RIVERBANK ASSESSMENT

Wild & Scenic River Segment
West Branch & Farmington Rivers

MMI #2056-04-1

September 2005

Prepared for:

Farmington River Coordinating Committee

Prepared by:

Milone & MacBroom, Inc.
99 Realty Drive
Cheshire, CT
(203) 271-1773

MILONE & MACBROOM

TABLE OF CONTENTS

LIST OF FIGURES

1.0 INTRODUCTION

The Farmington River Coordinating Committee (FRCC) is a local partner with the National Park Service, organized to help manage the Farmington River's West Branch portion of the National Wild and Scenic Rivers System. This 14-mile portion of the river is a unique resource with outstanding natural characteristics and extensive recreational usage.

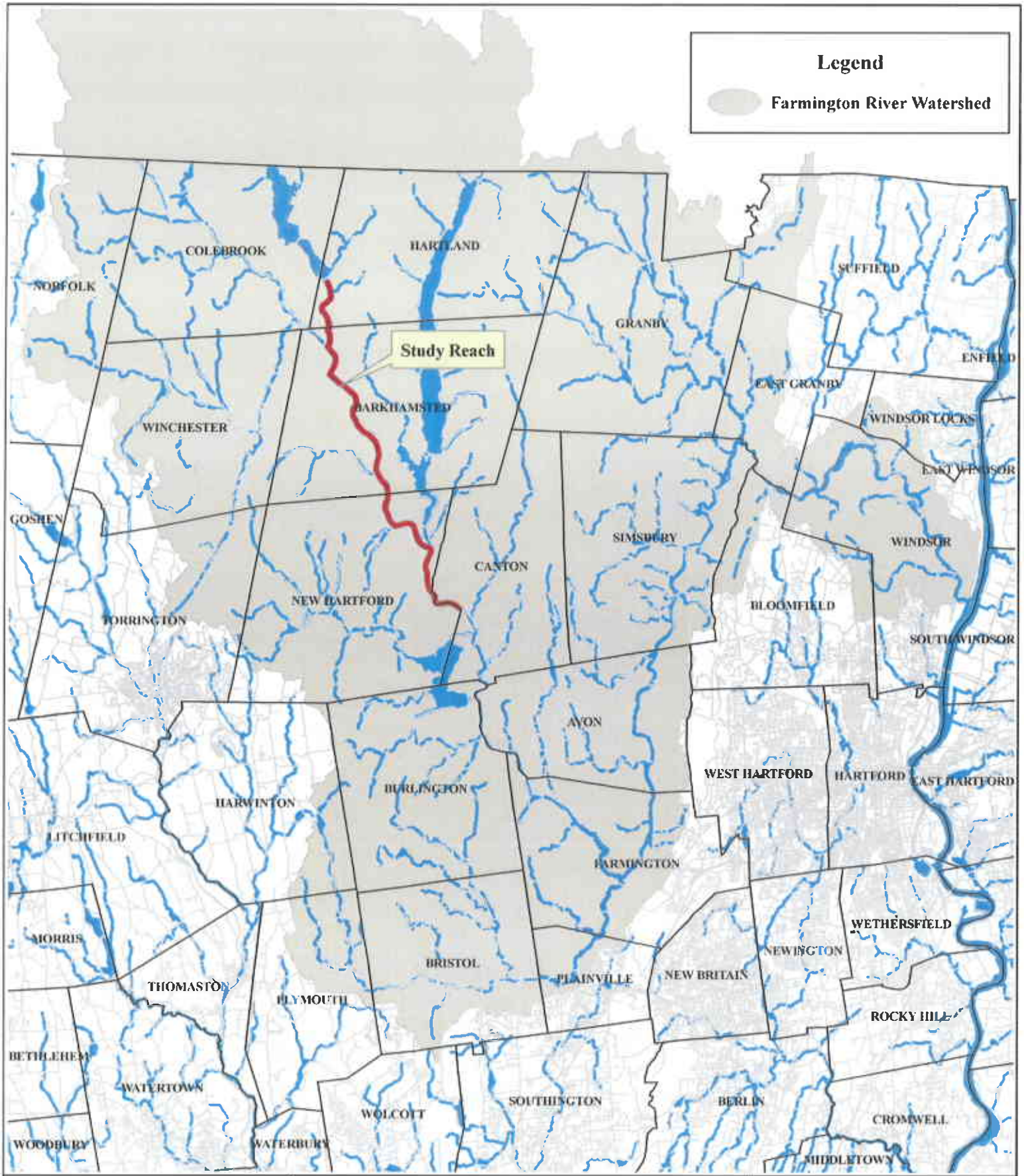
The FRCC has engaged Milone & MacBroom, Inc. (MMI) to conduct a riverbank assessment and inventory to evaluate bank conditions, with an emphasis on erosion or instability problems. The tasks include developing GIS mapping, locating erosion problems, assessing geomorphic channel classifications, inventorying problem areas, and prioritizing future activities.

The general study process (and report format) began with a review of watershed conditions and literature (Section 2), river segment inspection and descriptions (Section 3), and then focused on problem areas (Section 4).

As part of this study, MMI conducted fieldwork during the months of June, July, September, and October 2004, and June 2005. The fieldwork included a canoe trip, windshield surveys, and upland and in-stream field investigations.

2.0 WATERSHED DESCRIPTION

The Farmington River basin is located in northwestern Connecticut and southwestern Massachusetts. It has a watershed area of 607 square miles and discharges into the Connecticut River at Windsor. Major tributaries include the Still River, Burlington Brook, Sandy Brook, Nepaug River, Pequabuck River, and Salmon Brook. The State hydrologic basin code for the Farmington River is 4300. The study reach and Connecticut portion of the watershed is presented on Figure 1.



Engineering
Landscape Architecture
and Environmental Science
MILONE & MACBROOM
99 Realty Drive
Cheshire, Connecticut 06410
(203) 271-1773 Fax: (203) 272-9733
www.miloneandmacbroom.com

West Branch & Farmington Rivers Riverbank Assessment

LOCATION: Connecticut

MMI#: 2056-04
MXD: H:\Watershed.mxd
SOURCE: DEP Bulletin 37

Regional Watershed Map

DATE: September 2005
SCALE: 1:250,000

SHEET: Figure 1

The upper Farmington River basin is characterized by irregular hills and valleys, with elevations ranging up to 2,000 feet. The terrain is covered by hardwood forest and small farms that are underlain by glacial till soils and metamorphic (gneiss, schist) bedrock. Valleys are relatively narrow with linear deposits of stratified drift outwash soils.

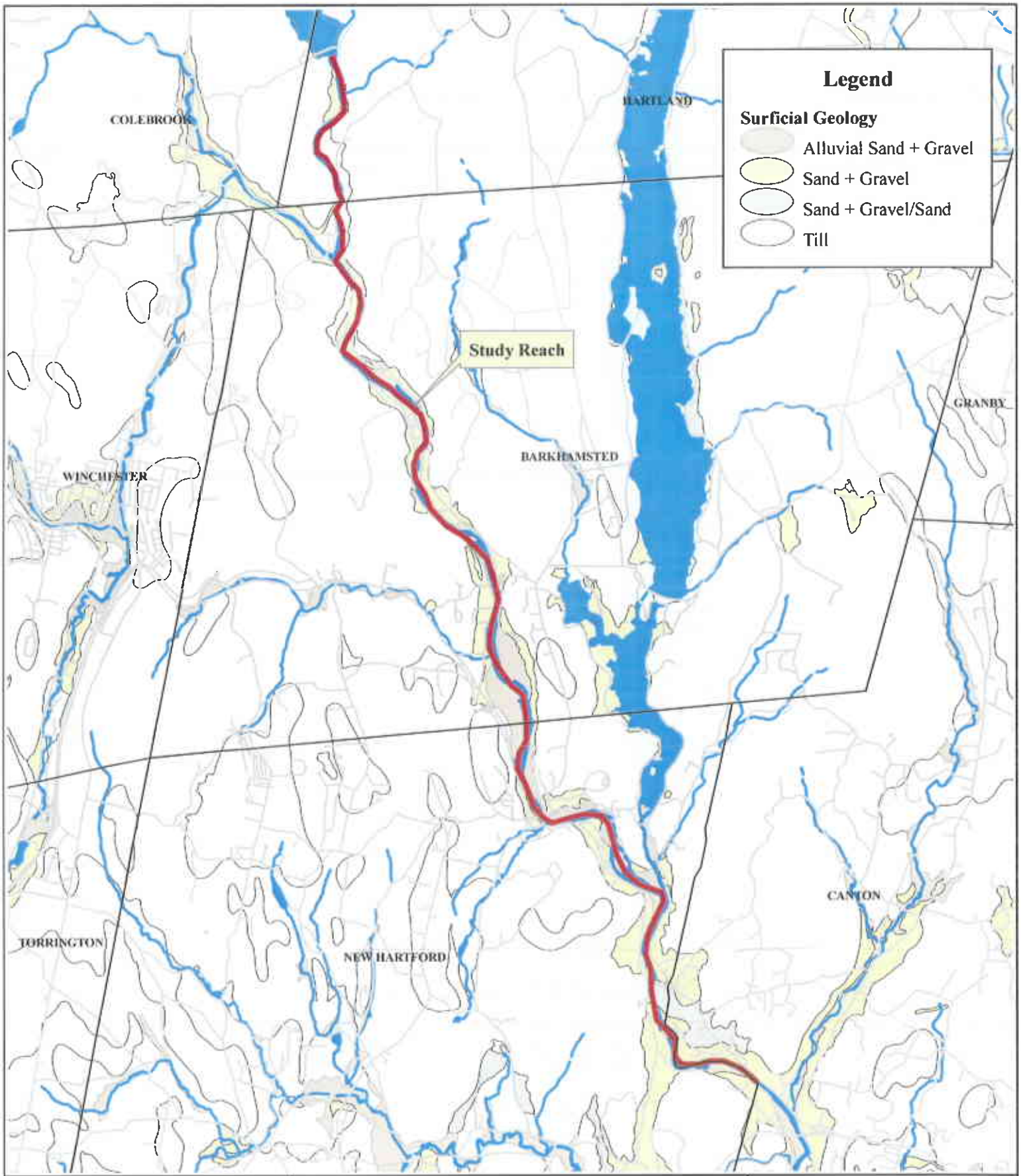
From Unionville (Farmington) to Tariffville (Simsbury), the river follows a broader flat valley with active floodplains, then cuts through a trap rock ridge and cuts across the Connecticut River valley prior to discharging into the Connecticut River. The lower Farmington River basin is experiencing suburban growth with a reduction in farm land.

Further information on the Farmington River Basin is contained in the Farmington River Watershed Association's Watershed Report (2003) and in U.S. Geological Survey (USGS) publications (1986).

2.1 Surficial Geology

The erodibility of the Farmington Riverbanks and beds is directly influenced by the bedrock and surficial geology of the valley. The surficial geology of the study reach is illustrated on Figure 2.

The USGS and Connecticut Department of Environmental Protection (CTDEP) published an updated State geologic map and report in 1998. This publication indicates that the West Branch has glaciofluvial deposits of sand and gravels, common in steep valleys that carried water south from glaciers without redeposition in lakes. Ice margin delta deposits are present in New Hartford to Collinsville along the valley edges. Modern rivers have been removing the glacial meltwater deposits, creating lower floodplains and leaving the former as elevated terraces, dissected locally by modern runoff.



Engineering, Landscape Architecture and Environmental Science
MILONE & MACBROOM
99 Realty Drive
Cheshire, Connecticut 06410
(203) 271-1773 Fax: (203) 272-9733
www.miloneandmacbroom.com

West Branch & Farmington Rivers Riverbank Assessment

LOCATION: Connecticut

MMI#: 2056-04
MXD: H:\Surficial_Geology.mxd
SOURCE: DEP Bulletin 37

Surficial Geology Map

DATE: September 2005
SCALE: 1:250,000

SHEET: Figure 2

The Litchfield County Soil Survey Map, prepared by the U.S. Department of Agriculture (1970), is based on field work conducted between 1953 and 1965, presumably using pre-1953 aerial photographs as a base. The soil mapping identifies extensive deposits of glacial outwash granular materials consisting of sand, gravel, and limited silty sand. This is consistent with the geologic maps. This granular, noncohesive material are sediments previously placed by flowing water and are re-erodible if exposed to similar flowing waters.

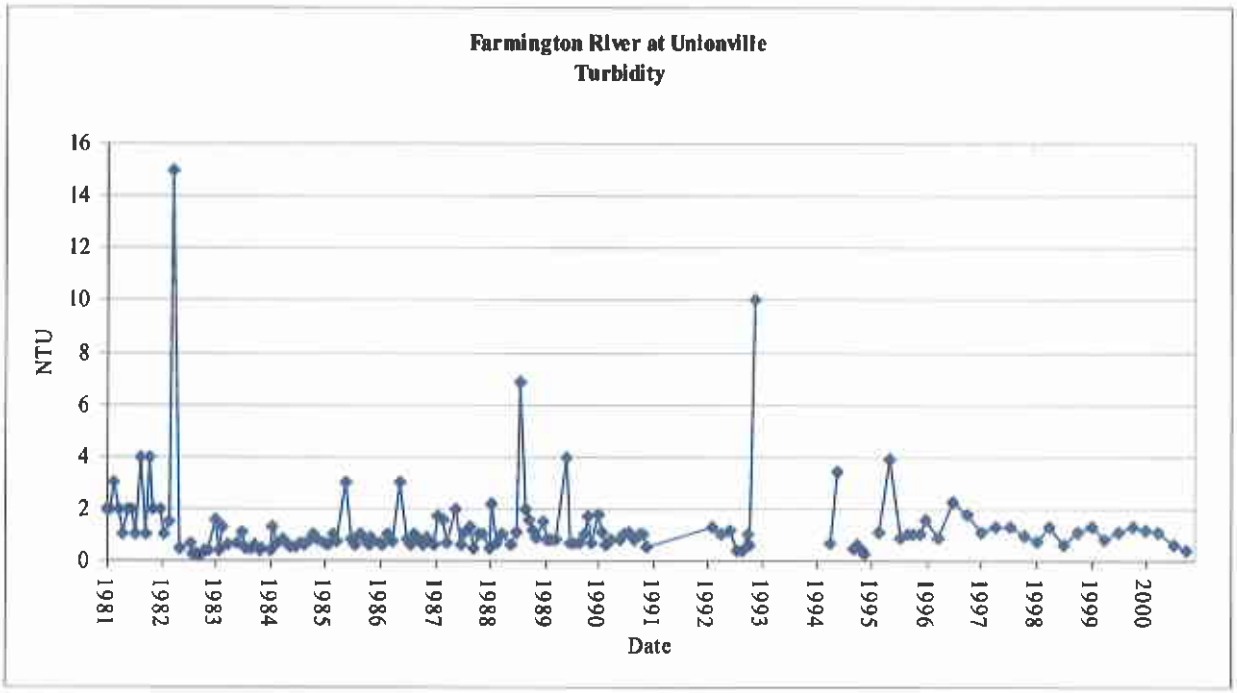
2.2 Sediment

The amount of sediment produced within a watershed may be assessed by direct measurement of suspended and bed loads, by measurement of sediments trapped in impoundments, or by empirically evaluating watershed erosion and delivery rates. The watershed's net sediment yield is composed of materials from upland erosion and riverbank and bed erosion, minus sediment deposits.

A review of USGS and CTDEP data indicates there are no comprehensive sediment data sets for the Farmington River. However, periodic water quality samples have been collected from the Farmington River in Unionville, Connecticut, which is located downstream of the subject study reach. Water quality samples were collected between 1981 and 2001. Turbidity concentrations typically ranged from 0.1 to 15 NTU, with an average mean of 1.3 NTU. This is a very low value that is typical for clear water. It also indicates very low sediment loads. The graph on the following page illustrates turbidity concentrations collected from the Farmington River at Unionville. Although Unionville is downstream of the study areas, most of this flow reflects upstream conditions.

2.3 Hydrology

The Farmington River basin has a humid continental climate that is influenced by episodic coastal storms, such as Nor'easters and hurricanes. The mean annual precipitation is 48 inches, producing an average annual runoff of 1.8 cubic feet per square mile (cfs/sm).



Data collected from the Water Resources Data of CT Annual Reports

Several large reservoirs (Barkhamsted and Nepaug) and numerous flood control impoundments built by the U.S. Army Corps of Engineers (USACOE) and the Natural Resources Conservation Service are located within the Farmington Basin. Table 1 presents a summary of watershed areas along the Farmington River.

TABLE 1
Watershed Areas

Location	*River Mile**	*Area (sm)*
Massachusetts/Conn. border	61.5	104
Colebrook Dam	58.7	118
Goodwin Dam	57.3	120
Above Mouth of Still River	54.8	131
Below Still River	54.8	216
Above East Branch	46.3	237
Below East Branch	46.3	303
Above Cherry Brook	43.0	308
Below Cherry Brook	43.0	322
Collinsville	---	354
Unionville	---	378

* Miles from the Connecticut River

Detailed information on the watershed hydrology and the various tributaries is published in the USGS annual reports, the Water Resources Inventory of Connecticut Part 6 (1986), and in a 1992 IFIM Study. The subject study focuses on riverbank erosion and thus is primarily concerned with peak flows ranging from the mean annual event to the 100-year frequency flood. The Farmington River basin has a long history of flooding problems due to its steep slopes, limited natural storage, and narrow valleys. Today, both normal and flood flows are regulated by dams.

The USGS operates numerous stream flow gauges within the Farmington River watershed and they are a critical tool for both monitoring and managing the river. Key gauges related to the study area are listed in Table 2. Current flow rates are posted on the USGS website and can be reached via a link from the Farmington River Watershed Association website.

TABLE 2
Average Flows at Various Locations

River	*Location*	*Watershed Area*	*Average Flow (cfs)*
West Branch Farmington	New Boston Mass.	92.0	176
Still River	Robertsonville	85.0	172
West Branch Farmington	Riverton	131	251
Farmington	Unionville	378	655

*USGS Data

Flood Control Dams

Southern New England had major floods in 1955 from two back-to-back hurricanes. These floods caused the flood of record on the Farmington River. In response, the USACOE built three major flood control dams and reservoirs that have significantly reduced peak flows in the study area.

The Colebrook River Lake and associated dam are located on the West Branch of the Farmington River, serving to detain floodwater, augment low summer flows, and provide recreation. Construction began in 1965 and was completed in 1969. The 223-foot high,

1,300-foot long earth fill dam impounds a normal pool of 750 acres and can expand to hold 16.5 billion gallons of water during floods.

The Mad River dam and flood control reservoir are located on a tributary to the Still River, a major component of the West Branch watershed. The 178-foot high earth fill dam was built between 1961 and 1963 and can detain up to 3.1 billion gallons of water.

The Sucker Brook dam in Winchester, upstream of Winsted, was built between 1966 and 1971. This 68-foot high earthen dam has a 53-acre flood pool area capable of storing 482 million gallons of water.

Historic Flood Flow – Frequency Data

Appendix J of the U.S. Army Corps of Engineers report entitled "Farmington River Watershed, Connecticut River Basin Master Manual of Reservoir Regulation," dated 1970 provides detailed information on pre-regulation flood flows and their flood control facilities. The former peak flow rates along the West Branch downstream of Still River in Riverton are:

Pre-Flood Control Dam Peak Flow Rates*

Frequency	*Peak Flow*
2-year	7,000 cfs
5-year	12,000 cfs
10-year	17,000 cfs
20-year	26,000 cfs
50-year	38,000 cfs
100-year	55,000 cfs

*Interpreted from Corps of Engineer (1970), plate J-17.

Flow Regulation

The flow rates in the subject study area are influenced by water withdrawals, with interbasin transfers from the Barkhamsted Reservoir (built on the East Branch in 1940) and the Nepaug Reservoir (built on the Nepaug River in 1916). These permitted diversions are an essential part of the Metropolitan District Commission's (MDC's) public water supply system, providing potable water to approximately 400,000 people.

River flows on the West Branch and Farmington River are regulated by the Colebrook and West Branch Reservoirs as part of a multi-party agreement. The result is that flood flows are substantially reduced by the USACOE structures, and summer flows are augmented above natural levels in order to enhance aquatic resources and recreation.

The flow rates in the West Branch are also regulated by the large Otis Reservoir in Massachusetts. It was constructed in 1865 to regulate water flow to the Collins Company in Canton and the mills in New Hartford. The impounded water had been used to augment summer low flows for the power plant at Rainbow Dam.

The East Branch of the Farmington River joins the West Branch approximately 1.6 miles downstream of New Hartford's center. It has a total watershed area of 65 square miles, most of which is regulated by the MDC's Barkhamsted and Lake McDonough Reservoirs. Consequently, the East Branch often contributes little flow or sediment to the Farmington River during dry years.

Table 3 presents peak flow data for three gauges within the Farmington River basin. It is interesting to note that despite its smaller size, the Still River has more influence on peak flood flows below Riverton than does the water from the upper West Branch above Riverton. This data demonstrates the degree to which the West Branch flow regulation has dampened peak flows.

TABLE 3
Peak Flow Data*

Gauge	*Riverton – West Branch 01186000*	*Still River 01186500*	*Unionville – Farmington River 01188090*
Watershed Area, SM	131	84.7	378
Peak Flows (cfs))			
2-year	1630	3560	10,200
10-year	2,850	6,490	17,600
25-year	3,400	7,870	21,200
50-year	3,780	8,850	23,900
100-year	4,140	9,790	26,500

*From USGS records in CTDOT Drainage Manual, 1995

Further hydrologic assessments were made to test a hypothesis that a decline in peak flood flows has occurred and is influencing channel conditions. The annual peak flows at the Riverton and Still River USGS stream gauges were accessed on the web and compared with Salmon River (East Haddam), which is a relatively natural unregulated watershed. All three watersheds are hilly and wooded and are of somewhat similar size (131, 85, and 100 square miles respectively).

TABLE 4
Annual Peak Flow Days Over 4,000 CFS
1970 – 2003

Site	*Gauge*	*Watershed Area, SM*	*Days with Flows > 4,000 cfs*
Riverton	01080207	131.0	0
Still River	01186500	85.0	12
Salmon River	01193500	100.0	12

The data review clearly shows that the unregulated Salmon River and the Still River have more floods and larger floods than the West Branch during the post dam era since 1970. Table 4 shows the Riverton West Branch to have the fewest floods, despite its larger watershed. In contrast, from 1955 to 1970, it had three flows over 4,000 cfs.

The peak flow comparison is even more dramatic if one evaluates the annual peak flows per square mile. This unit discharge reduces the influence of watershed size in comparing drainage basin runoff. The annual peak flows on the upper West Branch at Riverton

exceeded 20 cubic feet per second per square mile (cfsm) only four times from 1970 to 2003, while the Salmon River exceeded 20 cfsm on 27 occasions. This can be seen graphically in Figure 3.

The regulated flow regime on the Farmington has several potential impacts upon the river's geomorphic conditions, as noted below.

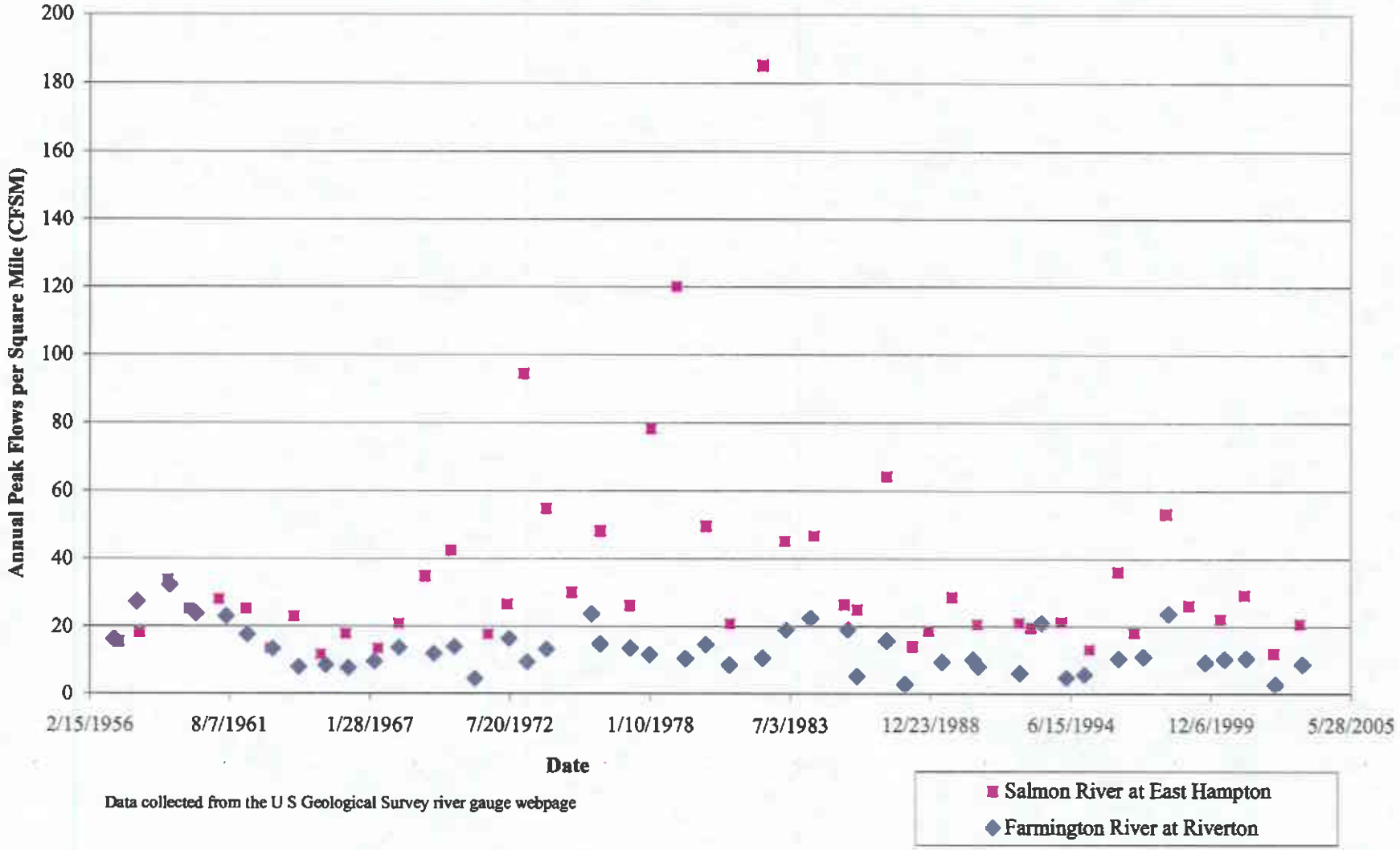
1. The flood control reservoirs, and the water supply reservoirs when they are only partially full, reduce peak flow rates. This reduces the potential for catastrophic river bed or bank erosion that is usually associated with peak flows and reduces the chance of upper bank erosion. Reduced peak flows also reduce flood damages to developed areas.

2. The impounded flood waters are gradually released over a period of time, increasing the magnitude and duration of mid-level discharges and associated sediment transport of fine materials.

3. The flood control and water supply reservoirs serve as giant sediment basins that would be expected to trap and retain most of the coarse bedload and some of the fine suspended load that enters them. As a result, downstream channels have less sediment, accounting for their normally clear waters.

4. The release of deep "bottom" water from reservoirs provides cool water to the downstream channel, favorable for cool water trout fisheries and for having higher dissolved oxygen levels.

Figure 3
Comparison of Peak Flows per Square Mile for
Salmon River at East Hampton vs Farmington River at Riverton from 1957 - 2003



Data collected from the U S Geological Survey river gauge webpage

Channels downstream of dams are often prone to bed erosion. The phenomena of "hungry water" occurs if downstream segments are able to loosen and transport particles that are not replaced by fresh sediment particles coming from upstream. This usually results in degradation (i.e. channel incision) of the river bed and a gradual coarsening of the substrate as smaller particles are removed and larger ones are left behind. The Farmington and West Branch show no evidence of degradation, but the riffles and runs are generally armored by cobbles with some embedded. Embeddedness can be caused by deposition of fine grain sediments that fill the benthic voids, or by reduced bed material movement.

Flushing Flows

The 1992 Instream Flow Study of the Farmington River focused primarily on recreational needs and only briefly mentioned flushing flows. The report tabulated gauged three-day duration, median and average maximum flows. However, this data was for the post-dam regulated period and did not consider hydraulic engineering performance for sediment initiation of motion or sediment transport.

The preferred method of evaluating flushing flows for initiation of particle motion and limited duration sediment transport is a conventional shear stress analysis based upon fluid dynamics. Approximation techniques include empirical field monitoring over a range of flows, or surrogate analogies such as regional flow analysis.

The latter analysis, while approximate, is readily performed. Streams typically have bed movement beginning at their bankfull discharges, which is often approximated as a flood flow equal to a one- to two-year frequency without regulation by dams or diversions. Local experience and gauging stations further approximate this to be about 20 CFS per square mile, equal to about 5,000 CFS for the segment below Riverton. For example, the Salmon River exceeded 20 CFSM 27 times in 33 years from 1970 to 2003, but the West Branch did so only four times. Based on this indirect and approximate analysis, West

Branch flushing flows would be in the range of 4,000 CFS during most years. During dry years, flushing flows should be reduced or curtailed in order to conserve water for potable use. In addition, the flow rate at which flood damages occur must be avoided.

A comprehensive evaluation of flushing flows would involve measurements of bank and channel substrate size at numerous cross sections and sediment transport modeling. The cost of this would be on the order of $20,000, depending on how many cross sections are used.

2.4 Erosion Processes

Riverbank stability is an important management issue when it creates excessive sediment, degrades habitat, threatens developed properties, or induces significant changes in channel alignment or pattern. The three main types of bank instability are particle entrainment, mass failures, and gully erosion.

Particle entrainment is the detachment of particles (clay, silt, sand gravel, or cobbles) from the bank and their transport away from the bank. This is a common fluvial process caused by hydraulic shear stresses associated with high velocities and turbulence that exceed the particle's resistance to motion. In granular materials, such as sand and gravel, entrainment affects individual particles that are eroded one by one. Silt, clay, and glacial till soils have variable levels of cohesion that binds multiple particles together in small flocculants that act as a single unit.

Mass bank failures occur where larger blocks of soil collapse in a single event, usually because the weight of the soil exceeds the strength of inter-grain bonds that hold the soil together. Common mass failure types include shallow slides, deeper plane failures, rotational failures and cantilevered banks that are undermined.

Gully bank erosion occurs where natural surface runoff or roadway drainage water flows down the face of a slope, forming shallow rills or deeper gullies. As the gullies enlarge, they tend to capture and convey more runoff and therefore continue to erode. In both cases, for natural or road runoff, the solution is to divert and redistribute the water, armor the gully with a scour resistant material, or install a formal drainage system.

Human activity can directly or indirectly induce local bank erosion. Classic causes of riverbank weakening include vegetation clearing, excavation, and placement of fill material. Minor bank erosion can be caused by well-worn foot paths down the banks to the river, picnic areas, and intensive recreational uses.

A riverbank's natural resistance to erosion is a function of many variables, including particle size and weight, soil cohesion, soil density, slope, ground water seepage, and vegetation. The geometric shape and size of a river channel has a direct influence on bank erosion potential. For example, the channel banks receive higher velocities on the outside of a river bend where flows are close to the banks, and at narrow, contracted channel sections where higher velocities are common. Similarly, riverbed and bank scour are common at bridges that constrict the channel or floodplain width. Deep scour holes are possible at undersized culverts. The higher flow velocities that occur where rivers have steep gradients also increase erosion potential.

The regulated flow regime can affect river bed stability more than bank stability. The shear stress that initiates erosion of bed or bank particles is a function of the water profile gradient and water depth. Since the water depth over the stream bed is greater than on the banks, the bed is subject to greater shear stress. An exception occurs along the outer banks of meandering rivers. Reductions in peak flow rates also encourage more bank vegetation, and for vegetation to extend down towards the toe of the banks.

2.5 River Morphology

2.5.1 River Segments

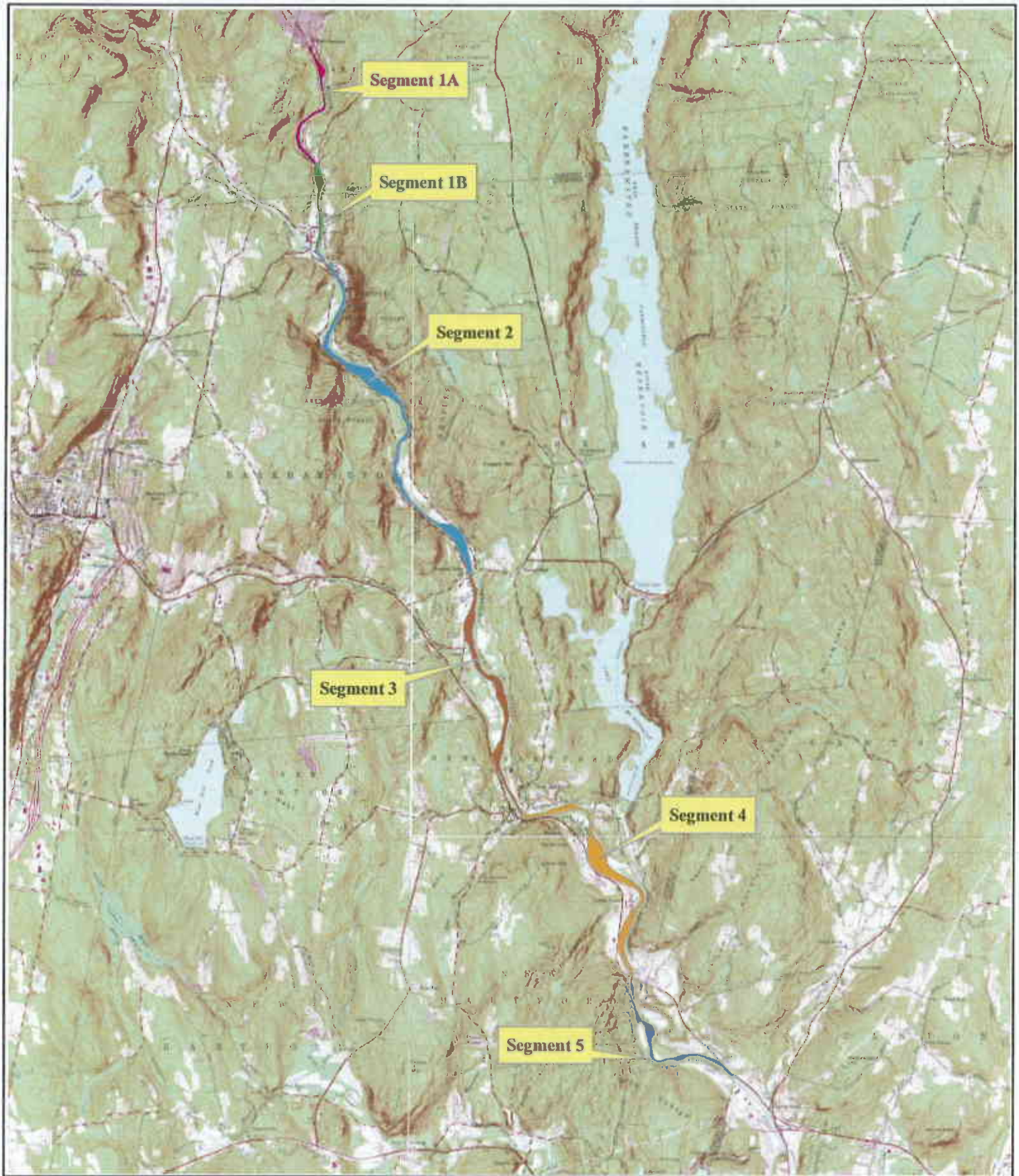
As part of this study, MMI divided the river into six segments (1A, 1B, 2, 3, 4, and 5, respectively). The segments are illustrated on Figure 4. Each river segment is described in detail in Section 3.0 of this document, including each segment's Rosgen classification category. The 1994 *A Classification of Natural Rivers* was used to identify the river's Rosgen stream classification. This system was developed in 1994 and classifies rivers and streams based on channel morphology (i.e. entrenchment, gradient, width to depth ratio and sinuosity). The riverbanks are referred to by the terms left and right, always assuming that the viewer is facing downstream.

Summary of Study Segments

	From	*To*	*Comment*	*Length*
1	West Branch Res.	Still River at Riverton	Little floodplain, steep valley, u/s Hitchcock Chair	2.2 mi
2	Still River	Route 318, Pleasant Valley	Peoples State Forest, high terraces, islands	4.2 mi
3	Route 318	New Hartford, Route 219	Broader floodplain and terraces, low gradient	2.6 mi
4	Route 219	Route 44, Satan's Kingdom	Developed terraces, businesses, condo	2.7 mi
5	Route 44	Route 202, Canton, Cherry Brook	Tube run	1.9 mi

River channels are usually classified as being alluvial or nonalluvial. Non-alluvial channels are constrained by nonerodible material such as boulders, bedrock, or glacial till that are not sedimentary material. In contrast, alluvial channels are formed by and in river sediment deposits and have the ability to adjust the channel shape and dimensions as a function of discharge rates, sediment loads, bed slope, and roughness.

In the study area, study segments 1 through 4 are considered to be threshold channels, in that they act like a nonalluvium channel during normal and low flows, but behave like alluvium channels under high flow conditions. Study segment 5 is a nonalluvium channel, as it is constrained by bedrock, boulders, and cobble.



Engineering, Landscape Architecture and Environmental Science
MILONE & MACBROOM®
99 Realty Drive
Cheshire, Connecticut 06410
(203) 271-1773 Fax: (203) 272-9733
www.miloneandmacbroom.com

West Branch & Farmington Rivers Riverbank Assessment

LOCATION: Connecticut

MMI#: 2056-04
MXD: I:\Figure4.mxd
SOURCE: DEP Bulletin 37

Study Segments Location Map

DATE: September 2005
SCALE: 1:80,000

SHEET: Figure 4

The West Branch and Farmington Rivers are constrained at a few points by bedrock, most notably at Satan's Kingdom, Black Road, and the confluence of Still River. However, in most sections, the channels are located on old glacial outwash sediments with a high percentage of gravel and cobbles. This material is coarse and heavy enough to resist frequent erosion and transport, hence, the channel is generally said to have an armored bed.

The channel width generally increased as one goes downstream, due to large watershed areas and discharge rates. Channel width data is presented in tabular format below. The channel width, depth, alignment and banks are quite stable.

Channel Width Data

Location	*Watershed Area*	*Bankfull Width*	*Comments*
Hogback Road	127 sq. mi.	90 feet	Run
Barkhamsted, gas pipeline	217 sq. mi.	120 feet	Run
People's Forest Campground	220 sq. mi.	104 feet	Riffle head
D/S Greenwoods	232 sq. mi.	90 feet	Fast run
U/S Satan's Kingdom	303 sq. mi.	140 feet	Slow run
Rooster Tail Rapids	306 sq. mi.	90 feet	Rapids
Canton town line	309 sq. mi.	180 feet	Run
Burlington, U/S Burlington Brk	361 sq. mi.	200 feet	Run
Unionville, Route 179 bridge	378 sq. mi.	240 feet	Slow run
Farmington, RIPRAP bridge	386 sq. mi.	210 feet	Run
Route 4, Farmington	448 sq. mi.	230 feet	Flat water

2.5.2 River Profile

The 1977 Corps flood study and FEMA Flood Insurance Studies have plotted drawings of the river bed and water surface profiles. Both river bed profiles are depicted as having very uniform gradients, with few irregular features.

Site inspections and canoe trips indicate that the river actually has significant diversity. From the dam to the New Hartford center, the river has a series of long, deep pools separated by narrow, shallow riffles and fast runs. Downstream of the former Greenwoods Dam, there are long runs, a few riffles, and a few mid-channel low diamond

bars. There are no large, deep pools south of Greenwoods Dam, even though the gross river slope is similar to segment 3.

The profile features such as pools, runs, riffles, and rapids are the foundation of ecological diversity and sediment dynamics. In order to better monitor and understand the river's aquatic systems, it is recommended that the river profile be classified to identify profile and habitat features, plus a limited survey be conducted to establish and map river bed elevations at key features. The channel's sinuosity and slope are tabulated below:

Location	*Segment*	*Elevation*	*River Mile*	*Chord Length*	*Sinuosity*	*Scope Ft/m*
Dam base	1	540 ft	56.9	2.0 mi	1.10	25.9
Still River	2	483 ft	54.7	3.5 mi	1.20	18.6
Route 318	3	405 ft	50.5	2.36 mi	1.10	15.0
Route 219	4	366 ft	47.9	2.04 mi	1.32	15.2
Route 44\	5	325 ft	45.2	1.46 mi	1.30	14.2
Canton Town Line		298 ft	43.3			

Compiled from USGS topographic maps, FEMA Flood Insurance Studies, and Corps Floodplain Information.

2.5.3 Islands

The study area has a surprising number of large mid channel islands that have mature forest on them, creating bifurcated channels that split flow on both sides. Without exception, the anabranched channels are relatively shallow with steep gradient runs or riffles. Examples of island include (from upstream to downstream):

1. Downstream of Hogback Dam
2. Downstream of Whittemore pool
3. Downstream of Howes Campground, Hemlock's Run
4. Just upstream of Route 318 bridge, Halford's Run
5. Downstream of Church pool and drive-in theater
6. Upper end of old Greenwoods pool
7. Greenwoods Dam site
8. River Run condominiums (new)
9. Main Stream outfitters area
10. 300 yards downstream of Rooster Tail Rapids at Satan's Kingdom gorge outlet

Most of the popular large pools used for fishing are just upstream of these island/riffle features.

2.5.4 1955 Flood Impact

Wolman and Eiler (1958) investigated the erosion and deposition caused by the tremendous 1955 flood, with emphasis on the Farmington River. They found that significant bed scour occurred at the Riverton gauge site and that boulders one foot in diameter had moved. Several miles of highway and railroad beds between Burlington Brook and Unionville were washed out, with primary erosion occurring on the outside of river bends. In addition, the USGS studied two Farmington River cross sections near the confluence of Cherry Brook, where broad east bank floodplains are present. These were inundated by 12 to 20 feet of water during the flood. New 1955 sand deposits ranged from 0 to 12 inches, with a maximum of 37 inches of new sediment on a convex area upstream of Cherry Brook.

2.6 Fisheries

The Farmington and West Branch Rivers are famous for their cold water fisheries, supporting native and stocked fish, including both freshwater and limited anadromous species. The CTDEP has two designated trout management areas (TMAs). The upper area extends from one mile upstream of Route 318 to the Route 219 bridge in New Hartford. It is open all year for sport catch and release fishing with barbless hooks. The lower TMA extends from the Lower Collinsville Dam to Route 4 near Unionville. The clear, cool water and regulated flow rates from the dams are excellent for trout.

The lower Farmington River, from Rainbow Dam to the Connecticut River, is warm, flat water that hosts species similar to the Connecticut River. The Farmington River originally supported anadromous species that spawn in freshwater and return to the ocean for their adult lives. Fish passage is limited by the efficiency of the old fish ladder at

Rainbow Dam, and the upper river is completely blocked by the two Collinsville dams. The CTDEP stocks the river with salmon fry and smelts. Shad and herring are also supported and passed at the Rainbow ladder.

3.0 FIELD INVESTIGATIONS

3.1 Segment 1 – Hogback Dam to the Still River in Riverton

Segment 1A – Hogback Dam to Route 20

Segment 1A is located in Hartland, Connecticut, and spans from the Hogback Dam to Route 20. It has an approximate length of 1.4 miles with a steady gradient. The West Branch along Hogback Road is typically 80 to 110 feet wide at ordinary high water (OHW) and up to 150 feet wide at the pools. Normal flow depth is one to three feet, and four feet in the pools.

This segment has a gravel and cobble bottom with numerous boulders. Several old mid-channel bars are present, but are vegetated, indicating relative stability. The banks average four to eight feet in height above OHW and generally have mature hardwood trees and shrubs on them. The Rosgen classification for this segment's river channel is B3.

Little to no active floodplain exists in this reach except immediately downstream of Hogback Dam. No unusual erosion or sediment conditions were observed; however, historic bank erosion (now temporarily stable) has accrued at two areas along Hogback Road. The sites at SNET Pole 7267 and one-half mile downstream of the dam (upstream of the left bank rock mass) are not an immediate concern but should be checked after major floods.

MMI also observed one large inactive point bar feature with a cobble "river wash" surface, supporting a stand of moderate size hardwoods. This lends further support to the

dampening effect of the stream flow regulation on the West Branch, and the depositional nature of sediment transport in recent years.

Segment 1B – Route 20 to the Still River in Riverton

This segment extends along Route 20 from Hogback Road to the Still River in Riverton. The flow rate in this segment is measured at the USGS Riverton gauge and it is almost entirely made up of West Branch reservoir releases. The channel is typically 60 to 80 feet wide, with a gravel and cobble bed and numerous boulders. It is dominated by fast runs of unbroken water and riffles, with two narrow but deeper pools located upstream of the Hitchcock Chair Factory. A modern low loose cobble weir has been erected near the end of School Street.

The Route 20 bridge is an unusual twin span concrete structure with a shallow arch and curved wingwalls. No evidence of unusual scour or bank erosion was observed during the field investigations. Approximately 200 feet below the bridge, a large two-foot diameter oak tree was observed in the water across two-thirds of the channel, creating backwater and a new pool.

The banks along the Hitchcock Chair Factory are covered with stone riprap and appear to be stable. The banks eventually merge into a rock wall. On the east bank, the lower embankment along Route 20 has been riprapped and stabilized with boulders; however, minor erosion from road runoff is continuing to occur along the top of the slope near the Hartland town line. Within this portion of the river, the channel is narrow with white water rapids. No evidence of an old dam was visible during field investigations; however, one must have been present to power the original mill.

Field observations indicate that road sand accumulation helps to replace eroded soils along the Route 20 embankment. The lack of curbs and gutters negate the need for catch

basins and concentrated outlets, but prevent use of modern nonpoint pollution controls, such as sediment and oil traps.

Segment 1B ends at the confluence of the Still River, a major tributary to the Farmington. The confluence has complex morphology, with a large bedrock outcrop (known as Lyman's Rock) perpendicular to the river. A deep scour hole has formed adjacent to the rock, and is periodically filled with sediments from the Still River. The west bank has evidence of slow erosion as the river moves in that direction. The Rosgen channel classification for riffles in this reach is B3.

3.2 Segment 2 – Still River to the Route 318 Bridge

Segment 2 extends from the Still River to the Route 318 bridge, a distance of 4.2 miles at a gradient of 186 feet per mile. The slightly sinuous channel follows a narrow valley between parallel ridges with shallow bedrock. It is a classic cobble bed channel with long runs and mild rapids with a few broad, deep pools. The Rosgen channel classification is B3 at the riffles.

A long run with riffles extends from the Still River to the Tennessee Gas pipeline crossing. The channel is approximately 120 feet wide in this reach. A lower gradient begins at the pipeline, where the channel is approximately 140 feet wide. Former right bank erosion that has since stabilized is present approximately 100 yards upstream of the pipeline. This area has the potential for low mass failures along the road.

The riverbank and bed behind Riverton Fields are in good condition, but the dumping of debris and brush off the parking lot bank should be curtailed. Continuing downstream, the east bank of the 200-foot wide Whittemore pool has several barren areas due to foot traffic, and minor erosion has occurred at a west bank culvert headwall. Interestingly, the east bank has an attached grassed sediment bar, one of the few found along the river. The vegetation suggests the lack of recent inundation or flood scour.

The channel downstream of Whittemore pool passes between large fieldstone abutments of a former Civilian Conservation Corps foot bridge and becomes steep and narrow, with a low island on the left and a steep 10-foot bank on the right along West River Road. This bank is not actively eroding, but the steep rear vertical face has the potential for mass failure near Legion Road.

The west bank has a steep bank undercut in places near the head of a rapids above CL&P pole 6753 on West River Road. A large dead tree and root mass has fallen in. The bank should be repaired at this location, with flow being deflected towards the far bank to reduce future erosion. This could be accomplished with a stone deflector.

The river divides into three separate channels approaching Route 318 in Pleasant Valley. The principle channel along East River Road is in good condition, with low banks and a typical width of only 80 feet. It has a long, swift flowing run with one short white water rapid with a cobble substrate. The right channel along West River Road appears to be an old mill headrace that has captured a small part of the river flow. An old diversion dam probably existed at one time, but it could not be located. The middle channel is not navigable by canoe.

The reach immediately upstream of the Route 315 bridge has large patches of Reed Canary Grass growing along the left bank and on bars. It is a large, coarse grass up to seven feet high that grows in large, monotypic stands in sunny areas, excluding other species. It is difficult to eradicate.

3.3 Segment 3 – Route 318 Bridge to New Hartford Center

This river segment extends from the Route 318 bridge at Pleasant Valley to the center of New Hartford at East Mountain and Hallock Brooks near the Route 219 bridge and Callahan Park. This segment is 2.6 miles long and is slightly sinuous, shifting from one

side of the valley to the other several times. The Rosgen channel classification is B3, changing to B4 in some pools.

A prominent gravel parking lot and river access point for car top boats and fishing is located on the east bank downstream of the Route 318 bridge. The right (west) bank below Route 318 has a series of minor erosion points opposite the Pleasant Valley post office. The erosion points are located on a steep eight-foot high bank over a length of 100 feet. The flow contraction at the bridge may contribute to this situation. The rusty steel truss bridge has a single span of about 240 feet and is shown to be well above the 100-year frequency flood water level as per the FEMA Flood Insurance Study. However, the bridge does not span the entire floodplain and the flood studies predict a rise in water elevation due to the contraction. This scenario usually leads to downstream scour during floods.

The long, wide (up to 300 feet) reach known as Church Pool downstream of the Route 318 bridge has low velocity, mixed bottom material, and stable banks. The east side of the pool appears to be aggrading. The primary outlet is a riffle/fast run around the right side of a large wooded island. The right channel bank past the island has many steep gully features due to road runoff and pedestrian use, directly across the road from the Pleasant Valley drive-in. The cobble bed channel, with numerous small boulders, is stable. A narrow boulder stream channel flows on the left (east) side of the island and has two areas of recent bank erosion approximately one-half mile south of Route 318. This is natural bank erosion at channel contractions and does not need to be repaired.

Morgan Brook is a prominent tributary that enters the West Branch downstream of the Pleasant Valley drive-in theater. It has a steep gradient with a rocky bed and a relatively high bedload of coarse sediment. This material is evident along the right bank of the West Branch, below the confluence, where the West Branch channel narrows.

In the final third of this segment, the Farmington River crosses the former pool of the old Greenwood Manufacturing Company impoundment. Records indicate that this early

earthen dam was used to power the largest cotton mill in western Connecticut. It failed during the 1936 flood. The multi-story brick mill is still present (Gordon and Raber, 2000). A photograph on the New Hartford web site shows a large pond with a prominent dam. The Greenwoods dam was originally built in 1847, consisting of a timber crib spillway filled with stone, with concrete abutments and a 300-foot long earth embankment. The overflow spillway was 230 feet long, with a crest elevation of 399.0 feet. The spillway height was 24 feet above the riverbed, supporting a 125-acre pond with 235 million gallons of water. The dam failed during the March 1936 flood and the property was transferred to MDC in May 1942 for a potential new dam that was never constructed.

Plans dated 1965 are on file at CTDEP for the removal of the remaining spillway elements and concrete abutments at Greenwood's dam, and regrading the breach area similar to present 2004 conditions. The vertical steel sheeting, still visible along both sides of the breach, were apparently installed after the failure to contain the remaining embankments. Steel reinforcing bars, apparently used to peg timber aprons in place, are present in the breach and could easily rip the bottom out of a canoe. They should be removed. The present breach width is approximately 210 feet, composed of the active channel and vegetated sediment deposits.

The subsequent channel evolution has eroded several feet into the sediments of the former pool as the channel follows its left side. There has been recent no mass sediment removal or active meandering. However, the Greenwood's pool bottom does have numerous relic channel elements, and the present channel does bifurcate around a low island just before the dam site. Aerial photographs on file at the State Library indicate the island is the result of channel avulsion. The downstream segment does have a noticeable increase in sedimentary features that may be related to historic releases from the Greenwoods Dam pool.

The West Branch channel from the Greenwood's dam site to Route 219 in New Hartford is a straight run with rapid flow and a coarse cobble bed. It narrows to a bankfull width

of just 90 feet through the steeper riffles. The left bank is on private industrial property, generously open to fishing, with a low, grassy floodplain and hardwood canopy. The higher, steeper right bank is in an area of several residences and has numerous old erosion scars. Shallow water and boulders are present near the Route 219 bridge.

Japanese knotweed (*polygonella cuspidatum*) and Reed Canary Grass (*Phalaris arundinacea*) were found to be more abundant in downstream locations. Japanese knotweed, an escapee from cultivation that is often found in waste areas and roadsides (Newcomb, 1977), lined the river typically in sunny spots without wide naturally vegetated riparian buffers. Its greatest density is along the banks of the lower former Greenwoods pool area, and sporadically downstream. Reed Canary Grass is a native perennial of wet places (Brown, 1979), was present in large stands in the middle and lower portions of the observation area. The increasing presence of large patches of these herbs, in addition to the appearance of moss and algae on the streambed in the lower study area, suggest that nutrient loads might be increasing moving downstream. Sources of the increased nutrient loads could be runoff carrying lawn fertilizer to the river, stormwater discharge outlets, or upstream sewage treatment plant effluent.

The Rosgen classification of Segment 3 is generally B3, except through the former Greenwoods Pond site where the alluvium and broader floodplains are class C4.

3.4 Segment 4 – Route 219 to Route 44

Segment 4 is an interesting area extending from Route 219 in New Hartford to Route 44 at the head of the Satan's Kingdom gorge. The segment has had extensive human activity and yet remains a healthy, cold water habitat. It is approximately three miles long and is moderately sinuous, with large radius bends and a relatively large amplitude.

The West Branch passes beneath Route 219 in New Hartford via a modern twin span steel beam bridge. The channel has an average width of 150 feet and a cobble bottom

with a few boulders. The right bank is up against the west valley wall and Route 44, supported in places by a ±550-foot long by 15-foot high vertical concrete retaining wall opposite Callahan Park. The retaining wall does not aesthetically blend well with the river's natural riparian corridor. The wall could be at least partly modified by placing boulders and planting pockets along its face. The opposite left bank in the park has a narrow, vine-covered floodplain with numerous water access paths. However, there are no formal river access points.

The left bank downstream of the park has a low alluvial island and old sediment, with many trees down along the river's edge due to shallow saturated soils. These modern sediments may be the result of materials washed out of the Greenwood dam site. Several mid channel bars with shallow water are located in the Pine Meadows river segment. Early aerial photographs (1951) show even more prominent bars that have since decreased in size.

The Pine Meadows area is a mill village formed around an old industrial complex. Remnants of a headrace canal parallel to Wicket Street are still visible. The Black Road bridge east of Pine Meadows is a new twin span structure over the West Branch with precast concrete box beams and a stone clad pier. The channel width is 150 feet, with extensive bedrock on the left (west) bank providing an abundant supply of boulders and cobbles along the channel. The banks are stable.

The West Branch has a long, fairly uniform channel from Black Road to the confluence of the East Branch, much of it adjacent to Route 44. An old, small channel on the inside of an arc creates an island that is not readily accessible. This reach is primarily a shallow run, with fewer pools than the upstream segments, and a poorly defined thalweg.

The main Farmington River channel begins at the confluence of the east and west branches. It extends with a nearly straight alignment for one mile to Satan's Kingdom. The river in this area is characterized by a series of stable, swift runs and a cobble bed. This segment is accessible from the left bank gravel road. A large island split the river

flow and boaters need to select the deeper left side. The existing pond at the River View condominiums is not present on the 1975 aerial photographs on file at the State Library, nor is it shown on the 1977 Corps of Engineers Flood Study. It is also present on the 1980 photographs but the pond is still not connected to the river. In the 1985 photographs, buildings have been constructed along the west side of the pond. It is unclear whether the pond was interconnected to the river in 1985. The 1990 aerial photographs do show a clear connection from the Farmington River to the pond and back to the river again similar to the observed field conditions.

MMI field inspections found that the north end of the pond is connected to the river via a ±25-foot wide slot in the riverbank, with significant flow diverted into the pond. A portion of the former riverbank between the channel and pond has become an island. A headcut has extended from the pond through the "slot" and is extending into the channel. It is expected that this headcut will grow upstream, diverting more water from the channel. The south end of the pond has a short, ragged channel discharging back to the river channel.

The next major flood has the potential to permanently split the river flow between the existing channel and the pond, creating an island between the two. While the new channel (former pond) would create a deeper water refuge for fish, it would create shallow conditions in current river channel that could impair conditions for the fish, benthic habitat, and canoeing. Additionally, there is a wastewater discharge to the river just upstream of the pond from the sewage treatment plant. This has the potential of creating a condition of depressed oxygen in the pond, due to the limited aeration. To prevent a full breach, a dike or armored berm could be constructed where the headcut is expanding.

3.5 Segment 5 – Route 44 to Cherry Brook (Route 202)

The final river segment extends from Route 44 in Satan's Kingdom to Cherry Brook near the Route 202 bridge, a distance of about two miles. The mean gradient is 14 feet per mile, however the actual profile is quite variable. The channel approaching the gorge

from the roadside parking area has a width of 160 feet and a moderate slope with mild banks and a cobble bottom with some small boulders. The overall river classification for this segment is a Rosgen type B3. However, the gorge itself is class G1.

The first rapids begin with a cluster of boulders located approximately 100 feet upstream of the Route 44 bridge piers. The modern triple span 350-foot long bridge has steel beams high above the water and has no influence on channel stability. The present bridge replaced a steel truss structure that collapsed in the August 1955 flood. The rapids drop 2.5 feet in a distance of 100 yards, leading into the deep, narrow (70-foot) V-shape gorge, with bedrock on both sides. The near vertical strike of the quartz and mica rich schist bedrock lends to the steep banks.

The second set of rapids are located approximately 900 feet downstream of the Route 44 bridge and narrows to as little as 50 feet, with a three to four foot drop, depending on flow rates. It is lined with large boulders on both banks, with several mid-channel boulders forming turbulent rollers and standing waves. The water profile drops three feet in just the first 60 linear feet, for a gradient of five percent. Paralleling the right bank, a 30-foot long, two to four-foot wide slot between boulders functions as a natural fish passageway around the second set of rapids. Below the second set of rapids, the long, wide pool is in stable condition. This section is characterized by steep boulder lined forested banks and a lower river current velocity.

The third set of rapids is locally known as the Rooster Tail. Unlike the two previous rapids, this site is located on a river bend with a steep wooded talus slope on the right and a sedimentary vegetated point bar on the left. At low water, the core of the rapids has an exposed bedrock sill that comprises approximately two thirds of the channel's 120-foot width, leaving an active waterway slot of only 45 feet wide and a drop of about two feet. The Rooster Tail's bedrock sill creates a backwater pool that extends far upstream. Generations of foot traffic to the rapids, and runoff from the adjacent gravel road have eroded

two, five-foot wide scars down the right embankment to the river and should be stabilized. Similarly, raw banks are present at the parking area at the end of Powder Mill Road.

Downstream of Rooster Tail, the channel flow is divided around the sides of a large island. Interestingly, the island has an unusual split nose with a "cove," encouraging floodwaters to flow over its center, potentially leading to the formation of a new channel. A shallow riffle located below the island appears to accumulate some eroded island material.

The hydrologic terminus of Segment 5 is at the mouth of Cherry Brook, where the watershed area increases to 322 square miles. Two large roadside rest areas are located nearby on Route 44, where hundreds of tube riding recreationalists leave the river. The channel in this reach approaches 180 feet in width, with low wooded banks and a cobble bed. The reduced gradient and lower velocities form a long, steady run that precludes fluvial erosion. However, numerous worn foot paths were observed along the river's banks.

The river and its banks in this reach are in stable condition despite nearby industrial activity, gravel mining operations, and a recycling center. Portions of the left bank have what appears to be an old railroad embankment that currently acts as a dike, isolating the Cherry Brook floodplain from the Farmington River. In the same general area, a sizable tributary of some 14 square miles enters from the left bank.

Old photographs (Lavoie, 2002) illustrate two railroad tracks originally passing through the Satan's Kingdom gorge, one line on each bank. Though overgrown and weathered, remnants of the track bedding is still present. The sharp edged angular rocks observed along this portion of the channel are in contrast to the river's natural, smoothed, rounded rocks. The sharp angular rocks are most likely attributed to the construction (i.e. blasting) of the railroad beds.

4.0 INVENTORY OF INDIVIDUAL EROSION SITES

As part of the stream-bank erosion assessment project, MMI completed an inventory of riverbank access points on July 8 and 16, 2004. MMI staff surveyed 80 global positioning system (GPS) points that identified both private and public river access locations along the banks of the study reach. The access points were first identified by "windshield survey" and were then extensively walked and characterized in the field. To help identify problem sites, MMI developed an access point inventory reporting form for those areas where future remedial considerations are recommended. Copies of these reporting forms are appended.

The surveyed access points have been overlaid onto a USGS topographic map. A copy of this map is also appended. In addition, MMI developed a priority list of access points where immediate or future remediation is recommended. An remediation priority ranking list is presented on Table 5.

Several factors were used to determine the remediation list, some of which included existing and future erosion hazards, parking area closure and expansion, and property ownership status. It is important to note that, in general, most access points had little to no erosion and were in stable condition. Furthermore, none of the identified access points appeared to be jeopardizing overall bank stability and/or water quality in the river. However, it is noted that virtually all bank erosion was due to pedestrian access. There were no areas of generally mass wasting. Also, most of the erosion that was observed along the river was caused by pedestrian foot traffic.

For access areas in need of remediation, a list of recommendations have been developed for FRCC's consideration. These have been designed to be sensitive to anglers, the environment, and the general community. They are also intended to enhance the river's natural conditions and maintain its Wild and Scenic designation.

TABLE 5
Remediation Priority Table

Access Point	*Location*	*Remediation Priority Ranking*	*Likely Fixes*	*Estimated Repair Construction Cost*
S1 – S9	West side of Hogback Rd	Moderate	Public parking area	>20 K
S17	River Road	Low	Stone or log revetment stairs	<$5 K
S21	People's State Forest north of DEP picnic area	High	Natural stone stairway, log revetment, biodegradable erosion control blanket, hydromulch	$10 to $20 K
S38	MDC property	High	Natural stone stairway, log revetment, biodegradable erosion control blanket, hydromulch	$10 to $20 K
S42 – S45	Callahan Park	High	Stone stairway and canoe launch	$10 to $20 K
S46	MDC Access Road	Moderate	Stone or log revetment stairs	$5 to $10 K
S56	Rooster Rapids	High	Natural stone stairway, log revetment, biodegradable erosion control blanket, hydromulch	$10 to $20 K
S57 – S58	Nepaug State Forest	High	Stone stairway accessway	$10 to $20 K
S66	MDC property	Low	Log revetment and stone stairway	<$5 K
S69	Across from Pleasant Valley Drive-in	High	Conventional curb and catch basin system	$10 to $20 K
S76	River Road	Moderate	Stone or log stairway	$5 to $10 K

Note: The above costs are conceptual estimates, subject to change.

High = Improvements should be completed in next 2 to 5 years.
Moderate = Improvements should be completed in next 5 to 10 years.
Low = Improvements should be completed as funding becomes available.

MMI offers the following list of generalized recommendations for remediation at problematic access points within the study reach:

1. Consolidate the number of access points along portions of the Farmington River;
2. Provide safe designated and maintained public parking areas;
3. Implement log revetments and/or stone stairways at eroding access points;
4. Incorporate conventional stormwater management practices along roads abutting the Farmington River; and
5. Post additional informative and educational signage at access points.

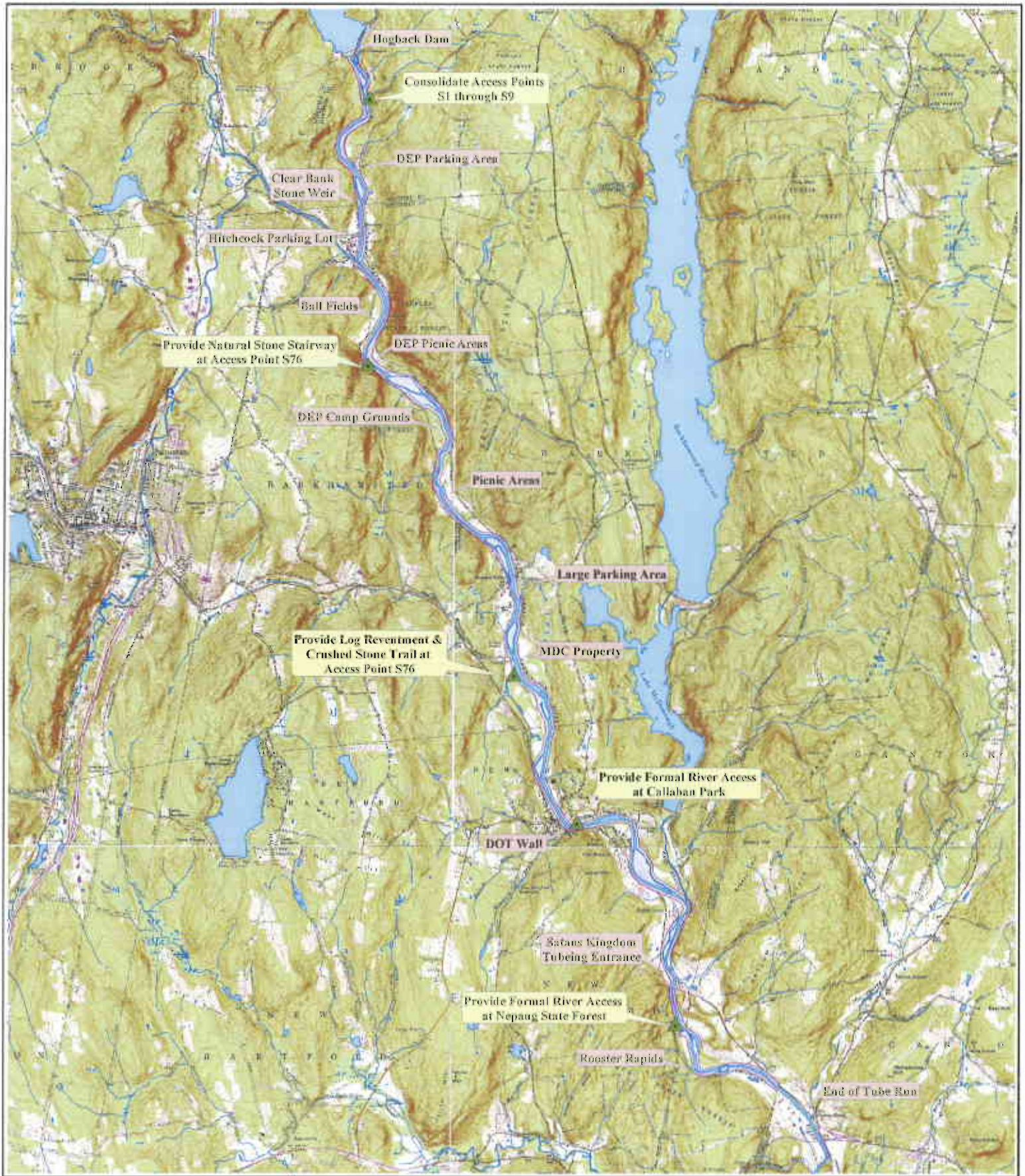
After analyzing the access point data, it is evident that the left (east) bank of the river has many more access points than the right (west) bank. This may be attributed to the fact that both public and private roads parallel much of the left bank of the river, making accessibility easier. Many of the accessways are informal and do not provide safe foot passage to the river. Therefore, consideration of consolidation and provision of safe access is recommended at several areas along the river. Access areas S1 through S9, S42 through S45, S57, S58, S66, and S76 should be considered for both safety and consolidation. These areas are illustrated on Figure 5. A more detailed description of the inventory is described in the ensuing narrative.

Access Points S1 through S9

Access points S1 through S9 occur along the left bank of the river and are approached via Hogback Road. In general, Hogback Road has very few residential homes and is heavily forested. Vehicular traffic on Hogback Road appears to be low, making this area conducive for parking and accessing the river. Under existing conditions, several informal parking areas have been formed along the west shoulder of Hogback Road. The informal parking areas can likely park up to 20 vehicles.

Sightlines along Hogback Road are limited by vegetation and horizontal curves, which jeopardizes the safety of both recreationalists and motorists using the Hogback Road area. Sightlines are further impaired by wet weather and fog.

In order to increase safety for recreationalists and motorists using Hogback Road, the construction of a permanent and maintained public parking area should be considered, with a priority at popular fishing pools and riffles. Placing the parking area along the east shoulder of Hogback Road is recommended, to help prevent encroachment onto the river's natural riparian corridor to the west. Location of the parking area would be dependent upon land availability, topography, and sightlines.



Engineering, Landscape Architecture and Environmental Science

MILONE & MACBROOM®

99 Realty Drive
Cheshire, Connecticut 06410
(203) 271-1773 Fax: (203) 272-9733
www.miloneandmacbroom.com

West Branch & Farmington Rivers Riverbank Assessment

LOCATION: Connecticut

MMI#: 2056-04
MXD: H:\Figure 4.mxd
SOURCE: DEP Bulletin 37

Potential Access Point Remediation Location Map

DATE: August 2005
SCALE: 1:80,000

SHEET: Figure 5

In addition, the construction of a conventional guardrail system would be required along the west shoulder of Hogback road to eliminate the current parking areas. A cross walk would need to be installed if the parking area is constructed along the eastern side of Hogback Road. The cross walk would serve two functions: (1) to allow recreationalists to cross the road safely; and (2) to help direct pedestrian traffic to a designated trail system that would reduce the number and randomness of existing access trail along this stretch of river.

No substantial trail and/or bank erosion was observed between access points S1 through S9. In fact, from a visual perspective, the existing access points blend in with the river's natural riparian corridor. If access point S1 remains, the installation of a natural stone stairway is recommended to help ease access to the river and further reduce the potential for erosion along the bank.

Access Points S42 through S45

Access points S42 through S45 are located along the left bank of the river at Callahan Park. Callahan Park currently has several informal access points that are used for canoe launching and landing, however these informal accessways are not safe and are difficult for canoeists to locate from the river. These areas have exposed soil and tree roots and are bordered by thick vegetation. To provide safe, designated access to the river, construction of a stone stairway with canoe launch is recommended at Callahan Park.

Access Points S57 and S58

Access points S57 and S58 occur along the right bank of the river and are within Nepaug State Forest. These access points occur on relatively steep banks. At this location, construction of a stone stairway accessway is recommended to ensure safety and bank stability.

Access Point S66

Access point S66 occurs along the right bank of the river and is located on densely vegetated floodplain, on land that is owned by the Metropolitan District Commission. This area has public off-road parking and is currently managed for recreational use. However, river access in this area is informal and does not provide for proper accessibility or safety to the public. Therefore, construction of a designated access point is recommended at this location. Since this area is relatively flat, use of a log revetment and crushed stone stairway system is recommended.

Access Point S76

Access point S76 is located along the right bank of the river and can be accessed via River Road. This access point is relatively steep, with exposed soil on the upper portion of the trail and bedrock on the lower portion. Construction of a stone or log stairway is recommended at the upper portion to stabilize the riverbank and provide safer access.

Eroding Access Points

MMI observed that only a few access trails require immediate attention due to excessive erosion. These sites include S21, S38, and S56. A photo log of these sites is appended. The erosion at these sites is attributed to high foot traffic. These areas have been trampled and striped of their vegetation, which has led to bank erosion. Luckily, roots from surrounding trees have temporarily prevented further erosion from occurring at several locations. Even though tree roots help to stabilize the exposed banks, these access locations should be remediated.

Remediation suggestions include the use of natural stone stairways, log revetments, biodegradable erosion control blankets, and hydromulch. The photos presented below illustrate a log revetment and natural stone stairway system that were constructed along the river's banks several years ago.

Log Revetments and Natural Stone Stairways constructed along the river.

These measures provide bank stabilization, ease of access (i.e. safety), are aesthetically attractive, and are an inexpensive solution for remediating access trail erosion along the watercourse.

In some areas, eroding access points may be stabilized by the application of loam and a native seed mixture. Still other areas can be stabilized by using a combination of loam, native seed mixes, erosion control blankets or hydromulch.

Conventional Stormwater Management Practices

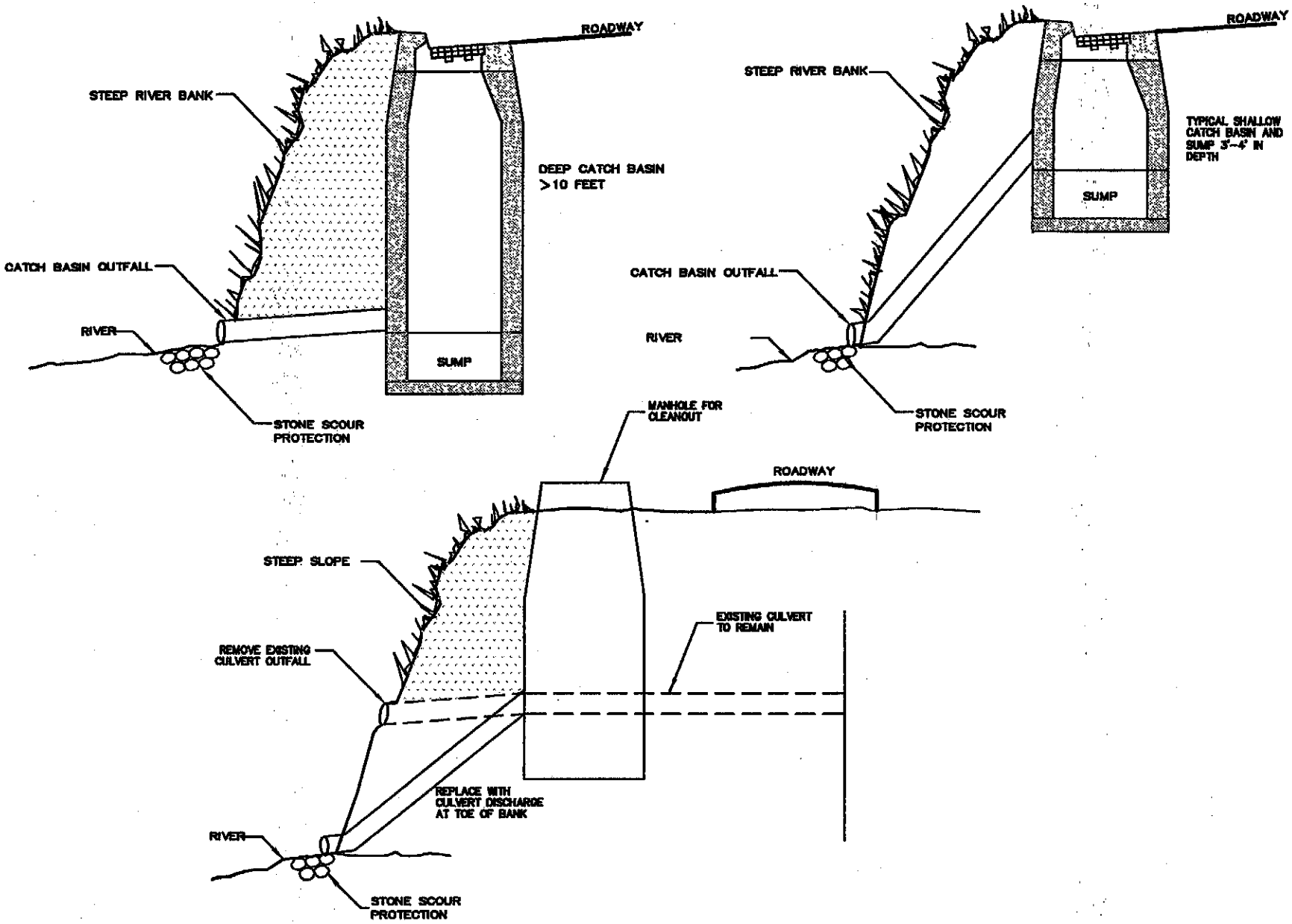
Gully erosion was observed at various points along the river, caused by its steep banks and relatively close proximity to roads. Under most circumstances, it is preferable that runoff generated by roadways be allowed to sheet flow naturally into vegetated swales or onto the road's vegetated shoulder. However in this particular case, having curbless roads this close to the river's steep banks has led to the formation of gullies and rills. If these

areas are left alone, they could potentially increase in size, causing bank erosion and undermine the road.

Portions of Route 181, East River Road, and Route 20 suffer from gully erosion. The most severe gully erosion was documented across from the drive-in theatre and Riverside Cemetery, both located along Route 181. The photos below illustrate examples of erosion caused by sheet flow runoff from nearby roadways.

Gullies resulting from sheet flow runoff along nearby roads.

In order to reduce bank erosion and prevent gully formation and/or road undermining, installation of a conventional curb and catch basin system is recommended along areas such as those presented above. Due to the steep banks along portions of this river, a conventional catch basin system would need to be modified. An illustration of potential modifications to catch basins and culverts is presented on Figure 6A. Such modifications may include installation of deeper catch basins, relocation of existing culverts and catch basin outfalls to the toe of riverbank and construction of stone scour dissipaters at outfalls. Figure 6B is a typical detail for a low impact gully repair, using a buried perforated pipe for drainage.



MILONE & MACBROOM, INC.
Civil, Water Resource and Transportation
Engineering • Landscape Architecture
Surveying • Planning
716 South Main Street • Cheshire, Connecticut 06410
(203) 271-1773 • FAX (203) 272-9733

WEST BRANCH & FARMINGTON RIVERS RIVERBANK ASSESSMENT

APPLICANT:

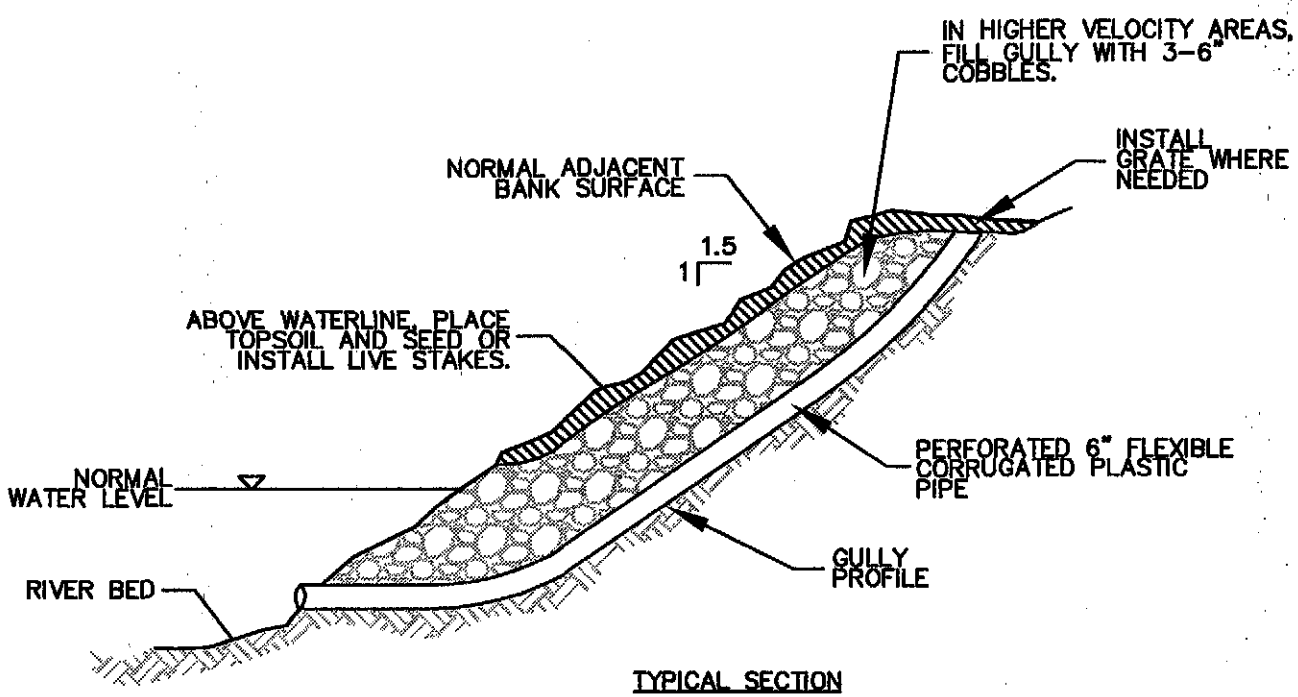
ON: ----
AT: ----

RIVERBANK GULLEY REPAIR DETAIL

DATE: JULY 2005
SCALE: N.T.S.

SHEET:
FIGURE 6A

RIVER BANK GULLY REPAIR



TYPICAL SECTION

NOTES:

1) REFILL GULLY WITH PERVIOUS MATERIAL, TO MATCH ADJACENT GROUND.
2) ON STEEP RIVERBANKS, CAREFULLY STACK 1–2 FOOD DIAMETER BOULDERS TO FILL GULLY OVER DRAIN PIPE.
3) IN AREAS WITH CONCENTRATED RUNOFF, EXTEND GULLY DRAIN TO SURFACE AND INSTALL GRATE.

MILONE & MACBROOM, INC.
Civil, Water Resource and Transportation Engineering · Landscape Architecture Surveying · Planning
716 South Main Street · Cheshire, Connecticut 06410
(203) 271-1773 · FAX (203) 272-9733

WEST BRANCH & FARMINGTON RIVERS RIVERBANK ASSESSMENT

APPLICANT:

ON: ----
AT: ----

RIVERBANK GULLEY REPAIR DETAIL

DATE: JULY 2005
SCALE: N.T.S.

SHEET: **FIGURE 6B**

5.0 SUMMARY OF FINDINGS

No significant fluvial erosion was found on the banks of the West Branch and Farmington Rivers. Within the study reach, more importantly, MMI observed that several natural fluvial processes and conditions were generally absent from this river system. Active point bars, normally found at the inside of bends along sinuous alluvial rivers, were not observed, nor were narrow beaches that are commonly associated with granular riverbanks. There were no active mid channel bars or confluence bars at tributaries. The floodplain lacked recent sediment deposits and modern longitudinal scars or scroll troughs. Several "rockland" overbank deposits of gravel and cobbles identified by the 1970 SCS County Soil Survey were visited and inspected, and were found to be geologically inactive with mature forest growth.

Rivers that flow through glacial outwash deposits generally develop a sinuous alignment with bank erosion focused on the outside of the bends that create steep or undercut banks that slowly migrate. These natural undercuts provide habitat diversity and are part of a balanced system that transports and deposits sediment. Within the study area, very few steep banks were found and no evidence of mass failure was apparent. The river has numerous sizable islands of alluvium, but all are stable and vegetated, resulting in a bifurcated rather than braided channel.

Since the construction of the Hogback Dam, the West Branch and the Farmington River have had no flood events that have exceeded 4,000 cubic feet per second. This reduction in flooding magnitude has affected the functions of the river in many ways. Some of theses include:

- geologic floodplain inactivity caused by artificial dampening of flows (i.e. reduction of high flows and supplementing low flows);
- reduction in depositional and erosional habitats, such as sand bars, unvegetated islands, and undercut banks;

- reduction in overall sediment load, creating a sediment starved environment;
- increase in substrate embeddedness, which is usually associated degradation in spawning habitat;
- reduction in allochthonous organic matter (i.e. woody debris) with an associated reduction in structure and diversity for habitat; and
- modification of benthic macroinvertebrate and coldwater fishery habitats.

As stated previously, the floodplains within the study reach are in stable condition and heavily vegetated, which is unusual when considering rivers of this size. The river in this reach lacks recent depositional and erosional habitats that play critical roles for benthic macroinvertebrate assemblages and coldwater fisheries.

The river's substrate has become increasingly embedded (i.e. compacted and hardened). This is probably attributed to the armored bed lack of substrate movement. Moreover, if the substrate continues to harden and the voids are filled, the ecological diversity of the river may decline.

In summary, the Farmington River in the study reach is in a static condition. It has little bed/material sediment load and insufficient shear stress to cause general bed movement under the current flow regimes. In fact, the term "tailrace" would be the most suited for describing the primary functions of this part of the river system. Virtually all of the observed bank erosion within the study reach was attributed to anthropogenic activities. These included narrow, warn access pathways to the river's edge as well as roadway runoff flow paths.

A limited number of sites investigated are experiencing erosion due to uncontrolled, informal foot traffic. At these locations it may be desirable to consolidate access to the river with the construction of natural looking, formalized accessways, while discouraging use of other areas.

5.1 Recommendations

1. The preliminary review of field conditions and watershed hydrology suggests that larger flushing flows may be desirable. We recommend that the merit of flushing flows be evaluated.

2. Site inspections found limited in-stream shelter, woody debris, and virtually no overhanging banks compared to other regional rivers. The lack of shelter could influence juvenile fish populations as well as holding areas for large individuals. We recommend that increased bed and bank shelter be considered.

3. The reinforcing bars present in the riverbed at the former Greenwoods Dam site should be removed. They are a significant hazard to boaters and fisherman.

4. Invasive species (Japanese Knotweed, Reed Canary Grass) are present in several areas and should be monitored to determine if they are spreading. Vegetation control should be considered.

5. No major fluvial erosion was found during this project. However, many areas of small scale bank erosion due to intensive recreational access were observed. Once formed, foot paths on steep banks are devegetated, the ground trampled, and paths tend to erode. A clear policy should be developed with regard to possibly limiting access, providing erosion resistant access, or accepting the erosion occurring at uncontrolled access points.

6. A long-term, low-intensity monitoring program is recommended to document channel conditions at selected locations. This should include a detailed long profile survey of pools, riffles, runs; cross sections surveys, and substrate conditions. The monitoring would determine if and how rapidly the channel is evolving in response to flow regulation, watershed conditions, and climate change.

REFERENCES

U. S. Army Corps of Engineers. "Water Resources Development, Connecticut. NEDEP-360-1-32, Revised November 1995.

United States Geological Survey, "Water Resources Data, Connecticut, Water Year 2003, Water Data Report CT-03-1." U. S. Department of the Interior, 2003.

U. S. Army Corps of Engineers. "Flood Plain Information, West Branch and Farmington River." New England Division, Waltham, Mass. 1977

Soil Conservation Service. "Soil Survey, Litchfield County Connecticut" U. S. Department of Agriculture. 1970

U. S. Army Corps of Engineers. "Connecticut River Basin, Master Manual of Reservoir Regulation, Appendix J, Farmington River Watershed." New England Division, Waltham, Mass. June 1970

Lavoie, Margaret L., 2002, "Images of America, New Hartford." Arcadia Publishing, Charleston, South Carolina.

Flint, Richard F., 1930. The Glacial Geology of Connecticut, Bulletin #47," State Geological and Natural History Survey, Hartford, Connecticut.

Wolman, M. Gordon and Eiler, Jack P. February, 1958. "Reconnaissance Study of Erosion and Deposition Produced by the Flood of August 1955 in Connecticut," American Geophysical Union Vol. 39, Number 1.

Farmington River Anglers Association, 1995. "A Guide to Fishing the Farmington River," New Hartford, CT.

Farmington River Association, 2002. "The Farmington River Guide," Simsbury, Connecticut.

Farmington River Watershed Association, August 2003. "State of Farmington River Watershed Report."

Farmington River Study Committee, April 1993. "Upper Farmington River Management Plan."

United States Geological Survey, 1986. "Water Resources Inventory of Connecticut, Bulletin #29, Farmington River Basin," U.S. Department of the Interior.

Stone, Janet Radway, et al., 1998. "Quaternary Geologic Map of Connecticut and Long Island Basin," Open File Report 98-371, United States Geologic Survey.

Gordon, Robert, et al, "Industrial Heritage in Northwest Connecticut," Volume 25, The Connecticut Academy of Arts and Sciences, New Haven, CT.

Schnabel, Robert W., 1975, "Geologic Map of the New Hartford Quadrangle, Northwestern Connecticut, United States Geologic Survey, Reston, VA.

Stanley, Rolfe S., "The Bedrock Geology of Collinsville Quadrangle, Report #16," State Geological and Natural History Survey of Connecticut.

Normandeau Associates. "An Instream Flow Study of the Mainstream and West Branch of the Farmington River," prepared for Connecticut Department of Environmental Protection, 1992.

Brown, L., 1979. Grasses: An Identification Guide, Houghton Mifflin Company, Boston, MA.

Newcomb, L., 1977. Newcomb's Wildflower Guide, Little, Brown and Company, Boston, MA.

wbranch-final-report

APPENDIX A

ACCESS POINT LOCATION MAP

RIVERBANK ASSESSMENT

Hogback Dam
S1
S2
S2A
S2B
S3
S4
S5
S6
S7
S7A
S8
S9
SI0
DEP Parking Area
Clear Bank Stone Weir
S11
S12
S13
S81
S78
Hitchcock Parking Lot
S14
S16
S17
S18
S19
S20
S77
Ball Fields
S21
22
DEP Picnic Areas
S76
S23
S25
S24
S26
S27
S75
DEP Camp Grounds
S28
S29
S74
S31
Picnic Areas
S30
S30A
S73
S72
S33
S34
Large Parking Area
S70
S35
S36
S69
S38
MDC Property
S68
S66
S67
S66A
S66B
S39
S40
S42
S43
S45
S46
S41
S44
DOT Wall
S60
S61
Satans Kingdom Tubeing Entrance
S59
S58
S57
S56
S47
Rooster Rapids
S55
S54
S48
End of Tube Run
S52
S49
Barkhamsted Reservoir
Lake McDonough
Legend
Access Points
Study Area
Notes: Access points were located using hand held GPS unit

WEST BRANCH FARMINGTON RIVER

RIVER BANK ASSESSMENT
ACCESS POINTS

CONNECTICUT

MS	PAS	JM
DESIGNED	DRAWN	CHECKED

SCALE: 1" = 2,000'

PROJECT NO.: 2056-04

Engineering, Landscape Architecture and Environmental Science
MILONE & MACBROOM®
99 Realty Drive
Cheshire, Connecticut 06410
(203) 271-1773 Fax: (203) 271-9733
www.miloneandmacbroom.com

DATE: September 2005

SHEET: SHEET 1

APPENDIX B

BANK ASSESSMENT PHOTO LOG

RIVERBANK ASSESSMENT

West Branch and Farmington Rivers
Bank Assessment Photo Log

Segment 1A Hogback Dam tailrace with bifurcated channel

Segment 1A Well Vegetated Island observed within the West Branch

Stable banks along Segment 1B the right (west) bank of the West Branch, however artificial stone weir has been constructed and natural riparian vegetation has been removed.

Vegetation and riprap armament located within Segment 1A along the left (east) bank of the Upper West Branch

Riffles caused by downed log located in Segment 1B

Bank Instability located within Segment 1B on left (east) bank of the West branch

Bank Instability observed along the right (west) bank of the Farmington River

Bank stabilization project located within Segment 1B illustrating rock armament at rivers edge with well vegetated, stable banks.

Well vegetated and stable river banks and island located at the confluence of the Still River and the West Branch at Segment 1B/2.

Fallen trees with dense shrub zone located along the left (east) bank of the West Branch

River banks well vegetated and stable at the Tennessee gas pipeline crossing

Minor bank erosion located along the left (east) bank within CTDEP State Park.

Pleasant Valley Bridge located at Segment 2/3

Route 44 retaining wall located along the right (west) bank of West Branch

Old Greenville Dam located along the left (east) bank of the West Branch in Segment 3

APPENDIX C
ACCESS POINT PHOTO LOG

RIVERBANK ASSESSMENT

West Branch and Farmington Rivers
Access Points Photo Log

Access Point S21

Access Point S21

Access Point S21

Access Point S38

Access Point S56

Access Point S56

Access Point S76

Route 181 East Shoulder with Gully Erosion

Route 181 East Shoulder with Gully Erosion

APPENDIX D

ACCESS POINT AND RIVER INSPECTION INVENTORY FORMS

RIVERBANK ASSESSMENT

By JGH
Date 9/21/04

River Inspection & Inventory

A) Town _____ County _____ State _____
River Name WEST BRANCH Hydrologic Map Unit _____
USGS Map Quad _____ River Stage 250 + CFS
River Reach ID 1 Hogback Rd @ SNET 7508 Into grass some
D/S Boundary _____, U/S Boundary _____
D/S FEMA STA _____, U/S FEMA STA _____
D/S Coordinates _____, U/S Coordinates _____
D/S Basin Area _____, U/S Basin Area _____

B. Channel Dimensions (FT)

	At Top of Bank	At Dominant Discharge
Top of Bank Width	_____	90
Av Channel Depth	_____	BF=6 TOB3, D3
Inner Channel Base Width	_____	80
W/D Ratio	_____	_____

C) Hydraulic Regime: Intermittent Flashy (Perennial)
Mean Bed Profile Slope _____ Ft/Ft
Observed Mean Velocity 2 FPS
NL _____ Nc 0.04 NR _____

D) Channel Profile Form (Percent by Class in Reach)

Steep Step/Pool	_____	Alluvial	_____
Fast Rapids	_____	(Semi Alluvial)	_____
(Tranquil Run)	_____	Non Alluvial	_____
Pool & Riffle	_____		
Slow Run	_____		

E) Bed Controls: Bedrock, Weathered Bedrock, (Boulders)
(Static Armor), Cohesive Substrate, Dynamic Armor
Dam, Bridge, Culvert
Debris, Riprap
Overall Stability Good Bare Banks

F) Sinuosity: Straight S= 1-1.05; (Sinuous) S=1.05 – 1.25; Meanders S=1.25 - 2.0; Highly Meandering S> 2.0

G) Branches: (Single) Locally Braided Extensive Braided Anabranched

H) Bed Material:

	Bedrock	_____		Glacial Till	_____
	Boulders	_____		Sand	_____
Dso _____	(Cobble and Boulder)	_____		Silt	_____
	Gravel & Cobble	_____		Clay	_____
	Sand and Gravel	_____		Organic	_____

I) Bars: None (Few veg) Many
Bar Types: Junction, Diagonal, (Midchannel)
Point, Alternate, Riffles

J) Floodplain Width: Left _____ Right _____
Floodplain Land Use Left _____ Right _____

K) Classification B3

L) Special Notes
Bank Erosion Bed Erosion Sediment Disposition Flood Damages

By TGM
Date _____

River Inspection & Inventory

A) Town _____ County _____ State _____
River Name West Branch D/S Stn C Hydrologic Map Unit _____
USGS Map Quad _____ River Stage _____

River Reach ID 2A
D/S Boundary 200 yds U/S gas pipe U/S Boundary _____
D/S FEMA STA _____, U/S FEMA STA _____
D/S Coordinates _____, U/S Coordinates _____
D/S Basin Area _____, U/S Basin Area _____

B. Channel Dimensions (FT)

	At Top of Bank	At Dominant Discharge
Top of Bank Width	_____	~~130~~ 160
Au Channel Depth	_____	2
Inner Channel Base Width	_____	120
W/D Ration	_____	_____

C) Hydraulic Regime: Intermittent Flashy (Perennial)
Mean Bed Profile Slope _____ Ft/Ft
Observed Mean Velocity 3 FPS
N_L _____ Nc 0.04 N_R _____

D) Channel Profile Form (Percent by Class in Reach)

Steep Step/Pool	_____	Alluvial	_____
(Fast Rapids)	_____	Semi Alluvial	_____
(Tranquil Run)	_____	Non Alluvial	_____
Pool & Riffle	_____		
Slow Run	_____		

E) Bed Controls: Bedrock, Weathered Bedrock, (Boulders), (Static Armor), Cohesive Substrate, Dynamic Armor, Dam, Bridge, Culvert, Debris, Riprap
Overall Stability Good

F) Sinuosity: (Straight) S= 1-1.05; Sinuous S=1.05 – 1.25; Meanders S=1.25 - 2.0; Highly Meandering S> 2.0

G) Branches: (Single), Locally Braided, Extensive Braided, Anabranched

H) Bed Material:

	Bedrock	_____		Glacial Till	_____
	Boulders	_____		Sand	_____
D_{50} _____	(Cobble and Boulder)	_____		Silt	_____
	Gravel & Cobble	_____		Clay	_____
	Sand and Gravel	_____		Organic	_____

I) Bars: (None) Few Many

Bar Types: Junction, Diagonal, Midchannel, Point, Alternate, Riffles

J) Floodplain Width: Left _____ Right _____
Floodplain Land Use Left _____ Right _____

K) Classification B2/B3

L) ~~Special Notes~~ (Bank Erosion) Bed Erosion Sediment Disposition Flood Damages
Old mine West Run Road

By _____
Date _____

River Inspection & Inventory

A) Town _____ County _____ State _____
River Name _____ Hydrologic Map Unit _____
USGS Map Quad _____ River Stage _____

River Reach ID 2 - behind Campground
D/S Boundary _____, U/S Boundary _____
D/S FEMA STA _____, U/S FEMA STA _____
D/S Coordinates _____, U/S Coordinates _____
D/S Basin Area _____, U/S Basin Area _____

B. Channel Dimensions (FT)

	At Top of Bank	At Dominant Discharge
Top of Bank Width	160	104
Au Channel Depth	7	6@3
Inner Channel Base Width		60
W/D Ration		

C) Hydraulic Regime: Intermittent Flashy Perennial
Mean Bed Profile Slope _____ Ft/Ft
Observed Mean Velocity _____ FPS
N_L 0.06 Nc 0.04 N_R 0.08

D) Channel Profile Form (Percent by Class in Reach)

Steep Step/Pool		Alluvial	
Fast Rapids	20	Semi Alluvial	X
Tranquil Run		Non Alluvial	
Pool & Riffle	60		
Slow Run	20		

head of Riffle

E) Bed Controls: Bedrock, Weathered Bedrock, Boulders, Static Armor, Cohesive Substrate, (Dynamic Armor), Dam, Bridge, Culvert, Debris, Riprap
Overall Stability good

F) Sinuosity: Straight S= 1-1.05; (Sinuous) S=1.05 – 1.25; Meanders S=1.25 - 2.0; Highly Meandering S> 2.0

G) Branches: (Single), Locally Braided, Extensive Braided, Anabranched

H) Bed Material: D50 _____

Bedrock		Glacial Till	
Boulders		Sand	
Cobble and Boulder		Silt	
Gravel & Cobble		Clay	
Sand and Gravel		Organic	

I) Bars: (None), Few, Many
Bar Types: Junction Point, Diagonal Alternate, Midchannel Riffles

J) Floodplain Width: Left 200 Right 20
Floodplain Land Use Left woods Right woods

K) Classification _____

L) Special Notes
Bank Erosion Bed Erosion Sediment Disposition Flood Damages

By JGM
Date 5/05

River Inspection & Inventory

A) Town NEW HARTFORD County _____ State _____
River Name FARMINGTON - WEST Hydrologic Map Unit _____
USGS Map Quad _____ River Stage _____

River Reach ID 3
D/S Boundary OLD DAM - Former Pool U/S Boundary MDC FISHING ACCESS
D/S FEMA STA _____ U/S FEMA STA _____
D/S Coordinates _____ U/S Coordinates _____
D/S Basin Area _____ U/S Basin Area _____

B. Channel Dimensions (FT)

	At Top of Bank	At Dominant Discharge
Top of Bank Width		
Channel Depth	3.5	3.5
Inner Channel Base Width	8	84 - 76
W/D Ratio		105

left bank - valley wall
Rt bank - Floodplain

C) Hydraulic Regime: Intermittent Flashy (Perennial)
Mean Bed Profile Slope _____ Ft/Ft
Observed Mean Velocity 2.5 FPS . RIFFLE
N_L 0.08 Nc 0.04 N_R 0.07

D) Channel Profile Form (Percent by Class in Reach)

Steep Step/Pool		Alluvial	
Fast Rapids	20 %	Semi Alluvial	X
Tranquil Run	60 %	Non Alluvial	
Pool & Riffle			
Slow Run	20 %		

Some rapid w/ white & small rollers some protruding boulders

E) Bed Controls: Bedrock, (Static Armor), Dam, Debris, Weathered Bedrock, Cohesive Substrate, Bridge, Riprap, Boulders, Dynamic Armor, Culvert
Overall Stability Good
Former Pool @ old DAM Now Wooded plain

F) Sinuosity: (Straight) S= 1-1.05; Sinuous S=1.05 – 1.25; Meanders S=1.25 - 2.0; Highly Meandering S> 2.0

G) Branches: (Single); Locally Braided; Extensive Braided; Anabranched

H) Bed Material: D_{50} _____

Bedrock		Glacial Till	
Boulders		Sand	
Cobble and Boulder		Silt	
(Gravel & Cobble)	< 12"	Clay	
Sand and Gravel		Organic	

I) Bars: (None); Few; Many
banks - 40% have cobble to +3' up
Bar Types: Junction, Point, Diagonal, Alternate, Midchannel, Riffles

J) Floodplain Width: Left _____ Right _____
Floodplain Land Use Left _____ Right _____

K) Classification _____

L) Special Notes
Bank Erosion Bed Erosion Sediment Disposition Flood Damages

By _____
Date _____

River Inspection & Inventory

A) Town NEW HARTFORD County _____ State _____
River Name FARMINGTON Hydrologic Map Unit _____
USGS Map Quad _____ River Stage _____

River Reach ID #4- D/S GREENWOODS DAM
D/S Boundary _____, U/S Boundary _____
D/S FEMA STA _____, U/S FEMA STA _____
D/S Coordinates _____, U/S Coordinates _____
D/S Basin Area _____, U/S Basin Area _____

B. Channel Dimensions (FT)

	At Top of Bank	At Dominant Discharge
Top of Bank Width	240	90
Avg Channel Depth	12	5
Inner Channel Base Width	—	90
W/D Ratio	—	

C) Hydraulic Regime: Intermittent Flashy Perennial
Mean Bed Profile Slope _____ Ft/Ft
Observed Mean Velocity 2 FPS
N_L 0.04 Nc 0.04 N_R 0.08

D) Channel Profile Form (Percent by Class in Reach)

Steep Step/Pool		Alluvial	
Fast Rapids	50	Semi Alluvial	X
Tranquil Run	50	Non Alluvial	
Pool & Riffle			
Slow Run			

E) Bed Controls: Bedrock, (Static Armor), Dam, Debris, Weathered Bedrock, Cohesive Substrate, Bridge, Riprap, Boulders, Dynamic Armor, Culvert
Overall Stability GOOD bottom, Rt bank old scour, steep

F) Sinuosity: (Straight) S= 1-1.05; Sinuous S=1.05 – 1.25; Meanders S=1.25 - 2.0; Highly Meandering S> 2.0

G) Branches: (Single) Locally Braided Extensive Braided Anabranched

H) Bed Material: D_{50} _____

Bedrock		Glacial Till	
Boulders		Sand	
Cobble and Boulder		Silt	
Gravel & Cobble	100	Clay	
Sand and Gravel		Organic	

I) Bars: (None) Few Many

Bar Types: Junction, Point, Diagonal, Alternate, Midchannel, Riffles

J) Floodplain Width: Left 150 Right —
Floodplain Land Use Left GRASS FIELD Right —

K) Classification B3

L) Special Notes
Bank Erosion Bed Erosion Sediment Disposition Flood Damages

By _____
Date _____

River Inspection & Inventory

A) Town Saxtons Kingdom County _____ State _____
River Name _____ Hydrologic Map Unit _____
USGS Map Quad _____ River Stage _____

River Reach ID end of #4
D/S Boundary Road Side Rest Area, U/S Boundary _____
D/S FEMA STA _____, U/S FEMA STA _____
D/S Coordinates _____, U/S Coordinates _____
D/S Basin Area _____, U/S Basin Area _____

B. Channel Dimensions (FT)

	At Top of Bank	At Dominant Discharge
Top of Bank Width	160	140
Av Channel Depth	12	4'
Inner Channel Base Width	X	100
W/D Ratio		

C) Hydraulic Regime: Intermittent Flashy Perennial
Mean Bed Profile Slope _____ Ft/Ft
Observed Mean Velocity _____ FPS
N_L 0.08 Nc 0.05 N_R 0.08

D) Channel Profile Form (Percent by Class in Reach)

Steep Step/Pool		Alluvial	
Fast Rapids		Semi Alluvial	X
FAST ~~Tranquil~~ Run	30	Non Alluvial	
Pool & Riffle	20		
Slow Run	40		

E) Bed Controls: Bedrock, (Static Armor), Dam, Debris, Weathered Bedrock, Cohesive Substrate, Bridge, Riprap, Boulders, Dynamic Armor, Culvert
Overall Stability _____

F) Sinuosity: (Straight) S= 1-1.05; Sinuous S=1.05 – 1.25; Meanders S=1.25 - 2.0; Highly Meandering S> 2.0

G) Branches: (Single), Locally Braided, Extensive Braided, Anabranched (Some Islands)

H) Bed Material:

	Bedrock		Glacial Till	
	Boulders		Sand	
D_{50} _____	Cobble and Boulder	40	Silt	
	Gravel & Cobble	40	Clay	
	Sand and Gravel	20	Organic	

I) Bars: (None) Few Many
Veg banks hardwoods
Some knotweed
Bar Types: Junction, Point, Diagonal, Alternate, Midchannel, Riffles

J) Floodplain Width: Left _____ Right _____
Floodplain Land Use Left _____ Right _____

K) Classification B3

L) Special Notes
Bank Erosion Bed Erosion Sediment Disposition Flood Damages

FARMINGTON RIVERBANK INVENTORY

I. Location Data

Reach: 5
FEMA Station: _____
GPS Point: _____

Date: _____
Inspector: JGM
Photo ID: _____

II. Local River Data

Bank: X Left _____ Right veg banks
Length: 500 Ft.
Bank Height: 9 Ft.
Dominant Flow Depth: 3 Ft.
Dominant Channel Width: 180 Ft.
Near Bank Velocity: < 1 FPS
Dominant Bank Material: X Cobbles ___ Gravel ___ Sand & Gravel ___ Till ___ Silt & Clay
Channel Profile: ___ Cascade ___ Step Pool ___ Rapids ___ Riffle ___ Pool ___ Pond X Run
Alignment: X Straight ___ Anabranched ___ Braided ___ Meander ___ Freebend
___ Constrained Bend
Local Factors: ___ Contraction ___ Structures ___ Debris ___ Bars ___ Tributary ___ Grazing
___ Excavation ___ Fills ___ Discharges Tube Take out
Other _____
Bed Stability: X Stable ___ Armored ___ Degrading ___ Aggrading except for pedestrian use

III. Bank Data

	Toe of Slope	Lower Bank	Upper Bank
Height, Ft.	2	6	3
Slope, Ft./Ft.			
% Vegetated Cover			
% Armored Cover			
Particle Gradation			
Cohesion	Low		
Cut Scarps, Ft.			
Mass Failures (Y/N)			
Deposition (Y/N)			
Seepage (Y/N)			

Bank Failure: ____ Progressive ____ Wedge ____ Circular ____ Undercut ____ Colluvium

IV. Riparian Buffer Zone

Wetland: _____
Floodplain: _____
Upland: 50 to road
Land Use: _____
Cultural Features: ____ Road ____ Building ____ Farmland ____ Park ____ Utilities
Other _____

Hazard Risk: _____

By JGM
Date _____

River Inspection & Inventory

A) Town _____ County _____ State _____
River Name FARMINGTON Hydrologic Map Unit _____
USGS Map Quad _____ River Stage _____

River Reach ID reach 5
D/S Boundary Rooster Tail Road, U/S Boundary _____
D/S FEMA STA _____, U/S FEMA STA _____
D/S Coordinates _____, U/S Coordinates _____
D/S Basin Area _____, U/S Basin Area _____

B. Channel Dimensions (FT)

	At Top of Bank	At Dominant Discharge
Top of Bank Width	170	90
Avg Channel Depth	6	3
Inner Channel Base Width	~~40~~ NA	40 rapids
W/D Ratio		13

C) Hydraulic Regime: Intermittent Flashy Perennial
Mean Bed Profile Slope _____ Ft/Ft
Observed Mean Velocity 3-5 FPS
N_L 0.06 Nc 0.40 N_R 0.6

D) Channel Profile Form (Percent by Class in Reach)

Steep Step/Pool		Alluvial	
Fast Rapids	10	Semi Alluvial	60
Tranquil Run	40	Non Alluvial	40
Pool & Riffle			
Slow Run	50		

E) Bed Controls: (Bedrock) (Static Armor) Dam Debris Weathered Bedrock Cohesive Substrate Bridge Riprap Boulders Dynamic Armor Culvert
Overall Stability Excellent

F) Sinuosity: Straight S= 1-1.05 (Sinuous) S=1.05 – 1.25 Meanders S=1.25 - 2.0 Highly Meandering S> 2.0

G) Branches: (Single) Locally Braided Extensive Braided (Anabranched) at islands

H) Bed Material:

D_{50} 9"	Bedrock	10	Glacial Till	
	Boulders	5	Sand	
	Cobble and Boulder	35	Silt	
	Gravel & Cobble	50	Clay	
	Sand and Gravel		Organic	

I) Bars: (None) Few Many

Bar Types: Junction Point Diagonal Alternate Midchannel Riffles

J) Floodplain Width: Left _____ Right _____
Floodplain Land Use Left woods Right woods

K) Classification G1 & B3

L) Special Notes
Bank Erosion Bed Erosion Sediment Disposition Flood Damages

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Site #1

Date: 7/8/04
Inspector: MJS HPS

I. Location Data

Road:
Location: Just South of MDC Dam

Town: Hartland
Bank: Left (Right) looking u/s

II. Road Conditions

Sightline Limits: Left 300 Feet, Right 150 Feet
Horizontal Curve ✓ Vertical Curve ___ Vegetation ___
Road Drainage: Curb ___ Stormdrains ___ Culvert ✓
Swale/Ditch ✓ *Sheetflow ✓
On opposite side of Rd
Road width 30 ft

III. Parking Area 2 cars

Length 75 ft Width 24 ft Area ___
Surface: Asphalt ___ Gravel ✓ Sand ✓ Unimproved ___ Grass ___
Condition: Good ___ Small Ruts ✓ Puddles ___ Erosion ✓ slight
Vegetation ___ Broken Pavement ___ Litter ___
Cleanliness: Trash Barrel ___ Restrooms ___

IV. Property Status

Status: Public Property ✓ - MDC property? Private Property ___
Signage: Access Encouraged ✓ No Trespassing ___ None ___
Angler Signs

V. River Data

River Access: Formal: Stairs ___ Trail ___ Other ___
Informal: Path ✗ Random ✗ - path splits into smaller informal access points

Condition: Good ___ Trail Erosion ✗ Vegetation ✗ Trampled ___
Litter ___ Sediment ✗ Traffic ___ Hazard ___
Cut Trees ___

VI. Bank Data

Bank Conditions: Height 10 ft Length ~~40~~ 50 ft
Surface Cover Boulder + Vegetation

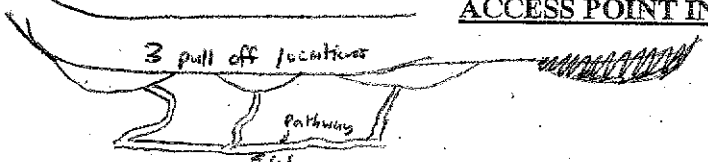
VII. Potential Remedial Action

Fieldstone Boulder to prevent anglers from accessing northward along existing roadway - small paths beginning to develop.

Entrance to river splits into 4 access locations
Evidence of sediment on pathway floor
Vegetation - Mixture of E Hemlock, Black Birch, Red Maple
- Dense and stable
- River Bank stabilized by glacial boulders
Overall this access point appears to blend in with the bank surroundings

Site #2

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY



Date: 7/8/04
Inspector: MJS MPS

I. Location Data

Road:
Location:

Town: Hartland
Bank: Left (Right)

II. Road Conditions

Sightline Limits	Left 200 Feet,		Right 600 Feet	
	Horizontal Curve ✓	Vertical Curve___	Vegetation___	
Road Drainage:	Curb___	Stormdrains___	Culvert___	
	Swale/Ditch___	Sheetflow ✓		

III. Parking Area 4 - 5 cars

Length 45 - 60 ft Width 6 - 10 ft Area

Surface:	Asphalt___	Gravel ✓	Sand ✓	Unimproved___	Grass___
Condition:	Good___	Ruts___	Puddles___	Erosion ✓	
	Vegetation ✓		Broken Pavement___		Litter___
Cleanliness:	Trash Barrel___		Restrooms___		

IV. Property Status

Status:	Public Property ✓	Private Property___	
Signage:	Access Encouraged___	No Trespassing___	None ✓

V. River Data

River Access:	Formal:	Stairs___	Trail___	Other___
	Informal:	Path ✓ and	Random ✓	one pathway along River Edge connections all accessor connected
Condition:	Good___	Trail Erosion___	Vegetation___	Trampled ✓
	Litter___	Sediment___	High Traffic ✓	Hazard___
	Cut Trees___	very little erosion observed within pathways		

VI. Bank Data

Bank Conditions: Height 1' Length 80-100 ft
Surface Cover Rocks + Vegetation

VII. Potential Remedial Action

Speckled Alder
Witchhazel
Hemlock, Red Maple - Low dense herbaceous
Black Birch, Red Oak - moderate shrub layer
Hemlock + Witchhazel

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Site #3

Date: 7/8/04
Inspector: MJS + PS

I. Location Data

Road: _____ Town: Hartland
Location: _____ Bank: Left (Right)

II. Road Conditions

Sightline Limits: Left 300 Feet, Right 300 Feet
Horizontal Curve ✓ Vertical Curve ___ Vegetation ✓
Road Drainage: Curb ___ Stormdrains ___ Culvert ___
Swale/Ditch ___ Sheetflow ✓

III. Parking Area 1 car

Length 75' Width 15' Area _____
Surface: Asphalt ___ Gravel ✓ Sand ✓ Unimproved ___ Grass ___
Condition: Good ___ Ruts ___ Puddles ___ Erosion ✓
Vegetation ___ Broken Pavement ___ Litter ___
Cleanliness: Trash Barrel ___ Restrooms ___

IV. Property Status

Status: Public Property ✓ Private Property ___
Signage: Access Encouraged ___ No Trespassing ___ None ✓
Angler Owner

V. River Data

River Access: Formal: Stairs ___ Trail ___ Other _____
Informal: Path ✓ Random ___

Condition: Good ___ Trail Erosion ✓ Vegetation ___ Trampled ___
A little Litter ✓ Sediment ✓ Traffic ___ Hazard ___
Cut Trees ✓
Sediment in River observed at base of trail
Roots exposed

VI. Bank Data

Bank Conditions: Height 8 ft Length 30 ft
Surface Cover Boulder + Vegetation
E Hemlock
R Maple
B Birch
Striped Maple

VII. Potential Remedial Action

Create stone stairway
log stairway and add crushed stone
close access because, access nearby (within 100')

Site # 4

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Date: 7/8/04
Inspector: MJS + RS

I. Location Data

Road: _____ Town: Hartland
Location: _____ Bank: Left Right

II. Road Conditions

Sightline Limits	Left 500-600 Feet,		Right 200 Feet	
Road Drainage:	Horizontal Curve ✓	Vertical Curve ___	Vegetation ___	
	Curb ___	Stormdrains ___	Culvert ✓	
	Swale/Ditch ✓	Sheetflow ✓		

Road sand in ditches from driveway

III. Parking Area – 1 car

Length 30' Width 8' Area _____

Surface:	Asphalt ___	Gravel ✓	Sand ✓	Unimproved ___	Grass ___
Condition:	Good ___	Ruts ✓	Puddles ___	Erosion ✓	
	Vegetation ___		Broken Pavement ___		Litter ___
Cleanliness:	Trash Barrel ___		Restrooms ___		

Water flowing down pathway

IV. Property Status

Status:	Public Property ✓	Private Property ___	
Signage:	Access Encouraged ___	No Trespassing ___	None ___

V. River Data

River Access:	Formal:	Stairs ___	Trail ___	Other _____
	Informal:	Path ✓	Random ___	
Condition:	Good ___	Trail Erosion ✓	Vegetation ___	Trampled ___
	Litter ___	Sediment ✓	Traffic ___	Hazard ___
	Cut Trees ___	Sediment in River at base of path		

VI. Bank Data

Bank Conditions: Height 4 ft - steep Length 20 ft
Surface Cover 80% coverage
Oaks, Hemlock, Maples

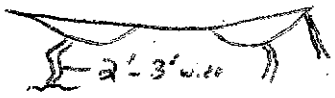
VII. Potential Remedial Action

Boulder trail
Log revetments + crushed stone stairway
Close because access 4/100 ft
Potentially close site # 2 + #3

Leave Site 1 + 4 open, but repair # 4 with above recommendations

Site #5

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY



Date: 7/8/04
Inspector: MJS + PS

I. Location Data

Road: _____ Town: Hartland
Location: _____ Bank: Left (Right)

II. Road Conditions

Sightline Limits	Left 300 Feet,	Right 300 Feet	
	Horizontal Curve ✓ R	Vertical Curve ✓ L	Vegetation___
Road Drainage:	Curb___	Stormdrains___	Culvert___
	Swale/Ditch___	Sheetflow___	

III. Parking Area 2-3 car Trail

Length 30-40' Width 10' Area _____

Surface:	Asphalt___	Gravel ✓	Sand ✓	Unimproved___	Grass___
Condition:	Good___	Ruts ✓	Puddles___	Erosion ✓	
	Vegetation___		Broken Pavement___		Litter ✓
Cleanliness:	Trash Barrel___		Restrooms___		

IV. Property Status

Status:	Public Property ✓	Private Property___	
Signage:	Access Encouraged___	No Trespassing___	None ✓

Angler Signage

V. River Data

River Access:	Formal:	Stairs___	Trail___	Other_____
	Informal:	Path X	Random___	
Condition:	Good___	Trail Erosion ✓	Vegetation___	Trampled___
	Litter___	Sediment ✓	Traffic ✓	Hazard___
	Cut Trees___			

VI. Bank Data

Bank Conditions: Height 8ft Length 100'
Surface Cover 80% coverage

similar vegetation as describe at sites 1-4

VII. Potential Remedial Action

Stone Stairway
Log revetments with crusher stone

extend guardrails to prevent access expansion

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Site #6

Date: 7/8/04
Inspector: MS + PS

I. Location Data

Road: _____ Town: Hartland
Location: _____ Bank: Left (Right)

II. Road Conditions

Sightline Limits	Left 125 Feet,	Right 150 Feet	
	Horizontal Curve ✓	Vertical Curve ___	Vegetation ___
Road Drainage:	Curb ___	Stormdrains ___	Culvert ___
	Swale/Ditch ___	Sheetflow ✓	

III. Parking Area 1-2 cars

Length 60' Width 10' Area _____

Surface:	Asphalt ___	Gravel ✓	Sand ✓	Unimproved ___	Grass ___
Condition:	Good ___	Ruts ___	Puddles ___	Erosion ✓	
	Vegetation ___		Broken Pavement ___		Litter ___
Cleanliness:	Trash Barrel ___		Restrooms ___		

IV. Property Status

Status:	Public Property ✓	Private Property ___	
Signage:	Access Encouraged ___	No Trespassing ___	None ✓

V. River Data

River Access:	Formal:	Stairs ___	Trail ___	Other _____
	Informal:	Path ✓	Random ___	

Condition:	Good ___	Trail Erosion ✓	Vegetation ___	Trampled ___
	Litter ___	Sediment ✓	Traffic ___	Hazard ___
	Cut Trees ___			

Sediment in water at bottom of trail
Pathway has several large boulders making access more difficult, this is also causing sediment within pathway

VI. Bank Data

Bank Conditions: Height 8ft Length 20'
Surface Cover 90% canopy

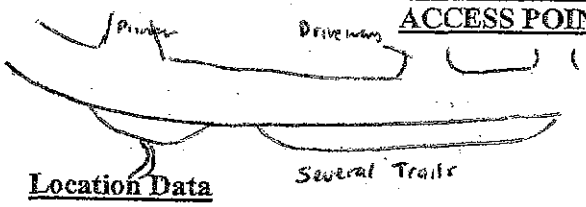
VII. Potential Remedial Action

Stone stairway
Log revetment stairway
Clear Access

Meadowsweet
~~Highbush blueberry~~ Morrow's Honeysuckle
Hemlock
Sycamore
A Elm
F Hellebore
A Beech
C Fern

Site #7 – no pictures

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY



Date: 7/8/04
Inspector: MJS + PS

I. Location Data

Road: _____ Town: Hartland
Location: _____ Bank: Left (Right)

II. Road Conditions

Sightline Limits	Left 200 Feet,		Right 300 Feet
	Horizontal Curve ✓	Vertical Curve___	Vegetation___
Road Drainage:	Curb___	Stormdrains___	Culvert___
	Swale/Ditch___	Sheetflow ✓	

III. Parking Area 7–9 cars

	Length 220'		Width 10'	Area_____	
Surface:	Asphalt___	Gravel ✓	Sand___	Unimproved___	Grass___
Condition:	Good___	Ruts___	Puddles___	Erosion___	
	Vegetation___		Broken Pavement___		Litter___
Cleanliness:	Trash Barrel___		Restrooms___		

IV. Property Status

Status:	Public Property___	Private Property___	
Signage:	Access Encouraged___	No Trespassing___	None___

V. River Data

River Access:	Formal:	Stairs___	Trail___	Other_____	
	Informal:	Path___	Random___		
Condition:	Good___	Trail Erosion ✓	Vegetation___		Trampled ✓
	Litter___	Sediment___	Traffic___		Hazard___
	Cut Trees___	Minimal			

VI. Bank Data

Bank Conditions: Height 4 ft Length 200ft Low Density Herbaceous layer
Surface Cover 80% cover

VII. Potential Remedial Action

Trails not in best shape
Maybe decrease # of trails by developing a main trail.
Erosion not bad

Potential Parking lot expansion, make this a main entrance to river

Mature Red Maple, B Birch, Hemlock, White pine, Witchhazel, Fern, NY Fern, Grasses

Site # 8 / NW Pleasant

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Date: 7/8/04
Inspector: MJS + RS

I. Location Data

Road: _____ Town: Hartland
Location: _____ Bank: Left (Right)

II. Road Conditions

Sightline Limits	Left 400 Feet,		Right 400 Feet	
	Horizontal Curve ✓	Vertical Curve ___	Vegetation ___	
Road Drainage:	Curb ___	Stormdrains ___	Culvert ___	
	Swale/Ditch ___	Sheetflow ✓		

III. Parking Area 2 cars

Length 40' Width 15' Area _____

Surface:	Asphalt ___	Gravel ✓	Sand ✓	Unimproved ___	Grass ___
Condition:	Good ___	Ruts ___	Puddles ✓	Erosion ___	
	Vegetation ___		Broken Pavement ___		Litter ___
Cleanliness:	Trash Barrel ___		Restrooms ___		

IV. Property Status

Status:	Public Property ✓	Private Property ___	
Signage:	Access Encouraged ___	No Trespassing ___	None ✓

No camping signs

V. River Data

River Access:	Formal:	Stairs ___	Trail ___	Other ___	
	Informal:	Path ✓	Random ___		
Condition:	Good ___	Trail Erosion ___	Vegetation ✓		Trampled ✓
	Litter ___	Sediment ___	Traffic ___		Hazard ___
	Cut Trees ___	Minimal erosion			

2 feet width - expect scatter

VI. Bank Data

Bank Conditions: Height 4 ft Length 50'
Surface Cover 95% average

VII. Potential Remedial Action

Connect with Site # 7
reduce number of pathways

Interrupted Fern
NY Fern
Goldenrod
Grasses, Sedges
E Hemlock
R Oak
Mixed canopy

High herbaceous stratum
Low shrub stratum
Dense overstory

W

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Site #9

Date: 7/8/04
Inspector: _____

I. Location Data

Road: Hog back Road
Location: _____
Town: Harwinton
Bank: Left (Right)

II. Road Conditions

Sightline Limits: Left 200 Feet, Right 200 Feet
Horizontal Curve ✓ Vertical Curve___ Vegetation___
Road Drainage: Curb___ Stormdrains___ Culvert___
Swale/Ditch___ Sheetflow ✓

III. Parking Area 3-4

Length 40 Width 10' Area _____
Surface: Asphalt___ Gravel ✓ Sand___ Unimproved___ Grass___
Condition: Good___ Ruts___ Puddles___ Erosion___
Vegetation___ Broken Pavement___ Litter___
Cleanliness: Trash Barrel___ Restrooms___

IV. Property Status

Status: Public Property ✓ Private Property___
Signage: Access Encouraged___ No Trespassing___ None ✓

V. River Data

River Access: Formal: Stairs___ Trail___ Other_____
Informal: Path ✓ Random___

Condition: Good___ Trail Erosion___ Vegetation ✓ Trampled ✓
Litter___ Sediment___ Traffic___ Hazard___
Cut Trees___

VI. Bank Data

Bank Conditions: Height 4 ft Length 25'
Surface Cover _____

VII. Potential Remedial Action

Close it

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Site #12
Site # 13

Date: 7/8/04
Inspector: _____

I. Location Data

Road: Route 20
Location: _____

Town: Barkhamsted ~~Hartland~~ Riverton Line
Bank: Left (Right)

II. Road Conditions

Sightline Limits	Left 200 Feet,	Right 400 Feet	
Road Drainage:	Horizontal Curve ✓	Vertical Curve___	Vegetation___
	Curb ✓	Stormdrains___	Culvert___
	Swale/Ditch___	Sheetflow ✓	

III. Parking Area No Parking

	Length_____	Width_____	Area_____		
Surface:	Asphalt___	Gravel___	Sand___	Unimproved___	Grass___
Condition:	Good___	Ruts___	Puddles___	Erosion___	
	Vegetation___		Broken Pavement___		Litter___
Cleanliness:	Trash Barrel___		Restrooms___		

IV. Property Status

Status:	Public Property___	Private Property ✓	
Signage:	Access Encouraged___	No Trespassing ✓	None___

V. River Data

River Access:	Formal:	Stairs___	Trail ✓ Gravel	Other_____	
	Informal:	Path___	Random___		
Condition:	Good___	Trail Erosion___	Vegetation ✓ Good		Trampled___
	Litter___	Sediment___	Traffic___		Hazard___
	Cut Trees___				

- Benches at water edge
- Debris being dumped along Bank organic

VI. Bank Data

Bank Conditions: Height 8ft Length 20ft
Surface Cover 90% coverage - grass

VII. Potential Remedial Action

Stone stairways

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Site # 19

Date: 7/8/04
Inspector: _____

I. Location Data

Road: River Road
Location: Riverton

Town: Barkhamsted
Bank: Left (Right)

II. Road Conditions

Sightline Limits: Left 100 Feet, Right 300 Feet
Horizontal Curve ✓ Vertical Curve ___ Vegetation ✓
Road Drainage: Curb ___ Stormdrains ___ Culvert ___
Swale/Ditch ___ Sheetflow ✓

III. Parking Area 3 cars

Length 40 Width 15'-20' Area _____
Surface: Asphalt ___ Gravel ✓ Sand ✓ Unimproved ___ Grass ___
Condition: Good ___ Ruts ___ Puddles ✓ Erosion ___
Vegetation ___ Broken Pavement ___ Litter ___
Cleanliness: Trash Barrel ___ Restrooms ___

IV. Property Status

Status: Public Property ___ Private Property ✓
Signage: Access Encouraged ___ No Trespassing ___ None ___

V. River Data

River Access: Formal: Stairs ___ Trail ___ Other _____
Informal: Path ___ Random ___

Condition: Good ✓ Trail Erosion ___ Vegetation ✓ Trampled ✓
Litter ___ Sediment ___ Traffic ___ Hazard ___
Cut Trees ___ 8 foot wide trampled path

VI. Bank Data

Bank Conditions: Height 5ft Length 25 ft
Surface Cover 95%

VII. Potential Remedial Action

None recommended -

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Site #16

Gas line Crossing

Date: 7/8/04

Inspector: MS + PS

I. Location Data

Road: _____ Town: Barkhamsted

Location: _____ Bank: Left (Right)

II. Road Conditions

Sightline Limits	Left 300 Feet,		Right 300 Feet	
	Horizontal Curve ✓	Vertical Curve ___	Vegetation ___	
Road Drainage:	Curb ___	Stormdrains ___	Culvert ___	
	Swale/Ditch ___	Sheetflow ✓		

III. Parking Area 4 Cars

Length ~~60~~ 6' Width 6' Area _____

Surface:	Asphalt ___	Gravel ✓	Sand ___	Unimproved ___	Grass ___
Condition:	Good ___	Ruts ___	Puddles ___	Erosion ___	
	Vegetation ✓		Broken Pavement ___		Litter ___
Cleanliness:	Trash Barrel ___		Restrooms ___		

No distinct pathway

IV. Property Status

Status:	Public Property ✓	Private Property ___	
Signage:	Access Encouraged ✓	No Trespassing ___	None ___

V. River Data

River Access:	Formal:	Stairs ___	Trail ___	Other _____	
	Informal:	Path X	Random ___		
Condition:	Good X	Trail Erosion ___	Vegetation ___		Trampled ___
	Litter ___	Sediment ___	Traffic ___		Hazard ___
	Cut Trees ___				

VI. Bank Data

Bank Conditions: Height 8ft Length 25 ft

Surface Cover 95% coverage Grasses, sedges, and other cattails

VII. Potential Remedial Action

Mesh Log for erosion control

Site #17

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Date: 7/8/04
Inspector: MS + PS

I. Location Data

Road: River Road
Location:
Town: Barkhamsted
Bank: Left (Right)

II. Road Conditions

Sightline Limits: Left 300 Feet, Right 250 Feet
Road Drainage: Horizontal Curve ✓ Vertical Curve ___ Vegetation ✓
Curb ___ Stormdrains ___ Culvert ___
Swale/Ditch ___ Sheetflow ✓

III. Parking Area

Length 60' Width 6' Area ___
Surface: Asphalt ___ Gravel ✓ Sand ✓ Unimproved ___ Grass ___
Condition: Good ___ Ruts ✓ Puddles ✓ Erosion ✓
Vegetation ___ Broken Pavement ___ Litter ___
Cleanliness: Trash Barrel ___ Restrooms ___

IV. Property Status

Status: Public Property ___ Private Property ✓
Signage: Access Encouraged ___ No Trespassing ___ None ___

V. River Data

River Access: Formal: Stairs ___ Trail ___ Other ___
Informal: Path ✓ Random ___

Condition: Good ___ Trail Erosion ✓ Vegetation ___ Trampled ___
Litter ___ Sediment ✓ Traffic ___ Hazard ___
Cut Trees ___ Severe erosion with deposition of sand into river
Exposed roots, Needs to be fixed

VI. Bank Data

Bank Conditions: Height 7 Ft Length 30 Ft
Surface Cover Dense herbaceous cover along bank

VII. Potential Remedial Action

Needs stone stairs and/or log revetment stairs

Grasses, sedges
Saplings + seedlings
Black Cherry
Green Ash

Site # 18

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Date: 7/8/04
Inspector: MS + BS

I. Location Data

Road: River Road
Location: _____
Town: Barkhamsted
Bank: Left (Right)

II. Road Conditions

Sightline Limits: Left 400 Feet, Right 100 Feet
Horizontal Curve ✓ Vertical Curve ___ Vegetation ✓
Road Drainage: Curb ___ Stormdrains ___ Culvert ___
Swale/Ditch ___ Sheetflow ___

III. Parking Area

Length 120 ft Width 10' Area _____
Surface: Asphalt ___ Gravel ✓ Sand ✓ Unimproved ___ Grass ___
Condition: Good ___ Ruts ✓ Puddles ___ Erosion ___
Vegetation ___ Broken Pavement ___ Litter ___
Cleanliness: Trash Barrel ___ Restrooms ___

IV. Property Status

Status: Public Property ___ Private Property ✓
Signage: Access Encouraged ___ No Trespassing ___ None ___
Angular Signs

V. River Data

River Access: Formal: Stairs ___ Trail ___ Other _____
Informal: Path ✓ Random ___

Condition: Good ___ Trail Erosion ✓ Vegetation ✓ Trampled ✓
Litter ___ Sediment ✓ Traffic ___ Hazard ___
Cut Trees ___ Large sediment deposition at end of trail
2 foot wide path

VI. Bank Data

Bank Conditions: Height 7 ft Length 30 ft
Surface Cover 90% Herbaceous cover

VII. Potential Remedial Action

Stone stairway or log treatment stairway

Goldenrod
Grasses
Smartweed
Mucky Hawk
Bittersweet

Site #17

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Date: 7/8/04
Inspector: MJS + PS

I. Location Data

Road: River Road
Location:
Town: Barkhamsted
Bank: Left (Right)

II. Road Conditions

Sightline Limits: Left 300 Feet, Right 150 Feet
Horizontal Curve ✓ Vertical Curve ___ Vegetation ✓
Road Drainage: Curb ___ Stormdrains ___ Culvert ___
Swale/Ditch ___ Sheetflow ✓

III. Parking Area

Length 20' Width 20' Area ___
Surface: Asphalt ___ Gravel ✓ Sand ✓ Unimproved ___ Grass ___
Condition: Good ___ Ruts ___ Puddles ___ Erosion ___
Vegetation ✓ Broken Pavement ___ Litter ___
Cleanliness: Trash Barrel ___ Restrooms ___

IV. Property Status

Status: Public Property ___ Private Property ✓
Signage: Access Encouraged ___ No Trespassing ___ None ✓

V. River Data

River Access: Formal: Stairs ___ Trail ___ Other ___
Informal: Path ✓ Random ___

Condition: Good ___ Trail Erosion ✓ Vegetation ✓ Trampled ___
Litter ___ Sediment ✓ Traffic ___ Hazard ___
Cut Trees ___

VI. Bank Data

Bank Conditions: Height 4ft Length 25 ft
Surface Cover 95% Herbaceous cover

VII. Potential Remedial Action

stone path
stone steps
log revetment stairway

Poison Ivy ✓ Creeper
Goldenrod
Grasses
Meadow Rue
Silky Dogwood
Honeysuckle
Fern
Winterberry

Site # 20

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Date: 7/8/09
Inspector: MJK FPS

I. Location Data

Road: River Road
Location: ______

Town: Barkhamsted
Bank: Left ~~Right~~ (Right circled)

II. Road Conditions

Sightline Limits: Left 150 Feet, Right 150 Feet
Horizontal Curve___ Vertical Curve___ Vegetation___
Road Drainage: Curb___ Stormdrains___ Culvert___ Swale/Ditch___ Sheetflow___

III. Parking Area

Length 30' Width 10' Area______

Surface: Asphalt___ Gravel ✓ Sand ✓ Unimproved___ Grass___
Condition: Good___ Ruts___ Puddles___ Erosion ✓ Vegetation___ Broken Pavement___ Litter___
Cleanliness: Trash Barrel___ Restrooms___

IV. Property Status

Status: Public Property ✓ Private Property___
Signage: Access Encouraged___ No Trespassing___ None ✓

V. River Data

River Access: Formal: Stairs___ Trail___ Other_____
Informal: Path ✓ Random___

Condition: Good___ Trail Erosion ✓ Vegetation ✓ Trampled ✓
Litter ✓ Sediment ✓ Traffic___ Hazard___
Cut Trees___

No evidence of deposition in River water

VI. Bank Data

Bank Conditions: Height 5 ft Length 25-30 ft
Surface Cover 95% herbaceous cover

VII. Potential Remedial Action

SF
NYF
I Fern
Meadowsweet
S Alder
Grasses, Sedges
Elm

2056-04-1-jn3004-forms.doc

S-21 - See picture

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Date: 7/8/04
Inspector: MJS + PS

I. Location Data

Road: _____ Town: Bark hemstead
Location: _____ Bank: Left (Right)

II. Road Conditions

Sightline Limits: Left 400 Feet, Right 600 Feet
Horizontal Curve ✓ Vertical Curve ✓ Vegetation ✓
Road Drainage: Curb ___ Stormdrains ___ Culvert ___
Swale/Ditch ___ Sheetflow ✓

III. Parking Area

Length 100 Width 10 - 30' Area _____
Surface: Asphalt ___ Gravel ✓ Sand ✓ Unimproved ___ Grass ___
Condition: Good ___ Ruts ___ Puddles ✓ Erosion ___
Vegetation ___ Broken Pavement ___ Litter ✓
Cleanliness: Trash Barrel ___ Restrooms ___

IV. Property Status

Status: Public Property ✓ Private Property ___
Signage: Access Encouraged ___ No Trespassing ___ None ✓

V. River Data

River Access: Formal: Stairs ___ Trail ___ Other _____
Informal: Path ✓ Random ___

Condition: Good ___ Trail Erosion ✓ Vegetation ✓ Trampled ___
Litter ✓ Sediment ✓ Traffic ✓ Hazard ___
Cut Trees ___

Bank erosion quite severe in this area
Trails along floodplain

VI. Bank Data

Bank Conditions: Height 8 ft Length 90 ft
Surface Cover 10 - 20% in some areas
70% vegetation in some areas

VII. Potential Remedial Action

Log revetment
Stairway down to water

S - 22
S - 23
S - 24

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Date: 7/8/04
Inspector: MJR & PS

I. Location Data

Road: _____ Town: Barkhamsted
Location: Peoples State Park Bank: Left (Right)

II. Road Conditions N/A

Sightline Limits	Left _____ Feet,		Right _____ Feet
	Horizontal Curve___	Vertical Curve___	Vegetation___
Road Drainage:	Curb___	Stormdrains___	Culvert___
	Swale/Ditch___	Sheetflow___	

III. Parking Area ~80 cars

Length_____ Width_____ Area_____

Surface:	Asphalt___	Gravel ✓	Sand___	Unimproved___	Grass___
Condition:	Good ✓	Ruts___	Puddles___	Erosion___	
	Vegetation___		Broken Pavement___		Litter___
Cleanliness:	Trash Barrel___		Restrooms___		

Parking Lot at 150 ft away from edge of water

IV. Property Status

Status:	Public Property ✓	Private Property___	
Signage:	Access Encouraged ✓	No Trespassing___	None___

V. River Data

River Access:	Formal:	Stairs___	Trail___	Other_____
	Informal:	Path ✓	Random___	

Condition:	Good___	Trail Erosion ✓	Vegetation ✓	Trampled___
	Litter___	Sediment ✓	Traffic ✓	Hazard___
	Cut Trees___			

S-23 - fairly vegetated with picnic table

S-23+24 - are 12 ft wide and steep with erosion

VI. Bank Data

Bank Conditions: Height 10-12 ft Length 20-25 ft
Surface Cover Area w/out path 95% herbaceous density

VII. Potential Remedial Action

At stone pathways down to water
log revetment

S-25

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Tributary to Farmington
For - Hiking Trail
Not for River

Date: 7/8/04
Inspector: MJS + PJ

I. Location Data

Road: _____
Location: _____

Town: Barkhamsted
Bank: Left (Right)

II. Road Conditions

Sightline Limits: Left 150 Feet, Right 150 Feet
Road Drainage: Horizontal Curve___ Vertical Curve ✓ Vegetation___
Curb___ Stormdrains___ Culvert___
Swale/Ditch___ Sheetflow ✓

III. Parking Area 20 cars

Length 200 Width 20 Area _____

Surface: Asphalt___ Gravel___ Sand___ Unimproved___ Grass___
Condition: Good___ Ruts___ Puddles___ Erosion ✓
Vegetation___ Broken Pavement___ Litter ✓
Cleanliness: Trash Barrel___ Restrooms___

IV. Property Status

Status: Public Property___ Private Property___
Signage: Access Encouraged___ No Trespassing___ None___

V. River Data

River Access: Formal: Stairs___ Trail___ Other_____
Informal: Path___ Random___

Condition: Good___ Trail Erosion___ Vegetation___ Trampled___
Litter___ Sediment___ Traffic___ Hazard___
Cut Trees___

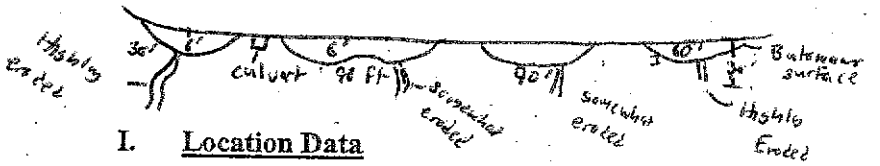
VI. Bank Data

Bank Conditions: Height_____ Length_____
Surface Cover _____

VII. Potential Remedial Action

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Site #26



Date: 7/8/04
Inspector: MS + PS

I. Location Data

Road: River Road
Location:

Town: Barkhamsted
Bank: Left (Right)

II. Road Conditions

Sightline Limits: Left 150 Feet, Right 250 Feet
Road Drainage: Horizontal Curve ✓ Vertical Curve ___ Vegetation ✓
Curb ___ Stormdrains ___ Culvert ___
Swale/Ditch ___ Sheetflow ✓

III. Parking Area 8 cars

Length 30 – 96' Width 6' – 30' Area ___

Surface: Asphalt ✓ Gravel ✓ Sand ✓ Unimproved ___ Grass ___
Condition: Good ___ Ruts ___ Puddles ___ Erosion ___
Vegetation ___ Broken Pavement ___ Litter ___
Cleanliness: Trash Barrel ___ Restrooms ___

IV. Property Status

Status: Public Property ✓ Private Property ___
Signage: Access Encouraged ___ No Trespassing ___ None ✓

V. River Data

River Access: Formal: Stairs ___ Trail ___ Other ___
Informal: Path ✓ Random ___

Condition: Good ___ Trail Erosion ✓ Vegetation ___ Trampled ___
Litter ✓ Sediment ✓ Traffic ✓ Hazard ___
Cut Trees ___

VI. Bank Data

Bank Conditions: Height 6 ft Length 15 ft
Surface Cover 80% herbaceous cover

VII. Potential Remedial Action

Need stone stairways or close down some of the access point by installing guardrails

Site 27

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Date: 7/8/04
Inspector: MS / PS

I. Location Data

Road: River Road
Location: _____
Town: Barkhamsted
Bank: Left Right

II. Road Conditions

Sightline Limits: Left 200 Feet, Right 150 Feet
Road Drainage: Horizontal Curve___ Vertical Curve✓ Vegetation✓
Curb___ Stormdrains___ Culvert___
Swale/Ditch___ Sheetflow✓

III. Parking Area 7 cars

Length 200' Width 10' Area _____
Surface: Asphalt___ Gravel✓ Sand✓ Unimproved___ Grass___
Condition: Good___ Ruts___ Puddles___ Erosion✓
Vegetation___ Broken Pavement___ Litter✓
Cleanliness: Trash Barrel___ Restrooms___

IV. Property Status

Status: Public Property✓ Private Property___
Signage: Access Encouraged___ No Trespassing___ None✓

V. River Data

River Access: Formal: Stairs___ Trail___ Other_____
Informal: Path___ Random✓

Condition: Good___ Trail Erosion✓ Vegetation___ Trampled___
Litter✓ Sediment✓ Traffic___ Hazard___
Cut Trees___
Banks vegetated with larger trees only
Garbage down along shore

VI. Bank Data

Bank Conditions: Height 20 Ft Length 35 Ft >45% slope
Surface Cover 2% herbaceous cover, very susceptible to erosion
tree roots currently holding back sediment

VII. Potential Remedial Action

Guard rail should be extended to eliminate access point
Banks are too steep for access

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Site # 98

Date: 7/8/04
Inspector: MS PS

I. Location Data

Road: _____ Town: Barkhamsted
Location: _____ Bank: Left (Right)

II. Road Conditions

Sightline Limits: Left 250 Feet, Right 100 Feet
Horizontal Curve ✓ Vertical Curve ✓ Vegetation ✓
Road Drainage: Curb ___ Stormdrains ___ Culvert ✓ - sinking road
Swale/Ditch ___ Sheetflow ✓

III. Parking Area

Length 30 Width 90' Area _____
Surface: Asphalt ___ Gravel ✓ Sand ✓ Unimproved ___ Grass ___
Condition: Good ___ Ruts ___ Puddles ___ Erosion ✓
Vegetation ___ Broken Pavement ___ Litter ___
Cleanliness: Trash Barrel ___ Restrooms ___

IV. Property Status

Status: Public Property ✓ Private Property ___
Signage: Access Encouraged ___ No Trespassing ___ None ✓

V. River Data

River Access: Formal: Stairs ___ Trail ___ Other _____
Informal: Path ✓ Random ___

Condition: Good ___ Trail Erosion ✓ Vegetation ___ Trampled ___
Litter ✓ Sediment ✓ Traffic ___ Hazard ___
Cut Trees ___

VI. Bank Data

Bank Conditions: Height 40 ft Length 30 ft
Surface Cover 75% vegetation cover

VII. Potential Remedial Action

Close Access completely - Does not seem to be any point to access
Path is 1' wide - gully -

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Site #29

Date: 7/8/04
Inspector: MS + PS

I. Location Data

Road: _____ Town: Barkhamsted
Location: _____ Bank: Left (Right)

II. Road Conditions

Sightline Limits: Left 60 Feet, Right 250 Feet
Road Drainage: Horizontal Curve___ Vertical Curve ✓ Vegetation ✓
Curb___ Stormdrains___ Culvert___
Swale/Ditch___ Sheetflow ✓

III. Parking Area

Length 40' Width 6-8' Area _____

Surface: Asphalt___ Gravel ✓ Sand ✓ Unimproved___ Grass___
Condition: Good___ Ruts___ Puddles___ Erosion___
Vegetation___ Broken Pavement___ Litter___
Cleanliness: Trash Barrel___ Restrooms___

IV. Property Status

Status: Public Property ✓ Private Property___
Signage: Access Encouraged___ No Trespassing___ None___

V. River Data

River Access: Formal: Stairs___ Trail ✓ Other_____
Informal: Path___ Random___

Condition: Good___ Trail Erosion ✓ Vegetation___ Trampled___
Litter ✓ Sediment___ Traffic___ Hazard___
Cut Trees ✓ Minimal

Maintained access point - trap rock placed along bank

VI. Bank Data

Bank Conditions: Height 25ft Length 125' ft
Surface Cover 40% vegetative cover

VII. Potential Remedial Action

Expand parking area
Access Fairly Stable

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

35 - 37 - State Forest

Minor erosion at access points - can be stabilized with stairs

Date: 7/16/04

Inspector: MJS + PS

I. Location Data

Road: _____ Town: Barkhamsted

Location: _____ Bank: Left (Right)

II. Road Conditions N/A

Sightline Limits	Left _____ Feet,		Right _____ Feet
	Horizontal Curve___	Vertical Curve___	Vegetation___
Road Drainage:	Curb___	Stormdrains___	Culvert___
	Swale/Ditch___	Sheetflow___	

III. Parking Area @ State Access Road

Length_____ Width_____ Area_____

Surface:	Asphalt___	Gravel ✓	Sand ✓	Unimproved___	Grass___
Condition:	Good ✓	Ruts___	Puddles___	Erosion___	
	Vegetation___		Broken Pavement___		Litter ✓
Cleanliness:	Trash Barrel ✓		Restrooms___		

IV. Property Status

Status:	Public Property ✓	Private Property___	
Signage:	Access Encouraged ✓	No Trespassing___	None___

Handicap Fishing Platform

V. River Data

River Access:	Formal:	Stairs___	Trail ✓	Other_____
	Informal:	Path ✓	Random___	
Condition:	Good___	Trail Erosion ✓	Vegetation___	Trampled___
	Litter___	Sediment___	Traffic___	Hazard___
	Cut Trees___			

VI. Bank Data

Bank Conditions: Height 4 Length 10

Surface Cover 90% Herbaceous vegetation

VII. Potential Remedial Action

Cherry
Goldenrod
S Dogwood
Bittersweet
ecchinacea
Oaks
W Pine
Hornbeam
R Maple
6 Ash

Site # 41 +42

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Date: 7/16/04
Inspector: MJS + PS

I. Location Data

Road:
Location: Callahan Park

Town: New Hartford
Bank: Left (Right)

II. Road Conditions N/A

Sightline Limits	Left ____ Feet,		Right ____ Feet	
	Horizontal Curve___	Vertical Curve___	Vegetation___	
Road Drainage:	Curb___	Stormdrains___	Culvert___	
	Swale/Ditch___	Sheetflow___		

III. Parking Area 15-20 cars

Length_____ Width_____ Area_____

Surface:	Asphalt___	Gravel ✓	Sand___	Unimproved___	Grass___
Condition:	Good ✓	Ruts___	Puddles___	Erosion___	
	Vegetation___		Broken Pavement___		Litter___
Cleanliness:	Trash Barrel ✓		Restrooms___		

IV. Property Status

Status:	Public Property ✓	Private Property___	
Signage:	Access Encouraged ✓	No Trespassing___	None___

V. River Data

River Access:	Formal:	Stairs___	Trail ✓	Other_____
	Informal:	Path ✓	Random___	
Condition:	Good___	Trail Erosion ✓	Vegetation___	Trampled___
	Litter___	Sediment___	Traffic___	Hazard___
	Cut Trees___			

VI. Bank Data

Bank Conditions: Height 5-6' Length 40'
Surface Cover 90% Herbaceous
80% Tree

EW

VII. Potential Remedial Action

Stabilize Access points with large gravel / stone steps / log revetments relatively steep slopes

Sycamore, Green Ash, Black Locust, Red Maple, Cottonwood, Speckled Alder, Bittersweet, Ferns, Jewelweed, Meadowsweet, S Dogwood, Grapes, MR

Site # 46

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Date: 7/16/04
Inspector: MJS + PS

I. Location Data

Road: MDC Access Road
Location:
Town: New Hartford
Bank: Left (Right)

II. Road Conditions Private Road

Sightline Limits	Left 300 Feet,		Right 250 Feet	
	Horizontal Curve___	Vertical Curve ✓	Vegetation___	
Road Drainage:	Curb___	Stormdrains___	Culvert___	
	Swale/Ditch___	Sheetflow ✓		

III. Parking Area 2-3 cars

	Length 100'		Width 6'	Area	
Surface:	Asphalt___	Gravel ✓	Sand ✓	Unimproved___	Grass___
Condition:	Good___	Ruts___	Puddles___	Erosion ✓	
	Vegetation___		Broken Pavement___		Litter___
Cleanliness:	Trash Barrel___		Restrooms___		

IV. Property Status

Status:	Public Property___	Private Property___	MDC Property
Signage:	Access Encouraged ✓	No Trespassing___	None___

V. River Data

River Access:	Formal:	Stairs___	Trail___	Other_____
	Informal:	Path ✓	Random___	
Condition:	Good___	Trail Erosion ✓	Vegetation___	Trampled___
	Litter___	Sediment ✓	Traffic___	Hazard___
	Cut Trees___			

Trail eroded ~~pool~~ two pictures show extent

VI. Bank Data

Bank Conditions: Height 12' Length 30'
Surface Cover 70% Herbaceous
70% Trees
40% shrubs

Vegetation
Sycamore
R Maple
3 Maple
Cottonwood

VII. Potential Remedial Action

Need stone stairway and/or log revetment
Erosion is high - exposed roots currently

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Site 47

Date: 7/16/04
Inspector: MJS + PS

I. Location Data

Road: Bank 44 Town: Canton
Location: At Tubing pull off Bank: Left (Right)

II. Road Conditions N/A

Sightline Limits	Left _____ Feet,		Right _____ Feet
	Horizontal Curve___	Vertical Curve___	Vegetation___
Road Drainage:	Curb___	Stormdrains___	Culvert___
	Swale/Ditch___	Sheetflow___	

III. Parking Area 6-8 car

Length 15' 100' Width 15' Area _____

Surface:	Asphalt___	Gravel ✓	Sand ✓	Unimproved___	Grass___
Condition:	Good ✓	Ruts___	Puddles___	Erosion___	
	Vegetation___		Broken Pavement___		Litter___
Cleanliness:	Trash Barrel___		Restrooms ✓		

IV. Property Status

Status:	Public Property ✓	Private Property___	
Signage:	Access Encouraged ✓	No Trespassing___	None___

V. River Data

River Access:	Formal:	Stairs___	Trail ✓	Other_____	
	Informal:	Path___	Random___		
Condition:	Good___	Trail Erosion ✓	Vegetation___		Trampled___
	Litter___	Sediment ✓	Traffic___		Hazard___
	Cut Trees___				

VI. Bank Data

Bank Conditions: Height 6' Length 30'
Surface Cover ~~Side~~ Paths are trampled but areas surrounding paths are well vegetated

VII. Potential Remedial Action

Stabilize access point with stairway entrance - one access path at 47

Site # 56

FARMINGTON RIVER ASSESSMENT
ACCESS POINT INVENTORY

Date: 7/16/04
Inspector: MJS PS

I. Location Data

Road: Peoples State Forest
Location: Near / Rapids / Big Rock
Town: New Hartford
Bank: (Left) Right

II. Road Conditions

Sightline Limits: Left 200 Feet, Right 500 Feet
Horizontal Curve ✓ Vertical Curve ___ Vegetation ___
Road Drainage: Curb ___ Stormdrains ___ Culvert ___
Swale/Ditch ___ Sheetflow ✓

III. Parking Area

Length 100' Width 4-6' Area ___
Surface: Asphalt ___ Gravel ___ Sand ___ Unimproved ✓ Grass ___
Condition: Good ___ Ruts ___ Puddles ___ Erosion ✓
Vegetation ___ Broken Pavement ___ Litter ___
Cleanliness: Trash Barrel ___ Restrooms ___

IV. Property Status

Status: Public Property ✓ Private Property ___
Signage: Access Encouraged ___ No Trespassing ___ None ___

V. River Data

River Access: Formal: Stairs ___ Trail ___ Other ___
Informal: Path ✓ Random ___

Condition: Good ___ Trail Erosion ✓ Vegetation ___ Trampled ___
Litter ___ Sediment ___ Traffic ___ Hazard ___
Cut Trees ___ This site has several eroding access points

VI. Bank Data

Bank Conditions: Height 25' Length 40'
Surface Cover Low Herbaceous cover - mostly rocky
Tree cover good stabilizing banks (Hemlocks, Oak, Maples)

VII. Potential Remedial Action

Make one main access with a stone stairway & railings
pavement