

# Neversink River East Branch

## MANAGEMENT UNIT 12

### Summary of Post-Flood Recommendations

<b>Intervention Level</b>	Full restoration of the bank erosion site between Station 42440 and Station 42360. (BEMS NEB12_42300)
<b>Stream Morphology</b>	No change.
<b>Riparian Vegetation</b>	Establish riparian buffer above the berm and revetment on the right bank from Station 42290 to Station 42720.
<b>Infrastructure</b>	Detailed assessment of the road drainage and floodplain conveyance in the right floodplain from Station 42290 to Station 42720 to evaluate potential future risk to infrastructure.
<b>Aquatic Habitat</b>	No change.
<b>Flood Related Threats</b>	No change.
<b>Water Quality</b>	Monitor the turbidity observed downstream of lacustrine and till clay exposures to determine the impact on water quality.
<b>Further Assessment</b>	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.

This management unit begins at Station 43650, where Flat Brook enters the main channel from the right floodplain. This tributary crosses Denning Road and runs adjacent to it for approximately 1,200-feet before converging with the Neversink. There is a very narrow riparian buffer between Flat Brook and Denning Road, and it is likely that this tributary contributes chlorides (road salt), petroleum by-products from road runoff and possibly fine sediment to the Neversink. This location also marks where Denning Road begins to encroach on the East Branch and we begin to see its effects on stream morphology.

A cobble berm begins on the right bank at Station 42290, continuing 195 feet to Station 43095. A stacked boulder revetment was documented on the right bank beginning at Station 42980 continuing for 248-feet to Station 42720. Although the berm and revetment remain in good structural and functional condition since the high flow events, significant flood chutes were observed in the floodplain between the stream bank stabilization and Denning Road.



*Constructed pools in right floodplain- note lack of riparian buffer. (IMGP1544).*

Recommendations for this site include both potential re-routing of the flood chute and improved grading of the constructed pools on the property to prevent risk to the nearby residence during future high flow events. Furthermore, the right stream bank does not have a vegetated riparian buffer and is primarily mowed grasses and other herbaceous vegetation. A vegetated riparian buffer can naturally slow the flow velocity thus slowing erosive forces along stream banks during flood events on the bank, and strengthen the stream bank.



A mass failure of the left stream bank begins at Station 42440, continuing downstream until Station 42360 (BEMS NEB12\_42300). This bank is 27-feet in high to the top of the bank and consists mostly of glacial till material with some recently exposed lacustrine clay which is a new source of fine sediment that could be entrained during high flows and lead to water quality degradation. Elevated turbidity has been observed in the river since the TS Irene flood event due to clay exposures like this one.



*Slope failure on left bank. Exposed lacustrine clay visible at the upstream end. (IMG1548)*

During the survey conducted in the summer of 2010 it was determined that this bank could stabilize without treatment (passive restoration). However, since the recent high flow events, the bank is no longer projected to self-stabilize. Instead full restoration is recommended for this site. This restoration could include installation of a bankfull stage bench at the toe of the slope, an increased radius of curvature, and establishing a riparian buffer including woody vegetation to strengthen the stream bank and decrease erosive forces on the bank during future flood events.

EBMU12 ends at Station 42200, where Riley Brook enters through the right floodplain.