

Reach 5a (Vogiatz to Kane Bridge)

Reach 5a begins approximately 1 mile west of the Ashland hamlet, and continues approximately 7,700 feet to a private bridge at the Kane property (**Map VI-6**). The reach ranges in drainage area from 63.7 mi² to 68.1 mi², with one tributary (Lewis Creek) located in the reach. Valley slope averages 1.2% with the presence of a large terminal moraine, alluvial terraces and a narrow floodplain at the top of the reach. These characteristics result in a highly to moderately entrenched stream channel. The streambanks are primarily composed of unconsolidated alluvial material. Land-use/Land-cover in reach 5a is predominately forest with limited residential development.

Stream Morphology/Stability

In 1997, the Phase I Inventory and Assessment identified several isolated sections of streambank erosion with the remainder of the reach appearing to be relatively stable. The inventory found that 12% of the reach length was experiencing active erosion, with approximately 1.0 ft² of exposed streambank per linear foot of channel length. The low rate lowered the reach's priority for detailed assessment, and only one monumented cross section was placed in the reach for classification purposes. The section classified as a F3 stream type with the dominant channel material falling into the large cobble category. The reach contains F and B stream types.

At the very top of the reach, the stream channel is highly entrenched due to a large terminal *moraine* across the valley floor (**Figure VI-80**). The *moraine* is located on a narrow point in the valley, and there is very limited *beltwidth* available to the stream. In this area, the valley floor is often 200 feet or less in width. While NY Route 23 runs adjacent to the stream, it does not appear that the road right-of-way is impacting the stream. Overall, this section of the reach appears to be highly stable, with a well vegetated riparian area and a well armored stream bottom (**Figure VI-82a photo C,D,E,I**).

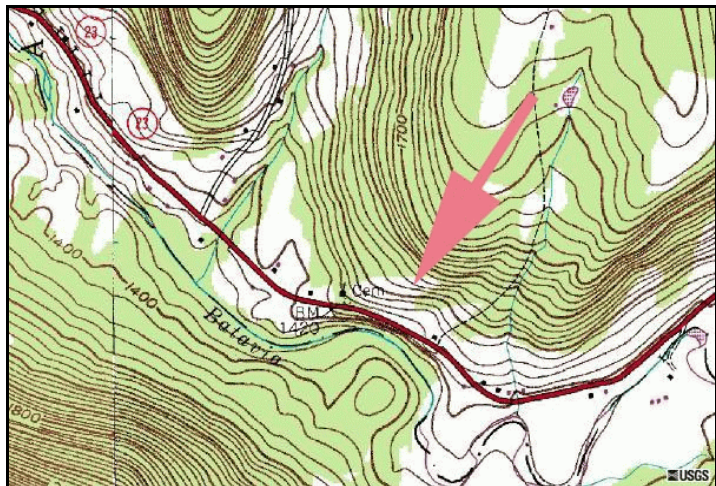


Figure VI-80: Valley morphology at the head of reach 5a strongly impacts channel entrenchment and sinuosity.

Analysis of historical aerial photographs indicates that the reach has a fairly stable planform, with only minimal changes observed between 1959 and present (**Figure VI-81**). The photographs do indicate some increase in sinuosity in the lower end of the reach, but for the most part valley morphology provides limited opportunity for planform adjustments. While sinuosity would typically be lower due to the steeper valley slope, the aerials clearly

indicate the almost complete lack of meandering through the reach.

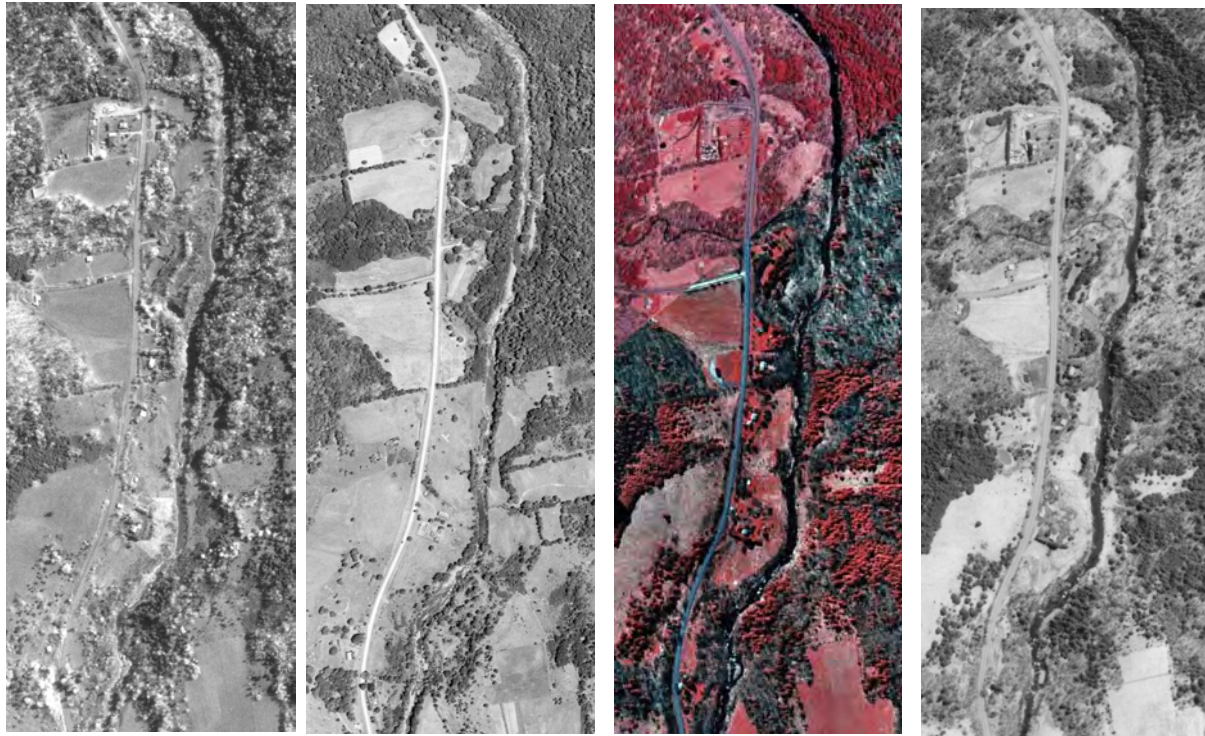


Figure VI-81: Comparison of reach 5a planform from 1959, 1967, 1995, 1997 (left to right)

Riparian Vegetation

Like most of the Batavia Kill stream corridor, the condition of the riparian vegetation in reach 5a is highly variable, but in general, is in fair to good condition. In the areas where steep slopes are adjacent to the stream, dense forest cover is predominant and the deep rooted woody vegetation is critical to maintaining slope stability. In those sections where the stream slope is flatter, and the valley floor widens, past agricultural activities have resulted in minimal woody vegetation along the corridor. While the reach does exhibit signs of being highly stable, there are areas in reach 5a that could benefit from enhanced buffer width and establishment of more woody vegetation. While Japanese knotweed has been found in the reach, it does not appear to have a significant impact on stability at this time. The knotweed is present in small colonies, often in the understory.

Water Quality

In the development of this SMP, the GCSWCD has not identified any significant water quality impacts within the reach. The few residential structures that exist in the reach are located an adequate distance from the stream, and no problems with on-site waste water

treatment have been noted. It is possible, that water quality benefits could be realized from stormwater practices installed in conjunction with NY Route 23.

Infrastructure

Infrastructure in the reach is limited to a swinging foot bridge in the upper portion of the reach, and a private bridge at the bottom of the reach. The swinging foot bridge (**Figure VI-82a photo H**) is located fairly high over the stream channel, and does not appear to have any problem passing floatable debris. The private bridge at the Kane residence is fairly new construction, and it does not appear to be having an impact on stream stability (**Figure VI-82b photo A**). The bridge is tied into the high terrace elevation on the left bank, and on the right bank, minimal fill at the bridge approach has not significantly reduced floodplain capacity. The bridge experienced minor erosion during the September 1999 flood event, but this is to be expected.

Habitat

While the GCSWCD did not complete a detailed fisheries habitat assessment, overall reach 5a appeared to be in good condition (**Figure VI-82a 7 VI-82b**). The reach is highly stable, and in many places has shading vegetation.

Flooding Issues

No flooding issues were identified in reach 5a.

Reach 5a Summary

Overall, reach 5a exhibits some of the best stability in the lower Batavia Kill watershed. While natural topographic features result in the reach being highly entrenched in the upper portion, the channel is highly stable, with only minor localized erosion noted. The reach has excellent streambed sediment structure, with large boulders and a well imbricated cobble substrate. Riparian vegetation is also fairly good through the reach, strongly contributing to overall stability.

The GCSWCD holds that a most significant factor related to this stability is the apparent human inactivity with respect to the stream. There is no strong evidence of past management activities such as dredging or rip-rap, and as such the stream has not experienced the destabilizing changes that are often the result of human activities. The Kane's have expressed concern about localized erosion on the left streambank just upstream of their bridge which will be evaluated and addressed by the GCSWCD as a component of the Red Falls restoration project.

Table VI-18: Management Recommendations Reach 5a.

Reach 5a: West of Ashland to Kane's Bridge	
Intervention Level	Preservation/ Assisted Restoration above Kane's Bridge
Stream Morphology	<p>Overall, stream morphology is highly stable. Reach does appear to slowly be attempting increase in sinuosity at the lower end, but no significant lateral erosion was noted.</p> <p>All management activities within this reach must be done carefully, and in a manner which will not result in further entrenchment of the channel. Avoid activities which will result in streambed degradation (potentially into clay rich soils), floodplain encroachment or disturbance of riparian vegetation.</p>
Riparian Vegetation	Good to excellent condition. See General Recommendations
Water Quality	No specific problems identified. Evaluate potential water quality benefits for retrofits to stormwater drainage from NY Route 23.
Infrastructure	No specific problems noted. Any future rehabilitation or other work on NY Route 23 must be done so as to avoid any further entrenchment of the channel.
Habitat	Good to excellent condition. See General Recommendations
Further Assessment	Continue to monitor reach stability through normal observations.



A



B



C



D



Stable crossing area

The Batavia Kill is highly entrenched but stable in this section. Avoid flood-plain fills, streambed disturbance and loss of vegetation
This area provides critical grade control for upper valley

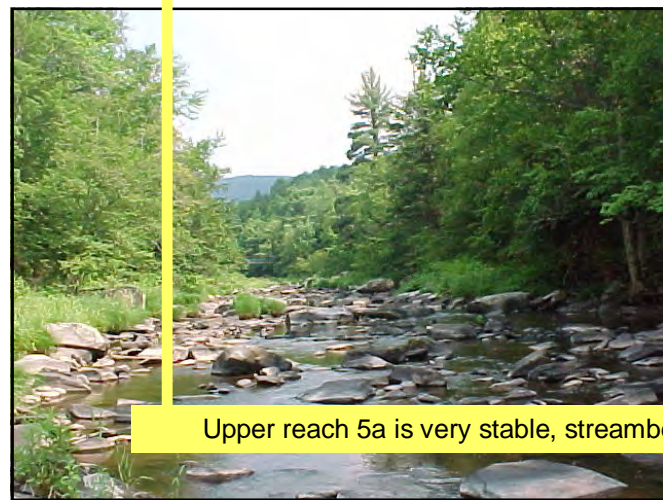
Streambed materials coarsen as the Batavia Kill slope increases. Well armored stream channel greatly increases stability

Riparian buffer with woody vegetation is a primary factor in stable conditions in Upper reach 5a

Japanese knotweed increase as valley widens and disturbed areas increase



F



G

Upper reach 5a is very stable, streambed armor and riparian vegetation are both critical



H



I



A



B



C



D



E



F



G



H

Reach 5a is characterized as very stable due to well armored streambed and the presence of dense riparian vegetation

Figure VI-80a: Reach 5a-Lower