridge piers/arches	0
Bridge/Arch Span	70		
		Skewed to roadway?	Yes

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	Wood debris	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Mild Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Gravel	Gravel
Bedrock Present	No	No	No
Type of Sediment Deposits	Mid-channel	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	

Hard Bank Armoring	Intact	Intact
Stream bed scour causing undermining around or under structure	None	None
Beaver Dam near Structure	Yes	No
Beaver Dam distance (ft.)	500	0

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Mixed Forest	Shrub/Sapling	
Dominant Vegetation Type - Right	Deciduous Forest	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	Yes	Yes
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments

Bridge Summary Report

White River

General Information

SgaID	700000000609031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/8/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.04384	Longitude	-72.56561
Location	Bridge is for farm/trail roads that are on the property of 499 Main Street, Brookfield VT. Bridges are on the east side of Rt. 14.			Reach VTID	M15
Road Name		Road Type	Trail	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	37.2

Bridge Information

Bridge Width	13	Material	Steel
Bridge Clearance	4.5	Number of bridge piers/arches	0
Bridge/Arch Span	18		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Channelized Straight
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Gravel	Cobble
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
	No	No	No

Elevation of sediment deposits >= 1/2 bankfull		
Bank Erosion	None	None
Hard Bank Armoring	None	None
Stream bed scour causing undermining around or under structure	None	None
Beaver Dam near Structure	No	No
Beaver Dam distance (ft.)	0	0

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	
Dominant Vegetation Type - Right	Herbaceous/Grass	Herbaceous/Grass	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Farm bridge. Steel Beams with a wood deck.**

Bridge Summary Report

White River

General Information

SgaID	100000001914041	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/15/2019	Project Name	White River - Second Branch
Town	Bethel	Latitude	43.87215	Longitude	-72.58675
Location	Located in the village of East Bethel, Vermont. The bridge runs across Store Hill Road and is directly upstream of the Hyde Dam.			Reach VTID	M04
Road Name	STORE HILL RD	Road Type	Paved	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	82.1

Bridge Information

Bridge Width	23	Material	Concrete
Bridge Clearance	12.8	Number of bridge piers/arches	0
Bridge/Arch Span	48		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Sharp Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	Yes		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Sand	Sand	Sand
Bedrock Present	Yes	No	No

Type of Sediment Deposits	Point	Side	Mid-channel
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	Abutments	Abutments	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Shrub/Sapling	Shrub/Sapling	
Dominant Vegetation Type - Right	Herbaceous/Grass	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	Yes	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	Deer - Tracks	

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Bridge deck has crumbling concrete. Dry Hydrant located upstream of bridge. Large sediment buildup from dam runs under bridge and continues around the sharp bend.**

Bridge Summary Report

White River

General Information

SgaID	700000000409093	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	8/1/2019	Project Name	White River - Second Branch
Town	Randolph	Latitude	43.89474	Longitude	-72.57273
Location	Old farm bridge. Second Branch of the White River moves away from VT-14 at the location of this bridge, the bridge is approximately 600 feet east of the VT-14 and South Randolph Rd. intersection.			Reach VTID	M05
Road Name		Road Type	Trail	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	76.6

Bridge Information

Bridge Width	12	Material	Timber
Bridge Clearance	5.3	Number of bridge piers/arches	0
Bridge/Arch Span	24	Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Partially	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	Wood debris	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Mild Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	No		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Sand	Sand
Bedrock Present	No	No	No
Type of Sediment Deposits	Side	Point	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	High	High	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	Abutments	Abutments	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Deciduous Forest	Herbaceous/Grass	
Dominant Vegetation Type - Right	Herbaceous/Grass	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Right abutment made of stacked stone. left abutment made of concrete. Farm bridge appears to be out of use.**

Bridge Summary Report

White River

General Information

SgaID	200014000209031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/2/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.06442	Longitude	-72.56647
Location	Located along VT-14 at ~1500 ft. north of Browns Dr.			Reach VTID	M17
Road Name	ROUTE 14	Road Type	Paved	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	26

Bridge Information

Bridge Width	11.5	Material	Concrete
Bridge Clearance	0.5	Number of bridge piers/arches	0
Bridge/Arch Span	36		
		Skewed to roadway?	Yes

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	Sediment	Estimated distance avulsion would follow road	1500
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Sharp Bend
If channel avulses, stream will	Follow Road		

Downstream

Pool present immediately downstream of structure	No
Downstream bank heights are substantially higher than upstream bank heights	Yes

Pool Depth at point of streamflow entry	No 0 ft.	0

	Upstream	Downstream	In Structure
Dominant Bed Material	Sand	Gravel	Sand
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	None	
Hard Bank Armoring	Intact	Intact	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	Yes	Yes	
Beaver Dam distance (ft.)	100	100	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Deciduous Forest	Shrub/Sapling	
Dominant Vegetation Type - Right	Herbaceous/Grass	Deciduous Forest	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	Yes	Yes
Vegitation Band -Right	No	Yes

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	Beaver - Sighting	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **No**

Comments **Incredibly sharp bend into bridge. Sediment fills bridge so there is a very small clearance. Sharp turn into the bridge has back watered about 150 feet of water. Bridge is almost acting like an undersized culvert.**

Bridge Summary Report

White River

General Information

SgaID	200014000009171	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/2/2019	Project Name	White River - Second Branch
Town	Williamstown	Latitude	44.07796	Longitude	-72.57290
Location	Bridge along VT-14 just North of the Brookfield and Williamstown town border.			Reach VTID	M17
Road Name	ROUTE 14	Road Type	Paved	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	21

Bridge Information

Bridge Width	11.5	Material	Concrete
Bridge Clearance	0.7	Number of bridge piers/arches	0
Bridge/Arch Span	33		
		Skewed to roadway?	Yes

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	Wood debris	Estimated distance avulsion would follow road	1500
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Sharp Bend
If channel avulses, stream will	Follow Road		

Downstream

Pool present immediately downstream of structure	No	
Downstream bank heights are substantially higher than upstream bank heights	No	
Pool Depth at point of streamflow entry	No 0 ft.	0

	Upstream	Downstream	In Structure
Dominant Bed Material	Cobble	Gravel	Gravel
Bedrock Present	No	No	No
Type of Sediment Deposits	None	None	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	None	Low	
Hard Bank Armoring	None	None	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	Yes	
Beaver Dam distance (ft.)	0	500	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Road Embankment	Herbaceous/Grass	
Dominant Vegetation Type - Right	Deciduous Forest	Road Embankment	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	Yes	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments

Bridge Summary Report

White River

General Information

SgaID	700000000609033	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/23/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.02400	Longitude	-72.57301
Location	Farm bridge located on trail road out behind the barn located at 6027 Main St, Brookfield, VT 05036.			Reach VTID	M14
Road Name		Road Type	Trail	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	47.5

Bridge Information

Bridge Width	12.5	Material	Steel
Bridge Clearance	4.6	Number of bridge piers/arches	0
Bridge/Arch Span	13.5		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Not Significant	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure	None	Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Naturally Straight

If channel avulses, stream will **Cross Road**

Downstream

Pool present immediately downstream of structure **Yes**
Downstream bank heights are substantially higher than upstream bank heights **No**
Pool Depth at point of streamflow entry **No** **0 ft.**

0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Cobble	Cobble
Bedrock Present	No	No	No
Type of Sediment Deposits	None	Mid-channel	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	Low	Low	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	Footers	Footers	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Shrub/Sapling	Shrub/Sapling	
Dominant Vegetation Type - Right	Shrub/Sapling	Shrub/Sapling	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Old farm fence caught on the top of the bridge. Stacked stone abutments with steel I-beams and wood deck.**

Bridge Summary Report

White River

General Information

SgaID	700000000009031	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	8/23/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	44.00261	Longitude	-72.56493
Location	Bridge is private farm bridge that runs along trail road that is behind the residence at the address: 4587 Main St, Brookfield, VT 05036.			Reach VTID	M13
Road Name		Road Type	Trail	Stream Name	Second Branch White River
High Flow Stage	No			Channel Width	52.59

Bridge Information

Bridge Width	14.5	Material	Timber
Bridge Clearance	8.5	Number of bridge piers/arches	0
Bridge/Arch Span	18.5		
		Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches **Entirely**
Structure is located at significant break in valley slope **No**

Upstream

Obstructions at the opening of the structure **Wood debris**
Estimated distance avulsion would follow road

Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Mild Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	Yes		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Gravel	Sand	Sand
Bedrock Present	No	No	No
Type of Sediment Deposits	Point	Mid-channel	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	Low	None	
Hard Bank Armoring	Failing	Failing	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	No	No	
Beaver Dam distance (ft.)	0	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	
Dominant Vegetation Type - Right	Herbaceous/Grass	Herbaceous/Grass	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	None	None

Other Information

Spatial location data collected with GPS?	Yes	Photos taken?	Yes

Comments **Relatively new concrete abutments. Primary scour is in structure. Bridge sits on concrete abutments with 1 foot steel I-beams, and a wood deck.**

Bridge Summary Report

White River

General Information

SgaID	700000000209033	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	8/23/2019	Project Name	White River - Second Branch
Town	Brookfield	Latitude	43.99082	Longitude	-72.55920
Location	This private bridge is approximately 800 ft west of the property address 3633 VT-14 Brookfield, VT 05036.			Reach VTID	M12
Road Name		Road Type	Gravel	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	51.94

Bridge Information

Bridge Width	15	Material	Steel
Bridge Clearance	6.2	Number of bridge piers/arches	0
Bridge/Arch Span	25	Skewed to roadway?	No

Geomorphic Information

General

Floodplain filled by roadway approaches	Entirely	Structure is located at significant break in valley slope	No

Upstream

Obstructions at the opening of the structure		Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	No	Angle of stream flow approaching structure	Mild Bend
If channel avulses, stream will	Cross Road		

Downstream

Pool present immediately downstream of structure	Yes		
Downstream bank heights are substantially higher than upstream bank heights	No		
Pool Depth at point of streamflow entry	No 0 ft.		0

	Upstream	Downstream	In Structure
Dominant Bed Material	Sand	Sand	Sand
Bedrock Present	No	No	No
Type of Sediment Deposits	Point	Point	None
Elevation of sediment deposits >= 1/2 bankfull	No	No	No
Bank Erosion	High	High	
Hard Bank Armoring	Failing	Intact	
Stream bed scour causing undermining around or under structure	None	None	
Beaver Dam near Structure	Yes	No	
Beaver Dam distance (ft.)	10	0	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	Herbaceous/Grass	Herbaceous/Grass	
Dominant Vegetation Type - Right	Deciduous Forest	Deciduous Forest	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	No	No
Vegitation Band -Right	No	No

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	None	Beaver - Lodge	None

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Bridge may have been newly replaced. Waste block abutments, 18 in. steel beams, and a wood deck.**

Bridge Summary Report

White River

General Information

SgaID	200014000109171	Local SgaID		VOBCIT struct_num	
Observers	WRP - cp,dr	Assessment Date	7/2/2019	Project Name	White River - Second Branch
Town	Williamstown	Latitude	44.08307	Longitude	-72.57067
Location	Along Rt 14 approximately 1000 feet south of Tripp Rd.			Reach VTID	M17
Road Name	ROUTE 14	Road Type	Paved	Stream Name	Second Branch White River

High Flow Stage	No	Channel Width	13.7

Bridge Information

Bridge Width	8	Material	Concrete
Bridge Clearance	6	Number of bridge piers/arches	0
Bridge/Arch Span	60		
		Skewed to roadway?	Yes

Geomorphic Information

VERMONT

Stream Geomorphic Assessment

Agency of Natural Resouces

VT DEC

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March, 18 2021

General

Floodplain filled by roadway approaches	**Entirely**	Structure is located at significant break in valley slope	**Yes**

Upstream

Obstructions at the opening of the structure		Estimated distance avulsion would follow road	
Steep riffle present immediately upstream of structure	**Yes**	Angle of stream flow approaching structure	**Sharp Bend**
If channel avulses, stream will	**Cross Road**		

Downstream

Pool present immediately downstream of structure	**Yes**		
Downstream bank heights are substantially higher than upstream bank heights	**No**		
Pool Depth at point of streamflow entry	**No** **0 ft.**		**0**

	Upstream	Downstream	In Structure
Dominant Bed Material	**Cobble**	**Cobble**	**Bedrock**
Bedrock Present	**No**	**Yes**	**Yes**
Type of Sediment Deposits	**None**	**None**	**None**
Elevation of sediment deposits >= 1/2 bankfull	**No**	**No**	**No**
Bank Erosion	**Low**	**Low**	
Hard Bank Armoring	**Intact**	**None**	
Stream bed scour causing undermining around or under structure	**None**	**None**	
Beaver Dam near Structure	**No**	**No**	
Beaver Dam distance (ft.)	**0**	**0**	

Vegetation

	Upstream	Downstream	In Structure
Dominant Vegetation Type - Left	**Deciduous Forest**	**Deciduous Forest**	
Dominant Vegetation Type - Right	**Deciduous Forest**	**Road Embankment**	

Does a band of shrub/forest vegetation 50 ft. wide start within 25 ft. of the structure and extend at least 500 ft. up/downstream?

Vegitation Band - Left	**Yes**	**Yes**	
Vegitation Band -Right	**Yes**	**No**	

Wildlife

	Roadkill	Outside Structure	Inside Structure
Species	**None**	**None**	**None**

Other Information

Spatial location data collected with GPS? **Yes** Photos taken? **Yes**

Comments **Poured concrete apron at inlet. Waterfall at outlet. Very steep outlet.**