



GIS Parcel, Contour and Wetland coverages are edited and provided by NYC DEP, 2000, UTM NAD 27, Zone 18 North, meters. Aerial Photography provided by UCSWCD & NYC DEP November 2001. All other coverages were developed using GPS in the UTM, Zone 18 North projection, NAD CON (Conus), datum. GPS data collected 2001, by UCSWCD & NYC DEP SMP.

Note: G.I.S. data are approximate according to their scale and resolution. Data may be subject to error and are not a substitute for on-site inspection or survey. Parcel coverages are based on Ulster County Real Property tax maps 2000 and may not reflect actual surveyed property boundaries.

Broadstreet Hollow Management Unit 6

Contour Interval 20 feet
50 0 50 100 150 200 Feet

Scale 1:2,400

LEGEND

- | | | | |
|-----|-------------------------|--|-------------------------|
| 247 | Street Address/911 code | | Clay exposure |
| | Greene parcels | | Revetment |
| | Ulster parcels | | Eroding bank |
| | Land fill | | Tributary |
| | Management units | | Behi pin |
| | Stream Center (Thalweg) | | Bridge |
| | Culvert | | Broadstreet Hollow Road |
| | Wetland | | Knotweed |

Broadstreet Hollow Management Unit 6

General Description:

Management Unit 6 (MU6) is located in Ulster County, NY, running downstream approximately 510 feet starting from the County line^{1&2}. The stream flows well away from the road through most of the Unit, with no development on either bank (Photo 1). The stream is in generally good condition, or *stable*.



Photo 1. Looking upstream from the bottom of MU6.

The structural shape, or *morphology*, of the stream (i.e., slope, width and depth) changes within this section, creating even smaller sections, or *reaches*, that have a discrete character, or *stream type*⁵. The valley in MU5 is broader relative to other units, allowing the stream to achieve a more stable form, fairly narrow with riffles and pools, good streamside, or *riparian*, vegetation, and stream banks formed into low benches, or *discontinuous floodplains*, that help slow and absorb floodwaters.

I. Flood and Erosion Threats

A. Infrastructure and Private Property

There are two known property owners for the four parcels in MU6; all of them contain or are bounded by the stream.

The centerline of Broadstreet Hollow Road ranges from 60-260 feet from the deepest part of the stream, or *thalweg*, in MU6. There are no culverts entering the stream, and no other infrastructure documented in 2001.

B. History of Stream Work

Approximately 75 feet, or 7%, of the stream bank in MU6 contains a pushed up mound of earth and rock, or *berm*, at the top of the Unit on the right bank (Photo 2). This berm is of unknown age, though is well vegetated with some large trees. The intended purpose for this berm is unknown. Unfortunately, berms such as these generally do not offer protection from flooding. In fact, berms can cause stream *entrenchment*, which is a type of erosion that cuts down into the stream bed, making the floodplain a greater



Photo 2. Berm along right bank at the top of MU6.

distance from natural channel, a steeper height than and higher flood *stage* (water surface height) locally by preventing floodwaters from flowing over the floodplain, cutting off an important function of these flat areas.

Floodplains function to reduce flood velocity, increase absorption of floodwaters, encourage deposition of silt and fine sediments (keeping them from being washed further downstream) and decrease flood stage, or height, in downstream areas. The majority of Broadstreet Hollow stream floodplains consist of small, low, discontinuous floodplain benches that perform the important floodplain functions in small mountain streams. Because MU6 has generally good morphology, and a network of discontinuous floodplain benches, removal or reconfiguration of the berm is not recommended at this time³.

C. Exposed banks

Stream assessment conducted in 2001 did not reveal any significant eroding or exposed banks that currently warrant stabilization or monitoring. One area of minor bank erosion was noted, associated with a clay exposure (see discussion below) but does not currently threaten the road or any other structures. No monumented monitoring cross sections have been installed to document the extent or rate of potential erosion, as the stream assessment survey in 2001 showed erosion to be minor.

II. Water Quality

A. Sediment

Approximately 165 feet, or 16%, of the stream bank (in one section along the left bank) contains exposed *glacial lake clay* as documented in 2001 (Photo 3)¹. This clay exposure may cause increased turbidity in this reach from fine sediment (silt and clay) coming from stream bank and bed material, especially during high flow events. This section should be visually monitored to assess any changes in stream bed condition in MU6 that may contribute to further instability or water quality problems, but no more detailed assessment or management is recommended.



Photo 3. Stream bed clay exposure location, left bank, flow from left to right (clay can't be seen in photo, exposure is in the stream bed).

B. Landfills/Dumping Sites

One landfill/dumping site was documented in MU6 in 2001, along approximately 145 feet, or 14%, of the right bank near the top of the unit (Photo 4). Materials include old glass and small metal objects, and this area is mostly behind the berm and not in direct contact with the stream. Planning efforts to organize cleanup of sites like this were initiated in 2002, and should continue, as labor and funding become available.



Photo 4. Old landfill/dumping site, right bank, consisting primarily of glass and small metal objects, stream behind the viewer.

C. Other Water Quality Issues

Investigation of other possible sources of contamination was not part of the stream assessment conducted in 2001. However, no evidence was found for *nutrient* or *pathogen* contamination in the stream (i.e., odors or discolored water). Any road runoff roadside ditches and culverts that may contain salts or other pollutants was not specifically investigated, as the road is far from the stream in MU6 and no culverts drain to the stream in this unit.

One small spring-fed side stream, or *tributary*, enters the main stream in MU6, near the bottom of the unit (Photo 5). *Confluence* areas (where two streams join) tend to be unstable by nature's design, as the smaller stream delivers pulses of flood waters and sediment to the main stream. The mouth of this very small tributary runs unconcentrated (not in a discrete channel) over approximately 50 feet of floodplain before entering the



Photo 5. Looking from the stream at tributary confluence on floodplain, right bank. Broads reet Hollow Road in the background.

main channel, so does not pose the same problems of sediment influx. In addition, this area may provide localized valuable *wetland* habitat, though this was not specifically investigated as part of the stream assessment survey in 2001.

There are many small springs and tributaries that feed the Broadstreet Hollow, providing valued year-round water supply to the stream and the residents.

III. Stream Ecology

A. Aquatic Habitat and Populations

No specific aquatic habitat or population monitoring was conducted in MU6 as part of the stream assessment survey in 2001. However, as part of the stream restoration demonstration project completed in MU3 in 2000, fish and aquatic insect population data have been gathered yearly since 1998 within the stable reference reach (MU1), the project site (MU3) and the control reach (MU17). These data show the Broadstreet Hollow self-supports, without stocking, populations of all three common trout species (rainbow, brook and brown) as well as a healthy and diverse community of aquatic insects^{6&9}.

B. Riparian Vegetation

Stream assessment conducted in 2001 did not investigate specific streamside (riparian) plant species or density condition, other than to note areas of insufficient or stressed vegetation that could affect stream stability, flooding or erosion threats, water quality or aquatic habitat for trout species. Based on these general observations, riparian vegetation throughout MU6 appears to be in good condition along both banks, sufficient to provide the full benefits of a healthy riparian zone⁷.

¹Broadstreet Hollow Management Unit 6 Map

² Volume II Appendix 3.1.5 Management Unit 6 Workbook.

³ Volume II Section 2.2 Watershed Management Recommendations

⁴ Volume II Section 2.2.1-Monitoring Cross Section and Summary Tables

⁵ Volume I Sections 3.2.1&2 Stream Processes, Morphology and Classification

⁶ Volume I Section 3.5 Fisheries and Wildlife

⁷ Volume I Sections 3.4 & Volume II 2.2.2 Riparian Vegetation Issues and Recommendations

⁸ Volume II 2.0 Stream Stability Restoration Projects, Techniques and Contact Information & Appendices

⁹ Volume I Sections 3.4 & Volume II 2.2.2 Riparian Vegetation Issues and Recommendations

¹⁰ Section 3.2.4.2 Broadstreet Hollow Geology