Chestnut Creek
Town Hall Demonstration Site
Project Report

Sullivan County Soil & Water
Conservation District
64 Ferndale-Loomis Road
Liberty, NY 12754
November 12, 2003

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Chestnut Creek-
Town Hall Project Site, 2003

N

1:1200

60 0 60 120 Feet

Location of Demonstration/ Restoration site (stream flow left to right)

Site Description

The Chestnut Creek Demonstration Restoration Project site is located directly behind the Town of Neversink Town Hall, in the hamlet of Grahamsville at 273 Main Street. The Sullivan County Soil and Water Conservation District (SCSWCD) identified a scoured bank that allowed riprap to slip into the channel, which was directing the force of the high flows towards the unstable bank (Photo 1). The left stream bank on the Town's property was also afflicted with an invasive species, multiflora rose. In the Town's effort to remove this species, the bank was left under-vegetated and therefore more susceptible to erosion, increased water temperatures in the stream and pollutants from overland runoff (Photo 2). The bank was also susceptible to re-establishment of multiflora rose. A dry hydrant, which no longer functioned, was located at the site and sat on top of an eroded area (Photo 3). If the bank was left unprotected, it may have continued to scour towards the parking lot. The Project Advisory Committee to the Chestnut Creek Stream Management Program voted this site as a top priority for the location of the Demonstration Restoration site.

Photo 1. Erosion – left bank behind Town Hall. View looking downstream, dislodged riprap visable in right front corner of photo.

Photo 2. Top of bank before construction. Damaged Black Cherry on right, dry hydrant shown in the distance; both were removed.

Photo 3. Dry hydrant behind Town Hall parking lot. View looking toward left bank from center of stream.

Site Preparation

In September 2003, SCSWCD staff visited the Town Hall site and removed the existing Multiflora Rose. They accomplished this by digging around the base of each plant and removing as much of the roots and stems as possible. Plants and roots were removed from the site and disposed of in a manner that will prevent them from regenerating. Holes

Photo 4. Dislodged riprap removed from the creek and keyed into the eroded bank to create a bankfull bench on September 26, 2003.

Photo 5. View looking downstream from swale towards stacked rock bankfull bench with new shrubs and native plants.

were filled with topsoil to the original ground elevation. If needed, the site will be assessed for use of DEP-approved herbicides in the spring.

The hollow Cottonwood and dying Black Cherry tree were removed from the site in the beginning of September 2003.

Project Construction

On September 26, 2003 construction at the Town Hall Demonstration Site began. It was not necessary to divert water from the jobsite because construction was occurring mostly on the upper portions of the bank.

1.) A stacked rock wall was constructed of medium sized flat native stones as support under the dislodged rip rap that was relocated.

2.) The dislodged riprap was removed from the creek and keyed into the stream bank horizontally over the stacked

Photo 6. Swale expanded and filled with cobble; September 26, 2003.

Photo 7. View looking downstream from parking lot. Shows completed swale and planted buffer.

rock wall (Photo 4&5). Soil was placed to build a bankfull bench modeled on the upstream bench at reference monitoring cross-section XS 03-01.

3.) The non-functioning dry hydrant was removed and the bank was graded. An area of about 25' in width was left unplanted for emergency access to the stream at this location.

4.) The existing runoff swale from the parking lot was expanded and filled with cobble four feet in depth to improve percolation from parking area runoff (Photos 6&7).

Photo 9. October 16, SCSWCD and DEP volunteers planting at Town Hall Demonstration

5.) The sod layer along top of bank where the riparian buffer would be planted was removed with the excavator.

6.) On October 14 & 15, 2003 top soil and peat moss was imported to the site as a soil test revealed organic matter at the site was only 1 percent. The remaining vegetation was weeded from the

Photo 8. Topsoil/compost distributed at site. View looking downstream from parking lot; October 15, 2003.

bed and the topsoil/compost was spread and graded (Photo 8).

7.) Quick growing rye seed was applied to the lower banks to protect the initial restoration work until sections of the low bank is planted in the spring.

8.) On October 16, 17 & 20, 2003 planting and mulching was conducted on the top of the bank under the supervision of Landscape Architect Barbara

Photo 10. Looking downstream at extent of completed riparian buffer, from just above willow tree. Project ends at tree line property boundary in background.

Restaino. Native trees, shrubs and herbaceous materials were planted on the left bank, adjacent to the Town Hall parking lot, over approximately a 300' x 10' to 15' area, as a riparian buffer (Photo 9). Many volunteers helped prepare this project including AmeriCorps, Natural Resource Conservation Service, Watershed Agricultural Council, SCSWCD, Neversink residents, Catskill Watershed Association, Cornell Cooperative Extension.

9.) As additional native plants that were hard to locate have arrived through October, they have also been planted.

10.) All of the planted vegetation was sprayed with an organic deer repellent, which will serve as an invisible fence through the winter.

11.) Ample rainfall throughout the month has kept the plants well watered, and although there have been several frosts, the temperature have remained mild, giving the young plants a chance to establish their roots.

Photo 11. Looking upstream towards River Road Bridge at extend of completed riparian buffer, from just below willow tree. Project ends by Norway Spruce before picnic table in background.

Operation and Maintenance

Under the Operation and Maintenance Agreement signed by Town of Neversink, NYC DEP, SCSWCD, the SCSWCD will maintain the riparian buffer and associated stream bank work for three years after installation is complete. This will include replacement or modification as needed to maintain and/or repair stream bank rock and bench work for three years after installation due to acts of nature. SCSWCD shall also monitor the success of the entire project for a period of three years after installation. After the first 3 years have lapsed from project installation, the Town of Neversink will assume ownership of maintenance.

According to the O&M signed on September 30, 2003, the NYC DEP will provide funding and technical assistance for replacement or modification as needed to maintain and/or repair stream bank rock and bench work for three years after installation due to acts of nature *(barring such actions as human negligence).* NYC DEP also agrees to provide funding to maintain the riparian buffer vegetation, including purchase of supplemental vegetation needed to complete the project during the spring 2004, and mulch for the first three years.

Cornell Nutrient Analysis Laboratories

New York State College of Agriculture and Life Sciences * A Statutory College of the State University
804 Bradfield Hall, Cornell University, Ithaca, NY 14850 * Telephone 607/255-4540 FAX 607/255-2644

I D E N T I F I C A T I O N

LAB ID	SAMPLED	RECEIVED	REPORTED	COUNTY	BAG #	SAMPLE ID	AGENTS PHONE
6872-29 (H)	/ /	09/09/03	09/12/03	SULL	268842	CHESTNUTCR	(845)292-6180

A D D R E S S E S

REPRESENTATIVE	GROWER	COOPERATIVE EXTENSION AGENT
PETER CAREY CCE OF SULLIVAN CTY 64 FERNDALE-LOOMIS RD LIBERTY NY 12754	SULLIVAN CO SOIL & WATER CONS 64 FERNDALE-LOOMIS RD LIBERTY NY 12754	MARIANNA QUARTARARO CCE-SULLIVAN COUNTY 64 FERNDALE-LOOMIS ROAD LIBERTY NY 12754

B A C K G R O U N D   I N F O R M A T I O N

SITE	CROP	TURFGRASS	TREES AND SHRUBS	AMENDMENTS
Environment: MOST SUN	Crop Code: PER	Species :	Age/ht/dia: 0/ 8/ 0	Manure Type:
Drainage : EXCEL	Variety : ALG & SAG	Cut Height:	Location : UNF. LAWN	Manure, #/M:
Texture : SANDY	Recommend: PREPLANT	Clippings :	Top Prune : NONE	Compost, in:
Topography : PLAIN	Month : 9	Irrigation:	Tree Type : FULL SIZE	Lime, #/M :
		Irr. Rate :	Growth :	Sulfer, #/M:

S O I L   T E S T   R E S U L T S

		Very Low - Low + - Medium + - High + Excess
pH	6.3	■■
PHOSPHORUS (P #/A)	13	■■■
POTASSIUM (K #/A)	65	■■■■■■■■■■■■■■■■■■■■■
MAGNESIUM (Mg #/A)	65	■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■
CALCIUM (Ca #/A)	1480	■■■■■■■■■■■■■■■■■■■■■■■■■

Aluminum (Al #/A):	21	Zinc (Zn #/A):	7.8	Salts (mmho/cm):	0.070
Iron (Fe #/A):	2	Organic Matter (%):	1.1	Salts (K x 100000):	7
Manganese (Mn #/A):	38	Nitrate (NO3-N #/A):	11		

L I M E   A N D   F E R T I L I Z E R   R E C O M M E N D A T I O N S

CROP: PERENNIALS (PER)

-------- Recommendations per acre --------		----- Recommendations per 1000 sq ft ------		---- Recommendations per 100 sq ft ----	
Lime (T/A):	0	Lime (#/M):	0	Lime (#/100 SQ FT):	0
Nitrogen (N #/A):	90-110	Nitrogen (N #/M):	2.1-2.5	Nitrogen (#/100 SQ FT):	0.21-0.25
Phosphate (P205 #/A):	70	Phosphate (P205 #/M):	1.6	Phosphate (#/100 SQ FT):	0.16
Potash (K20 #/A):	200	Potash (K20 #/M):	4.6	Potash (#/100 SQ FT):	0.46

CLIENT COMMENTS: PLANT MID-SEPT ASAP W/ PER & SHRUBS/LRG TREES FLOO

1ST YEAR. PERENNIALS (PER)

1. IF AN ANALYSIS RESULT IS NOT REFFERED TO SPECIFICALLY IN THE RECOMMENDATIONS OR COMMENTS THEN LEVELS ARE CONSIDERED NORMAL.
2. ALWAYS WATER IN SEED OR PLANTS AFTER SOWING OR PLANTING.
3. APPLY 2 LB OF 10-10-10 PER 100 SQ FT OF GARDEN. RAKE IN.
4. CONSIDER INCORPORATING COMPOSTED MANURE TO INCREASE ORGANIC MATTER IN SOIL

Abbreviation key: lb = pound, # = pound, T = tons, A = acres, M = 1000, N = nitrogen, and SQ FT = square feet.

Maintain a good sampling program and keep a record of all nutrient analyses and recommendations.

PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	#	SIZE
		TREES AND SHRUBS		
AL	AMELANCHIER LAEVIS	SERVICEBERRY/SHADBUSH	1	7 - 8'
CC	CERCIS CANADENSIS	EASTERN REDBUD	1	8 -10'
CA	CLETHRA ALNIFOLIA	SUMMERSWEET	14	3 GAL.
CF	CORNUS X CONSTELLATION	FLOWERING DOGWOOD HYB.	1	7 - 8'
CS	CORNUS SERICEA	RED OSIER DOGWOOD	8	5 GAL.
IV	ILEX VERTICILLATA	WINTERBERRY	6	5 GAL.
LB	LINDERA BENZOIN	SPICEBUSH	1	5 GAL.
QB	QUERCUS BICOLOR	SWAMP WHITE OAK	1	8 -10'
RA	RHUS AROMATICA 'GRO-LO'	AROMATIC SUMAC	7	3 GAL.
SC	SALIX COTTETII	DWARF WILLOW	11	3 GAL.
		GRASSES AND FERNS		
AP	ADANTIUM PEDATUM	MAIDENHAIR FERN	12	1 GAL.
CL	CHASMANTHUS LATIFOLIA	RIVER OAT GRASS	21	2 GAL.
MS	MATTEUCHIA STRUTHIOPTERIS	OSTRICH FERN	20	2 GAL.
OR	OSMUNDA REGALIS	ROYAL FERN	30	2 GAL.
OC	OSMUNDA CINNAMONAE	CINNAMON FERN	20	2 GAL.
PV	PANICUM VIRGATUM	SWITCH GRASS	30	3 GAL.
PA	POLYSTICHUM ACROSTICHOIDES	CHRISTMAS FERN	12	1 GAL.
		SHADE AREA WILDFLOWERS		
CP	CLEMATIS PANICULATA	SWEETAUTUMN CLEMATIS	2	1 GAL.
DC	DICENTRA CUCULLARIA	DUTCHMAN'S BREECHES	10	1 QT.
DE	DICENTRA EXIMA	WILD BLEEDING HEART	12	1 QT.
GM	GERANIUM MACULATUM	CRANESBILL	15	PLUGS
IC	IRIS CRISTATA	CRESTED IRIS	30	RHIZOMES
PR	POLEMOMIUM REPTANS	CREEPING JACOBS LADDER	10	1 QT.
PF	POLYGONATUM FALCATUM	SOLOMON'S SEAL	20	RHIZOMES
TC	TIARELLA CORDIFOLIA	FOAMFLOWER	15	1 QT.
		MEADOW /STREAMSIDE WILDFLOWERS		
AT	AMSONIA TABERNAEMONTANA	BLUE MILKWEED	50	PLUGS
AN	ASTER NOVAE-ANGLIAE	NEW ENGLAND ASTER	25	PLUGS
BA	BAPTISIA ALBA	WHITE FALSE INDIGO	30	RHIZOMES

CR	CAMPANULA CORDIFOLIA	ROUNDLEAVED BELLFLOWER	30	PLUGS
CG	CHELONE GLABRA	TURTLEHEAD	30	PLUGS
EF	EUPATORIUM FISTULOSUM	JOE-PYE WEED	50	RHIZOMES
HD	HELIANTHUSDIVARICATUS	WOODLAND SUNFLOWER	40	RHIZOMES
IR	IRIS VERSICOLOR	BLUEFLAG IRIS	100	RHIZOMES
---	LILIUM SUPERBUM	TURK'S CAP LILY	50	BULBS
LS	LOBELIA SIPHILITICA	GREAT BLUE LOBELIA	40	PLUGS
LC	LOBELIA CARDINALIS	CARDINAL FLOWER	20	PLUGS
MD	MONARDA DIDYMA	BEEBALM	60	RHIZOMES
MF	MONARDA FISTULOSA	WILD BERGAMOT	30	RHIZOMES
PH	PHYSOSTEGIA VIRGINIANA	OBEDIENT PLANT	40	RHIZOMES
PM	PHLOX MACULATA	MEADOW PHLOX	20	PLUGS
RL	RUDBECKIA LACINATA	CUTLEAF CONEFLOWER	50	PLUGS
TP	THALICTRUM PUR. 'ALBA'	MEADOW RUE	25	PLUGS
VN	VERNONIA NOVEBORACENSIS	NEW YORK IRONWEED	30	PLUGS

Chestnut Creek
Town Hall
Demonstration Site
Planting Plan and Eroded Bank Repair Specifications

Sullivan County Soil & Water
Conservation District
64 Ferndale-Loomis Road
Liberty, NY 12754
September 9, 2003

Chestnut Creek
Town Hall Demonstration Site

PROJECT NARRATIVE

I. Site Description

The proposed project site is located directly behind the Town of Neversink, Town Hall that is in the hamlet of Grahamsville at 273 Main Street. A scoured bank has allowed rip rap to slip into the channel, which is now directing the force of the high flows towards this unstable bank. The left stream bank near on the Town's property has also been afflicted with an invasive species, multiflora rose. In the Town's effort to remove this exotic species the bank has been left under-vegetated, and therefore more susceptible to erosion, increased water temperatures in the stream and pollutants from overland runoff. The bank may also be susceptible to re-establishment of multiflora rose, a highly competitive invasive species, unless proper care is taken. If the bank is left unprotected, it could threaten the parking lot as it continues to scour and fail.

II. Project Description

A. Project Goals:
The goal of this proposed project is to restore the low bench that was scoured near the dislodged rip rap, by rebuilding a "bankful bench" in this area. This will be done in conjunction with planting native flora, used as bioengineering, that will stabilize the stream bank, provide a bio-filter for overland water flow, along with beautification and an educational forum at the Town's fishing park and amphitheatre.

B. Scoured Bank
The bank stabilization project, approximately 20'+/- length, would involve the building of a bench to repair the eroded area described above. The low, bankful bench will be modeled on the upstream reference XS 03-1, just below River Road Bridge. The existing dislodged rip rap would be used to create a stacked rock wall type structure infiltrated with topsoil. The channel shape and slope would match the adjacent cross sections for bankfull width and area. A quick-growing annual cover grass will be used on the new bank to help stabilize and protect it over the winter and until spring floods recede and the bank can be planted with more permanent vegetation.

C. Riparian Buffer
Native trees, shrubs and herbaceous material will be planted on the left bank, adjacent to the Town Hall, over approximately a 300'x 10' to 15' area, as a riparian buffer. This bioengineering will help stabilize the stream bank. An added benefit to this project is that the vegetation will act as a biofilter, whereas the roots and organic matter filter runoff water from the paved surfaces, before it runs into the stream. This native vegetation will also enhance the park-like setting of the Town Hall for the Town of Neversink.

D. Educational Aspects
The project, located in the center of Grahamsville, will be designed based on natural river processes and planted with species that are native to the Catskill Region and North East

in order to provide an educational function to the site. Small signs identifying the plants species accompanied by an informational pamphlet will be developed in cooperation with the Town and the DEP. The Catskill Center, in their yearly Stream Watch program with the TriValley School, will be working on incorporating this site into their curriculum for stream assessment and monitoring, as well as instruction on proper care required for stream side habitat.

III. Project Time Frame

The bankful bench, at the worst eroded area, is planned for construction during the 2003 field season. It is projected that stream bank work will take place in September during the period between the 12th and the 30th and seeded with a cover crop immediately to protect the bank.

The initial planting shall be done between September 2003 and December 2003. Additional planting material are being ordered now, to be secured for supply materials required for a timely supplemental spring planting (before June 2004). This will offset the costs and insure that the required plant material will be available. Species identification signs will be designed and installed with the associated informational pamphlet by June 2004.

Chestnut Creek
Town Hall Demonstration Site

Project Schedule for Eroded Bank

1.) Water to be diverted away from jobsite as necessary

2.) A stacked rock wall constructed of medium sized flat native stones will be constructed as support below dislodged rip rap

3.) Dislodged rip rap will be keyed into stream bank horizontally over stacked rock wall and soil will be placed to build bankfull bench modeled on the upstream bench at reference monitoring cross-section 03-1.

4.) Rip rap to be reinstalled vertically along lower face of bench, keyed in to match the existing bench upstream.

5.) Perform seeding with quick growing rye upon completion of project to protect initial restoration work and perform bioengineering (VRSS, willow plantings, etc.) tasks in fall and spring.

Chestnut Creek
Town Hall Demonstration Site
Riparian Buffer
Tree, Shrub and Herbaceous Plant Establishment

1.) SITE PREPARATION: This shall consist of eradication of all existing multi-flora rose on the site. The multi-flora rose has been cut down by the Town and yet is still viable and growing. The following method will be used to assist:

> Dig around the base of each plant and remove as much of the roots and stems as possible. Plants and roots shall be removed from the site and disposed of in a manner that will prevent them from regenerating. Holes shall be filled with topsoil to the original ground elevation. If needed, the site will be assessed for use of DEP-approved herbicides in the spring

2.) Dead or dying and invasive trees will be cut and removed from the site (1 Black cherry, 1 Cottonwood).

3.) All shrubs shall be live containerized stock of minimum 2-3 gallon size. Trees shall be live containerized stock minimum 5 feet tall. Herbaceous material will be obtained in both 2" plugs, potted and seeds. Quantities shall be as listed on site plans.

4.) Trees and shrubs shall be planted in clusters according to the attached plan layout. Individual shrubs shall be planted on an average of 5-10 feet apart in each cluster. Quantities shall be as listed on site plans.

5.) Herbaceous material will be planted in clusters at a distance appropriate to provide for optimal spacing required for the individual plant at maturity (minimum 6" for smaller species). Quantities shall be as listed.

6.) Planting holes shall be dug to a minimum of twice the diameter of the individual containers or root balls. Plants shall not be buried below the level of the top of the root mass. All plastic containers, strings, and wire shall be removed prior to plant placement in the hole. Holes shall be backfilled using original soil minus any large stones and debris. Organic matter in the form of compost and/or topsoil will be adding where deemed necessary. The site will be mulched to hold moisture and protect from frost damage.

7.) Seeding will be done during dormancy. Due to high water flow this fall, only the top portion of the bank will be planted immediately. The low bank areas will be planted in the late spring (by June 15) as well as planting additional smaller herbaceous plants, as needed to supplement the fall planting.

8.) Small, educational identification signs will be acquired and installed by June 2004 along with the development of the associated informational pamphlet

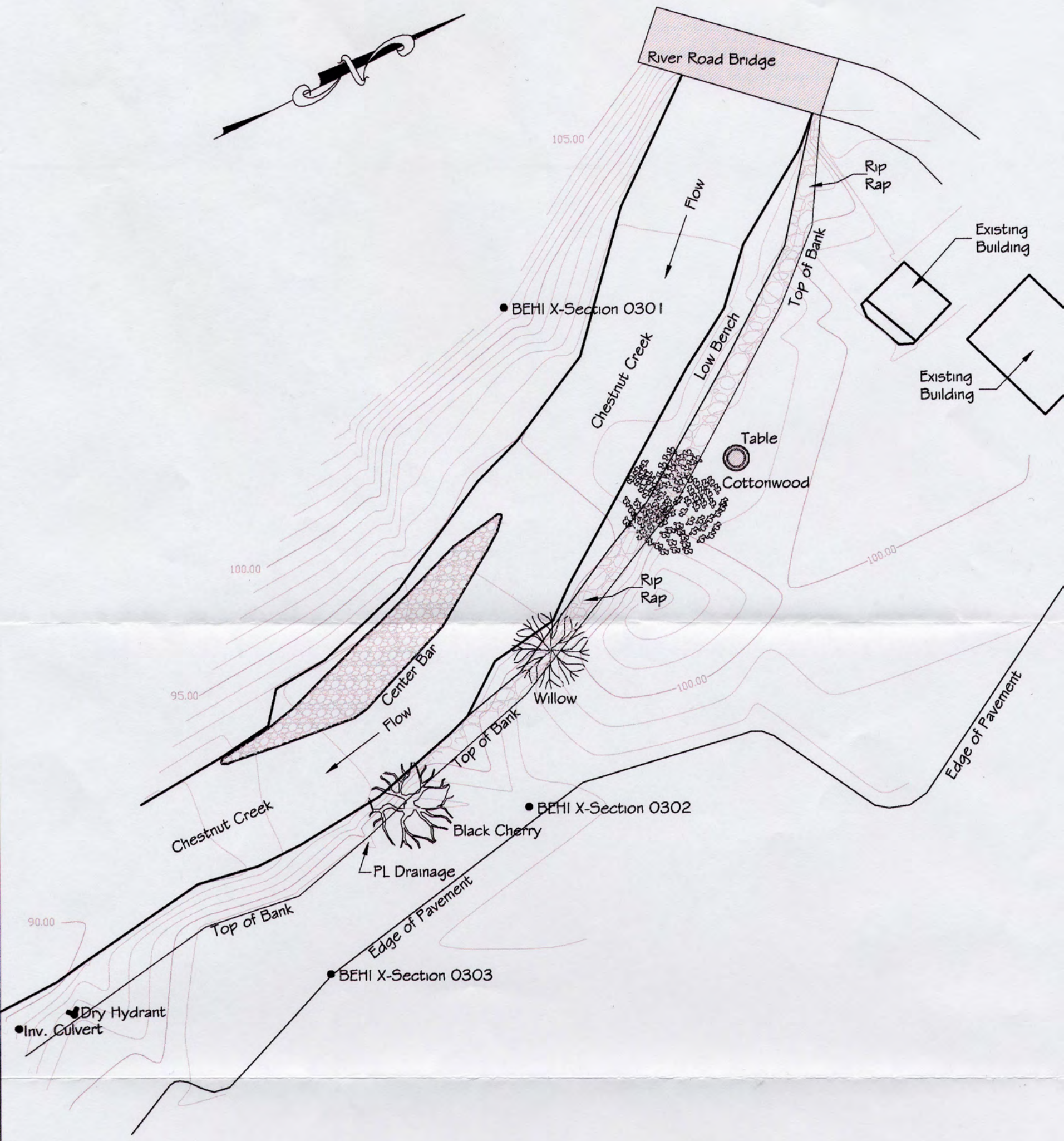
VI. Project Monitoring

Baseline data has been collected at the Town Hall demonstration site. These data include long profile, 3 monumented cross sections (XS 03/1-3), pebble counts, a topographic survey, photo documentation, and existing flora identification. The upstream XS 03-1 is being used as a reference site. A control reach is being sought on the adjacent property just downstream of the restoration site (pending permission).

Upon completion, as-built survey will be conducted and the site will be monitored for a three-year period in accordance with the monitoring plan developed by SCSWCD and approved by NYC DEP SMP. A report on the status of the project will be provided to the DEP and the Town to include recommendations for any modification to management of the riparian buffer or eroded bank.

VII. Project Sponsors

This project is being sponsored by the Sullivan County Soil and Water Conservation District, (SCSWCD), who is serving as the project administrator. Funding for the plant material is being provided through a riparian buffer grant obtained by SCSWCD through WAC. Additional funds and O&M will be supplied through Chestnut Creek Stream Management contract with New York City Department of Environmental Protection, (NYC DEP) the Town of Neversink will contribute equipment and operators through the Highway Dept. upon availability, Geomorphic consultant is Integrated River Solutions of Port Ewen, N.Y., Landscape Architectural Consultant, Barbara Restaino. NRCS and Cornell Cooperative Extension have also provided technical support for this project.



HORIZONTAL SCALE IN FEET

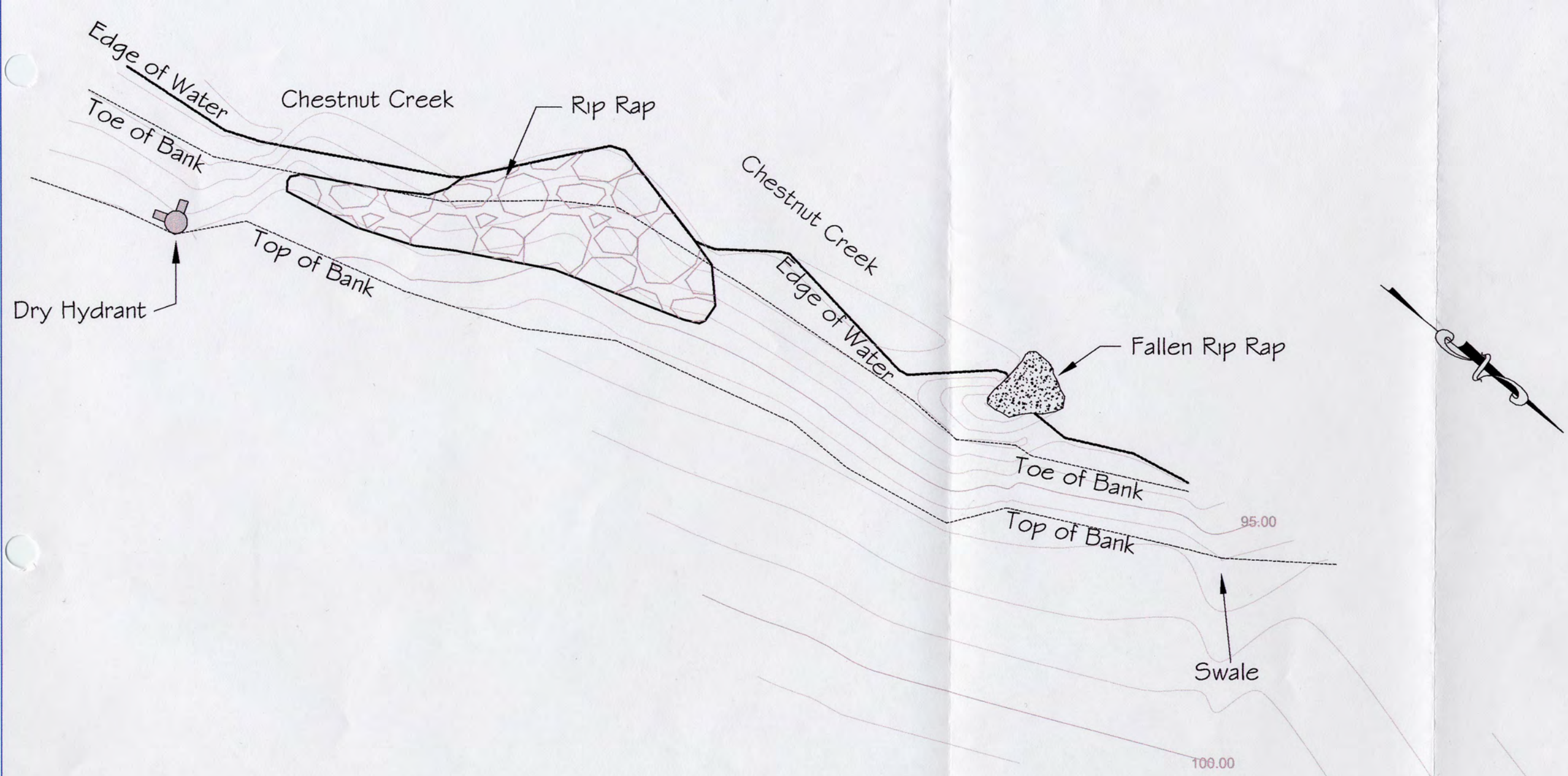
1" = 30'

Chestnut Creek Stream Restoration Project
Town Hall Planting
Sullivan Co., NY

Sullivan County Soil & Water Conservation District

Designed	Stream Team	Date 9-03	Approved by
Drawn	BAB	9-03	Title District Manager
Traced			Title
Checked			Sheet No 2 of

Drawing No.



HORIZONTAL SCALE IN FEET

1" = 20'

BEHI 0302

Chestnut Creek Stream Restoration Project
Rip Rap Improvement
Exisiting Site View
Sullivan Co., NY

Sullivan County Soil & Water Conservation District

Designed BAB/LK	Date 9-03	Approved by	
Drawn BAB	9-03	Title District Manager	
Traced		Title	
Checked		Sheet No. 1 of ___	Drawing No.

Monitoring Protocol for Riparian Buffer Planting Projects

A stream restoration project takes time, effort and corresponding funds to carry out. It is important to those involved in the process, as well as those affected by the project, to determine the success of the project. In order to do this, follow up monitoring and data collection must be applied.

Why use a monitoring protocol?

If the decision is made to monitor a project site, a protocol should be designed to ensure the data is collected in a consistent way. It is better to classify data in the field than back in the office to minimize misjudgment. Also, baseline information is key to monitoring, especially number, type, and size of plants. This can be accomplished by filling out a survey immediately after the project has been completed.

Project Summary

The left bank of Chestnut Creek located behind the Town Hall suffers from erosion and failed riprap. The Creek has scoured an area around a large piece of riprap located near the left bank and continues to erode the property. The town uses the area to hold fishing lessons and other leisure activities. A project has been designed to meet the needs of the town as well as preserve the bank from further erosion. The total length of the project is almost 400 feet. A bench will be built on approximately 45 feet of bank downstream of the bridge to create a flood plain. A vegetation restoration project is planned to stabilize bench and surrounding area. The estimated time it will take for the vegetation to provide the desired functions is 3 years. These functions include wildlife habitat, soil and nutrient storage, and decreased erosion. In the first year there is a minimal of 60% survival rate expected.

Monitoring Protocol: Town Hall Project

Reporting Mechanism

Two monitoring sheets have been assembled for the Town Hall site as a reporting mechanism. The first is to be used for the initial survey, which will include a range of site information including slope, soil type, and details about planted and established plants. The second is to be used the following three years by the Sullivan County Soil and Water Conservation District personnel to monitor changing characteristics of the site.

When and How to use the Monitoring Sheets

- The site should be evaluated twice a year (spring and fall) and after high flow events.
- General Description: Record the success of vegetation in stream bank stabilization, soil preservation, etc. Determine visually (compare photographs) or by measuring the bench width to top of bank.
- Evaluate plant growth, diversity, competition, damage and mortality. Use ID codes and place in charts.

- Management Recommendations: Determine what plants should be added in the late fall or early spring. What else could improve the success of the native species; different care, eradicate invasives?

- Protocol Revision Recommendations: If there are problems with the current monitoring strategy place your concerns here.

Riparian Buffer Monitoring Protocol

Project Name:	Town Hall	Date:	
Watershed:	Rondout	Last monitored:	
Project Width:		Township:	Neversink
Project Length:		Team:	

General Description of riparian buffer, stream bank, and stream condition:

Weather:	currently	in last week	in last month
rain			
frost			
snow			
air temp C			

Plot Characteristics

Slope	
Aspect	South
Soil Type	TkA - gravelly loam

BRUSH COMPETITION (BRUSH)

Code	Description
0	No brush within 2', no shading
1	Brush within 2', shading < 25%
2	Brush within 2', shading 25%-50%
3	Brush within 2', shading > 50%

GRASS COMPETITION (GRASS)

Code	Description
0	No sod w/in 2'
1	Sod w/in 12"
2	Sod w/in 6"
3	Sod to stem

VEGETATION DAMAGE (DAM)

Code	Description	Code	Description	Code	Description
ad	animal damage	bl	broken leader	ml	multiple leader
bd	bark damage	cl	crooked leader	ms	multiple stems
bt	bent top	dt	dead top	ot	other
bb	broken stem	di	diseased/sick	rt	rot
bw	browse	dl	dead leader	to	broken top
bc	bud collar damage				

* = code available above, species list (SPP) on attached pages.

Zone 1 – Bankfull bench

Trees

SPP	DBH	AVE HT	*BRUSH	*GRASS	*DAM	Alive/Dead?

Shrubs

SPP	NUMBER	AVE HT	CALIPER	*BRUSH	*GRASS	*DAM	Alive/Dead?

Wildflowers: Top 5 species

SPP	AVE HT	*BRUSH	*GRASS	*DAM	Alive/Dead?

Grass: Top 3 species

SPP	AVE HT	% COVER

Other: Weeds and invasives. Top 3 species

SPP	AVE HT	% COVER

Zone 2: Top of Bank

Trees

SPP	DBH	AVE HT	*BRUSH	*GRASS	*DAM	Alive/Dead?

Shrubs

SPP	NUMBER	AVE HT	CALIPER	*BRUSH	*GRASS	*DAM	Alive/Dead?

Wildflowers: Top 5 species

SPP	AVE HT	*BRUSH	*GRASS	*DAM	Alive/Dead?

Grass: Top 3 species

SPP	AVE HT	% COVER

Other: Weeds and invasives. Top 3 species

SPP	AVE HT	% COVER

Zone 3: Flood Plain

Trees

SPP	DBH	AVE HT	*BRUSH	*GRASS	*DAM	Alive/Dead?

Shrubs

SPP	NUMBER	AVE HT	CALIPER	*BRUSH	*GRASS	*DAM	Alive/Dead?

Wildflowers: Top 5 species

SPP	AVE HT	*BRUSH	*GRASS	*DAM	Alive/Dead?

Grass: Top 3 species

SPP	AVE HT	% COVER

Other: Weeds and invasives. Top 3 species

SPP	AVE HT	% COVER

Management Recommendations (add plants, remove invasives, trim existing, etc.):

Protocol Revision Recommendations (problems with current monitoring strategy):