

# PROJECT REPORT

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*CROSS PATCH ROAD STABILIZATION/SEDIMENT RETENTION PROJECT - UPDATE  
12/15/2010*

Project Number: AWSMP\_1006T2



Cornell University  
Cooperative Extension  
Ulster County

*Ulster County Soil and Water Conservation District*

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# Cross Patch Road Project

## 1.0 Project Description

The eroding ditches along Cross Patch Road in the Town of Woodstock have been a sediment source to the local stream and a maintenance problem for the Town for multiple years. This project will install precast concrete catch basins with grates at intervals along the road ditches along with installing perforated culvert pipe covered with Stone in the road ditches. These structures will collect surface flows and direct them safely to a settling basin that will trap the suspended sediments before the runoff empties into the stream. The Town of Woodstock has already installed a small section of the stone covered pipe and 2 surface inlets along a section of the road. This section appears to be functioning well and has greatly reduced bank erosion. However, road sediment is building up in the pipe and entering the stream. It is important that this sediment be collected before entering the stream. Deeper catch basins will collect a portion of the sediment while the concrete settling basin at the outlet will trap the sediment behind concrete barriers and a stone check dam.

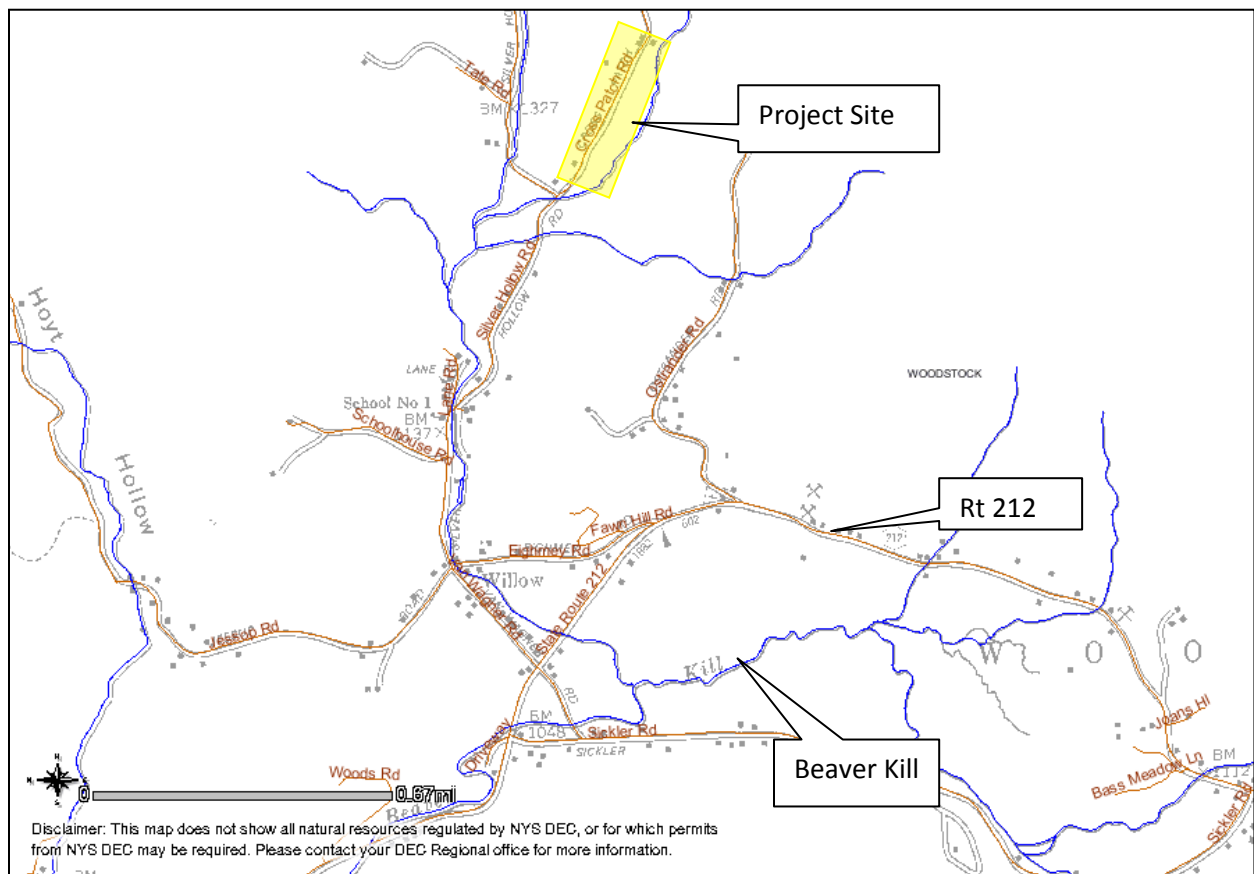


Figure 1 Map of Woodstock displaying to location of the project site along Cross Patch Road.

## 2.0 Problem Assessment

The Town Highway Superintendant has explained that the Town has needed to repair sections of Cross Patch Road on multiple occasions. During high runoff events the road ditches are eroded to the point that the road becomes impassible. This is a very hazardous situation for anyone driving on the road and is a

direct input of sediment into [unnamed creek] a tributary of the Beaver Kill. Cross Patch Road is confined on either side by stone walls and large trees. Any attempt to widen the road would be a major undertaking that would include altering at least 5 driveways. Therefore, widening the road ditches and lining them to be able to handle the runoff flows is not a practical option.

Previously, the Town had requested a project to be completed with funding from the Catskill Watershed Corporation (CWC). On the CWC's recommendation, the Town hired an engineer to design a culvert system but was unable to implement the system. Upon review from ASWMP staff, it was determined the design lacked sediment and hydraulic velocity control.

Therefore, a solution needed to be able to provide the road ditches enough capacity to handle the runoff, sediment, and hydraulic velocity without enlarging the road footprint. The design considerations by AWSMP staff provided multiple surface inlets for the runoff while filling the road ditches with stone that could allow for additional infiltration to the underground outlet pipe. In addition, this solution was a proven cost effective method. This will reduce the transfer of sediments to a point. However, a sediment collection system is needed at the outlet to protect the stream.

#### Primary Objectives:

- Develop a runoff drainage system for Cross Patch Road to protect it from massive erosion threatening the integrity of the road.
- Reduce the large amount of sediment that currently enters the stream during high runoff events.

#### Secondary Objectives:

- Install a solution that provides the widest possible driving area on this narrow road.
- Design a system that is relatively easily maintained by the Town Highway Department.
- Design a system that blends esthetically into the wooded landscape

#### Current Status

- Completed a Total station survey of the site.
- Met with the Town of Woodstock Highway Superintendant on 3 occasions to discuss objectives, decide on the best alternative and review the design.
- Developed contracts between CCE, Ulster County SWCD, and the Town of Woodstock to provide funding for this project.
- Completed a design for the system crossing.
- Worked with the Town Highway Superintendant to order a precast sediment collection structure.
- Awaiting easement agreement with landowner
- Construction expected in spring 2011
- Paving by the Town expected in summer 2011





**Figure 2 Example of eroding banks adjacent to Cross Patch Road.**



**Figure 3 Example of street material washing into current culvert system.**





Figure 4 Example of street runoff and bank erosion in ditch



Figure 5 Example of street runoff and bank erosion in ditch 2





Figure 6 Example of street runoff and bank erosion in ditch 3





**Figure 7 Ditch runoff entering tributary creek of Beaver Kill**