

APPENDIX A:

PHASE 1 REACH REPORTS

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **WINDSOR**
 Watershed:

Reach ID: **M01**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach extends from the confluence with the Connecticut River and extends upstream to the Union St. Bridge.

1.1 Reach Description:

1.2 Towns: **Windsor**

1.3 Downstream Latitude: **43.472294**

1.3 Downstream Longitude: **-72.387101**

Step 2. Stream Type

2.1 Elevation Upstream: **320**

2.1 Elevation Downstream: **302**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **1,759.6 ft. 0.33 Miles**

2.3 Valley Slope: **1.0**

2.4 Channel Length: **1,764.3 ft. 0.33 Miles**

2.5 Channel Slope: **1.02 %**

2.6 Sinuosity: **1.00**

2.7 Watershed Area: **44.6 Square Miles**

2.8 Channel Width: **69.7 feet**

2.9 Valley Width: **275.0 feet**

2.10 Confinement Ratio: **3.9**

2.10 Confinement Type: **Semi-confined**

2.11 Reference Stream Type: **A**

Bedform: **Cascade**

Sub-Class Slope: **c**

Bed Material: **Bedrock**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Ice-Contact 65.7 %**

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: **Not Rated 64.2 %**

Flooding: **None/Rare 66.3 %**

Water Table Deep: **3.0 33.1 %**

Water Table Shallow: **1.5 33.1 %**

Erodibility: **slight 1.5 %**

7.4 Comments:

Main Street and railroad bridge are high and wide, no ice jam risk.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 75.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Commercial**

Current Dominant Land Cover: **Urban 51.0 %**

Current Sub-Dominant Land Cover: **Crop**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **0-25 0-25**

Sub-dominant: **26-50 51-100**

Length w / less than 25 ft.: **1,481.0 ft. 735.0 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: **2 3.7 %**

5.3 Bank Armoring: **0.0 0.0 %**

Left: **0.0 ft.** Right: **0.0 ft.**

5.4 Channel Straightening: **0.0 0.0 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **460.7 ft. 26.1**

One Side Both Sides

Road: **460.7 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: **759.4 ft. 594.3 ft.**

6.3 Channel Bars: **Side**

6.4 Meander Migration: **None**

6.5 Meander Width: **N/A Ratio: 0.0**

6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **0 ft**

7.2 Bank Height: **No Data 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 |
|-----|------|------|------|------|------|------|------|------|------|------|------|-----|-----|------|------|-------|
| 1 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| Low | High | High | N.S. | N.S. | N.S. | N.S. | N.S. | High | High | N.S. | N.S. | N/A | N/A | N.S. | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **WINDSOR**
 Watershed:

Reach ID: **M02**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location **This reach extends from the reachpoint south of Union street upstream to the dam West of Clough Ave**

1.1 Reach Description:

1.2 Towns: **Windsor**

1.3 Downstream Latitude: **43.475993**

1.3 Downstream Longitude: **-72.390204**

Step 2. Stream Type

2.1 Elevation Upstream: **347**

2.1 Elevation Downstream: **320**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **2,460.3 ft.** **0.47** Miles

2.3 Valley Slope: **1.1**

2.4 Channel Length: **3,806.8 ft.** **0.72** Miles

2.5 Channel Slope: **0.72 %**

2.6 Sinuosity: **1.55**

2.7 Watershed Area: **44.5 Square Miles**

2.8 Channel Width: **69.6 feet**

2.9 Valley Width: **550.0 feet**

2.10 Confinement Ratio: **7.9**

2.10 Confinement Type: **Broad**

2.11 Reference Stream Type: **C**

 Bedform: **Riffle-Pool**

 Sub-Class Slope: **None**

 Bed Material: **Gravel**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Alluvial** **54.4 %**

3.3 Sub-dom. Geological Mat.: **Ice-Contact**

3.4 Valley Slope Left: **Steep**

3.4 Valley Slope Right: **Very Steep**

3.5 Soils

 Hydrologic Group: **C** **39.2 %**

 Flooding: **None/Rare** **45.6 %**

 Water Table Deep: **1.5** **39.2 %**

 Water Table Shallow: **0.0** **39.2 %**

 Erodibility: **slight** **14.1 %**

7.4 Comments:

Upstream dam likely limits ice movement, bridges are fairly high and wide.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

 Historic Land Cover: **Forest**

 Current Dominant Land Cover: **Forest** **75.0 %**

 Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

 Historic Land Cover:: **Commercial**

 Current Dominant Land Cover: **Urban** **64.0 %**

 Current Sub-Dominant Land Cover: **Crop**

4.3 Riparian Buffer Left Bank Right Bank

 Dominant: **26-50** **26-50**

 Sub-dominant: **51-100** **0-25**

 Length w / less than 25 ft.: **101.0 ft.** **1,601.0 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** **3.1 %**

5.3 Bank Armoring: **1,794.2** **47.1 %**

 Left: **1,057.1 ft.** Right: **737.1 ft.**

5.4 Channel Straightening: **1,390.2** **36.5 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **85.1 ft.** **2.2**

One Side Both Sides

 Road: **85.1 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: **1,815.4 ft.** **1,500.8 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Multiple**

6.5 Meander Width: **110 ft.** Ratio: **1.6**

6.6 Wavelength: **290 ft.** Ratio: **4.2**

Step 7. Windshield Survey

7.1 Bank Erosion: **571.373** ft

7.2 Bank Height: **5** 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 |
|-----|------|------|------|------|------|------|------|------|------|-----|-----|------|------|-----|------|-------|
| 1 | 2 | 2 | 0 | 0 | 2 | 2 | 0 | 0 | 2 | 1 | 1 | 2 | 2 | 1 | 0 | 18 |
| Low | High | High | N.S. | N.S. | High | High | N.S. | N.S. | High | Low | Low | High | High | Low | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **WINDSOR**
 Watershed:

Reach ID: **M04**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach extends from the reach point along Acscutney Street West of I-91 and extends upstream to the reach break at Brooks Rd and Sunset Ln.

1.1 Reach Description:

1.2 Towns: **Windsor**

1.3 Downstream Latitude: **43.463029**

1.3 Downstream Longitude: **-72.40334**

Step 2. Stream Type

2.1 Elevation Upstream: **420**

2.1 Elevation Downstream: **378**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **7,919.1 ft. 1.50 Miles**

2.3 Valley Slope: **0.5**

2.4 Channel Length: **8,067.2 ft. 1.53 Miles**

2.5 Channel Slope: **0.52 %**

2.6 Sinuosity: **1.02**

2.7 Watershed Area: **43.1 Square Miles**

2.8 Channel Width: **68.6 feet**

2.9 Valley Width: **390.0 feet**

2.10 Confinement Ratio: **5.7**

2.10 Confinement Type: **Narrow**

2.11 Reference Stream Type: **C**

Bedform: **Riffle-Pool**

Sub-Class Slope: **None**

Bed Material: **Gravel**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **None**

3.3 Dominant Geological Mat.: **Alluvial 59.3 %**

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: **C 56.8 %**

Flooding: **Frequent 42.8 %**

Water Table Deep: **1.5 42.8 %**

Water Table Shallow: **0.0 42.8 %**

Erodibility: **slight 24.2 %**

7.4 Comments:

Route 44 bridge and sharp bend has some potential for ice jamming. Bridge was destroyed during T. S. Irene, significant channel migration towards Route 44 in lower reach.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 76.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Commercial**

Current Dominant Land Cover: **Urban 34.0 %**

Current Sub-Dominant Land Cover: **Forest**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **51-100 >100**

Sub-dominant: **0-25 0-25**

Length w / less than 25 ft.: **1,560.0 ft. 1,986.0 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: **2 1.6 %**

5.3 Bank Armoring: **2,105.5 26.1 %**

Left: **831.4 ft.** Right: **1,274.1 ft.**

5.4 Channel Straightening: **660.9 8.2 %**

5.5 Dredging History: **Dredging**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **6,459.2 ft. 80.1**

One Side Both Sides

Road: **6,459.2 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: **710.2 ft. 0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Migration**

6.5 Meander Width: **150 ft. Ratio: 2.2**

6.6 Wavelength: **800 ft. Ratio: 11.7**

Step 7. Windshield Survey

7.1 Bank Erosion: **576.287** ft

7.2 Bank Height: **5** 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 |
|-----|------|------|------|------|------|-----|------|------|-----|-----|------|------|------|-----|-----|-------|
| 1 | 2 | 2 | 0 | 0 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 0 | 1 | 1 | 20 |
| Low | High | High | N.S. | N.S. | High | Low | High | High | Low | Low | High | High | N.S. | Low | Low | |

Mill Brook - Basin 13

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **WINDSOR**
 Watershed:

Phase 1 - Reach Summary Report

Reach ID: **M05**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**
 Is Reach An Impoundment?: **No**

Step 1. Reach Location **This reach follows Brook Rd from the reach break between Brook Rd and Sunset Ln and continues upstream to the reach break southeast of Rokepa Rd.**

1.1 Reach Description:

1.2 Towns: **West Windsor, Windsor**

1.3 Downstream Latitude: **43.460994**

1.3 Downstream Longitude: **-72.415161**

Step 2. Stream Type

2.1 Elevation Upstream: **607**

2.1 Elevation Downstream: **420**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **13,724.6 ft. 2.60 Miles**

2.3 Valley Slope: **1.4**

2.4 Channel Length: **14,356.8 ft. 2.72 Miles**

2.5 Channel Slope: **1.30 %**

2.6 Sinuosity: **1.05**

2.7 Watershed Area: **40.3 Square Miles**

2.8 Channel Width: **66.6 feet**

2.9 Valley Width: **218.0 feet**

2.10 Confinement Ratio: **3.3**

2.10 Confinement Type: **Semi-confined**

2.11 Reference Stream Type: **B**

Bedform: **Riffle-Pool**

Sub-Class Slope: **c**

Bed Material: **Cobble**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Till 51.6 %**

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 51.3 %**

Flooding: **None/Rare 99.0 %**

Water Table Deep: **6.0 80.2 %**

Water Table Shallow: **6.0 80.2 %**

Erodibility: **Very Severe 86.9 %**

7.4 Comments:

Brook road bridge angled and with narrower channel due to bedrock - some ice jam potential. Brook Rd closely follows stream for most of reach and sustained major damage during T. S. Irene.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 76.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Forest**

Current Dominant Land Cover: **Forest 39.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer **Left Bank Right Bank**

Dominant: **>100 >100**

Sub-dominant: **26-50 26-50**

Length w / less than 25 ft.: **1,083.0 ft. 433.0 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 0.8 %**

5.3 Bank Armoring: **1,353.1 9.4 %**

Left: **458.9 ft. Right: 894.2 ft.**

5.4 Channel Straightening: **0.0 0.0 %**

5.5 Dredging History: **Dredging**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **4,339.9 ft. 30.2**

One Side Both Sides

Road: **4,339.9 ft. 0.0 ft.**

Railroad: **0.0 ft. 0.0 ft.**

Berm: **283.9 ft. 0.0 ft.**

Improved Path: **0.0 ft. 0.0 ft.**

6.2 Development: **1,741.3 ft. 121.5 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Multiple**

6.5 Meander Width: **N/A Ratio: 0.0**

6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **4934.88 ft**

7.2 Bank Height: **8 ft**

7.3 Ice/Debris Jam Potential: **Bridge**

| 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 |
|-----|------|-----|------|------|-----|------|------|------|-----|------|------|-----|-----|------|-----|-------|
| 1 | 2 | 1 | 0 | 0 | 1 | 0 | 2 | 2 | 1 | 2 | 2 | 0 | 0 | 2 | 1 | 17 |
| Low | High | Low | N.S. | N.S. | Low | N.S. | High | High | Low | High | High | N/A | N/A | High | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **WINDSOR**
 Watershed:

Reach ID: **M06**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins at the reach break Southeast of Rokepa Rd. and extends upstream to the intersection of Brownsville Rd. and Brownsville Hartland Rd.

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.470043**

1.3 Downstream Longitude: **-72.453251**

Step 2. Stream Type

2.1 Elevation Upstream: **667**

2.1 Elevation Downstream: **607**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **4,961.1 ft. 0.94 Miles**

2.3 Valley Slope: **1.2**

2.4 Channel Length: **6,223.7 ft. 1.18 Miles**

2.5 Channel Slope: **0.96 %**

2.6 Sinuosity: **1.25**

2.7 Watershed Area: **36.5 Square Miles**

2.8 Channel Width: **63.8 feet**

2.9 Valley Width: **380.0 feet**

2.10 Confinement Ratio: **6.0**

2.10 Confinement Type: **Narrow**

2.11 Reference Stream Type: **C**

Bedform: **Riffle-Pool**

Sub-Class Slope: **None**

Bed Material: **Cobble**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Multiple**

3.3 Dominant Geological Mat.: **Ice-Contact 78.3 %**

3.3 Sub-dom. Geological Mat.: **Till**

3.4 Valley Slope Left: **Steep**

3.4 Valley Slope Right: **Steep**

3.5 Soils

Hydrologic Group: **B 64.6 %**

Flooding: **None/Rare 91.4 %**

Water Table Deep: **2.5 56.6 %**

Water Table Shallow: **1.5 65.2 %**

Erodibility: **Severe 69.1 %**

7.4 Comments:

Route 44 bridge is high and channel is fairly large, no ice jam potential.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 76.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Field**

Current Dominant Land Cover: **Forest 27.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **51-100 >100**

Sub-dominant: **0-25 0-25**

Length w / less than 25 ft.: **1,302.0 ft. 735.0 ft.**

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old):

Type: **Small Withdrawal**

Use: **Other**

5.2 Bridges and Culverts: **2 0.5 %**

5.3 Bank Armoring: **1,124.8 18.1 %**

Left: **955.7 ft.** Right: **169.1 ft.**

5.4 Channel Straightening: **1,554.0 25.0 %**

5.5 Dredging History: **Dredging**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **669.5 ft. 10.8**

One Side Both Sides

Road: **669.5 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: **1,316.7 ft. 0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Multiple**

6.5 Meander Width: **250 ft. Ratio: 3.9**

6.6 Wavelength: **1200 ft. Ratio: 18.8**

Step 7. Windshield Survey

7.1 Bank Erosion: **1472.42 ft**

7.2 Bank Height: **5 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 |
|-----|------|------|-----|------|-----|------|------|-----|------|------|-----|-----|------|------|------|-------|
| 1 | 2 | 2 | 1 | 0 | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 1 | 2 | 2 | 0 | 22 |
| Low | High | High | Low | N.S. | Low | High | High | Low | High | High | Low | Low | High | High | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **WINDSOR**
 Watershed:

Reach ID: **M07**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

Begins at the reach break East of the intersection of Seems Rd and Rt-44 and continues upstream to the Bible Hill Rd bridge.

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.467238**

1.3 Downstream Longitude: **-72.471148**

Step 2. Stream Type

2.1 Elevation Upstream: **714**

2.1 Elevation Downstream: **667**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **6,504.5 ft. 1.23 Miles**

2.3 Valley Slope: **0.7**

2.4 Channel Length: **7,534.5 ft. 1.43 Miles**

2.5 Channel Slope: **0.62 %**

2.6 Sinuosity: **1.16**

2.7 Watershed Area: **27.9 Square Miles**

2.8 Channel Width: **56.7 feet**

2.9 Valley Width: **350.0 feet**

2.10 Confinement Ratio: **6.2**

2.10 Confinement Type: **Broad**

2.11 Reference Stream Type: **C**

Bedform: **Riffle-Pool**

Sub-Class Slope: **None**

Bed Material: **Gravel**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Ice-Contact 79.1 %**

3.3 Sub-dom. Geological Mat.: **Alluvial**

3.4 Valley Slope Left: **Steep**

3.4 Valley Slope Right: **Steep**

3.5 Soils

Hydrologic Group: **A 77.7 %**

Flooding: **None/Rare 81.7 %**

Water Table Deep: **6.0 77.7 %**

Water Table Shallow: **6.0 77.7 %**

Erodibility: **slight 12.9 %**

7.4 Comments:

Bible Hill Rd bridge is very narrow and is a major ice/debris jam risk. Partially breached dam mid reach is also of concern.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 78.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Field**

Current Dominant Land Cover: **Urban 29.0 %**

Current Sub-Dominant Land Cover: **Forest**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **51-100 51-100**

Sub-dominant: **0-25 26-50**

Length w / less than 25 ft.: **2,106.0 ft. 873.0 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 0.9 %**

5.3 Bank Armoring: **2,043.1 27.1 %**

Left: **1,631.0 ft.** Right: **412.1 ft.**

5.4 Channel Straightening: **157.6 2.1 %**

5.5 Dredging History: **Dredging**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **4,445.7 ft. 59.0**

One Side Both Sides

Road: **3,571.6 ft. 874.1 ft.**

Railroad: **0.0 ft. 0.0 ft.**

Berm: **284.5 ft. 0.0 ft.**

Improved Path: **0.0 ft. 0.0 ft.**

6.2 Development: **2,315.0 ft. 0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Multiple**

6.5 Meander Width: **260 ft. Ratio: 4.6**

6.6 Wavelength: **620 ft. Ratio: 10.9**

Step 7. Windshield Survey

7.1 Bank Erosion: **845.637** ft

7.2 Bank Height: **4** ft

7.3 Ice/Debris Jam Potential: **Bridge**

| 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 |
|-----|------|------|------|------|------|------|------|------|------|------|-----|-----|------|-----|------|-------|
| 1 | 2 | 2 | 0 | 0 | 2 | 0 | 2 | 2 | 2 | 2 | 1 | 1 | 0 | 1 | 2 | 20 |
| Low | High | High | N.S. | N.S. | High | N.S. | High | High | High | High | Low | Low | N.S. | Low | High | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **WINDSOR**
 Watershed:

Reach ID: **M08**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed: **Is Reach An Impoundment?: No**
Step 1. Reach Location **Begins at the Bible Hill Rd bridge and continues upstream to the reach break Southwest of Westgate Rd.**

1.1 Reach Description:
 1.2 Towns: **West Windsor**
 1.3 Downstream Latitude: **43.461268**
 1.3 Downstream Longitude: **-72.490878**

Step 2. Stream Type
 2.1 Elevation Upstream: **722**
 2.1 Elevation Downstream: **714**
 2.1 Is Gradient Gentle?: **No**
 2.2 Valley Length: **2,080.2 ft. 0.39 Miles**
 2.3 Valley Slope: **0.4**
 2.4 Channel Length: **2,087.0 ft. 0.40 Miles**
 2.5 Channel Slope: **0.39 %**
 2.6 Sinuosity: **1.00**
 2.7 Watershed Area: **25.1 Square Miles**
 2.8 Channel Width: **54.1 feet**
 2.9 Valley Width: **210.0 feet**

2.10 Confinement Ratio: **3.9**
 2.10 Confinement Type: **Semi-confined**
 2.11 Reference Stream Type: **B**
 Bedform: **Riffle-Pool**
 Sub-Class Slope: **c**
 Bed Material: **Cobble**

Step 3. Basin Characteristics
 3.1 Alluvial Fan: **None**
 3.2 Grade Control: **Ledge**
 3.3 Dominant Geological Mat.: **Alluvial 57.1 %**
 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 57.1 %**
 Flooding: **Occasional 57.1 %**
 Water Table Deep: **3.0 57.1 %**
 Water Table Shallow: **1.5 57.1 %**
 Erodibility: **Moderate 42.9 %**

7.4 Comments:
Only observed lower reach at Bible Hill Road crossing. Covered bridge washed away during TS Irene and replaced with new abutments ~36ft wide. Debris jam risk likely remains due to change in valley width and narrow span.

Step 4. Land Cover - Reach Hydrology
 4.1 Watershed
 Historic Land Cover: **Forest**
 Current Dominant Land Cover: **Forest 79.0 %**
 Current Sub-Dominant Land Cover: **Urban**
 4.2 Corridor
 Historic Land Cover:: **Forest**
 Current Dominant Land Cover: **Forest 34.0 %**
 Current Sub-Dominant Land Cover: **Urban**
 4.3 Riparian Buffer **Left Bank Right Bank**
 Dominant: **>100 51-100**
 Sub-dominant: **51-100 >100**
 Length w / less than 25 ft.: **0.0 ft. 194.0 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: **0 0.0 %**
 5.3 Bank Armoring: **0.0 0.0 %**
 Left: **0.0 ft.** Right: **0.0 ft.**
 5.4 Channel Straightening: **498.1 23.9 %**
 5.5 Dredging History: **None**

Step 6. Floodplain Modifications
 6.1 Berms & Roads - old: **1,951.1 ft. 93.5**
One Side Both Sides
 Road: **1,951.1 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: **Multiple**
 6.4 Meander Migration: **Flood Chute**
 6.5 Meander Width: **200 ft. Ratio: 3.7**
 6.6 Wavelength: **580 ft. Ratio: 10.7**

Step 7. Windshield Survey
 7.1 Bank Erosion: **415.495 ft**
 7.2 Bank Height: **4 ft**
 7.3 Ice/Debris Jam Potential: **Bridge**

| 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 |
|-----|------|-----|------|------|------|------|------|------|------|------|------|-----|------|-----|------|-------|
| 1 | 2 | 1 | 0 | 0 | 0 | 2 | 0 | 2 | 0 | 2 | 0 | 1 | 0 | 1 | 2 | 14 |
| Low | High | Low | N.S. | N.S. | N.S. | High | N.S. | High | N.S. | High | N.S. | Low | N.S. | Low | High | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **CAVENDISH, WINDSOR**
 Watershed:

Reach ID: **M09**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location **This reach begins at the reach break southeast of Westgate Rd and continues upstream to the reach break east of Churchill Rd.**

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.458742**

1.3 Downstream Longitude: **-72.496311**

Step 2. Stream Type

2.1 Elevation Upstream: **764**

2.1 Elevation Downstream: **722**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **8,480.2 ft. 1.61 Miles**

2.3 Valley Slope: **0.5**

2.4 Channel Length: **11,546.8 ft. 2.19 Miles**

2.5 Channel Slope: **0.36 %**

2.6 Sinuosity: **1.36**

2.7 Watershed Area: **25.0 Square Miles**

2.8 Channel Width: **54.0 feet**

2.9 Valley Width: **900.0 feet**

2.10 Confinement Ratio: **16.7**

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 Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Alluvial 82.4 %**

3.3 Sub-dom. Geological Mat.: **Ice-Contact**

3.4 Valley Slope Left: **Hilly**

3.4 Valley Slope Right: **Hilly**

3.5 Soils

Hydrologic Group: **B 91.4 %**

Flooding: **Occasional 82.4 %**

Water Table Deep: **3.0 82.4 %**

Water Table Shallow: **1.5 91.1 %**

Erodibility: **slight 17.6 %**

7.4 Comments:

Due to low slope and flooding potential, risk of ice/debris jamming is likely high at Rt 44 bridge and Yale Heights Rd bridge.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 79.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Field**

Current Dominant Land Cover: **Field 32.0 %**

Current Sub-Dominant Land Cover: **Forest**

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.: **6,480.0 ft. 7,019.0 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 0.6 %**

5.3 Bank Armoring: **3,418.6 29.6 %**

Left: **1,929.1 ft. Right: 1,489.6 ft.**

5.4 Channel Straightening: **7,377.3 63.9 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **1,476.2 ft. 12.8**

One Side Both Sides

Road: **1,476.2 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: **207.5 ft. 0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Multiple**

6.5 Meander Width: **220 ft. Ratio: 4.1**

6.6 Wavelength: **610 ft. Ratio: 11.3**

Step 7. Windshield Survey

7.1 Bank Erosion: **3060.96 ft**

7.2 Bank Height: **6 ft**

7.3 Ice/Debris Jam Potential: **Bridge**

| 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 |
|-----|------|------|------|------|------|------|------|-----|------|-----|------|-----|------|------|------|-------|
| 1 | 2 | 2 | 0 | 0 | 2 | 2 | 0 | 1 | 0 | 1 | 2 | 1 | 0 | 2 | 2 | 18 |
| Low | High | High | N.S. | N.S. | High | High | N.S. | Low | N.S. | Low | High | Low | N.S. | High | High | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **CAVENDISH**
 Watershed:

Reach ID: **M10**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins at the reach break East of Churchill Rd and continues upstream to the reach point Southwest of Rush Meadow Rd.

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.454643**

1.3 Downstream Longitude: **-72.514537**

Step 2. Stream Type

2.1 Elevation Upstream: **771**

2.1 Elevation Downstream: **764**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **1,680.0 ft. 0.32 Miles**

2.3 Valley Slope: **0.4**

2.4 Channel Length: **1,908.0 ft. 0.36 Miles**

2.5 Channel Slope: **0.38 %**

2.6 Sinuosity: **1.14**

2.7 Watershed Area: **16.8 Square Miles**

2.8 Channel Width: **45.3 feet**

2.9 Valley Width: **525.0 feet**

2.10 Confinement Ratio: **11.6**

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 Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **None**

3.3 Dominant Geological Mat.: **Alluvial 63.4 %**

3.3 Sub-dom. Geological Mat.: **Ice-Contact**

3.4 Valley Slope Left: **Hilly**

3.4 Valley Slope Right: **Steep**

3.5 Soils

Hydrologic Group: **B 90.8 %**

Flooding: **Occasional 63.4 %**

Water Table Deep: **3.0 63.4 %**

Water Table Shallow: **1.5 90.8 %**

Erodibility: **Moderate 36.6 %**

7.4 Comments:

Churchill Road bridge was jammed with debris during TS Irene. Meander geometry impacts selected as "high" even though straightening is <50% due to high road encroachment.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 82.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Field**

Current Dominant Land Cover: **Urban 33.0 %**

Current Sub-Dominant Land Cover: **Field**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **26-50 26-50**

Sub-dominant: **0-25 >100**

Length w / less than 25 ft.: **697.0 ft. 221.0 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: **1 0.9 %**

5.3 Bank Armoring: **444.6 23.3 %**

Left: **228.7 ft.** Right: **216.0 ft.**

5.4 Channel Straightening: **671.4 35.2 %**

5.5 Dredging History: **Dredging**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **1,249.8 ft. 65.5**

One Side Both Sides

Road: **1,249.8 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: **613.5 ft. 0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Migration**

6.5 Meander Width: **45 ft. Ratio: 1.0**

6.6 Wavelength: **45 ft. Ratio: 1.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **140.903** ft

7.2 Bank Height: **2** ft

7.3 Ice/Debris Jam Potential: **Bridge**

| 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 |
|-----|------|------|------|------|------|------|------|------|------|------|------|------|------|-----|------|-------|
| 1 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 26 |
| Low | High | High | N.S. | N.S. | High | Low | High | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **CAVENDISH**
 Watershed:

Reach ID: **M11**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins at the reach break Southwest of Rush meadow Rd and continues upstream to the reach break south of Shattuck Hill Rd.

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.457935**

1.3 Downstream Longitude: **-72.518403**

Step 2. Stream Type

2.1 Elevation Upstream: **814**

2.1 Elevation Downstream: **771**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **3,889.7 ft.** **0.74** Miles

2.3 Valley Slope: **1.1**

2.4 Channel Length: **3,980.3 ft.** **0.75** Miles

2.5 Channel Slope: **1.08 %**

2.6 Sinuosity: **1.02**

2.7 Watershed Area: **16.6** Square Miles

2.8 Channel Width: **45.2** feet

2.9 Valley Width: **150.0** feet

2.10 Confinement Ratio: **3.3**

2.10 Confinement Type: **Semi-confined**

2.11 Reference Stream Type: **B**

Bedform: **Riffle-Pool**

Sub-Class Slope: **c**

Bed Material: **Cobble**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Till** **91.0 %**

3.3 Sub-dom. Geological Mat.: **Ice-Contact**

3.4 Valley Slope Left: **Very Steep**

3.4 Valley Slope Right: **Very Steep**

3.5 Soils

Hydrologic Group: **C** **55.8 %**

Flooding: **None/Rare** **100.0 %**

Water Table Deep: **6.0** **66.0 %**

Water Table Shallow: **6.0** **66.0 %**

Erodibility: **Very Severe** **100.0 %**

7.4 Comments:

NULL

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest** **83.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Forest**

Current Dominant Land Cover: **Urban** **59.0 %**

Current Sub-Dominant Land Cover: **Forest**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **26-50** **>100**

Sub-dominant: **0-25** **None**

Length w / less than 25 ft.: **2,152.0 ft.** **0.0 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: **0** **0.0 %**

5.3 Bank Armoring: **1,458.8** **36.7 %**

Left: **1,458.8 ft.** Right: **0.0 ft.**

5.4 Channel Straightening: **0.0** **0.0 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **3,967.6 ft.** **99.7**

One Side Both Sides

Road: **3,967.6 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: **634.3 ft.** **0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Multiple**

6.5 Meander Width: **N/A** Ratio: **0.0**

6.6 Wavelength: **N/A** Ratio: **0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **49.7935** 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 |
|-----|------|------|------|------|------|------|------|------|-----|-----|------|-----|-----|------|------|-------|
| 1 | 2 | 2 | 0 | 0 | 2 | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 11 |
| Low | High | High | N.S. | N.S. | High | N.S. | N.S. | High | Low | Low | N.S. | N/A | N/A | N.S. | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **CAVENDISH**
 Watershed:

Reach ID: **M12**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins at the reach break South of Shattuck Hill Rd and continues upstream to the reach break Southwest of Hurricane Hill Rd.

1.1 Reach Description:

1.2 Towns: **Reading, West Windsor**

1.3 Downstream Latitude: **43.466469**

1.3 Downstream Longitude: **-72.52427**

Step 2. Stream Type

2.1 Elevation Upstream: **850**

2.1 Elevation Downstream: **814**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **3,413.8 ft. 0.65 Miles**

2.3 Valley Slope: **1.1**

2.4 Channel Length: **4,066.6 ft. 0.77 Miles**

2.5 Channel Slope: **0.89 %**

2.6 Sinuosity: **1.19**

2.7 Watershed Area: **16.1 Square Miles**

2.8 Channel Width: **44.5 feet**

2.9 Valley Width: **500.0 feet**

2.10 Confinement Ratio: **11.2**

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 Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Alluvial 52.7 %**

3.3 Sub-dom. Geological Mat.: **Ice-Contact**

3.4 Valley Slope Left: **Steep**

3.4 Valley Slope Right: **Steep**

3.5 Soils

Hydrologic Group: **B 75.3 %**

Flooding: **Occasional 52.7 %**

Water Table Deep: **3.0 52.7 %**

Water Table Shallow: **1.5 67.5 %**

Erodibility: **Moderate 47.3 %**

7.4 Comments:

Meander geometry impacts selected as "high" even though straightening is <50% due to high road and development corridor encroachment.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 84.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Field**

Current Dominant Land Cover: **Urban 54.0 %**

Current Sub-Dominant Land Cover: **Forest**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **>100 >100**

Sub-dominant: **26-50 51-100**

Length w / less than 25 ft.: **960.0 ft. 427.0 ft.**

4.4 Ground Water Inputs: **Minimal**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old):

Type: **Small Withdrawal**

Use: **Other**

5.2 Bridges and Culverts: **3 1.5 %**

5.3 Bank Armoring: **2,183.4 53.7 %**

Left: **1,336.4 ft.** Right: **847.0 ft.**

5.4 Channel Straightening: **1,083.1 26.6 %**

5.5 Dredging History: **Dredging**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **1,000.7 ft. 24.6**

One Side Both Sides

Road: **878.0 ft. 0.0 ft.**

Railroad: **0.0 ft. 0.0 ft.**

Berm: **504.4 ft. 0.0 ft.**

Improved Path: **1,000.7 ft. 0.0 ft.**

6.2 Development: **1,237.7 ft. 0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **None**

6.5 Meander Width: **44 ft. Ratio: 1.0**

6.6 Wavelength: **44 ft. Ratio: 1.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **412.75 ft**

7.2 Bank Height: **4 ft**

7.3 Ice/Debris Jam Potential: **Bridge**

| 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 |
|-----|------|------|-----|------|------|------|------|------|------|------|------|------|------|-----|-----|-------|
| 1 | 2 | 2 | 1 | 0 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 1 | 1 | 24 |
| Low | High | High | Low | N.S. | High | High | High | High | High | High | N.S. | High | High | Low | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **CAVENDISH**
 Watershed:

Reach ID: **M13**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins at the reach break Southwest of Hurricane Hill Rd and continues upstream to the reach point South of Agony Hill Rd.

1.1 Reach Description:

1.2 Towns: **Reading**

1.3 Downstream Latitude: **43.472408**

1.3 Downstream Longitude: **-72.534192**

Step 2. Stream Type

2.1 Elevation Upstream: **936**

2.1 Elevation Downstream: **850**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **7,108.8 ft.** **1.35 Miles**

2.3 Valley Slope: **1.2**

2.4 Channel Length: **7,217.4 ft.** **1.37 Miles**

2.5 Channel Slope: **1.18 %**

2.6 Sinuosity: **1.02**

2.7 Watershed Area: **15.3 Square Miles**

2.8 Channel Width: **43.5 feet**

2.9 Valley Width: **220.0 feet**

2.10 Confinement Ratio: **5.1**

2.10 Confinement Type: **Narrow**

2.11 Reference Stream Type: **B**

Bedform: **Riffle-Pool**

Sub-Class Slope: **c**

Bed Material: **Cobble**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

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: **Very Steep**

3.5 Soils

Hydrologic Group: **B 74.9 %**

Flooding: **None/Rare 81.0 %**

Water Table Deep: **2.5 59.2 %**

Water Table Shallow: **1.5 78.2 %**

Erodibility: **Very Severe 81.0 %**

7.4 Comments:

Meander geometry impacts selected as "high" even though straightening is <50% due to high road and development corridor encroachment. Low ice jam potential from two bridges and narrow encroached channel. Private bridge in upper reach may have jammed during T.S. Irene.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 85.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Commercial**

Current Dominant Land Cover: **Urban 41.0 %**

Current Sub-Dominant Land Cover: **Forest**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **0-25 >100**

Sub-dominant: **51-100 0-25**

Length w / less than 25 ft.: **2,996.0 ft. 346.0 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: **2 0.9 %**

5.3 Bank Armoring: **3,461.2 48.0 %**

Left: **3,024.6 ft.** Right: **436.6 ft.**

5.4 Channel Straightening: **600.4 8.3 %**

5.5 Dredging History: **Dredging**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **6,692.6 ft. 92.7**

One Side Both Sides

Road: **6,006.7 ft. 685.9 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: **1,210.5 ft. 400.8 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **None**

6.5 Meander Width: **44 ft. Ratio: 1.0**

6.6 Wavelength: **44 ft. Ratio: 1.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **451.514** ft

7.2 Bank Height: **4** ft

7.3 Ice/Debris Jam Potential: **Bridge**

| 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 |
|-----|------|------|------|------|------|-----|------|------|------|------|------|------|------|-----|-----|-------|
| 1 | 2 | 2 | 0 | 0 | 2 | 1 | 2 | 2 | 2 | 2 | 0 | 2 | 2 | 1 | 1 | 22 |
| Low | High | High | N.S. | N.S. | High | Low | High | High | High | High | N.S. | High | High | Low | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **WOODSTOCK SOUTH, CAVENDISH**
 Watershed:

Reach ID: **M14**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins at the reach break South of Agony Hill Rd and continues upstream to the reach break south of the Whitmore Rd crossing.

1.1 Reach Description:

1.2 Towns: **Reading**

1.3 Downstream Latitude: **43.484702**

1.3 Downstream Longitude: **-72.552562**

Step 2. Stream Type

2.1 Elevation Upstream: **1,038**

2.1 Elevation Downstream: **936**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **6,053.5 ft. 1.15 Miles**

2.3 Valley Slope: **1.7**

2.4 Channel Length: **7,498.5 ft. 1.42 Miles**

2.5 Channel Slope: **1.37 %**

2.6 Sinuosity: **1.24**

2.7 Watershed Area: **9.7 Square Miles**

2.8 Channel Width: **35.7 feet**

2.9 Valley Width: **475.0 feet**

2.10 Confinement Ratio: **13.3**

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 Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Alluvial 81.2 %**

3.3 Sub-dom. Geological Mat.: **Till**

3.4 Valley Slope Left: **Steep**

3.4 Valley Slope Right: **Steep**

3.5 Soils

Hydrologic Group: **B 86.0 %**

Flooding: **Occasional 81.2 %**

Water Table Deep: **3.0 81.2 %**

Water Table Shallow: **1.5 82.9 %**

Erodibility: **slight 18.8 %**

7.4 Comments:

Baily's Mills Road bridge failed during TS Irene. Clearance likely much higher than previous bridge, but ice/debris jamming still possible given change in valley confinement and slope as mainstem approaches trib confluence.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 85.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Field**

Current Dominant Land Cover: **Forest 38.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer Left Bank Right Bank

Dominant: **>100 26-50**

Sub-dominant: **0-25 >100**

Length w / less than 25 ft.: **1,867.0 ft. 593.0 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: **2 1.2 %**

5.3 Bank Armoring: **1,430.2 19.1 %**

Left: **684.5 ft.** Right: **745.6 ft.**

5.4 Channel Straightening: **2,144.9 28.6 %**

5.5 Dredging History: **Dredging**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **3,788.6 ft. 50.5**

One Side Both Sides

Road: **3,788.6 ft. 0.0 ft.**

Railroad: **0.0 ft. 0.0 ft.**

Berm: **181.5 ft. 0.0 ft.**

Improved Path: **0.0 ft. 0.0 ft.**

6.2 Development: **487.9 ft. 0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Multiple**

6.5 Meander Width: **230 ft. Ratio: 6.4**

6.6 Wavelength: **1050 ft. Ratio: 29.4**

Step 7. Windshield Survey

7.1 Bank Erosion: **2404.31** ft

7.2 Bank Height: **5** ft

7.3 Ice/Debris Jam Potential: **Bridge**

| 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 |
|-----|------|------|------|------|-----|------|------|------|-----|------|------|------|------|------|-----|-------|
| 1 | 2 | 2 | 0 | 0 | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 0 | 2 | 2 | 1 | 22 |
| Low | High | High | N.S. | N.S. | Low | High | High | High | Low | High | High | N.S. | High | High | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **WOODSTOCK SOUTH**
 Watershed:

Reach ID: **M15**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins at the reach break South of Whitmore Rd. and extends upstream to the reach break East of Mountain View Drive.

1.1 Reach Description:

1.2 Towns: **Reading**

1.3 Downstream Latitude: **43.501038**

1.3 Downstream Longitude: **-72.562996**

Step 2. Stream Type

2.1 Elevation Upstream: **1,121**

2.1 Elevation Downstream: **1,038**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **4,625.0 ft. 0.88 Miles**

2.3 Valley Slope: **1.8**

2.4 Channel Length: **5,311.5 ft. 1.01 Miles**

2.5 Channel Slope: **1.56 %**

2.6 Sinuosity: **1.15**

2.7 Watershed Area: **3.1 Square Miles**

2.8 Channel Width: **21.4 feet**

2.9 Valley Width: **325.0 feet**

2.10 Confinement Ratio: **15.2**

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 Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Alluvial 77.9 %**

3.3 Sub-dom. Geological Mat.: **Till**

3.4 Valley Slope Left: **Steep**

3.4 Valley Slope Right: **Steep**

3.5 Soils

Hydrologic Group: **B 75.1 %**

Flooding: **Occasional 63.8 %**

Water Table Deep: **3.0 63.8 %**

Water Table Shallow: **1.5 64.9 %**

Erodibility: **slight 22.1 %**

7.4 Comments:

Undersized culvert at slope transition has some ice jam potential.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 85.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Field**

Current Dominant Land Cover: **Forest 26.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **26-50 26-50**

Sub-dominant: **0-25 51-100**

Length w / less than 25 ft.: **1,408.0 ft. 852.0 ft.**

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old):

Type: **Small Withdrawal**

Use: **Other**

5.2 Bridges and Culverts: **4 1.8 %**

5.3 Bank Armoring: **279.7 5.3 %**

Left: **127.4 ft.** Right: **152.4 ft.**

5.4 Channel Straightening: **2,495.1 47.0 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **0.0 ft. 0.0**

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: **0.0 ft. 0.0 ft.**

6.2 Development: **275.3 ft. 0.0 ft.**

6.3 Channel Bars: **Side**

6.4 Meander Migration: **Multiple**

6.5 Meander Width: **21 ft. Ratio: 1.0**

6.6 Wavelength: **21 ft. Ratio: 1.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **1132.01** ft

7.2 Bank Height: **2** ft

7.3 Ice/Debris Jam Potential: **Culvert**

| 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 |
|-----|------|------|-----|------|-----|------|------|------|-----|-----|------|------|------|------|-----|-------|
| 1 | 2 | 2 | 1 | 0 | 1 | 2 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 1 | 20 |
| Low | High | High | Low | N.S. | Low | High | N.S. | Unk. | Low | Low | High | High | High | High | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **WOODSTOCK SOUTH**
 Watershed:

Reach ID: **M16**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach is between Stone Chimney and Jenne Rd and bound by the reach breaks North and South of Newton Rd.

1.1 Reach Description:

1.2 Towns: **Reading**

1.3 Downstream Latitude: **43.512996**

1.3 Downstream Longitude: **-72.568484**

Step 2. Stream Type

2.1 Elevation Upstream: **1,311**

2.1 Elevation Downstream: **1,121**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **4,615.0 ft. 0.87 Miles**

2.3 Valley Slope: **4.1**

2.4 Channel Length: **5,029.0 ft. 0.95 Miles**

2.5 Channel Slope: **3.79 %**

2.6 Sinuosity: **1.09**

2.7 Watershed Area: **2.6 Square Miles**

2.8 Channel Width: **19.8 feet**

2.9 Valley Width: **100.0 feet**

2.10 Confinement Ratio: **5.0**

2.10 Confinement Type: **Narrow**

2.11 Reference Stream Type: **B**

Bedform: **Riffle-Pool**

Sub-Class Slope: **None**

Bed Material: **Cobble**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Alluvial 40.2 %**

3.3 Sub-dom. Geological Mat.: **Ice-Contact**

3.4 Valley Slope Left: **Very Steep**

3.4 Valley Slope Right: **Very Steep**

3.5 Soils

Hydrologic Group: **B 76.1 %**

Flooding: **None/Rare 59.8 %**

Water Table Deep: **3.0 40.2 %**

Water Table Shallow: **1.5 73.9 %**

Erodibility: **Severe 59.8 %**

7.4 Comments:

Meander geometry not evaluated due to B-type and steep channel slope.

Valley may be confined but was not accessible during windshield surveys.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 88.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Forest**

Current Dominant Land Cover: **Forest 42.0 %**

Current Sub-Dominant Land Cover: **Field**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **>100 >100**

Sub-dominant: **0-25 26-50**

Length w / less than 25 ft.: **900.0 ft. 410.0 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: **0 0.0 %**

5.3 Bank Armoring: **148.4 3.0 %**

Left: **148.4 ft.** Right: **0.0 ft.**

5.4 Channel Straightening: **786.6 15.6 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **0.0 ft. 0.0**

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: **0.0 ft. 0.0 ft.**

6.2 Development: **0.0 ft. 0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Flood Chute**

6.5 Meander Width: **N/A Ratio: 0.0**

6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **1689.92** ft

7.2 Bank Height: **4** ft

7.3 Ice/Debris Jam Potential: **Not Evaluated**

| 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 |
|-----|------|------|------|------|------|-----|------|------|------|-----|------|-----|-----|------|------|-------|
| 1 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 7 |
| Low | N.S. | High | N.S. | N.S. | N.S. | Low | N.S. | Unk. | N.S. | Low | N.S. | N/A | N/A | High | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **WOODSTOCK SOUTH**
 Watershed:
 Sub-watershed:

Reach ID: **M17**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**
 Is Reach An Impoundment?: **No**

This reach is bound by the reach breaks up and down stream of the Stone Chimney Rd crossing.

Step 1. Reach Location

1.1 Reach Description:

1.2 Towns: **Reading**

1.3 Downstream Latitude: **43.525393**

1.3 Downstream Longitude: **-72.571604**

Step 2. Stream Type

2.1 Elevation Upstream: **1,739**

2.1 Elevation Downstream: **1,311**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **5,350.0 ft.** **1.01** Miles

2.3 Valley Slope: **8.0**

2.4 Channel Length: **6,148.6 ft.** **1.16** Miles

2.5 Channel Slope: **6.96 %**

2.6 Sinuosity: **1.15**

2.7 Watershed Area: **1.6** Square Miles

2.8 Channel Width: **16.3** feet

2.9 Valley Width: **65.0** feet

2.10 Confinement Ratio: **4.0**

2.10 Confinement Type: **Semi-confined**

2.11 Reference Stream Type: **A**

Bedform: **Step-Pool**

Sub-Class Slope: **None**

Bed Material: **Boulder**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **None**

3.3 Dominant Geological Mat.: **Till** **69.6 %**

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: **C** **69.6 %**

Flooding: **None/Rare** **100.0 %**

Water Table Deep: **2.0** **69.2 %**

Water Table Shallow: **1.0** **69.2 %**

Erodibility: **Very Severe** **100.0 %**

7.4 Comments:

NULL

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest** **91.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Forest**

Current Dominant Land Cover: **Forest** **49.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **>100** **>100**

Sub-dominant:

Length w / less than 25 ft.: **0.0 ft.** **0.0 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: **1** **0.2 %**

5.3 Bank Armoring: **0.0** **0.0 %**

Left: **0.0 ft.** Right: **0.0 ft.**

5.4 Channel Straightening: **0.0** **0.0 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **0.0 ft.** **0.0**

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: **0.0 ft.** **0.0 ft.**

6.2 Development: **0.0 ft.** **0.0 ft.**

6.3 Channel Bars: **Not Evaluated**

6.4 Meander Migration: **None**

6.5 Meander Width: **N/A** Ratio: **0.0**

6.6 Wavelength: **N/A** Ratio: **0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **0** ft

7.2 Bank Height: **No Data** ft

7.3 Ice/Debris Jam Potential: **Not Evaluated**

| 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 |
|------|-----|------|------|------|------|------|------|------|------|------|------|-----|-----|------|------|-------|
| 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| N.S. | Low | N.S. | N.S. | N.S. | N.S. | N.S. | N.S. | Unk. | N.S. | N.S. | N.S. | N/A | N/A | N.S. | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Mill Brook**
 Topo Maps: **WOODSTOCK SOUTH**
 Watershed:
 Sub-watershed:

Reach ID: **M18**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**
 Is Reach An Impoundment?: **No**

This reach is bound by the reach breaks North and South of the Chase 4 Corners Trail.

Step 1. Reach Location

1.1 Reach Description:

1.2 Towns: **Reading**

1.3 Downstream Latitude: **43.532228**

1.3 Downstream Longitude: **-72.586202**

Step 2. Stream Type

2.1 Elevation Upstream: **2,271**

2.1 Elevation Downstream: **1,739**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **5,950.0 ft.** **1.13** Miles

2.3 Valley Slope: **8.9**

2.4 Channel Length: **6,500.0 ft.** **1.23** Miles

2.5 Channel Slope: **8.17 %**

2.6 Sinuosity: **1.09**

2.7 Watershed Area: **0.6** Square Miles

2.8 Channel Width: **10.6** feet

2.9 Valley Width: **40.0** feet

2.10 Confinement Ratio: **3.8**

2.10 Confinement Type: **Semi-confined**

2.11 Reference Stream Type: **A**

Bedform: **Step-Pool**

Sub-Class Slope: **None**

Bed Material: **Boulder**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **None**

3.3 Dominant Geological Mat.: **Till** **100.0 %**

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: **C** **52.6 %**

Flooding: **None/Rare** **100.0 %**

Water Table Deep: **2.0** **46.0 %**

Water Table Shallow: **1.0** **52.5 %**

Erodibility: **Very Severe** **100.0 %**

7.4 Comments:

NULL

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest** **94.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Forest**

Current Dominant Land Cover: **Forest** **77.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer Left Bank Right Bank

Dominant: **>100** **>100**

Sub-dominant:

Length w / less than 25 ft.: **0.0 ft.** **0.0 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: **1** **0.2 %**

5.3 Bank Armoring: **0.0** **0.0 %**

Left: **0.0 ft.** Right: **0.0 ft.**

5.4 Channel Straightening: **0.0** **0.0 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **0.0 ft.** **0.0**

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: **0.0 ft.** **0.0 ft.**

6.2 Development: **0.0 ft.** **0.0 ft.**

6.3 Channel Bars: **Not Evaluated**

6.4 Meander Migration: **None**

6.5 Meander Width: **N/A** Ratio: **0.0**

6.6 Wavelength: **N/A** Ratio: **0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **0** ft

7.2 Bank Height: **No Data** ft

7.3 Ice/Debris Jam Potential: **Not Evaluated**

| 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 |
|-----|------|------|------|------|------|------|------|------|------|------|------|-----|-----|------|------|-------|
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Low | N.S. | Unk. | N.S. | N.S. | N.S. | N/A | N/A | N.S. | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Beaver Brook**
 Topo Maps: **WINDSOR**
 Watershed:

Reach ID: **T1.01**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins South of the Rt-44 crossing just West of Strawberry Hill Rd and continues upstream to the reach break South of the Coon Club Rd crossing.

1.1 Reach Description:

1.2 Towns: **West Windsor**

Step 4. Land Cover - Reach Hydrology

1.3 Downstream Latitude: **43.467327**

4.1 Watershed

1.3 Downstream Longitude: **-72.470515**

Historic Land Cover: **Forest**

Step 2. Stream Type

2.1 Elevation Upstream: **776**

Current Dominant Land Cover: **Forest 69.0 %**

2.1 Elevation Downstream: **667**

Current Sub-Dominant Land Cover: **Field**

2.1 Is Gradient Gentle?: **No**

4.2 Corridor

2.2 Valley Length: **5,425.0 ft. 1.03 Miles**

Historic Land Cover:: **Forest**

2.3 Valley Slope: **2.0**

Current Dominant Land Cover: **Forest 38.0 %**

2.4 Channel Length: **6,569.0 ft. 1.24 Miles**

Current Sub-Dominant Land Cover: **Urban**

2.5 Channel Slope: **1.66 %**

4.3 Riparian Buffer **Left Bank Right Bank**

2.6 Sinuosity: **1.21**

Dominant: **>100 >100**

2.7 Watershed Area: **6.5 Square Miles**

Sub-dominant: **51-100 51-100**

2.8 Channel Width: **29.9 feet**

Length w / less than 25 ft.: **407.0 ft. 356.0 ft.**

2.9 Valley Width: **170.0 feet**

4.4 Ground Water Inputs: **Minimal**

2.10 Confinement Ratio: **5.7**

Step 5. Instream Channel Modifications

2.10 Confinement Type: **Narrow**

5.1 Flow Regulation - (old):

2.11 Reference Stream Type: **C**

Type: **None**

Bedform: **Riffle-Pool**

Use:

Sub-Class Slope: **None**

5.2 Bridges and Culverts: **3 0.9 %**

Bed Material: **Cobble**

5.3 Bank Armoring: **265.6 4.0 %**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

Left: **151.2 ft. Right: 114.4 ft.**

3.2 Grade Control: **Ledge**

5.4 Channel Straightening: **0.0 0.0 %**

3.3 Dominant Geological Mat.: **Till 70.6 %**

5.5 Dredging History: **Dredging**

3.3 Sub-dom. Geological Mat.: **Ice-Contact**

Step 6. Floodplain Modifications

3.4 Valley Slope Left: **Steep**

6.1 Berms & Roads - old: **150.0 ft. 2.3**

3.4 Valley Slope Right: **Very Steep**

One Side Both Sides

3.5 Soils

Road: **0.0 ft. 0.0 ft.**

Hydrologic Group: **B 70.2 %**

Railroad: **0.0 ft. 0.0 ft.**

Flooding: **None/Rare 100.0 %**

Berm: **150.0 ft. 0.0 ft.**

Water Table Deep: **6.0 99.6 %**

Improved Path: **0.0 ft. 0.0 ft.**

Water Table Shallow: **6.0 99.6 %**

6.2 Development: **597.5 ft. 190.6 ft.**

Erodibility: **Very Severe 89.5 %**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Flood Chute**

7.4 Comments:

6.5 Meander Width: **140 ft. Ratio: 4.7**

Private bridge at slope transition may have low ice jam potential.

6.6 Wavelength: **370 ft. Ratio: 12.4**

Step 7. Windshield Survey

7.1 Bank Erosion: **1022.91 ft**

7.2 Bank Height: **5 ft**

7.3 Ice/Debris Jam Potential: **Bridge**

| 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 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 11 |
| High | High | Low | N.S. | N.S. | N.S. | N.S. | High | N.S. | Low | N.S. | N.S. | Low | N.S. | Low | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Unnamed Trib 01 to Beaver Brook**
 Topo Maps: **HARTLAND, WINDSOR**
 Watershed:

Reach ID: **T1.01.S3.01**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed: **Is Reach An Impoundment?: No**
Step 1. Reach Location **Begins at the reach break South of Coon Club Rd and continues upstream to the reach break North of the Hammond Hill Rd Crossing.**

1.1 Reach Description:
 1.2 Towns: **West Windsor**
 1.3 Downstream Latitude: **43.479805**
 1.3 Downstream Longitude: **-72.471359**

Step 2. Stream Type

2.1 Elevation Upstream: **1,272**
 2.1 Elevation Downstream: **763**
 2.1 Is Gradient Gentle?: **No**
 2.2 Valley Length: **8,500.0 ft. 1.61 Miles**
 2.3 Valley Slope: **6.0**
 2.4 Channel Length: **9,236.3 ft. 1.75 Miles**
 2.5 Channel Slope: **5.52 %**
 2.6 Sinuosity: **1.09**
 2.7 Watershed Area: **1.1 Square Miles**
 2.8 Channel Width: **13.7 feet**
 2.9 Valley Width: **50.0 feet**
 2.10 Confinement Ratio: **3.7**
 2.10 Confinement Type: **Semi-confined**
 2.11 Reference Stream Type: **A**
 Bedform: **Step-Pool**
 Sub-Class Slope: **None**
 Bed Material: **Bedrock**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**
 3.2 Grade Control: **None**
 3.3 Dominant Geological Mat.: **Till 92.7 %**
 3.3 Sub-dom. Geological Mat.: **Other**
 3.4 Valley Slope Left: **Very Steep**
 3.4 Valley Slope Right: **Very Steep**
 3.5 Soils
 Hydrologic Group: **C 46.8 %**
 Flooding: **None/Rare 100.0 %**
 Water Table Deep: **6.0 59.0 %**
 Water Table Shallow: **6.0 59.0 %**
 Erodibility: **Very Severe 92.7 %**

7.4 Comments:
NULL

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
 Historic Land Cover: **Forest**
 Current Dominant Land Cover: **Forest 68.0 %**
 Current Sub-Dominant Land Cover: **Field**
 4.2 Corridor
 Historic Land Cover:: **Forest**
 Current Dominant Land Cover: **Forest 37.0 %**
 Current Sub-Dominant Land Cover: **Field**
 4.3 Riparian Buffer Left Bank Right Bank
 Dominant: **51-100 >100**
 Sub-dominant: **26-50 51-100**
 Length w / less than 25 ft.: **1,486.0 ft. 562.0 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: **2 0.5 %**
 5.3 Bank Armoring: **0.0 0.0 %**
 Left: **0.0 ft.** Right: **0.0 ft.**
 5.4 Channel Straightening: **432.1 4.7 %**
 5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **0.0 ft. 0.0**
 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: **0.0 ft. 0.0 ft.**
 6.2 Development: **172.3 ft. 0.0 ft.**
 6.3 Channel Bars: **None**
 6.4 Meander Migration: **None**
 6.5 Meander Width: **N/A Ratio: 0.0**
 6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **0** ft
 7.2 Bank Height: **No Data** ft
 7.3 Ice/Debris Jam Potential: **Culvert**

| 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 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| High | Low | High | N.S. | N.S. | N.S. | N.S. | N.S. | Unk. | N.S. | N.S. | N.S. | N/A | N/A | N.S. | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Unnamed Trib 02 to Beaver Brook**
 Topo Maps: **CAVENDISH, WINDSOR**
 Watershed:

Reach ID: **T1.01.S4.01**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed: Is Reach An Impoundment?: **No**
Step 1. Reach Location **This reach follows Sheddsville Rd beginning just East of the Brownsville-Hartland Rd crossing and continuing upstream to the terminal reach break North of Sheddsville Rd.**

1.1 Reach Description:
 1.2 Towns: **West Windsor**
 1.3 Downstream Latitude: **43.481587**
 1.3 Downstream Longitude: **-72.473776**

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
 Historic Land Cover: **Field**
 Current Dominant Land Cover: **Forest 54.0 %**
 Current Sub-Dominant Land Cover: **Field**
 4.2 Corridor
 Historic Land Cover:: **Field**
 Current Dominant Land Cover: **Urban 26.0 %**
 Current Sub-Dominant Land Cover: **Field**
 4.3 Riparian Buffer Left Bank Right Bank
 Dominant: **>100 51-100**
 Sub-dominant: **0-25 0-25**
 Length w / less than 25 ft.: **2,945.0 ft. 2,447.0 ft.**

Step 2. Stream Type

2.1 Elevation Upstream: **1,299**
 2.1 Elevation Downstream: **782**
 2.1 Is Gradient Gentle?: **No**
 2.2 Valley Length: **10,600.0 ft. 2.01 Miles**
 2.3 Valley Slope: **4.9**
 2.4 Channel Length: **11,559.2 ft. 2.19 Miles**
 2.5 Channel Slope: **4.47 %**
 2.6 Sinuosity: **1.09**
 2.7 Watershed Area: **1.4 Square Miles**
 2.8 Channel Width: **15.4 feet**
 2.9 Valley Width: **60.0 feet**
 2.10 Confinement Ratio: **3.9**
 2.10 Confinement Type: **Semi-confined**
 2.11 Reference Stream Type: **A**
 Bedform: **Step-Pool**
 Sub-Class Slope: **None**
 Bed Material: **Boulder**

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old):
 Type: **Small Run of River**
 Use: **Recreation**
 5.2 Bridges and Culverts: **10 1.6 %**
 5.3 Bank Armoring: **1,221.4 10.6 %**
 Left: **406.2 ft.** Right: **815.2 ft.**
 5.4 Channel Straightening: **3,092.2 26.8 %**
 5.5 Dredging History: **Dredging**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**
 3.2 Grade Control: **Dam**
 3.3 Dominant Geological Mat.: **Till 82.2 %**
 3.3 Sub-dom. Geological Mat.: **Alluvial**
 3.4 Valley Slope Left: **Very Steep**
 3.4 Valley Slope Right: **Very Steep**
 3.5 Soils
 Hydrologic Group: **C 89.6 %**
 Flooding: **None/Rare 82.3 %**
 Water Table Deep: **2.5 43.4 %**
 Water Table Shallow: **1.5 43.4 %**
 Erodibility: **Very Severe 82.3 %**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **4,326.4 ft. 37.4**
One Side Both Sides
 Road: **4,326.4 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: **424.2 ft. 0.0 ft.**
 6.3 Channel Bars: **Multiple**
 6.4 Meander Migration: **None**
 6.5 Meander Width: **N/A Ratio: 0.0**
 6.6 Wavelength: **N/A Ratio: 0.0**

7.4 Comments:
Culvert under private drive south of Sheddsville Road plugged during TS Irene and caused flooding over field. Bible Hill Rd culvert may have jammed during TS Irene.

Step 7. Windshield Survey

7.1 Bank Erosion: **294.007** ft
 7.2 Bank Height: **5** ft
 7.3 Ice/Debris Jam Potential: **Culvert**

| 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 | 2 | 2 | 1 | 0 | 1 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 16 |
| High | High | High | Low | N.S. | Low | High | High | High | N.S. | N.S. | N.S. | N/A | N/A | N.S. | High | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Beaver Brook**
 Topo Maps: **WINDSOR**
 Watershed:

Reach ID: **T1.02**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins at the reach break East of the intersection of Sheddsville and Brownsville-Hartland Rd and continues upstream to the reach break Southast of the intersection of Brownsville-Hartland and Blood Hill Rd.

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.481655**

1.3 Downstream Longitude: **-72.473307**

Step 2. Stream Type

2.1 Elevation Upstream: **930**

2.1 Elevation Downstream: **776**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **6,600.0 ft. 1.25 Miles**

2.3 Valley Slope: **2.3**

2.4 Channel Length: **7,723.2 ft. 1.46 Miles**

2.5 Channel Slope: **2.00 %**

2.6 Sinuosity: **1.17**

2.7 Watershed Area: **3.5 Square Miles**

2.8 Channel Width: **22.7 feet**

2.9 Valley Width: **250.0 feet**

2.10 Confinement Ratio: **11.0**

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 Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Till 70.2 %**

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: **B 54.1 %**

Flooding: **None/Rare 72.5 %**

Water Table Deep: **2.0 36.3 %**

Water Table Shallow: **1.0 36.3 %**

Erodibility: **Severe 72.5 %**

7.4 Comments:

Culvert and sharp bed in lower reach may have potential for ice jams

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 75.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Forest**

Current Dominant Land Cover: **Forest 27.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **0-25 51-100**

Sub-dominant: **51-100 0-25**

Length w / less than 25 ft.: **3,045.0 ft. 2,237.0 ft.**

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old):

Type: **Small Withdrawal**

Use: **Recreation**

5.2 Bridges and Culverts: **4 2.5 %**

5.3 Bank Armoring: **209.5 2.7 %**

Left: **0.0 ft.** Right: **209.5 ft.**

5.4 Channel Straightening: **969.7 12.6 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **915.5 ft. 11.9**

One Side Both Sides

Road: **915.5 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: **1,197.2 ft. 168.1 ft.**

6.3 Channel Bars: **Point**

6.4 Meander Migration: **Flood Chute**

6.5 Meander Width: **70 ft. Ratio: 3.1**

6.6 Wavelength: **200 ft. Ratio: 8.8**

Step 7. Windshield Survey

7.1 Bank Erosion: **800.72 ft**

7.2 Bank Height: **7 ft**

7.3 Ice/Debris Jam Potential: **Bridge**

| 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 |
|-----|------|------|-----|------|------|-----|------|-----|-----|------|------|-----|------|-----|-----|-------|
| 1 | 2 | 2 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 1 | 1 | 12 |
| Low | High | High | Low | N.S. | N.S. | Low | N.S. | Low | Low | N.S. | N.S. | Low | N.S. | Low | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Beaver Brook**
 Topo Maps: **HARTLAND, WINDSOR**
 Watershed:

Reach ID: **T1.03**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location **This reach follows Blood Hill Rd and is bound by the reach breaks North and South of the intersection of Blood Hill and Cross Rd.**

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.498973**

1.3 Downstream Longitude: **-72.478674**

Step 2. Stream Type

2.1 Elevation Upstream: **1,046**

2.1 Elevation Downstream: **930**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **5,175.0 ft. 0.98 Miles**

2.3 Valley Slope: **2.2**

2.4 Channel Length: **5,580.8 ft. 1.06 Miles**

2.5 Channel Slope: **2.07 %**

2.6 Sinuosity: **1.08**

2.7 Watershed Area: **1.0 Square Miles**

2.8 Channel Width: **13.1 feet**

2.9 Valley Width: **350.0 feet**

2.10 Confinement Ratio: **26.8**

2.10 Confinement Type: **Very Broad**

2.11 Reference Stream Type: **C**

Bedform: **Riffle-Pool**

Sub-Class Slope: **b**

Bed Material: **Gravel**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **None**

3.3 Dominant Geological Mat.: **Till 80.5 %**

3.3 Sub-dom. Geological Mat.: **Alluvial**

3.4 Valley Slope Left: **Steep**

3.4 Valley Slope Right: **Very Steep**

3.5 Soils

Hydrologic Group: **D 46.7 %**

Flooding: **None/Rare 85.0 %**

Water Table Deep: **1.5 46.7 %**

Water Table Shallow: **0.0 46.7 %**

Erodibility: **Very Severe 85.0 %**

7.4 Comments:

Meander geometry measured from short area of channel visible in ESRI World Imager at scale 1:1500 or smaller. Channel definition disappears upstream of this point due to cattle grazing impacts.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 79.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Field**

Current Dominant Land Cover: **Forest 48.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer **Left Bank Right Bank**

Dominant: **0-25 0-25**

Sub-dominant: **26-50 51-100**

Length w / less than 25 ft.: **3,394.0 ft. 3,469.0 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: **2 1.1 %**

5.3 Bank Armoring: **0.0 0.0 %**

Left: **0.0 ft.** Right: **0.0 ft.**

5.4 Channel Straightening: **1,012.4 18.1 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **1,155.4 ft. 20.7**

One Side Both Sides

Road: **1,155.4 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: **181.2 ft. 0.0 ft.**

6.3 Channel Bars: **Mid-channel**

6.4 Meander Migration: **None**

6.5 Meander Width: **26 ft. Ratio: 2.0**

6.6 Wavelength: **78 ft. Ratio: 6.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **1618.76 ft**

7.2 Bank Height: **1 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 |
|-----|------|------|------|------|------|-----|------|------|------|------|------|------|------|------|------|-------|
| 1 | 2 | 2 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 2 | 0 | 16 |
| Low | High | High | N.S. | N.S. | N.S. | Low | N.S. | High | N.S. | High | N.S. | High | High | High | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Beaver Brook**
 Topo Maps: **HARTLAND**
 Watershed:

Reach ID: **T1.04**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach follows Blood Hill Rd and is bound by the reach breaks North and South of the intersection of Blood Hill Rd and Parrish View Rd.

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.512241**

1.3 Downstream Longitude: **-72.485093**

Step 2. Stream Type

2.1 Elevation Upstream: **1,291**

2.1 Elevation Downstream: **1,046**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **2,520.0 ft. 0.48 Miles**

2.3 Valley Slope: **9.7**

2.4 Channel Length: **2,607.3 ft. 0.49 Miles**

2.5 Channel Slope: **9.41 %**

2.6 Sinuosity: **1.03**

2.7 Watershed Area: **0.3 Square Miles**

2.8 Channel Width: **7.2 feet**

2.9 Valley Width: **25.0 feet**

2.10 Confinement Ratio: **3.4**

2.10 Confinement Type: **Semi-confined**

2.11 Reference Stream Type: **A**

Bedform: **Step-Pool**

Sub-Class Slope: **None**

Bed Material: **Cobble**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Dam**

3.3 Dominant Geological Mat.: **Till 100.0 %**

3.3 Sub-dom. Geological Mat.: **Alluvial**

3.4 Valley Slope Left: **Very Steep**

3.4 Valley Slope Right: **Ext. Steep**

3.5 Soils

Hydrologic Group: **C 100.0 %**

Flooding: **None/Rare 100.0 %**

Water Table Deep: **2.0 69.5 %**

Water Table Shallow: **1.0 69.5 %**

Erodibility: **Very Severe 100.0 %**

7.4 Comments:

NULL

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 75.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Forest**

Current Dominant Land Cover: **Forest 36.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer Left Bank Right Bank

Dominant: **26-50 >100**

Sub-dominant: **51-100 51-100**

Length w / less than 25 ft.: **0.0 ft. 0.0 ft.**

4.4 Ground Water Inputs: **None**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old):

Type: **Small Run of River**

Use: **Recreation**

5.2 Bridges and Culverts: **1 0.6 %**

5.3 Bank Armoring: **0.0 0.0 %**

Left: **0.0 ft.** Right: **0.0 ft.**

5.4 Channel Straightening: **0.0 0.0 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **1,071.2 ft. 41.1**

One Side Both Sides

Road: **1,071.2 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: **321.7 ft. 0.0 ft.**

6.3 Channel Bars: **None**

6.4 Meander Migration: **None**

6.5 Meander Width: **N/A Ratio: 0.0**

6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **0 ft**

7.2 Bank Height: **No Data 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 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| High | High | N.S. | Low | N.S. | N.S. | N.S. | N.S. | High | Low | N.S. | N.S. | N/A | N/A | N.S. | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Willow Brook**
 Topo Maps: **CAVENDISH**
 Watershed:

Reach ID: **T2.01**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins at the reach break south of Rt-44 and extends upstream to the reach break North of the first Rush Meadow Crossing.

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.454982**

1.3 Downstream Longitude: **-72.51471**

Step 2. Stream Type

2.1 Elevation Upstream: **816**

2.1 Elevation Downstream: **764**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **3,120.0 ft. 0.59 Miles**

2.3 Valley Slope: **1.7**

2.4 Channel Length: **4,027.9 ft. 0.76 Miles**

2.5 Channel Slope: **1.28 %**

2.6 Sinuosity: **1.29**

2.7 Watershed Area: **5.3 Square Miles**

2.8 Channel Width: **27.2 feet**

2.9 Valley Width: **510.0 feet**

2.10 Confinement Ratio: **18.8**

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 Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Alluvial 66.4 %**

3.3 Sub-dom. Geological Mat.: **Ice-Contact**

3.4 Valley Slope Left: **Steep**

3.4 Valley Slope Right: **Hilly**

3.5 Soils

Hydrologic Group: **B 66.4 %**

Flooding: **Occasional 66.4 %**

Water Table Deep: **3.0 66.4 %**

Water Table Shallow: **1.5 66.4 %**

Erodibility: **Moderate 33.6 %**

7.4 Comments:

Minor debris jam potential at Rt 44 bridge. Dredging at Rt 44 post-Irene and downstream along Reach M09.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 75.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Field**

Current Dominant Land Cover: **Forest 20.0 %**

Current Sub-Dominant Land Cover: **Urban**

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.: **2,031.0 ft. 2,744.0 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 1.9 %**

5.3 Bank Armoring: **1,513.4 37.6 %**

Left: **326.8 ft.** Right: **1,186.5 ft.**

5.4 Channel Straightening: **1,307.9 32.5 %**

5.5 Dredging History: **Dredging**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **1,041.6 ft. 25.9**

One Side Both Sides

Road: **1,041.6 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: **479.3 ft. 0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Flood Chute**

6.5 Meander Width: **60 ft. Ratio: 2.2**

6.6 Wavelength: **230 ft. Ratio: 8.5**

Step 7. Windshield Survey

7.1 Bank Erosion: **362.224** ft

7.2 Bank Height: **5** ft

7.3 Ice/Debris Jam Potential: **Bridge**

| 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 | 2 | 2 | 0 | 0 | 2 | 2 | 2 | 2 | 1 | 2 | 1 | 2 | 0 | 1 | 1 | 22 |
| High | High | High | N.S. | N.S. | High | High | High | High | Low | High | Low | High | N.S. | Low | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Willow Brook**
 Topo Maps: **CAVENDISH**
 Watershed:

Reach ID: **T2.02**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location **This reach follows Rush Meadow Rd. and is bound by the two reach breaks south of West Rowe Hill Rd.**

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.463456**

1.3 Downstream Longitude: **-72.514676**

Step 2. Stream Type

2.1 Elevation Upstream: **919**

2.1 Elevation Downstream: **816**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **3,150.0 ft. 0.60 Miles**

2.3 Valley Slope: **3.3**

2.4 Channel Length: **3,213.8 ft. 0.61 Miles**

2.5 Channel Slope: **3.20 %**

2.6 Sinuosity: **1.02**

2.7 Watershed Area: **5.0 Square Miles**

2.8 Channel Width: **26.7 feet**

2.9 Valley Width: **130.0 feet**

2.10 Confinement Ratio: **4.9**

2.10 Confinement Type: **Narrow**

2.11 Reference Stream Type: **B**

Bedform: **Step-Pool**

Sub-Class Slope: **None**

Bed Material: **Cobble**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Till 93.6 %**

3.3 Sub-dom. Geological Mat.: **Ice-Contact**

3.4 Valley Slope Left: **Steep**

3.4 Valley Slope Right: **Very Steep**

3.5 Soils

Hydrologic Group: **C 93.6 %**

Flooding: **None/Rare 100.0 %**

Water Table Deep: **2.0 91.4 %**

Water Table Shallow: **1.0 91.4 %**

Erodibility: **Very Severe 100.0 %**

7.4 Comments:

NULL

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 76.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Forest**

Current Dominant Land Cover: **Urban 36.0 %**

Current Sub-Dominant Land Cover: **Forest**

4.3 Riparian Buffer **Left Bank Right Bank**

Dominant: **26-50 >100**

Sub-dominant: **51-100 51-100**

Length w / less than 25 ft.: **588.0 ft. 0.0 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: **1 1.0 %**

5.3 Bank Armoring: **1,106.2 34.4 %**

Left: **843.6 ft.** Right: **262.6 ft.**

5.4 Channel Straightening: **0.0 0.0 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **3,159.3 ft. 98.3**

One Side Both Sides

Road: **3,159.3 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: **Multiple**

6.4 Meander Migration: **Flood Chute**

6.5 Meander Width: **N/A Ratio: 0.0**

6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **483.218 ft**

7.2 Bank Height: **2 ft**

7.3 Ice/Debris Jam Potential: **Culvert**

| 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 | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 2 | 0 | 0 | 0 | 1 | 1 | 13 |
| High | High | Low | N.S. | N.S. | High | N.S. | N.S. | High | N.S. | High | N.S. | N/A | N/A | Low | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Willow Brook**
 Topo Maps: **CAVENDISH**
 Watershed:

Reach ID: **T2.03**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location **This reach follows Rush Meadow Rd. and is bound by the reach breaks North and South of Banister Rd.**

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.471249**

1.3 Downstream Longitude: **-72.512231**

Step 2. Stream Type

2.1 Elevation Upstream: **1,058**

2.1 Elevation Downstream: **919**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **6,045.0 ft. 1.14 Miles**

2.3 Valley Slope: **2.3**

2.4 Channel Length: **6,818.9 ft. 1.29 Miles**

2.5 Channel Slope: **2.04 %**

2.6 Sinuosity: **1.13**

2.7 Watershed Area: **4.7 Square Miles**

2.8 Channel Width: **25.9 feet**

2.9 Valley Width: **200.0 feet**

2.10 Confinement Ratio: **7.7**

2.10 Confinement Type: **Broad**

2.11 Reference Stream Type: **B**

Bedform: **Riffle-Pool**

Sub-Class Slope: **None**

Bed Material: **Cobble**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Till 53.4 %**

3.3 Sub-dom. Geological Mat.: **Ice-Contact**

3.4 Valley Slope Left: **Steep**

3.4 Valley Slope Right: **Hilly**

3.5 Soils

Hydrologic Group: **C 65.3 %**

Flooding: **None/Rare 79.0 %**

Water Table Deep: **2.5 40.6 %**

Water Table Shallow: **1.5 40.6 %**

Erodibility: **Very Severe 79.0 %**

7.4 Comments:

Minor debris jam potential at first crossing of Rush Meadow Road near West Hill Rd.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 75.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Commercial**

Current Dominant Land Cover: **Urban 42.0 %**

Current Sub-Dominant Land Cover: **Forest**

4.3 Riparian Buffer **Left Bank Right Bank**

Dominant: **>100 0-25**

Sub-dominant: **0-25 26-50**

Length w / less than 25 ft.: **1,803.0 ft. 3,257.0 ft.**

4.4 Ground Water Inputs: **Abundant**

Step 5. Instream Channel Modifications

5.1 Flow Regulation - (old):

Type: **Small Withdrawal**

Use: **Other**

5.2 Bridges and Culverts: **7 2.8 %**

5.3 Bank Armoring: **1,954.5 28.7 %**

Left: **871.4 ft. Right: 1,083.1 ft.**

5.4 Channel Straightening: **924.5 13.6 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **6,385.6 ft. 93.6**

One Side Both Sides

Road: **6,103.7 ft. 281.9 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: **646.6 ft. 0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Flood Chute**

6.5 Meander Width: **110 ft. Ratio: 4.3**

6.6 Wavelength: **330 ft. Ratio: 12.8**

Step 7. Windshield Survey

7.1 Bank Erosion: **1001.09 ft**

7.2 Bank Height: **4 ft**

7.3 Ice/Debris Jam Potential: **Multiple**

| 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 | 2 | 2 | 1 | 0 | 2 | 1 | 0 | 2 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 17 |
| High | High | High | Low | N.S. | High | Low | N.S. | High | Low | Low | N.S. | Low | N.S. | Low | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Willow Brook**
 Topo Maps: **CAVENDISH**
 Watershed:

Reach ID: **T2.04**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location **This reach parallels Rush Meadow Rd to the east, and is bound by the two reach breaks south of Delano Rd.**

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.487033**

1.3 Downstream Longitude: **-72.518926**

Step 2. Stream Type

2.1 Elevation Upstream: **1,141**

2.1 Elevation Downstream: **1,058**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **2,775.0 ft. 0.53 Miles**

2.3 Valley Slope: **3.0**

2.4 Channel Length: **3,051.4 ft. 0.58 Miles**

2.5 Channel Slope: **2.75 %**

2.6 Sinuosity: **1.10**

2.7 Watershed Area: **3.2 Square Miles**

2.8 Channel Width: **21.9 feet**

2.9 Valley Width: **150.0 feet**

2.10 Confinement Ratio: **6.8**

2.10 Confinement Type: **Broad**

2.11 Reference Stream Type: **C**

Bedform: **Riffle-Pool**

Sub-Class Slope: **b**

Bed Material: **Cobble**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Alluvial 65.0 %**

3.3 Sub-dom. Geological Mat.: **Till**

3.4 Valley Slope Left: **Very Steep**

3.4 Valley Slope Right: **Ext. Steep**

3.5 Soils

Hydrologic Group: **B 66.9 %**

Flooding: **Occasional 65.0 %**

Water Table Deep: **3.0 65.0 %**

Water Table Shallow: **1.5 70.6 %**

Erodibility: **Moderate 35.0 %**

7.4 Comments:

Meander geometry not assessed because channel centerline not visible with aerial photos under dense canopy.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 74.0 %**

Current Sub-Dominant Land Cover: **Field**

4.2 Corridor

Historic Land Cover:: **Forest**

Current Dominant Land Cover: **Forest 36.0 %**

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.: **220.0 ft. 230.0 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: **0 0.0 %**

5.3 Bank Armoring: **240.5 7.9 %**

Left: **24.1 ft.** Right: **216.4 ft.**

5.4 Channel Straightening: **0.0 0.0 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **871.8 ft. 28.6**

One Side Both Sides

Road: **871.8 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: **415.6 ft. 0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Multiple**

6.5 Meander Width: **N/A Ratio: 0.0**

6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **903.739** ft

7.2 Bank Height: **3** ft

7.3 Ice/Debris Jam Potential: **Not Evaluated**

| 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 |
|-----|------|-----|------|------|-----|------|------|------|-----|------|------|-----|-----|------|------|-------|
| 1 | 2 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 10 |
| Low | High | Low | N.S. | N.S. | Low | N.S. | N.S. | High | Low | N.S. | N.S. | N/A | N/A | High | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Willow Brook**
 Topo Maps: **CAVENDISH**
 Watershed:

Reach ID: **T2.05**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location **This reach follows Rush Meadow Rd. and is bound by the reach breaks North and South of Sheddsville Rd.**

1.1 Reach Description:

1.2 Towns: **West Windsor**

Step 4. Land Cover - Reach Hydrology

1.3 Downstream Latitude: **43.494564**

4.1 Watershed

1.3 Downstream Longitude: **-72.518078**

Historic Land Cover: **Field**

Step 2. Stream Type

Current Dominant Land Cover: **Forest 73.0 %**

2.1 Elevation Upstream: **1,203**

Current Sub-Dominant Land Cover: **Field**

2.1 Elevation Downstream: **1,141**

2.1 Is Gradient Gentle?: **No**

4.2 Corridor

2.2 Valley Length: **1,670.0 ft. 0.32 Miles**

Historic Land Cover:: **Field**

2.3 Valley Slope: **3.7**

Current Dominant Land Cover: **Urban 31.0 %**

2.4 Channel Length: **1,989.0 ft. 0.38 Miles**

Current Sub-Dominant Land Cover: **Forest**

2.5 Channel Slope: **3.08 %**

4.3 Riparian Buffer **Left Bank Right Bank**

2.6 Sinuosity: **1.19**

Dominant: **26-50 26-50**

2.7 Watershed Area: **2.3 Square Miles**

Sub-dominant: **0-25 >100**

2.8 Channel Width: **19.0 feet**

Length w / less than 25 ft.: **849.0 ft. 536.0 ft.**

2.9 Valley Width: **160.0 feet**

4.4 Ground Water Inputs: **Minimal**

2.10 Confinement Ratio: **8.4**

Step 5. Instream Channel Modifications

2.10 Confinement Type: **Broad**

5.1 Flow Regulation - (old):

2.11 Reference Stream Type: **C**

Type: **None**

Bedform: **Riffle-Pool**

Use:

Sub-Class Slope: **None**

5.2 Bridges and Culverts: **2 4.3 %**

Bed Material: **Cobble**

5.3 Bank Armoring: **333.1 16.7 %**

Step 3. Basin Characteristics

Left: **31.0 ft.** Right: **302.1 ft.**

3.1 Alluvial Fan: **None**

5.4 Channel Straightening: **378.4 19.0 %**

3.2 Grade Control: **Ledge**

5.5 Dredging History: **None**

3.3 Dominant Geological Mat.: **Till 100.0 %**

Step 6. Floodplain Modifications

3.3 Sub-dom. Geological Mat.: **Alluvial**

6.1 Berms & Roads - old: **1,496.1 ft. 75.2**

3.4 Valley Slope Left: **Steep**

One Side Both Sides

3.4 Valley Slope Right: **Very Steep**

Road: **1,496.1 ft. 0.0 ft.**

3.5 Soils

Railroad: **0.0 ft. 0.0 ft.**

Hydrologic Group: **C 81.7 %**

Berm: **0.0 ft. 0.0 ft.**

Flooding: **None/Rare 100.0 %**

Improved Path: **0.0 ft. 0.0 ft.**

Water Table Deep: **2.5 51.7 %**

6.2 Development: **270.7 ft. 0.0 ft.**

Water Table Shallow: **1.5 51.7 %**

6.3 Channel Bars: **Multiple**

Erodibility: **Very Severe 100.0 %**

6.4 Meander Migration: **None**

7.4 Comments:

6.5 Meander Width: **55 ft. Ratio: 2.9**

Meander geometry measurements difficult because channel centerline not visible with aerial photos under dense canopy.

6.6 Wavelength: **325 ft. Ratio: 17.1**

Step 7. Windshield Survey

7.1 Bank Erosion: **240.577 ft**

7.2 Bank Height: **3 ft**

7.3 Ice/Debris Jam Potential: **Bridge**

| 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 |
|-----|------|------|------|------|-----|-----|------|------|-----|------|------|------|------|-----|------|-------|
| 1 | 2 | 2 | 0 | 0 | 1 | 1 | 0 | 2 | 1 | 0 | 0 | 2 | 2 | 1 | 0 | 15 |
| Low | High | High | N.S. | N.S. | Low | Low | N.S. | High | Low | N.S. | N.S. | High | High | Low | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Willow Brook**
 Topo Maps: **WOODSTOCK SOUTH, CAVENDISH**
 Watershed:
 Sub-watershed:

Reach ID: **T2.06**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**
 Is Reach An Impoundment?: **No**

This reach parallels Rush Meadow Rd and is bound by the reach breaks North and South of Wardner Rd.

Step 1. Reach Location

1.1 Reach Description:

1.2 Towns: **West Windsor**

1.3 Downstream Latitude: **43.498998**

1.3 Downstream Longitude: **-72.519417**

Step 2. Stream Type

2.1 Elevation Upstream: **1,314**

2.1 Elevation Downstream: **1,203**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **4,200.0 ft. 0.80 Miles**

2.3 Valley Slope: **2.6**

2.4 Channel Length: **4,634.9 ft. 0.88 Miles**

2.5 Channel Slope: **2.39 %**

2.6 Sinuosity: **1.10**

2.7 Watershed Area: **1.7 Square Miles**

2.8 Channel Width: **16.5 feet**

2.9 Valley Width: **150.0 feet**

2.10 Confinement Ratio: **9.1**

2.10 Confinement Type: **Broad**

2.11 Reference Stream Type: **C**

Bedform: **Riffle-Pool**

Sub-Class Slope: **b**

Bed Material: **Gravel**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **None**

3.3 Dominant Geological Mat.: **Till 78.4 %**

3.3 Sub-dom. Geological Mat.: **Alluvial**

3.4 Valley Slope Left: **Hilly**

3.4 Valley Slope Right: **Hilly**

3.5 Soils

Hydrologic Group: **C 68.4 %**

Flooding: **None/Rare 78.4 %**

Water Table Deep: **1.5 51.2 %**

Water Table Shallow: **0.0 51.2 %**

Erodibility: **Very Severe 78.4 %**

7.4 Comments:

New structure at Wardner Rd post-Irene. Some debris jam risk at Rush Meadow Rd culvert (6'x4' squash). Meander geometry not assessed because channel centerline not visible with aerial photos under dense canopy.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 73.0 %**

Current Sub-Dominant Land Cover: **Field**

4.2 Corridor

Historic Land Cover:: **Forest**

Current Dominant Land Cover: **Forest 37.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.3 Riparian Buffer Left Bank Right Bank

Dominant: **>100 26-50**

Sub-dominant: **51-100 51-100**

Length w / less than 25 ft.: **226.0 ft. 118.0 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 1.2 %**

5.3 Bank Armoring: **199.0 4.3 %**

Left: **0.0 ft.** Right: **199.0 ft.**

5.4 Channel Straightening: **0.0 0.0 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **1,675.0 ft. 36.1**

One Side Both Sides

Road: **1,675.0 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: **Not Evaluated**

6.4 Meander Migration: **None**

6.5 Meander Width: **N/A Ratio: 0.0**

6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **0 ft**

7.2 Bank Height: **No Data ft**

7.3 Ice/Debris Jam Potential: **Multiple**

| 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 |
|-----|------|-----|------|------|------|------|------|------|------|------|------|-----|-----|------|-----|-------|
| 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 |
| Low | High | Low | N.S. | N.S. | N.S. | N.S. | N.S. | High | N.S. | N.S. | N.S. | N/A | N/A | N.S. | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Willow Brook**
 Topo Maps: **WOODSTOCK SOUTH**
 Watershed:

Reach ID: **T2.07**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed: **Is Reach An Impoundment?: No**
Step 1. Reach Location **This reach follows Rush Meadow Rd and is bound by the two reach breaks North of Bryant Rd.**

1.1 Reach Description:
 1.2 Towns: **West Windsor**
 1.3 Downstream Latitude: **43.510276**
 1.3 Downstream Longitude: **-72.518001**

Step 2. Stream Type
 2.1 Elevation Upstream: **1,392**
 2.1 Elevation Downstream: **1,314**
 2.1 Is Gradient Gentle?: **No**
 2.2 Valley Length: **3,350.0 ft. 0.63 Miles**
 2.3 Valley Slope: **2.3**
 2.4 Channel Length: **3,583.7 ft. 0.68 Miles**
 2.5 Channel Slope: **2.19 %**
 2.6 Sinuosity: **1.07**
 2.7 Watershed Area: **1.1 Square Miles**
 2.8 Channel Width: **13.6 feet**
 2.9 Valley Width: **100.0 feet**

2.10 Confinement Ratio: **7.4**
 2.10 Confinement Type: **Broad**
 2.11 Reference Stream Type: **C**
 Bedform: **Riffle-Pool**
 Sub-Class Slope: **b**
 Bed Material: **Gravel**

Step 3. Basin Characteristics
 3.1 Alluvial Fan: **None**
 3.2 Grade Control: **None**
 3.3 Dominant Geological Mat.: **Till 50.5 %**
 3.3 Sub-dom. Geological Mat.: **Alluvial**
 3.4 Valley Slope Left: **Steep**
 3.4 Valley Slope Right: **Hilly**
 3.5 Soils
 Hydrologic Group: **C 59.0 %**
 Flooding: **None/Rare 50.5 %**
 Water Table Deep: **1.5 49.5 %**
 Water Table Shallow: **0.0 49.5 %**
 Erodibility: **Severe 50.5 %**

7.4 Comments: **Crossings not observed during windshield surveys due to private roads.**

Step 4. Land Cover - Reach Hydrology
 4.1 Watershed
 Historic Land Cover: **Field**
 Current Dominant Land Cover: **Forest 75.0 %**
 Current Sub-Dominant Land Cover: **Field**
 4.2 Corridor
 Historic Land Cover: **Field**
 Current Dominant Land Cover: **Forest 29.0 %**
 Current Sub-Dominant Land Cover: **Urban**
 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.: **2,211.0 ft. 2,684.0 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 1.3 %**
 5.3 Bank Armoring: **0.0 0.0 %**
 Left: **0.0 ft.** Right: **0.0 ft.**
 5.4 Channel Straightening: **2,367.9 66.1 %**
 5.5 Dredging History: **None**

Step 6. Floodplain Modifications
 6.1 Berms & Roads - old: **883.7 ft. 24.7**
One Side Both Sides
 Road: **883.7 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: **294.9 ft. 0.0 ft.**
 6.3 Channel Bars: **Not Evaluated**
 6.4 Meander Migration: **None**
 6.5 Meander Width: **13 ft. Ratio: 1.0**
 6.6 Wavelength: **13 ft. Ratio: 1.0**

Step 7. Windshield Survey
 7.1 Bank Erosion: **0 ft**
 7.2 Bank Height: **No Data ft**
 7.3 Ice/Debris Jam Potential: **Not Evaluated**

| 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 |
|-----|------|------|------|------|------|------|------|------|-----|------|------|------|------|------|------|-------|
| 1 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 2 | 2 | 0 | 0 | 14 |
| Low | High | High | N.S. | N.S. | N.S. | High | N.S. | High | Low | N.S. | N.S. | High | High | N.S. | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Willow Brook**
 Topo Maps: **WOODSTOCK SOUTH**
 Watershed:

Reach ID: **T2.08**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins at the reach break South of the intersection of Duling and Rush Meadow Rd and continues upstream to the reach break in the forested headwaters.

1.1 Reach Description:

1.2 Towns: **West Windsor**

Step 4. Land Cover - Reach Hydrology

1.3 Downstream Latitude: **43.518915**

4.1 Watershed

1.3 Downstream Longitude: **-72.521696**

Historic Land Cover: **Forest**

Step 2. Stream Type

Current Dominant Land Cover: **Forest 75.0 %**

2.1 Elevation Upstream: **1,695**

Current Sub-Dominant Land Cover: **Urban**

2.1 Elevation Downstream: **1,392**

2.1 Is Gradient Gentle?: **No**

4.2 Corridor

2.2 Valley Length: **4,280.0 ft. 0.81 Miles**

Historic Land Cover:: **Field**

2.3 Valley Slope: **7.1**

Current Dominant Land Cover: **Forest 36.0 %**

2.4 Channel Length: **5,121.8 ft. 0.97 Miles**

Current Sub-Dominant Land Cover: **Urban**

2.5 Channel Slope: **5.91 %**

4.3 Riparian Buffer **Left Bank Right Bank**

2.6 Sinuosity: **1.20**

Dominant: **51-100 51-100**

2.7 Watershed Area: **0.3 Square Miles**

Sub-dominant: **0-25 0-25**

2.8 Channel Width: **7.8 feet**

Length w / less than 25 ft.: **1,045.0 ft. 1,255.0 ft.**

2.9 Valley Width: **30.0 feet**

4.4 Ground Water Inputs: **Abundant**

2.10 Confinement Ratio: **3.8**

Step 5. Instream Channel Modifications

2.10 Confinement Type: **Semi-confined**

5.1 Flow Regulation - (old):

2.11 Reference Stream Type: **A**

Type: **Small Run of River**

Bedform: **Step-Pool**

Use: **Recreation**

Sub-Class Slope: **None**

5.2 Bridges and Culverts: **2 0.7 %**

Bed Material: **Boulder**

5.3 Bank Armoring: **0.0 0.0 %**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

Left: **0.0 ft.** Right: **0.0 ft.**

3.2 Grade Control: **Dam**

5.4 Channel Straightening: **0.0 0.0 %**

3.3 Dominant Geological Mat.: **Till 100.0 %**

5.5 Dredging History: **None**

3.3 Sub-dom. Geological Mat.: **Alluvial**

Step 6. Floodplain Modifications

3.4 Valley Slope Left: **Very Steep**

6.1 Berms & Roads - old: **1,876.2 ft. 36.6**

3.4 Valley Slope Right: **Very Steep**

3.5 Soils

One Side Both Sides

Hydrologic Group: **A 86.1 %**

Road: **1,876.2 ft. 0.0 ft.**

Flooding: **None/Rare 100.0 %**

Railroad: **0.0 ft. 0.0 ft.**

Water Table Deep: **6.0 100.0 %**

Berm: **0.0 ft. 0.0 ft.**

Water Table Shallow: **6.0 100.0 %**

Improved Path: **0.0 ft. 0.0 ft.**

Erodibility: **Very Severe 100.0 %**

6.2 Development: **0.0 ft. 0.0 ft.**

6.3 Channel Bars: **Not Evaluated**

7.4 Comments:

6.4 Meander Migration: **Migration**

NULL

6.5 Meander Width: **N/A Ratio: 0.0**

6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **0 ft**

7.2 Bank Height: **No Data ft**

7.3 Ice/Debris Jam Potential: **Not Evaluated**

| 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 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| High | High | High | Low | N.S. | N.S. | N.S. | N.S. | High | N.S. | N.S. | N.S. | N/A | N/A | N.S. | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Reading Hill Brook**
 Topo Maps: **CAVENDISH**
 Watershed:

Reach ID: **T3.01**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins at the confluence with the mainstem south of Agony Hill Road and parallels Rt-106 to the east. The reach ends at the upstream reach break at an old talc mine.

1.1 Reach Description:

1.2 Towns: **Reading**

Step 4. Land Cover - Reach Hydrology

1.3 Downstream Latitude: **43.484744**

4.1 Watershed

1.3 Downstream Longitude: **-72.552217**

Historic Land Cover: **Forest**

Step 2. Stream Type

2.1 Elevation Upstream: **970**

Current Dominant Land Cover: **Forest 82.0 %**

2.1 Elevation Downstream: **934**

Current Sub-Dominant Land Cover: **Urban**

2.1 Is Gradient Gentle?: **No**

4.2 Corridor

2.2 Valley Length: **2,575.0 ft. 0.49 Miles**

Historic Land Cover:: **Field**

2.3 Valley Slope: **1.4**

Current Dominant Land Cover: **Urban 38.0 %**

2.4 Channel Length: **3,017.5 ft. 0.57 Miles**

Current Sub-Dominant Land Cover: **Forest**

2.5 Channel Slope: **1.22 %**

4.3 Riparian Buffer **Left Bank Right Bank**

2.6 Sinuosity: **1.17**

Dominant: **>100 0-25**

2.7 Watershed Area: **4.1 Square Miles**

Sub-dominant: **None 51-100**

2.8 Channel Width: **24.3 feet**

Length w / less than 25 ft.: **390.0 ft. 1,533.0 ft.**

2.9 Valley Width: **225.0 feet**

4.4 Ground Water Inputs: **Abundant**

2.10 Confinement Ratio: **9.3**

Step 5. Instream Channel Modifications

2.10 Confinement Type: **Broad**

5.1 Flow Regulation - (old):

2.11 Reference Stream Type: **E**

Type: **Small Withdrawal**

Bedform: **Riffle-Pool**

Use: **Other**

Sub-Class Slope: **None**

5.2 Bridges and Culverts: **4 3.0 %**

Bed Material: **Gravel**

5.3 Bank Armoring: **698.3 23.1 %**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

Left: **234.6 ft. Right: 463.7 ft.**

3.2 Grade Control: **Ledge**

5.4 Channel Straightening: **994.2 32.9 %**

3.3 Dominant Geological Mat.: **Alluvial 42.7 %**

5.5 Dredging History: **None**

3.3 Sub-dom. Geological Mat.: **Other**

Step 6. Floodplain Modifications

3.4 Valley Slope Left: **Very Steep**

6.1 Berms & Roads - old: **1,770.8 ft. 58.7**

3.4 Valley Slope Right: **Hilly**

One Side Both Sides

3.5 Soils

Road: **1,770.8 ft. 0.0 ft.**

Hydrologic Group: **B 54.5 %**

Railroad: **0.0 ft. 0.0 ft.**

Flooding: **None/Rare 57.3 %**

Berm: **123.1 ft. 0.0 ft.**

Water Table Deep: **6.0 55.0 %**

Improved Path: **0.0 ft. 0.0 ft.**

Water Table Shallow: **1.5 43.2 %**

6.2 Development: **180.3 ft. 0.0 ft.**

Erodibility: **slight 20.8 %**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Migration**

7.4 Comments:

Two private culverts may present ice/debris jam risks.

6.5 Meander Width: **80 ft. Ratio: 3.3**

6.6 Wavelength: **120 ft. Ratio: 4.9**

Step 7. Windshield Survey

7.1 Bank Erosion: **280.236 ft**

7.2 Bank Height: **3 ft**

7.3 Ice/Debris Jam Potential: **Culvert**

| 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 |
|-----|------|------|-----|------|------|------|------|------|-----|-----|-----|-----|------|-----|-----|-------|
| 1 | 2 | 2 | 1 | 0 | 2 | 2 | 0 | 2 | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 20 |
| Low | High | High | Low | N.S. | High | High | N.S. | High | Low | Low | Low | Low | High | Low | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Reading Hill Brook**
 Topo Maps: **WOODSTOCK SOUTH, CAVENDISH**
 Watershed:

Reach ID: **T3.02**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:
Step 1. Reach Location **This reach follows Rt-106. The lower reach break is located at the site of an old talc mine, and the upper reach break is found near Reading Farms Rd.**

1.1 Reach Description:
 1.2 Towns: **Reading**
 1.3 Downstream Latitude: **43.491384**
 1.3 Downstream Longitude: **-72.553036**

Step 2. Stream Type

2.1 Elevation Upstream: **1,025**
 2.1 Elevation Downstream: **970**
 2.1 Is Gradient Gentle?: **No**
 2.2 Valley Length: **4,010.0 ft. 0.76 Miles**
 2.3 Valley Slope: **1.4**
 2.4 Channel Length: **4,809.8 ft. 0.91 Miles**
 2.5 Channel Slope: **1.13 %**
 2.6 Sinuosity: **1.20**
 2.7 Watershed Area: **3.9 Square Miles**
 2.8 Channel Width: **23.7 feet**
 2.9 Valley Width: **420.0 feet**
 2.10 Confinement Ratio: **17.7**
 2.10 Confinement Type: **Very Broad**
 2.11 Reference Stream Type: **E**

Bedform: **Riffle-Pool**
 Sub-Class Slope: **None**
 Bed Material: **Gravel**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**
 3.2 Grade Control: **Ledge**
 3.3 Dominant Geological Mat.: **Alluvial 73.3 %**
 3.3 Sub-dom. Geological Mat.: **Other**
 3.4 Valley Slope Left: **Hilly**
 3.4 Valley Slope Right: **Steep**
 3.5 Soils
 Hydrologic Group: **C 75.4 %**
 Flooding: **Frequent 73.3 %**
 Water Table Deep: **1.5 73.3 %**
 Water Table Shallow: **0.0 73.3 %**
 Erodibility: **slight 6.1 %**

7.4 Comments:

The lower reach just upstream of the reach break is not in the location shown in the VHD stream centerline. It is channelized to the west around a pond at an old talc mine. There is a culvert crossing that has low debris jam risk.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
 Historic Land Cover: **Forest**
 Current Dominant Land Cover: **Forest 82.0 %**
 Current Sub-Dominant Land Cover: **Urban**
 4.2 Corridor
 Historic Land Cover:: **Commercial**
 Current Dominant Land Cover: **Urban 40.0 %**
 Current Sub-Dominant Land Cover: **Forest**
 4.3 Riparian Buffer Left Bank Right Bank
 Dominant: **>100 51-100**
 Sub-dominant: **0-25 0-25**
 Length w / less than 25 ft.: **833.0 ft. 1,783.0 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: **1 0.3 %**
 5.3 Bank Armoring: **2,068.3 43.0 %**
 Left: **1,256.4 ft.** Right: **811.9 ft.**
 5.4 Channel Straightening: **1,936.8 40.3 %**
 5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **3,299.8 ft. 68.6**
One Side Both Sides
 Road: **3,299.8 ft. 0.0 ft.**
 Railroad: **0.0 ft. 0.0 ft.**
 Berm: **1,103.4 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: **Multiple**
 6.4 Meander Migration: **Multiple**
 6.5 Meander Width: **70 ft. Ratio: 2.9**
 6.6 Wavelength: **145 ft. Ratio: 6.1**

Step 7. Windshield Survey

7.1 Bank Erosion: **444.976** ft
 7.2 Bank Height: **2** ft
 7.3 Ice/Debris Jam Potential: **Culvert**

| 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 |
|-----|------|------|------|------|------|------|------|------|------|------|-----|------|-----|-----|-----|-------|
| 1 | 2 | 2 | 0 | 0 | 2 | 2 | 0 | 2 | 0 | 0 | 1 | 2 | 1 | 1 | 1 | 17 |
| Low | High | High | N.S. | N.S. | High | High | N.S. | High | N.S. | N.S. | Low | High | Low | Low | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Reading Hill Brook**
 Topo Maps: **WOODSTOCK SOUTH**
 Watershed:
 Sub-watershed:

Reach ID: **T3.03**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**
 Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach follows Rt-106. The lower reach break is found near Reading Farms Rd., and the upper reach break is found east of the intersection of Whitmore Circle and Jenne Road.

1.1 Reach Description:

1.2 Towns: **Reading**

1.3 Downstream Latitude: **43.501634**

1.3 Downstream Longitude: **-72.55159**

Step 2. Stream Type

2.1 Elevation Upstream: **1,067**

2.1 Elevation Downstream: **1,025**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **2,610.0 ft. 0.49 Miles**

2.3 Valley Slope: **1.6**

2.4 Channel Length: **3,090.5 ft. 0.59 Miles**

2.5 Channel Slope: **1.38 %**

2.6 Sinuosity: **1.18**

2.7 Watershed Area: **2.7 Square Miles**

2.8 Channel Width: **20.2 feet**

2.9 Valley Width: **360.0 feet**

2.10 Confinement Ratio: **17.8**

2.10 Confinement Type: **Very Broad**

2.11 Reference Stream Type: **E**

Bedform: **Riffle-Pool**

Sub-Class Slope: **None**

Bed Material: **Gravel**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Alluvial 66.2 %**

3.3 Sub-dom. Geological Mat.: **Till**

3.4 Valley Slope Left: **Very Steep**

3.4 Valley Slope Right: **Very Steep**

3.5 Soils

Hydrologic Group: **D 39.1 %**

Flooding: **Frequent 66.2 %**

Water Table Deep: **0.5 39.1 %**

Water Table Shallow: **0.0 66.2 %**

Erodibility: **Moderate 33.8 %**

7.4 Comments:

Culvert under Rt 106 is 6ft wide and has some risk of debris jamming. Risk considered low due to lack of LWD in channel upstream and beaver dams/floodplain in reach.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 82.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Commercial**

Current Dominant Land Cover: **Urban 33.0 %**

Current Sub-Dominant Land Cover: **Forest**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **>100 >100**

Sub-dominant: **0-25 26-50**

Length w / less than 25 ft.: **1,067.0 ft. 104.0 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: **2 3.4 %**

5.3 Bank Armoring: **1,073.5 34.7 %**

Left: **1,025.0 ft.** Right: **48.5 ft.**

5.4 Channel Straightening: **478.9 15.5 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **1,924.0 ft. 62.3**

One Side Both Sides

Road: **1,924.0 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: **Multiple**

6.4 Meander Migration: **Multiple**

6.5 Meander Width: **50 ft. Ratio: 2.5**

6.6 Wavelength: **100 ft. Ratio: 4.9**

Step 7. Windshield Survey

7.1 Bank Erosion: **178.864** ft

7.2 Bank Height: **2** ft

7.3 Ice/Debris Jam Potential: **Culvert**

| 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 |
|-----|------|------|------|------|------|-----|------|------|------|-----|------|------|------|-----|-----|-------|
| 1 | 2 | 2 | 0 | 0 | 2 | 1 | 0 | 2 | 0 | 1 | 0 | 2 | 2 | 1 | 1 | 17 |
| Low | High | High | N.S. | N.S. | High | Low | N.S. | High | N.S. | Low | N.S. | High | High | Low | Low | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Reading Hill Brook**
 Topo Maps: **WOODSTOCK SOUTH**
 Watershed:
 Sub-watershed:

Reach ID: **T3.04**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**
 Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach follows Rt-106. The lower reach break is found east of the intersection of Whitmore Circle and Jenne Road. The upper reach break is found at a change in valley confinement approx. 1/2 mile to the north along Rt 106.

1.1 Reach Description:

1.2 Towns: **Reading**

1.3 Downstream Latitude: **43.508495**

1.3 Downstream Longitude: **-72.552958**

Step 2. Stream Type

2.1 Elevation Upstream: **1,137**

2.1 Elevation Downstream: **1,067**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **2,850.0 ft. 0.54 Miles**

2.3 Valley Slope: **2.4**

2.4 Channel Length: **2,902.4 ft. 0.55 Miles**

2.5 Channel Slope: **2.39 %**

2.6 Sinuosity: **1.02**

2.7 Watershed Area: **2.2 Square Miles**

2.8 Channel Width: **18.5 feet**

2.9 Valley Width: **60.0 feet**

2.10 Confinement Ratio: **3.2**

2.10 Confinement Type: **Semi-confined**

2.11 Reference Stream Type: **B**

Bedform: **Step-Pool**

Sub-Class Slope: **None**

Bed Material: **Bedrock**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **Multiple**

3.3 Dominant Geological Mat.: **Till 92.5 %**

3.3 Sub-dom. Geological Mat.: **Alluvial**

3.4 Valley Slope Left: **Ext. Steep**

3.4 Valley Slope Right: **Very Steep**

3.5 Soils

Hydrologic Group: **D 75.9 %**

Flooding: **None/Rare 92.5 %**

Water Table Deep: **6.0 92.5 %**

Water Table Shallow: **6.0 92.5 %**

Erodibility: **Very Severe 92.5 %**

7.4 Comments:

Some evidence of dredging at the culvert crossing mid-reach. A small tributary entering from the west mid reach damaged Rt 106 during TS Irene. The upper bank of Reading Hill Brook was armored along east side of roadway.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 83.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Commercial**

Current Dominant Land Cover: **Urban 47.0 %**

Current Sub-Dominant Land Cover: **Forest**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **>100 >100**

Sub-dominant: **0-25 0-25**

Length w / less than 25 ft.: **1,431.0 ft. 1,386.0 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: **2 3.6 %**

5.3 Bank Armoring: **2,022.3 69.7 %**

Left: **521.9 ft.** Right: **1,500.4 ft.**

5.4 Channel Straightening: **0.0 0.0 %**

5.5 Dredging History: **Dredging**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **2,901.9 ft. 100.0**

One Side Both Sides

Road: **2,901.9 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: **Multiple**

6.4 Meander Migration: **Avulsion**

6.5 Meander Width: **N/A Ratio: 0.0**

6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **173.784** ft

7.2 Bank Height: **5** ft

7.3 Ice/Debris Jam Potential: **Culvert**

| 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 |
|-----|------|------|------|------|------|------|------|------|------|-----|------|-----|-----|-----|------|-------|
| 1 | 2 | 2 | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 15 |
| Low | High | High | N.S. | N.S. | High | N.S. | High | High | N.S. | Low | N.S. | N/A | N/A | Low | High | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Reading Hill Brook**
 Topo Maps: **WOODSTOCK SOUTH**
 Watershed:

Reach ID: **T3.05**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:
 Is Reach An Impoundment?: **No**
This reach follows Rt-106 and is bound by the reach breaks north and south of Caper Hill Rd.

Step 1. Reach Location

1.1 Reach Description:
 1.2 Towns: **Reading**
 1.3 Downstream Latitude: **43.515091**
 1.3 Downstream Longitude: **-72.548029**

Step 2. Stream Type

2.1 Elevation Upstream: **1,272**
 2.1 Elevation Downstream: **1,137**
 2.1 Is Gradient Gentle?: **No**
 2.2 Valley Length: **4,675.0 ft. 0.89 Miles**
 2.3 Valley Slope: **2.9**
 2.4 Channel Length: **5,100.6 ft. 0.97 Miles**
 2.5 Channel Slope: **2.65 %**
 2.6 Sinuosity: **1.09**
 2.7 Watershed Area: **1.8 Square Miles**
 2.8 Channel Width: **16.8 feet**
 2.9 Valley Width: **80.0 feet**
 2.10 Confinement Ratio: **4.8**
 2.10 Confinement Type: **Narrow**
 2.11 Reference Stream Type: **B**
 Bedform: **Step-Pool**
 Sub-Class Slope: **None**
 Bed Material: **Cobble**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**
 3.2 Grade Control: **None**
 3.3 Dominant Geological Mat.: **Till 48.5 %**
 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: **C 86.8 %**
 Flooding: **None/Rare 78.9 %**
 Water Table Deep: **1.5 51.5 %**
 Water Table Shallow: **0.0 51.5 %**
 Erodibility: **Very Severe 78.9 %**

7.4 Comments:
Reach slope and planform highly variable. Lower reach has a lower slope with some meanders. Middle and upper reach are steeper and confined by naturally tight valley and encroachment from Rt 106.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed
 Historic Land Cover: **Forest**
 Current Dominant Land Cover: **Forest 80.0 %**
 Current Sub-Dominant Land Cover: **Urban**
 4.2 Corridor
 Historic Land Cover:: **Commercial**
 Current Dominant Land Cover: **Urban 33.0 %**
 Current Sub-Dominant Land Cover: **Forest**
 4.3 Riparian Buffer Left Bank Right Bank
 Dominant: **0-25 >100**
 Sub-dominant: **>100 0-25**
 Length w / less than 25 ft.: **2,579.0 ft. 1,790.0 ft.**

Step 5. Instream Channel Modifications

4.4 Ground Water Inputs: **Minimal**
 5.1 Flow Regulation - (old):
 Type: **None**
 Use:
 5.2 Bridges and Culverts: **3 1.8 %**
 5.3 Bank Armoring: **0.0 0.0 %**
 Left: **0.0 ft.** Right: **0.0 ft.**
 5.4 Channel Straightening: **0.0 0.0 %**
 5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **2,803.0 ft. 55.0**
One Side Both Sides
 Road: **2,803.0 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: **314.2 ft. 0.0 ft.**
 6.3 Channel Bars: **Point**
 6.4 Meander Migration: **None**
 6.5 Meander Width: **N/A Ratio: 0.0**
 6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **0 ft**
 7.2 Bank Height: **No Data ft**
 7.3 Ice/Debris Jam Potential: **Culvert**

| 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 |
|-----|------|------|------|------|------|------|------|------|-----|------|------|-----|-----|------|------|-------|
| 1 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| Low | High | High | N.S. | N.S. | N.S. | N.S. | N.S. | High | Low | N.S. | N.S. | N/A | N/A | N.S. | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Reading Hill Brook**
 Topo Maps: **WOODSTOCK SOUTH**
 Watershed:
 Sub-watershed:

Reach ID: **T3.06**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**
 Is Reach An Impoundment?: **No**

This headwaters reach is found to the east of Rt-106 and north of Adventure Quest Road.

Step 1. Reach Location

1.1 Reach Description:

1.2 Towns: **Reading**

1.3 Downstream Latitude: **43.526998**

1.3 Downstream Longitude: **-72.553252**

Step 2. Stream Type

2.1 Elevation Upstream: **1,509**

2.1 Elevation Downstream: **1,272**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **2,900.0 ft.** **0.55** Miles

2.3 Valley Slope: **8.2**

2.4 Channel Length: **3,094.0 ft.** **0.59** Miles

2.5 Channel Slope: **7.66 %**

2.6 Sinuosity: **1.07**

2.7 Watershed Area: **0.2** Square Miles

2.8 Channel Width: **6.2** feet

2.9 Valley Width: **20.0** feet

2.10 Confinement Ratio: **3.2**

2.10 Confinement Type: **Semi-confined**

2.11 Reference Stream Type: **A**

Bedform: **Step-Pool**

Sub-Class Slope: **None**

Bed Material: **Boulder**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **None**

3.2 Grade Control: **None**

3.3 Dominant Geological Mat.: **Till** **76.6 %**

3.3 Sub-dom. Geological Mat.: **Other**

3.4 Valley Slope Left: **Very Steep**

3.4 Valley Slope Right: **Ext. Steep**

3.5 Soils

Hydrologic Group: **D** **58.4 %**

Flooding: **None/Rare** **100.0 %**

Water Table Deep: **6.0** **76.6 %**

Water Table Shallow: **6.0** **76.6 %**

Erodibility: **Very Severe** **80.7 %**

7.4 Comments:

NULL

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest** **85.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Forest**

Current Dominant Land Cover: **Forest** **57.0 %**

Current Sub-Dominant Land Cover: **Crop**

4.3 Riparian Buffer Left Bank Right Bank

Dominant: **>100** **>100**

Sub-dominant: **None** **None**

Length w / less than 25 ft.: **0.0 ft.** **0.0 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: **0** **0.0 %**

5.3 Bank Armoring: **0.0** **0.0 %**

Left: **0.0 ft.** Right: **0.0 ft.**

5.4 Channel Straightening: **0.0** **0.0 %**

5.5 Dredging History: **None**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **0.0 ft.** **0.0**

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: **0.0 ft.** **0.0 ft.**

6.2 Development: **0.0 ft.** **0.0 ft.**

6.3 Channel Bars: **Not Evaluated**

6.4 Meander Migration: **None**

6.5 Meander Width: **N/A** Ratio: **0.0**

6.6 Wavelength: **N/A** Ratio: **0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **0** ft

7.2 Bank Height: **No Data** 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 |
|-----|------|------|------|------|------|------|------|------|------|------|------|-----|-----|------|------|-------|
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Low | N.S. | Unk. | N.S. | N.S. | N.S. | N/A | N/A | N.S. | N.S. | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Bailey Brook**
 Topo Maps: **WOODSTOCK SOUTH**
 Watershed:

Reach ID: **T4.01**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location

This reach begins at the reach break south of the Baileys Mills and Town Hill Rd and continues upstream to the reach break South of Kittridge Pasture Rd.

1.1 Reach Description:

1.2 Towns: **Reading**

1.3 Downstream Latitude: **43.500895**

1.3 Downstream Longitude: **-72.563159**

Step 2. Stream Type

2.1 Elevation Upstream: **1,325**

2.1 Elevation Downstream: **1,037**

2.1 Is Gradient Gentle?: **No**

2.2 Valley Length: **7,169.7 ft. 1.36 Miles**

2.3 Valley Slope: **4.0**

2.4 Channel Length: **7,913.5 ft. 1.50 Miles**

2.5 Channel Slope: **3.64 %**

2.6 Sinuosity: **1.10**

2.7 Watershed Area: **5.4 Square Miles**

2.8 Channel Width: **27.4 feet**

2.9 Valley Width: **160.0 feet**

2.10 Confinement Ratio: **5.8**

2.10 Confinement Type: **Narrow**

2.11 Reference Stream Type: **B**

Bedform: **Riffle-Pool**

Sub-Class Slope: **None**

Bed Material: **Cobble**

Step 3. Basin Characteristics

3.1 Alluvial Fan: **Yes**

3.2 Grade Control: **Ledge**

3.3 Dominant Geological Mat.: **Ice-Contact 72.0 %**

3.3 Sub-dom. Geological Mat.: **Till**

3.4 Valley Slope Left: **Very Steep**

3.4 Valley Slope Right: **Very Steep**

3.5 Soils

Hydrologic Group: **B 74.3 %**

Flooding: **None/Rare 97.8 %**

Water Table Deep: **2.5 49.9 %**

Water Table Shallow: **1.5 52.2 %**

Erodibility: **Very Severe 97.8 %**

7.4 Comments:

Squashed and skewed culvert on Baileys Mills Rd already has sediment/debris jamming issues, increased risk of ice and debris jam. Alluvial fan with severe sediment deposition upstream (west) of Baileys Mill Road culvert during TS Irene and dredging. Severe mass wasting of valley side slopes in upper reaches delivered enormous sediment load to this area and into downstream Mill Brook reach M14.

Step 4. Land Cover - Reach Hydrology

4.1 Watershed

Historic Land Cover: **Forest**

Current Dominant Land Cover: **Forest 87.0 %**

Current Sub-Dominant Land Cover: **Urban**

4.2 Corridor

Historic Land Cover:: **Forest**

Current Dominant Land Cover: **Urban 29.0 %**

Current Sub-Dominant Land Cover: **Forest**

4.3 Riparian Buffer

Left Bank Right Bank

Dominant: **>100 >100**

Sub-dominant: **0-25 51-100**

Length w / less than 25 ft.: **980.0 ft. 228.0 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: **2 0.7 %**

5.3 Bank Armoring: **20.6 0.3 %**

Left: **0.0 ft.** Right: **20.6 ft.**

5.4 Channel Straightening: **0.0 0.0 %**

5.5 Dredging History: **Dredging**

Step 6. Floodplain Modifications

6.1 Berms & Roads - old: **2,151.2 ft. 27.2**

One Side Both Sides

Road: **2,151.2 ft. 0.0 ft.**

Railroad: **0.0 ft. 0.0 ft.**

Berm: **365.7 ft. 0.0 ft.**

Improved Path: **0.0 ft. 0.0 ft.**

6.2 Development: **584.7 ft. 0.0 ft.**

6.3 Channel Bars: **Multiple**

6.4 Meander Migration: **Multiple**

6.5 Meander Width: **N/A Ratio: 0.0**

6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **3398.5** ft

7.2 Bank Height: **7** ft

7.3 Ice/Debris Jam Potential: **Culvert**

| 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 |
|-----|------|-----|------|------|------|------|------|------|-----|------|------|-----|-----|------|------|-------|
| 1 | 2 | 1 | 0 | 0 | 0 | 0 | 2 | 2 | 1 | 2 | 2 | 0 | 0 | 2 | 2 | 17 |
| Low | High | Low | N.S. | N.S. | N.S. | N.S. | High | High | Low | High | High | N/A | N/A | High | High | |

Mill Brook - Basin 13

Phase 1 - Reach Summary Report

Basin: **Lower Connecticut**
 Stream Name: **Bailey Brook**
 Topo Maps: **PLYMOUTH, WOODSTOCK SOUTH**
 Watershed:

Reach ID: **T4.02**
 SGAT Version: **4.56**
 Date Last Edited: **April, 03 2015**
 QA Status: **No checks are complete**

Sub-watershed:

Is Reach An Impoundment?: **No**

Step 1. Reach Location **This reach begins at the downstream reach break South of Kittridge Pasture Rd. and extends west up into the headwaters north of Mount Tom.**

1.1 Reach Description:

1.2 Towns: **Reading**

Step 4. Land Cover - Reach Hydrology

1.3 Downstream Latitude: **43.511916**

4.1 Watershed

1.3 Downstream Longitude: **-72.585564**

Historic Land Cover: **Forest**

Step 2. Stream Type

Current Dominant Land Cover: **Forest 90.0 %**

2.1 Elevation Upstream: **2,044**

Current Sub-Dominant Land Cover: **Urban**

2.1 Elevation Downstream: **1,325**

2.1 Is Gradient Gentle?: **No**

4.2 Corridor

2.2 Valley Length: **13,850.0 ft. 2.62 Miles**

Historic Land Cover:: **Forest**

2.3 Valley Slope: **5.2**

Current Dominant Land Cover: **Forest 57.0 %**

2.4 Channel Length: **15,539.2 ft. 2.94 Miles**

Current Sub-Dominant Land Cover: **Urban**

2.5 Channel Slope: **4.62 %**

4.3 Riparian Buffer **Left Bank Right Bank**

2.6 Sinuosity: **1.12**

Dominant: **>100 >100**

2.7 Watershed Area: **3.3 Square Miles**

Sub-dominant: **None None**

2.8 Channel Width: **22.2 feet**

Length w / less than 25 ft.: **0.0 ft. 0.0 ft.**

2.9 Valley Width: **85.0 feet**

4.4 Ground Water Inputs: **Abundant**

2.10 Confinement Ratio: **3.8**

Step 5. Instream Channel Modifications

2.10 Confinement Type: **Semi-confined**

5.1 Flow Regulation - (old):

2.11 Reference Stream Type: **B**

Type: **None**

Bedform: **Step-Pool**

Use:

Sub-Class Slope: **None**

5.2 Bridges and Culverts: **1 0.2 %**

Bed Material: **Cobble**

5.3 Bank Armoring: **0.0 0.0 %**

Step 3. Basin Characteristics

Left: **0.0 ft.** Right: **0.0 ft.**

3.1 Alluvial Fan: **None**

5.4 Channel Straightening: **0.0 0.0 %**

3.2 Grade Control: **None**

5.5 Dredging History: **None**

3.3 Dominant Geological Mat.: **Till 57.2 %**

Step 6. Floodplain Modifications

3.3 Sub-dom. Geological Mat.: **Alluvial**

6.1 Berms & Roads - old: **0.0 ft. 0.0**

3.4 Valley Slope Left: **Ext. Steep**

One Side Both Sides

3.4 Valley Slope Right: **Ext. Steep**

Road: **0.0 ft. 0.0 ft.**

3.5 Soils

Railroad: **0.0 ft. 0.0 ft.**

Hydrologic Group: **C 54.5 %**

Berm: **0.0 ft. 0.0 ft.**

Flooding: **None/Rare 78.1 %**

Improved Path: **0.0 ft. 0.0 ft.**

Water Table Deep: **2.5 47.7 %**

6.2 Development: **0.0 ft. 0.0 ft.**

Water Table Shallow: **1.0 54.3 %**

6.3 Channel Bars: **Multiple**

Erodibility: **Severe 57.2 %**

6.4 Meander Migration: **Multiple**

7.4 Comments:

6.5 Meander Width: **N/A Ratio: 0.0**

Did not visit Browns Schoolhouse Road crossing. Severe mass valley wasting throughout middle and lower reach contributing huge sediment load to downstream reaches.

6.6 Wavelength: **N/A Ratio: 0.0**

Step 7. Windshield Survey

7.1 Bank Erosion: **2561.3** ft

7.2 Bank Height: **6** ft

7.3 Ice/Debris Jam Potential: **Not Evaluated**

| 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 |
|-----|-----|------|------|------|------|------|------|------|------|------|------|-----|-----|-----|------|-------|
| 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 7 |
| Low | Low | N.S. | N.S. | N.S. | N.S. | N.S. | N.S. | Unk. | N.S. | High | High | N/A | N/A | Low | N.S. | |