

Neversink River West Branch

MANAGEMENT UNIT 2

Summary of Post-Flood Recommendations

Intervention Level	Assisted Restoration from Station 5700 to Station 3200. No change in recommendation for Full Restoration from Station 3000 to Station 1900.
Stream Morphology	No change.
Riparian Vegetation	No change.
Infrastructure	No change.
Aquatic Habitat	Include habitat improvement in Full Restoration.
Flood Related Threats	No change.
Water Quality	No change.
Further Assessment	No change.

Stream Channel and Floodplain Current Conditions

The following description of stream morphology is the result of a survey conducted in December, 2011. “Left” and “right” references are oriented looking downstream, photos are also oriented looking downstream unless otherwise noted. Stationing references, however, proceed upstream, in feet, from an origin (Station 0) at the confluence with the Neversink Reservoir. Italicized terms are defined in the glossary.

During the period between the 2010 inventory and December 2011, this management unit changed significantly. The flood chutes on the right floodplain mentioned in the previous assessment enlarged, particularly the one identified at Station 5600, and the right floodplain back channel along Frost Valley Road took considerable flow during Hurricane Irene. Nearly the entire right bank saw significant erosion, with mature trees undercut and introduced into the channel, leaning or trailing in the flow.



Significant erosion of the right bank, with mature trees undercut. Here, at Station 5600, flow from the main channel accesses the floodplain during overbank flow events, concentrating in a back-channel running nearly the length of this MU2. (2267)

The floodplain has captured a great volume of suspended sand and floating debris, including many large trees locked into the standing timber. Flood flotsam in the understory indicated that there was shoulder height flow on the floodplain, while grass on the forest floor was intact in many places, suggesting that the locked up wood on the floodplain kept velocities relatively low.

While raising flood water surface elevations upstream during subsequent overbank events, lower flow velocities on the floodplain means that velocities in the channel would be higher during subsequent overbank events. This should more effectively mobilize the large volume of bedload brought into the stream system by Irene, and transport it through the reach.



Large woody debris, obstructing floodplain flows in the backchannel along Frost Valley Road. Note grass in this backchannel, lower right, an indication of relatively low velocities on the floodplain floor. (2272)



Large woody debris, locked into standing timber on the right floodplain, serving to slow velocities of overbank flows. (2273)

The entire right bank along this floodplain should be assessed for potential *Assisted Restoration*, using soil bioengineering techniques to restablize the bank. Any trailing trees on undercut banks should be used as *rootwad revetment*. The floodplain on the right ends around Station 3000, where the back-channel running along Frost Valley Road converges with the main channel.

The 2010 inventory document a split channel around a sizable center bar, vegetated with willows, beginning around Station 3100, with the majority of the flow in the right channel thread, along the rip rap revetment on the approach to Sullivan County Bridge #187, which carries Frost Valley Road over the West Branch.

During the 2011 inventory, significant deposition of bedload following Irene was observed to have completely filled the left channel thread, to a height of six feet in some locations. With all of the flow confined to an undersized left channel, it was observed that erosion at the toe of the revetment was undermining the structural integrity of the placement, and the rip rap was sliding in several locations, exposing the underlying geotextile fabric.

The bridge abutments on both sides were scoured by Irene's flows. This was consistent with expectations following the 2010 inventory, which resulted in recommendations *Full Restoration* to narrow the channel

with a protective bankfull floodplain bench adjacent to the rip-rapped embankment on the right, interplant the rip-rap revetment, reestablish floodplain connectivity on the left, and improve alignment through the bridge to hasten sediment transport.

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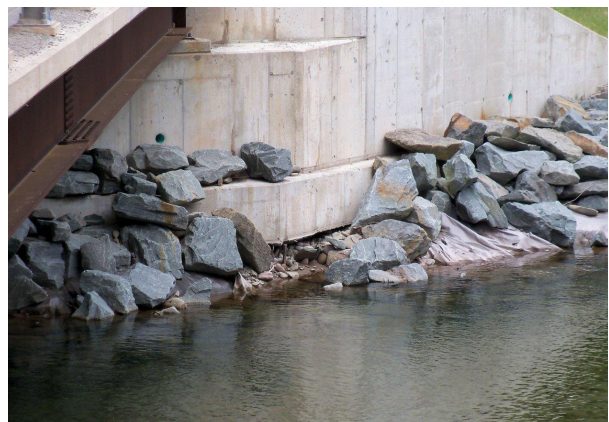
NOTE: The first phase of this restoration was substantially completed August 2012, with final grading and re-vegetation of a floodplain bench and interplanting of the rip-rap, scheduled for November 2012. A 50-year flow event occurred September 18th, with impacts to the project and plans for repair and completion of the project are pending results of resurvey and hydraulic modeling.



Gravel bar, Dec. 14, 2011



Failing rip rap, Nov. 12, 2012



Bridge abutment pre-repair, June 7, 2012