

Neversink River Main Branch

MANAGEMENT UNIT 8

Summary of Post-Flood Recommendations

Intervention Level	No change.
Stream Morphology	No change.
Riparian Vegetation	No change.
Infrastructure	No change.
Aquatic Habitat	No change.
Flood Related Threats	No change.
Water Quality	None.
Further Assessment	Include MU8 in comprehensive Local Flood Hazard Mitigation Analysis of Claryville MUs.

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.

This management unit begins at Station 22000 as the channel runs along exposed bedrock on the right valley wall until Station 21300, with access to the floodplain on the left bank. For much of MBMU8 this bedrock constrains any shift in the stream channel to the right, forcing any lateral migration to the left into the floodplain terrace composed on unconsolidated alluvial sediments.

At Station 21250 a side channel continues along the right valley wall, separated from the main channel by a forested floodplain. During the survey conducted in 2010, a large woody debris accumulation on the right bank at the divergence indicated significant flow along the right bank into the side channel during flood events. This was confirmed during the survey conducted in December, 2010 after several significant flood events further exaggerated this feature.

The main channel then meanders slightly left, pulling away from the valley wall at Station 21100 around a depositional bar that is well connected to a vegetated floodplain. The main channel then begins a meander to the right around the depositional bar, against a floodplain terrace. At Station 20600 there is a 180-foot long bank erosion segment of this terrace along a mowed field with no riparian buffer, and the bank at this location has retreated. An analysis of historic channel alignments indicates that the channel has migrated into the field more rapidly in recent years, and it appears that the flood events since 2010 have contributed to this trajectory, worsening the eroding bank segment. Unconsolidated alluvial sediments exposed by fluvial erosion were observed at this location. These unconsolidated sediments are highly susceptible to erosion, highlighting the importance of a healthy riparian buffer in these conditions. A riparian buffer including woody vegetation can strengthen the stream bank and slow erosive forces of higher flows during flood events.



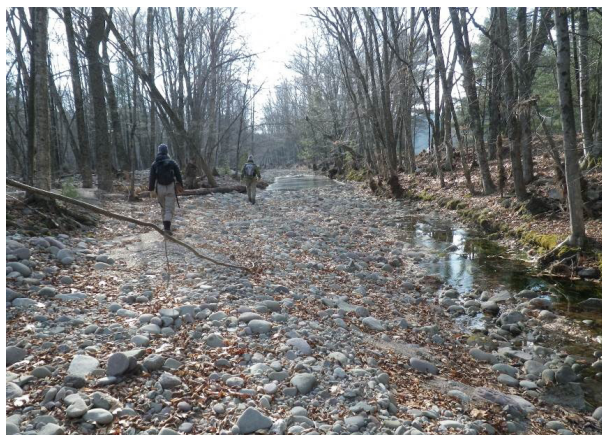
Streambank with no vegetated buffer protection. (DSCI0318)

From Station 19800 to Station 19600 there is a placed stacked rock wall revetment protecting the right bank and a lean-to slightly up-slope. This revetment was documented as in fair structure and functional condition, with some indication of damage caused by recent flows. Behind the rock wall, a divergent flood chute through the right floodplain conveys significant flows during overbank flooding.

This flood chute has significant consequences related to flood hazard management downstream in MBMU7 and MBMU6. Also at this point a large woody debris accumulation signals the beginning of a center bar depositional formation which splits the stream flow and forces significant flow to the right. The debris accumulation, as well as the aggradation and bar formation associated with the overwidened channel upstream and downstream of the Hunter Road bridge, have increased during flood events since 2010 following predicted trajectories observed during the 2010 survey. The recommendation for *full restoration* of this section of the Neversink River remains unchanged. This would include appropriate treatments for the mowed field at Station 20600, including bioengineered bank stabilization and riparian revegetation. As part of the restoration design, it is recommended that this entire MU be included in a comprehensive Local Flood Hazard Mitigation Analysis



Revetment at Station 19800. (IMG0895)



Flood chute in right floodplain. Facing downstream towards Hunter Road. (IMG0897)

to investigate hydraulics and sediment transport in the stream corridor, from Station 10500 through the Halls Mills covered bridge downstream. The purpose of the analysis would be to develop a comprehensive solution for reducing flooding threats to this relatively dense population center of the Neversink Valley.

Directly upstream of the Hunter Road bridge the side channel draining the left valley wall converges with the mainstem. MBMU8 ends 50 feet downstream of the Hunter Road Bridge at Station 18600.