



Weston Solutions, Inc.  
10 Lyman Street, Suite 2  
Pittsfield, Massachusetts 01201  
413-442-4224 • Fax 413-442-4447

November 2, 2007

U.S. Department of the Army  
New England District, Corps of Engineers  
10 Lyman Street  
Pittsfield, MA 01201  
Attn: Darrell Moore, Resident Engineer

Re: GE/Housatonic River Site  
1.5 Mile Reach Removal Action  
2007 Summer Vegetation Monitoring Report  
DCN: GE-110107-ADRJ

Dear Mr. Moore:

Weston Solutions, Inc. (WESTON<sup>®</sup>) is enclosing the final report entitled “2007 Summer Vegetation Monitoring Report” This report presents and summarizes results for the 2007 Summer Vegetation Monitoring conducted in the 1.5 Mile Reach of the Housatonic River in Pittsfield, MA.

This submittal has undergone WESTON’s technical and quality control review and coordination procedures to ensure: (1) completeness for each discipline commensurate with the level of effort required for the submittal; (2) elimination of conflicts, errors, and omissions; (3) compliance with project criteria; and (4) overall professional and technical accuracy of the submittal.

Please feel free to call me at (978) 779-8904 with any questions.

Very truly yours,

Weston Solutions, Inc.

A handwritten signature in blue ink, appearing to read "J. Lindsay", is written over the printed name.

Joel Lindsay, PE  
Task Manager

Enclosures

cc: D. Tagliaferro, EPA  
DCN Files



# Memorandum

To: Joel Lindsay, Weston Solutions, Inc.

From: Todd Chadwell, Stantec Consulting (formerly Woodlot Alternatives, Inc.)

Cc: Izabela Zapisek, Weston Solutions, Inc.

Date: October 31, 2007

Re: 2007 Summer Vegetation Monitoring Report

---

On August 13, 14, and 15, 2007, Stantec Consulting (Stantec), formerly Woodlot Alternatives, Inc<sup>1</sup>, conducted annual summertime vegetation monitoring and a meander surveys in restored areas of the 1½-Mile Reach—GE Pittsfield/Housatonic River Site.

## 1.0 METHODS

### 1.1 Vegetation Monitoring

Vegetation monitoring work was performed by Stantec in the four monitoring areas between the Lyman Street Bridge and the Confluence. These monitoring areas are delimited by the four bridges crossing the 1½-Mile Reach (Lyman Street, Elm Street, Dawes Avenue, and Pomeroy Avenue, respectively, from upstream to downstream) and the confluence of the East and West Branches of the Housatonic River. The four monitoring areas represented by these five delimiters are numbered 1-4, respectively, moving downstream from the Lyman Street Bridge. In addition, each monitoring area is divided into sub-areas defined by the “east” (river-left [looking downstream]) and “west” (river-right) sides of the Housatonic River, with three subplots established on each side of the river within each monitoring area. A total of 24 permanent monitoring plots were evaluated as part of this work.

The 24 permanent monitoring plots were located and marked in the field. If the plot marker stakes could not be located, Stantec re-established the plot, based on construction plans used for plot-establishment in Spring 2006. Trees and shrubs within each plot were tallied by species and noted as “healthy” or “dead.” “Dead” trees and shrubs were those that exhibited no foliage, and the inner cambium was dead throughout the entire above ground portion of the plant. Volunteers of species that were planted were included in the tally if they were greater than 12 inches in height and appeared to be likely to survive. Volunteers of other tree and shrub species were recorded separately and not included in the tally. Herbaceous cover and invasive plant cover were recorded to the nearest five percent.

A meander survey was performed along both banks of each reach of the river to collect qualitative data on plant survivorship, to observe invasive plant populations, and to verify that plots were representative of surrounding areas.

---

<sup>1</sup> It should be noted that on October 1, 2007 Woodlot Alternatives, Inc. merged with Stantec Consulting Services, Inc.

Also, supplemental vegetation monitoring work was performed to assess tree and shrub health within upland planting areas on residential and commercial properties within the 1.5-Mile Reach. The following properties were inspected: Parcel I8-24-1, Parcel I9-5-13, Parcel I6-1-66, Parcel I6-1-67, Parcel I6-1-68, Parcel I6-1-69, and Fred Garner Park (Parcel I7-1-101).

## 2.0 RESULTS

The results of the monitoring plot inspection and meander surveys are summarized in this section. A discussion of the results and a comparison to performance standards are provided in Section 3. Table 1 summarizes tree and shrub densities in each monitoring area. Table 2 summarizes percent herbaceous cover and percent invasive species cover. Table 3 summarizes tree and shrub densities in each monitoring plot.

### 2.1 Tree and Shrub Density/Survivorship

Table 1 provides a summary of the results of the Summer 2007 vegetation monitoring event for trees and shrubs, and includes the Spring 2007 results for comparison. Details of plot characteristics are presented in Table 3. The performance standard for trees and shrubs is 80 percent survivorship. In most monitoring areas, exact numbers of planted trees and shrubs were not available, so survivorship was estimated by comparing the current plant density to the expected plant density based on the design. In select areas where the plant count was known (i.e., plots 1-E-3, 3-W-1, 3-W-2, 3-W-3, 3-E-1, 3-E-3, and 4-E-2), the direct comparison of the current count to the original planted count was made. Two monitoring plots did not achieve the 80 percent tree density performance standard in Spring 2007, but after additional plantings, expanding the plot size, and adjusting target tree densities to reflect what was actually planted instead of the standard 500 or 700 trees per acre, all monitoring plots achieved 80 percent tree density performance standard.

**Table 1. Comparison summary between Spring 2007 and Summer 2007 Monitoring Events**

Monitoring Area	Performance Standard Summary					
	Spring 2007			Summer 2007		
	Shrubs	Trees (non-GeoWeb)	Trees (Geoweb)	Shrubs	Trees (non-GeoWeb)	Trees (Geoweb)
Lyman-Elm (West)	103%	152%	NA	103%	179%	NA
Lyman-Elm (East)	102%	137%	100%*	110%	127%	117%*
Elm-Dawes (West)	188%	140%	152%	198%	142%	274%
Elm-Dawes (East)	91%	113%	NA	91%	108%	NA
Dawes-Pomeroy (West)	138%	100%*	60%	126%	104%*	108%*
Dawes-Pomeroy (East)	137%	72%*	212%	147%	104%*	212%
Pomeroy-Confluence (West)	108%	115%	NA	104%	125%	NA
Pomeroy-Confluence (East)	215%	119%*	152%	203%	127%*	152%

\* Indicates percent survivorship as compared to the number of actual trees and shrubs planted. Applies to one plot or two plots out of the three plots within a monitoring area.

NA = Not applicable

## 2.2 Herbaceous Cover

Herbaceous cover was at or above 95 percent and therefore achieved the performance standard, in all but three of the monitoring plots (Table 2). Monitoring plot 1-E-3 exhibited 80 percent herbaceous cover. Bare ground in this plot appeared to be the result of herbicide treatment and maintenance to tree cages. Herbaceous growth in plot 1-E-3 has been very dense historically. Because of the established seed bank and the observation that soils in this location appear to be stable and protected by Geoweb<sup>®</sup>, no immediate action is recommended. Monitoring plot 2-W-1 exhibited 60 percent herbaceous plant cover (see photo 1). This monitoring plot did not achieve the herbaceous cover performance standard in 2006 as a result of hedge bindweed (*Calystegia sepium*) removal activities. Bare soil in 2007 was apparently the result of weed removal activities and tree cage maintenance. Re-seeding and mulching plot 2-W-1 and adjacent areas with a conservation seed mix is recommended. Monitoring plot 4-W-2 exhibited 90 percent herbaceous cover (see photo 2). Poor soil quality (lack of organic material) is considered a probable cause of reduced herbaceous growth in this area. At the time of the inspection, soils were stable with no indication of erosion. It is recommended that Monitoring Plot 4-W-2 be reevaluated in the spring of 2008 to assess the potential need for loam application and re-seeding.

## 2.3 Invasive Species Cover

Invasive species cover was below 5 percent in all monitoring plots (Table 2) and achieved the applicable performance standard. Invasive species encountered within monitoring plots included purple loosestrife (*Lythrum salicaria*), Japanese knotweed (*Polygonum cuspidatum*), Multiflora rose (*Rosa multiflora*), oriental bittersweet (*Celastrus orbiculata*), spotted knapweed (*Centaurea biebersteinii*), common mullein (*Verbascum thapsus*), reed canary-grass (*Phalaris arundinacea*), and cypress spurge (*Euphorbia cyparissias*). Individuals and populations of these species were frequently encountered above and below the planting areas (e.g., purple loosestrife growing in riprap), but were not included in calculations. Even though the performance standard was met, it is recommended that these populations of invasive species be controlled if possible to reduce the invasion rate of restored planting areas.



**Table 2. Percent Herbaceous Cover and Percent Invasive Plant Species Cover Summary Information**

Monitoring Area	Bank	Date Monitored	Plot	Herbaceous Cover (%)	Invasive Plant Cover (%)	Invasive Species
Lyman-Elm	West	8/13/2007	1-W-1	>95	<5	<i>Euphorbia cyparissias</i>
Lyman-Elm	West	8/13/2007	1-W-2	>95	<5	<i>Euphorbia cyparissias</i> , <i>Lythrum salicaria</i>
Lyman-Elm	West	8/13/2007	1-W-3	100	<5	<i>Celastrus orbiculata</i>
<b>Monitoring Area Average</b>				<b>&gt;95</b>	<b>&lt;5</b>	
Lyman-Elm	East	8/13/2007	1-E-1	100	<5	<i>Euphorbia cyparissias</i> , <i>Lythrum salicaria</i> , <i>Phalaris arundinacea</i>
Lyman-Elm	East	8/13/2007	1-E-2	>95	<5	<i>Euphorbia cyparissias</i> , <i>Lythrum salicaria</i>
Lyman-Elm	East	8/13/2007	1-E-3	80	<5	<i>Lythrum salicaria</i>
<b>Monitoring Area Average</b>				<b>&lt;95</b>	<b>&lt;5</b>	
Elm-Dawes	West	8/13/2007	2-W-1	60	<5	<i>Verbascum thapsus</i>
Elm-Dawes	West	8/13/2007	2-W-2	>95	0	
Elm-Dawes	West	8/13/2007	2-W-3	>95	<5	
<b>Monitoring Area Average</b>				<b>&lt;95</b>	<b>&lt;5</b>	
Elm-Dawes	East	8/13/2007	2-E-1	100	<5	
Elm-Dawes	East	8/13/2007	2-E-2	100	<5	<i>Verbascum thapsus</i> , <i>Centaurea biebersteinii</i>
Elm-Dawes	East	8/13/2007	2-E-3	>95	<5	<i>Lythrum salicaria</i>
<b>Monitoring Area Average</b>				<b>&gt;95</b>	<b>&lt;5</b>	
Dawes-Pomeroy	West	8/14/2007	3-W-1	>95	<5	<i>Lythrum salicaria</i> , <i>Centaurea biebersteinii</i> , <i>Verbascum thapsus</i> , <i>Euphorbia cyparissias</i>
Dawes-Pomeroy	West	8/14/2007	3-W-2	>95	0	
Dawes-Pomeroy	West	8/14/2007	3-W-3	>95	<5	<i>Centaurea biebersteinii</i> , <i>Euphorbia cyparissias</i>
<b>Monitoring Area Average</b>				<b>&gt;95</b>	<b>&lt;5</b>	
Dawes-Pomeroy	East	8/14/2007	3-E-1	>95	<5	<i>Centaurea biebersteinii</i> , <i>Rosa multiflora</i> , <i>Verbascum thapsus</i>
Dawes-Pomeroy	East	8/14/2007	3-E-2	100	<5	<i>Verbascum thapsus</i>
Dawes-Pomeroy	East	8/14/2007	3-E-3	>95	<5	<i>Euphorbia cyparissias</i> , <i>Lythrum salicaria</i> , <i>Centaurea biebersteinii</i>
<b>Monitoring Area Average</b>				<b>&gt;95</b>	<b>&lt;5</b>	
Pomeroy-Confluence	West	8/14/2007	4-W-1	>95	<5	<i>Euphorbia cyparissias</i>
Pomeroy-Confluence	West	8/14/2007	4-W-2	90	<5	<i>Euphorbia cyparissias</i> , <i>Centaurea biebersteinii</i> , <i>Robinia pseudoacacia</i>
Pomeroy-Confluence	West	8/14/2007	4-W-3	100	<5	<i>Polygonum cuspidatum</i> , <i>Lythrum salicaria</i>
<b>Monitoring Area Average</b>				<b>&gt;95</b>	<b>&lt;5</b>	
Pomeroy-Confluence	East	8/14/2007	4-E-1	>95	<5	
Pomeroy-Confluence	East	8/14/2007	4-E-2	100	<5	<i>Centaurea biebersteinii</i>
Pomeroy-Confluence	East	8/14/2007	4-E-3	100	<5	<i>Euphorbia cyparissias</i>
<b>Monitoring Area Average</b>				<b>&gt;95</b>	<b>&lt;5</b>	

## 2.4 Meander Survey Results

### Lyman Street to Elm Street Reach

Recent supplemental tree plantings were observed in this reach and overall tree density is very high. Supplemental tree plantings were initiated due to beaver herbivory in this reach. Several trees were observed without protective tree cages, possibly from cages being removed during tree pruning operations. Overall, tree protectors on protective tree cages were well adjusted and lateral growth through tree cages had been correctly pruned. Loss of herbaceous cover (see photo 3), as well as several trees and shrubs, apparently the result of herbicide application, was observed. Five eastern cottonwood trees (*Populus deltoides*), in excess of 20 feet in height, and one black willow (*Salix nigra*), within or adjacent to monitoring plot 1-E-2, were observed to be highly stressed and likely to die, apparently due to herbicide exposure (see photo 4). Approximately five percent of trees and shrubs may have been impacted by herbicide treatment in the Lyman Street to Elm Street reach.

Japanese knotweed was observed infrequently on east and west banks of this reach. Other invasive species noted include: Norway maple (*Acer platanoides*), multiflora rose, purple loosestrife, Cypress spurge, oriental bittersweet, and reed canary-grass. Percent cover of invasive species was similar to that recorded within monitoring plots and, therefore, appears to achieve the applicable performance standard.

### Elm Street to Dawes Avenue Reach

Hedge bindweed (*Calystegia sepium*) was observed primarily on the west bank within this reach, but not to the extent observed in previous regular vegetation monitoring events. Hedge bindweed should continue to be monitored and removed by hand from trees and shrubs. As noted in section 2.2, bare soil was observed within and adjacent to monitoring plot 2-W-1. It is recommended that this area be re-seeded with conservation seed mix and mulched this fall.

Several tree cages were lying on the ground on the east bank within this reach. It is recommended that these tree cages be re-staked, if still protecting live trees, or otherwise removed. Tree cages were observed to require maintenance, particularly in the vicinity of monitoring plot 2-E-1. Several live eastern cottonwoods were on the ground in this area and require propping up. Approximately 12 dead trees were observed on the east bank adjacent to STA 532+50. It is recommended that these trees be replaced. Some spray damage to herbaceous cover and trees was observed in this reach.

A substantial population of purple loosestrife was observed high on the bank between monitoring plots 2-W-2 and 2-W-3. Control of this purple loosestrife population is recommended. Other invasive species encountered in this reach include, multiflora rose, common mullein, spotted knapweed, Norway maple, Cypress spurge, and oriental bittersweet. Percent cover of invasive species was similar to that recorded within monitoring plots and therefore appears to achieve the applicable performance standard.

### Dawes Avenue to Pomeroy Avenue Reach

Tree and shrub growth was generally healthy in this reach. Four shrubs within monitoring plot 4-W-3 were apparently mowed by the property owner. Shrub density within this plot still exceeds the performance standard. Lawn debris was observed to have been deposited on tree and shrub plantings behind a private residence between monitoring plots 3-W-2 and 3-W-3 (see photo 5). Minor spray damage to herbaceous cover and trees was observed in this reach.

Invasive species encountered in this reach include, Japanese knotweed, purple loosestrife, multiflora rose, common mullein, spotted knapweed, Norway maple, cypress spurge, coltsfoot (*Tussilago farfara*), and oriental bittersweet. Percent cover of invasive species was similar to that recorded within monitoring plots and, therefore, appears to achieve the applicable performance standard.

### **Pomeroy Avenue to Confluence Reach**

Trees and shrubs on the west bank and upper east bank of this reach are generally demonstrating healthy growth. Some tree mortality was observed on the lower east bank of this reach. Shrubs on the east bank within the “GE planting area” are contained within protective cages. In addition to adversely affecting the shrub’s growth, shrub cages are likely to be removed by currents and floating debris in this flood-prone area. It is recommended that all protective cages be removed from shrubs. Trees in this location are lacking tree protectors and evidence of damage caused by trees rubbing on tree cages is apparent (see photo 6). Tree protectors should be installed as soon as possible. Bark mulch was utilized instead of fiber mulch mats on trees and shrubs within the “GE planting area”. Much of the bark mulch was removed by flood conditions in early 2006. As a result of the current lack of mulch, excessive competition from herbaceous growth as well as water stress under extreme drought conditions is possible.

Several red osier dogwoods (*Cornus sericea*), other shrubs, and one eastern cottonwood were apparently impacted by herbicide on the west bank of this reach.

Invasive species encountered in this reach include, Japanese knotweed, purple loosestrife, common mullein, spotted knapweed, cypress spurge, coltsfoot, and black locust (*Robinia pseudoacacia*). Percent cover of invasive species was similar to that recorded within monitoring plots and, therefore, appears to achieve the applicable performance standard.

## **2.5 Upland Planting Monitoring**

### **Harry’s Supermarket Parcel I8-24-1**

No stressed or dead trees were observed within the upland planting area adjacent to Harry’s Supermarket. Virginia creeper (*Parthenocissus quinquefolia*) was observed to be climbing on one white pine (*Pinus strobus*) and should be removed by hand from this tree (see photo 7). Hedge bind-weed (*Calystegia sepium*) was observed to be growing on one balsam fir (*Abies balsamea*) and should be removed by hand from this tree. Invasive species observed within the planting area include Japanese knotweed, black locust (*Robinia pseudoacacia*), and purple loosestrife. If invasive species are not controlled in this area by herbicide or regular mowing they will likely become prolific within a few years.

### **Brunswick Street Property I6-1-66**

One white birch (*Betula papyrifera*), previously reported as “stressed”, was observed to be dead. A second white birch, previously reported as “stressed”, continues to be stressed. Japanese knotweed was observed to be invading the planting area from the eastern side of the property.

### **Brunswick Street Property I6-1-67**

No dead trees were observed, but three white birches were observed to be stressed. Japanese knotweed was observed in various locations within this property.

### **Brunswick Street Properties I6-1-68 and I6-1-69**

No dead trees or stressed trees were observed on these properties.

### Fred Garner Park Parcel I7-1-101

All trees in upland planting areas at Fred Garner Park were apparently healthy. White pines previously reported as “stressed” appeared to be fully recovered and healthy at the time of the survey.

### Maffucio Property I9-5-13

No dead trees or stressed trees were observed on this property.

## **3.0 DISCUSSION**

Overall, healthy growth of planted species along with significant contribution from volunteers was observed during the monitoring event. Exceptions occurred where herbicide treatment apparently impacted planted trees and shrubs. Larger trees that were impacted by herbicide may have uptaken herbicide from soils, or herbicide may have entered through recent pruning cuts. Some plant species that were apparently targeted include native species such as staghorn sumac (*Rhus hirta*) and common horsetail (*Equisetum arvense*). Other species that were targeted are considered invasive in Massachusetts (i.e., cypress spurge, smooth bedstraw [*Galium mollugo*], common mullein, and spotted knapweed), but typically require full sunlight and may not be a problem once the tree canopy closes in. Although the presence of invasive species is not desirable within restoration planting areas, some modification of the herbicide treatment regime is advisable due to the observed losses of planted stock and herbaceous cover. Stantec recommends that herbicide not be utilized within 3 feet of any native tree or shrub. Stantec also recommends that the list of targeted invasive species be limited to Japanese knotweed, purple loosestrife, common reed (*Phragmites australis*), oriental bittersweet, and invasive woody species including Norway maple, black locust, common buckthorn (*Rhamnus cathartica*), glossy buckthorn (*Frangula alnus*), Morrow’s honeysuckle (*Lonicera morrowii*), border privet (*Ligustrum obtusifolium*), multiflora rose, and others. Herbicide spray should not be applied under windy conditions which may contribute to mortality of desirable species by spray drift.

Percent herbaceous cover was below the 95 percent performance standard within three plots. Monitoring plot 1-E-3 (80% herbaceous cover) exhibits stabilized soils with a potentially robust seed bank. No action is recommended for monitoring plot 1-E-3. Monitoring plot 2-W-1 (60% herbaceous cover) exhibits unstable soils with a seed bank potentially high in hedge bindweed. Re-seeding with conservation seed mix and mulching monitoring plot 2-W-1 is recommended. Monitoring plot 4-W-2 (90% herbaceous cover) exhibits relatively stable, but highly mineral (sandy) soils. It is recommended that this location be reevaluated in Spring 2008 to assess the necessity for restorative actions.

All monitoring plots achieved the applicable performance standard of less than 5 percent invasive species cover. As suggested above, a modified herbicide treatment regime is recommended to reduce impacts to desirable native species.

Tree and shrub density/survivorship was above the 80 percent performance standard for all monitoring plots. Monitoring plots 3-W-1 and 3-E-1 were enlarged in order to better represent tree and shrub densities within residential areas of this reach. Monitoring plot 3-W-1 was extended to 212 feet in length and monitoring plot was extended to 145 feet in length. Resulting tree and shrub densities as shown in Table 3 will serve as target densities for these plots in future vegetation monitoring surveys. Volunteer tree species occurring in these plots were not used in calculating the target densities. A more detailed discussion of how tree and shrub densities were determined is provided below. See Table 1 for the summary of tree and shrub densities within monitoring areas.

Calculations of tree and shrub densities were based on the presence or absence of shrub clumps. If shrubs were evenly distributed within the monitoring area, shrub density should have been 730 shrubs/acre and tree density should be 700 trees/acre in normal plots or 500 trees/acre in areas with Geoweb ®. If a defined shrub clump was observed, the area of the shrub clump was delineated and resulting shrub density within the clump should have been 2,723 shrubs/acre if shrubs were planted 4 feet on center. The density of 2,723 shrubs per acre was established by utilizing the shrub clump planting design of shrubs installed 4-foot on center. One shrub occupies 16 square feet. 43,560 feet (1 acre) divided by 16 square feet results in a target density of 2,722.5 shrubs per acre within shrub clumps. Table 2 summarizes tree and shrub densities within monitoring plots.

For several areas within 1.5 Mile Reach, the planting schemes did not follow the recommended planting densities due to needs or requests of residential property owners or the physical conditions of the riverbanks. If a monitoring plot was located within the areas that the standard planting densities were not followed, the assessment of the plot was based on the original number of plants planted. Such plots included 1-E-3, 3-W-1, 3-W-2, 3-W-3, 3-E-1, 3-E-3, and 4-E-2.

#### **4.0 RECOMMENDATIONS**

The following actions are recommended for implementation during the Fall of 2007:

##### Riverbank Planting Areas

- Install tree cages on trees exhibiting “pole form” capable of accommodating such protection within Lyman to Elm Street reach.
- Re-seed and mulch plot 2-W-1 and adjacent areas.
- Restrict herbicide use to only Japanese knotweed, common reed, purple loosestrife, Norway maple, black locust, and invasive woody vines and shrubs.
- Restrict herbicide use within 3 feet of planted trees and shrubs.
- Restrict herbicide use under windy conditions.
- Continue hedge bindweed removal.
- Continue tree cage maintenance.
- Install tree protectors on cages on east bank of Pomeroy to Confluence reach.
- Control of purple loosestrife population between plots 2-W-2 and 2-W-3.
- Tree cage maintenance adjacent to plot 2-E-1.
- Replacement of 12 trees at STA 532+50 (east bank). Recommended species for replacement are box elder and eastern cottonwood.

##### Upland Planting Areas

- Remove by hand Virginia creeper from one white pine and hedge bind-weed from one balsam fir on Parcel I8-24-1 (Harry’s Supermarket)
- Control invasive species (i.e., Japanese knotweed, black locust, and purple loosestrife) observed within Parcel I8-24-1 (Harry’s Supermarket).
- Plant 2 red maple (*Acer rubrum*) on Parcel I6-1-66 to replace the dead white birch



**Photo 1. Bare soil recommended for re-seeding in monitoring plot 2-W-1.**



**Photo 2. Highly mineral soils of Monitoring Plot 4-W-2 exhibiting reduced herbaceous cover.**



**Photo 3. Loss of herbaceous cover apparently resulting from herbicide treatment.**



**Photo 4. Eastern cottonwood trees apparently stressed by herbicide exposure.**



**Photo 5. Lawn debris placed on planted trees and shrubs behind private residence.**



**Photo 6. Damage caused to eastern cottonwood tree resulting from lack of tree protector.**



**Photo 7. Virginia creeper climbing on white pine in upland planting area adjacent to Harry's Supermarket.**

**Table 3. Monitoring Plot Details**

Stantec Inc.

WAI PN 104141.03, Summer 2007 Vegetation Monitoring,  
1.5 Mile Reach, Housatonic River, Pittsfield, MA

Date: 5-Oct-07

By: TBC

Monitoring Performed by Todd Chadwell, Stantec Inc.

Checked By:

Reach	Bank	Plot No.	Type	Date	Dimensions					Trees							Shrubs						Total Plants
					L (ft)	Slope W (ft)	Height (ft) <sup>1</sup>	W (ft)	Area (ft <sup>2</sup> )	BW	SM	EC	BE	Total Trees	Tree Density (Regular)	ROD	SD	WH	CC	NA	Total Shrubs	Shrub Density	
Lyman-Elm	West	1-W-1	Regular	8/13/2007	61	10	3	9.5	582	3	11	8	5	27	2021	0	0	0	0	0	0	0	27
Lyman-Elm	West	1-W-2	Regular	8/13/2007	32	31	4.5	30.7	981	3	12	6	4	25	1110	2	1	0	0	1	4	178	29
Lyman-Elm	West	1-W-3	Regular	8/13/2007	67	22	5	21.4	1435	5	3	8	5	21	637	9	4	4	5	4	26	789	47
Monitoring Area Average																							
Lyman-Elm	East	1-E-1	Regular	8/13/2007	139	12	2	11.8	1645	9	5	7	6	27	715	12	16	6	8	6	48	1271	75
Lyman-Elm	East	1-E-2	Regular	8/13/2007	45	34.5	2	34.4	1550	7	6	12	13	38	1068	1	1	0	0	0	2	56	40
Lyman-Elm	East	1-E-3	Geoweb	8/13/2007	70	22	13	17.7	1242	1	0	0	6	7	245	12	5	0	4	0	21	736	28
Monitoring Area Average																							
Elm-Dawes	West	2-W-1	Regular	8/13/2007	63	18	6.5	16.8	1057	5	5	10	4	24	989	7	2	0	0	1	10	412	34
Elm-Dawes	West	2-W-2	Regular	8/13/2007	17	57	19	53.7	914	5	1	8	7	21	1001	1	0	0	0	0	1	48	22
Elm-Dawes	West	2-W-3	Geoweb	8/13/2007	66	14	11	8.7	572	0	1	1	16	18	1372	0	10	1	5	3	19	1448	37
Monitoring Area Average																							
Elm-Dawes	East	2-E-1	Regular	8/13/2007	33	31	15	27.1	895	2	0	7	3	12	584	8	7	6	2	3	26	1265	38
Elm-Dawes	East	2-E-2	Regular	8/13/2007	27	35	9	33.8	913	2	3	8	3	16	763	5	0	0	0	0	5	238	21
Elm-Dawes	East	2-E-3	Regular	8/13/2007	141	11	5	9.8	1382	4	8	10	7	29	914	0	16	0	0	1	17	536	46
Monitoring Area Average																							
Dawes-Pomeroy	West	3-W-1	Geoweb	8/14/2007	212	7	1	6.0	1272	1	6	1	5	13	445	10	20	2	3	4	39	1336	52
Dawes-Pomeroy	West	3-W-2	Regular	8/14/2007	67	14	0	14.0	938	3	3	1	2	9	418	8	3	0	0	3	14	650	23
Dawes-Pomeroy	West	3-W-3	Regular	8/14/2007	105	13	0	13.0	1365	6	4	1	2	13	415	15	0	4	3	2	24	766	37
Monitoring Area Average																							
Dawes-Pomeroy	East	3-E-1	Regular	8/14/2007	145	10	4	10.0	1450	1	5	4	4	14	421	0	22	3	5	4	34	1021	48
Dawes-Pomeroy	East	3-E-2	Geoweb	8/14/2007	38	12	7	9.7	370	1	0	7	1	9	1058	5	0	0	1	0	6	706	15
Dawes-Pomeroy	East	3-E-3	Regular	8/14/2007	77	10	0	10.0	770	6	4	2	0	12	679	11	1	2	3	3	20	1131	32
Monitoring Area Average																							
Pomeroy-Confluence	West	4-W-1	Regular	8/14/2007	50	18	0	18.0	900	5	5	2	6	18	871	6	0	0	0	0	6	290	24
Pomeroy-Confluence	West	4-W-2	Regular	8/14/2007	50	25	0	25.0	1250	1	4	10	6	21	732	5	0	0	0	0	5	174	26
Pomeroy-Confluence	West	4-W-3	Regular	8/14/2007	74	12	0	12.0	888	3	2	11	3	19	932	11	3	6	5	5	30	1472	49
Monitoring Area Average																							
Pomeroy-Confluence	East	4-E-1	Geoweb	8/14/2007	50	8	0	8.0	400	2	2	2	1	7	762	6	0	0	0	0	6	653	13
Pomeroy-Confluence	East	4-E-2	Regular	8/14/2007	50	10	0	10.0	500	2	0	1	1	4	348	0	7	5	1	3	16	1394	20
Pomeroy-Confluence	East	4-E-3	Regular	8/14/2007	50	10	0	10.0	500	3	5	2	4	14	1220	0	7	0	6	5	18	1568	32
Monitoring Area Average																							

**Notes:**

- 1: From As-Built CAD Drawing
- 2: 3-W-1 Height based on field observation
- 3: 3-E-1 Height based on field observation

Species Legend

- BW = black willow
- SM = silver maple
- EC = eastern cottonwood
- BE = box elder

- SD = silky dogwood
- ROD = red-osier dogwood
- NA= northern arrow-wood
- WH = winterberry holly
- CC = chokecherry

**Table 3. Monitoring Plot Details (continued)**  
**Stantec Inc.**  
**WAI PN 104141.03, Summer 2007 Vegetation Monitoring**  
**1.5 Mile Reach, Housatonic River, Pittsfield, MA**  
 Monitoring Performed by Todd Chadwell, Stantec Inc.

Reach	Bank	Plot No.	Type	Plot Characterization	Shrub Clumps							Trees				Performance Standard Summary			
					Length	Width	Shrub No.	Area*	Shrub D (shrubs/acre)	Target D (shrubs/acre)	% Target D	Area	Tree Density (tree/acre)	Target D (tree/acre)	% Target D	Shrubs	Trees (non-GeoWeb)	Trees (Geoweb)	
Lyman-Elm	West	1-W-1	Regular	no shrubs clumps or RO band, shrub clump immediately upstream									582	2021	700	289%			
Lyman-Elm	West	1-W-2	Regular	4 shrubs projecting in from clump upstream, RO band incomplete									981	1110	700	159%			
Lyman-Elm	West	1-W-3	Regular	shrubs clump approx. 24x14ft at S edge of plot	24	14	17	264	2806	2723	103%		1435	637	700	91%			
Monitoring Area Average													Monitoring Area Average				103%	179%	NA
Lyman-Elm	East	1-E-1	Regular	shrubs clump approx. 77x8ft in center of plot, RO band 77 ft in length	77	8	36	484	3241	2723	119%		1645	715	700	102%			
Lyman-Elm	East	1-E-2	Regular	shrubs clump immediately upstream									1550	1068	700	153%			
Lyman-Elm	East	1-E-3	Geoweb	all shrubs with interspersed trees, shrubs 4-10ft OC, avg 7 ft OC				1242	736	730	101%		1242	245	210	117%			
Monitoring Area Average													Monitoring Area Average				110%	127%	117%
Elm-Dawes	West	2-W-1	Regular	2 shrubs projecting in from clump upstream									1057	989	700	141%			
Elm-Dawes	West	2-W-2	Regular	RO band unevenly spaced, shrub clump immed. upstream									914	1001	700	143%			
Elm-Dawes	West	2-W-3	Geoweb	shrubs distributed evenly with trees				572	1448	730	198%		572	1372	500	274%			
Monitoring Area Average													Monitoring Area Average				198%	142%	274%
Elm-Dawes	East	2-E-1	Regular	shrubs clump approx. 1/2 of plot extending upstream (triangle)			18	316	2484	2723	91%		895	584	700	83%			
Elm-Dawes	East	2-E-2	Regular	no shrub clumps, shrub clump approx. 200 ft upstream & downstream									913	763	700	109%			
Elm-Dawes	East	2-E-3	Regular	no shrub clumps, shrub clump approx. 300 ft upstream									1382	914	700	131%			
Monitoring Area Average													Monitoring Area Average				91%	108%	NA
Dawes-Pomeroy	West	3-W-1	Geoweb	all shrub clump w/ trees interspersed, some area void of plantings				1272	1336	730	183%		1272	445	411^	108%			
Dawes-Pomeroy	West	3-W-2	Regular	shrubs distributed evenly with trees, GE planting adjacent				938	650	730	89%		938	418	418	100%			
Dawes-Pomeroy	West	3-W-3	Regular	shrubs distributed evenly, some area void, GE planting adjacent				1365	766	730	105%		1365	415	383	108%			
Monitoring Area Average													Monitoring Area Average				126%	104%	108%
Dawes-Pomeroy	East	3-E-1	Regular	shrubs clump approx. 16x6ft w/ some interspersed trees				1450	1021	730	140%		1450	421	391^	108%			
Dawes-Pomeroy	East	3-E-2	Geoweb	no shrub clumps, shrub clump approx. 120 ft downstream									370	1058	500	212%			
Dawes-Pomeroy	East	3-E-3	Regular	shrubs distributed evenly with trees, GE planting adjacent				770	1131	730	155%		770	679	679	100%			
Monitoring Area Average													Monitoring Area Average				147%	104%	212%
Pomeroy-Confluence	West	4-W-1	Regular	Shrubs in adjacent WMECO ROW									900	920	700	131%			
Pomeroy-Confluence	West	4-W-2	Regular	Shrubs in adjacent WMECO ROW									1250	767	700	110%			
Pomeroy-Confluence	West	4-W-3	Regular	Shrub clump approximately 1/2 of plot	40	10	26	400	2831	2723	104%		888	932	700	133%			
Monitoring Area Average													Monitoring Area Average				104%	125%	NA
Pomeroy-Confluence	East	4-E-1	Geoweb	Shrub clump adjacent to plot									400	762	500	152%			
Pomeroy-Confluence	East	4-E-2	Regular	shrubs distributed evenly with trees				500	1394	730	191%		500	348	436**	80%			
Pomeroy-Confluence	East	4-E-3	Regular	shrubs distributed evenly with trees				500	1568	730	215%		500	1220	700	174%			
Monitoring Area Average													Monitoring Area Average				203%	127%	152%

**Notes:**

	<u>Target Planting Densities</u>	
	<u>Normal Geoweb</u>	
Trees:	700	500 per acre
Shrubs:	730	730 per acre
Total:	1430	1230 per acre

\* area of ellipse or triangle for shrub clumps  
 ■ shrub clump  
 ■ denotes plots where survivorship criterion is based on actual number of trees planted.  
 Assessment of sample area (plot) based on original number of trees planted  
 Plot #: (1-E-3) - Six trees originally planted within plot, with 117% survivability to date  
 Plot #: (3-W-1) - Thirteen trees originally planted within plot, with 108% survivability to date  
 Plot #: (3-W-2) - Nine trees originally planted within plot, with 100% survivability to date  
 Plot #: (3-W-3) - Twelve trees originally planted within plot, with 108% survivability to date  
 Plot #: (3-E-1) - Fourteen trees originally planted within plot, with 108% survivability to date  
 Plot #: (3-E-3) - Twelve trees originally planted within plot, with 100% survivability to date  
 Plot #: (4-E-2) - Five trees originally planted within plot, with 80% survivability to date

^ - Based on observations made during the 2007 Spring inspection, it was recommended that additional trees be planted within the entire residential area that these sample areas/plots represent. It was also recommended that the current sample area/plots be modified and enlarged in order to better represent the entire residential area the plots are within. Therefore, the assessment in the 2007 Summer inspection was based on a larger area, and the target density were based on live number of plants plus the recommended additional trees planted in the Spring 2007. The target density for sample area/plot 3-W-1 is 411 tree/acre and for 3-E-1 is 391 tree/acre.

\*\* - Based on observations made during the 2007 Summer inspection, it was determined that additional tree planting will be conducted in areas within Plot 4-E-2 and areas adjacent to the plot to raise the tree density in those areas to approximately 700 trees/acre. Therefore in the future the Target Density for Plot 4-E-2 will change.

# Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/13/07 7:46AM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: overcast, cool

Planting Area Location: I-W-1

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_  
 Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		3	Red-osier Dogwood		
Silver Maple		11	Silky Dogwood		
Eastern Cottonwood		8	Winterberry Holly		
Box Elder		5	Chokecherry		
			Northern Arrowwood		

Total Live Trees: 27 Total Live Shrubs: 0

Herbaceous Cover (%): 97%, a little sprig damage, some mechanical damage

Invasive Plant Cover (%): Some purple loosestrife in riprap, less than 5%

**Meander Survey Comments (Use Additional Sheets As Necessary):**

1st photo - looking downstream  
 2nd photo - from top of slope  
 3rd photo - looking upstream

no trees planted due to beaver damage

# Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/13/07 8:33AM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_ Weather: overcast, 50%

Planting Area Location: FW-2

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments:

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		3	Red-osier Dogwood		2
Silver Maple		12	Silky Dogwood		1
Eastern Cottonwood		4	Winterberry Holly		
Box Elder		4	Chokecherry		
			Northern Arrowwood		1

Total Live Trees: 25 Total Live Shrubs: 4

Herbaceous Cover (%): greater than 95%

Invasive Plant Cover (%): Spurge, Purple loosestrife, bid straw, less than 5%

**Meander Survey Comments (Use Additional Sheets As Necessary):**

Note - Several cages have been removed, not sure why?

# Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/13/07 9:22 AM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_ Weather: overcast cool

Planting Area Location: 1-W-3

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_  
 Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		5	Red-osier Dogwood		9
Silver Maple		3	Silky Dogwood		4
Eastern Cottonwood		(5) 8	Winterberry Holly		4
Box Elder		5	Chokecherry		5
			Northern Arrowwood		4

Total Live Trees: (18) 21 Total Live Shrubs: 26

Herbaceous Cover (%): 100%

Invasive Plant Cover (%): bittersweet, less than 5%

**Meander Survey Comments (Use Additional Sheets As Necessary):**

3 arrowwoods outside of plot included in count, as they had previously been incorrectly included.

# Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/13/07, 11:15 AM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: cloudy, breeze 10's

Planting Area Location: I-E-1

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		9	Red-osier Dogwood		12
Silver Maple		5	Silky Dogwood		15
Eastern Cottonwood		7	Winterberry Holly		6
Box Elder		6	Chokecherry		8
			Northern Arrowwood		6

Total Live Trees: 27 Total Live Shrubs: 48

Herbaceous Cover (%): 100

Invasive Plant Cover (%): SPURGE, PINK LS, blackberry - < 5%  
phacelia

Meander Survey Comments (Use Additional Sheets As Necessary):

# Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/13/07, 10:33

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: overcast, warm, humid  
70s

Planting Area Location: 1-E-2

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow	<del>11</del> 11	7 (1)	Red-osier Dogwood	1	1
Silver Maple	<del>11</del> 11	6	Silky Dogwood	1	1
Eastern Cottonwood	<del>11</del> 11	11 (1)	Winterberry Holly		
Box Elder	<del>11</del> 11	11 (1)	Chokecherry		
	1 (1)		Northern Arrowwood		

Total Live Trees: 35/38 Total Live Shrubs: 2

Herbaceous Cover (%): >95%

Invasive Plant Cover (%): spruce, red straw, loose strife, <5%

**Meander Survey Comments (Use Additional Sheets As Necessary):**

stress of - 5 Cottonwoods potentially stressed from spraying

## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 7/13/07 10:00 AM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_ Weather: W: 68F, C: 61

Planting Area Location: FE-3

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

### Plant Survivorship:

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow	1	1	Red-osier Dogwood	<del>11</del> 11	12
Silver Maple			Silky Dogwood	<del>5</del> 5	5
Eastern Cottonwood			Winterberry Holly		
Box Elder	<del>5</del> V-1	5 plus V-1	Chokecherry	<del>4</del> 4	4
			Northern Arrowwood		

Total Live Trees: 6 + V-1 = 7 Total Live Shrubs: 21

Herbaceous Cover (%): prior to spray damage 100%, after 80%

Invasive Plant Cover (%): bird straw, loose straws, less than 5%

Meander Survey Comments (Use Additional Sheets As Necessary):

## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/13/07 1:34pm

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: Sunny, 80°

Planting Area Location: 2-6-1

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

### Plant Survivorship:

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		5	Red-osier Dogwood		7
Silver Maple		5	Silky Dogwood		2
Eastern Cottonwood		10	Winterberry Holly		
Box Elder	(1)	4 + (1)	Chokecherry		
			Northern Arrowwood		1

Total Live Trees: 24 (1 dead) Total Live Shrubs: 10

Herbaceous Cover (%): 60%

Invasive Plant Cover (%): mullein, purple loosestrife (rare), bindweed (very little), 25%

### Meander Survey Comments (Use Additional Sheets As Necessary):

Seeding recommended

## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, ME

Date: 8/13/07 2:05PM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: some clouds sunny 70s

Planting Area Location: 2-W-2

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

### Plant Survivorship:

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		5	Red-osier Dogwood		1
Silver Maple		1	Silky Dogwood		
Eastern Cottonwood		8	Winterberry Holly		
Box Elder		7	Chokecherry		
			Northern Arrowwood		

Total Live Trees: 21 Total Live Shrubs: 1

Herbaceous Cover (%): 795% groundhog hole

Invasive Plant Cover (%): 0% small purple loosestrife in riprap

Meander Survey Comments (Use Additional Sheets As Necessary):

## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): JC, MS

Date: 8/13/07, 2:40PM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: cloudy, 80%

Planting Area Location: Z-13

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow			Red-osier Dogwood		
Silver Maple	1	1	Silky Dogwood	10	10
Eastern Cottonwood	1	1	Winterberry Holly	1	1
Box Elder	5	5	Chokecherry	5	5
<i>Valerian</i>	11	11	Northern Arrowwood	3	3

Total Live Trees: 18 Total Live Shrubs: 19

Herbaceous Cover (%): 795%

Invasive Plant Cover (%): 45%

*Meander Survey Comments (Use Additional Sheets As Necessary):*

# Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/13/07 4:33 AM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: Sunny, 20°C, 40% RH

Planting Area Location: Z-E-1

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow	II	2	Red-osier Dogwood	IIIIII	8
Silver Maple			Silky Dogwood	IIII	7
Eastern Cottonwood	IIII	7	Winterberry Holly	IIII	6
Box Elder	III	3	Chokecherry	II	2
			Northern Arrowwood	III	3

Total Live Trees: 12 Total Live Shrubs: 26

Herbaceous Cover (%): 100%

Invasive Plant Cover (%): 45%

*Meander Survey Comments (Use Additional Sheets As Necessary):*

## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/13/07, 4:04 PM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: Sunny, some clouds, 80's

Planting Area Location: 2-E-2

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

### Plant Survivorship:

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		2	Red-osier Dogwood		5
Silver Maple		3	Silky Dogwood		
Eastern Cottonwood		8	Winterberry Holly		
Box Elder		3	Chokecherry		
			Northern Arrowwood		

Total Live Trees: 16 Total Live Shrubs: 5

Herbaceous Cover (%): 100%

Invasive Plant Cover (%): mullein, Knotweed, 45%

Meander Survey Comments (Use Additional Sheets As Necessary):

# Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/13/07 2:00 PM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: cloudy, sun, 60°

Planting Area Location: 2-E-3

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

### Plant Survivorship:

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow	① ①	4 + ②	Red-osier Dogwood		
Silver Maple		8	Silky Dogwood		16
Eastern Cottonwood	①	10 + ①	Winterberry Holly		
Box Elder		7	Chokecherry		
			Northern Arrowwood		1

Total Live Trees: 29 + ③ Total Live Shrubs: 17

Herbaceous Cover (%): >95%, 15% spray damage to herb layer

Invasive Plant Cover (%): purple loosestrife, bidstraw, <5%

### Meander Survey Comments (Use Additional Sheets As Necessary):

No cage maintenance performed  
 - trees need to be picked up  
 - dead trees need to be removed

Many upper cottonwoods down

1 Load willow from spraying

# Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/14/07, 2:23PM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: Sunny, 70s

Planting Area Location: 3-W-1

Riverbank Length (ft): 212' Avg width (ft): 8', 9', 5', 5'

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow	1	1	Red-osier Dogwood	10	10
Silver Maple	6	6	Silky Dogwood	20	20
Eastern Cottonwood	1	1	Winterberry Holly	2	2
Box Elder	5	5	Chokecherry	3	3
			Northern Arrowwood	4	4

Total Live Trees: 13 Total Live Shrubs: 39

Herbaceous Cover (%): >95%

Invasive Plant Cover (%): Knapweed, purple loosestrife, mullein, <5%  
SPURGE

**Meander Survey Comments (Use Additional Sheets As Necessary):**

Vetch taking over a patch on N. end  
 Bindweed getting thick.  
 Willow - pinning rec'd, growing through cage

# Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TCIMS

Date: 8/14/07 2:47PM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: SUNNY, 70S

Planting Area Location: 3-N-2

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		3	Red-osier Dogwood		8
Silver Maple		3	Silky Dogwood		3
Eastern Cottonwood		1	Winterberry Holly		
Box Elder		2	Chokecherry		
			Northern Arrowwood		3

Total Live Trees: 9 Total Live Shrubs: 14

Herbaceous Cover (%): 795%

Invasive Plant Cover (%): 0 - all mowed

**Meander Survey Comments (Use Additional Sheets As Necessary):**

Mullen below plot & adjacent to narrow & purple loosestrife below plot in riprap  
 Serviceberry - 2 planted

## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/14/07 3:20PM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_ Weather: \_\_\_\_\_

Planting Area Location: 310-3

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_  
 Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		6	Red-osier Dogwood		15
Silver Maple		4	Silky Dogwood		
Eastern Cottonwood		1	Winterberry Holly		4
Box Elder		2	Chokecherry		3
			Northern Arrowwood		2

Total Live Trees: 13 Total Live Shrubs: MOWED |||| 4  
24 + 4 mowed

Herbaceous Cover (%): > 95%

Invasive Plant Cover (%): SPURGE < 5%  
KNAWEED

Meander Survey Comments (Use Additional Sheets As Necessary):

## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/14/07 1:55 PM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: sunny, 70°

Planting Area Location: 3-E-1

Riverbank Length (ft): 145ft Avg width (ft): 6', 10', 10' - 10' avg

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow	1	1	Red-osier Dogwood		
Silver Maple		5	Silky Dogwood	 	22
Eastern Cottonwood		4	Winterberry Holly		3 ①
Box Elder	 v	4	Chokecherry		5
			Northern Arrowwood		4

Total Live Trees: 14 Total Live Shrubs: 34 + ①

Herbaceous Cover (%): > 95%

Invasive Plant Cover (%): Muller's Knapweed, rosa multiflora, bed straw, < 5%

*Meander Survey Comments (Use Additional Sheets As Necessary):*

# Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 8/14/07 1:09 PM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_ Weather: SUNNY, CLEAR, 70S

Planting Area Location: 3-E-2

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

<i>Trees</i>	<i>Quantity (live)</i>	<i>Total</i>	<i>Shrubs</i>	<i>Quantity (live)</i>	<i>Total</i>
Black Willow	1	1	Red-osier Dogwood	4	5
Silver Maple			Silky Dogwood		
Eastern Cottonwood	7	7	Winterberry Holly		
Box Elder	1	1	Chokecherry		
			Northern Arrowwood		

Total Live Trees: 9 Total Live Shrubs: 5

Herbaceous Cover (%): 100%

Invasive Plant Cover (%): mullein, < 5%

*Meander Survey Comments (Use Additional Sheets As Necessary):*



## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS Date: 8/14/07 12:47 PM  
 Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_ Weather: Sunny low 70s

Planting Area Location: 3-E-3  
 Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_  
 Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_  
 Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_  
 Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		6	Red-osier Dogwood		11
Silver Maple		4	Silky Dogwood		1
Eastern Cottonwood		2	Winterberry Holly		2
Box Elder			Chokecherry		3
			Northern Arrowwood		3

Total Live Trees: 12 Total Live Shrubs: 20

Herbaceous Cover (%): 79.5%

Invasive Plant Cover (%): Spurge, purple loosestrife, knapweed, 25%

**Meander Survey Comments (Use Additional Sheets As Necessary):**

Shrub cages have been removed

# Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS Date: 8/14/07 9:32AM  
 Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_ Weather: clear, 75°

Planting Area Location: 4-W-1  
 Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_  
 Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_  
 Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_  
 Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow	<del>///</del>	5	Red-osier Dogwood	<del>///</del> <i>seem dead 1</i>	4 ①
Silver Maple	<del>///</del>	5	Silky Dogwood	0	
Eastern Cottonwood	// ①	2 ①	Winterberry Holly		
Box Elder	<del>///</del>	6	Chokecherry		
			Northern Arrowwood		

Total Live Trees: 18 + ① Total Live Shrubs: 6 + ①

Herbaceous Cover (%): 795%

Invasive Plant Cover (%): Spurge, 25%

**Meander Survey Comments (Use Additional Sheets As Necessary):**

*1 cottonwood does not have a cage - out of plot  
 1 cottonwood - dead from spring*

## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): JC, MS

Date: 8/14/07 9:11AM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: clear, sunny, 70

Planting Area Location: 4-W-2

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

### Plant Survivorship:

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow	1	1	Red-osier Dogwood	5 ①	5 ①
Silver Maple	4	4	Silky Dogwood		
Eastern Cottonwood	10 ①	10 ①	Winterberry Holly		
Box Elder	6	6	Chokecherry		
			Northern Arrowwood		

Total Live Trees: 21 and ① Total Live Shrubs: 5 and ①

Herbaceous Cover (%): 90%

Invasive Plant Cover (%): spurge, milkweed, black locust, knotweed < 5%

### Meander Survey Comments (Use Additional Sheets As Necessary):

Red osier killed by spray.

## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS

Date: 2/14/07 2:27 AM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: clear, windy, 68°

Planting Area Location: 4-W-3

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_

Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

### Plant Survivorship:

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		3	Red-osier Dogwood	<del>    </del>	11
Silver Maple		2	Silky Dogwood		3
Eastern Cottonwood	<del>    </del> V-	7 V-4	Winterberry Holly	<del>    </del>	6
Box Elder		3	Chokecherry	<del>    </del>	5
			Northern Arrowwood	<del>    </del>	5

Total Live Trees: 15, 19 (w/v) Total Live Shrubs: 30

Herbaceous Cover (%): 100%

Invasive Plant Cover (%): jap. Knotweed, Purple loosestrife 25%

Meander Survey Comments (Use Additional Sheets As Necessary): \_\_\_\_\_

## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TC, MS Date: 8/14/07 10:00am  
 Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_ Weather: clear, sunny, 68°

Planting Area Location: 4-E-1  
 Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_  
 Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_  
 Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_  
 Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow	1	2	Red-osier Dogwood	4	6
Silver Maple	1	2	Silky Dogwood		
Eastern Cottonwood	1	2	Winterberry Holly		
Box Elder		1	Chokecherry		
			Northern Arrowwood		

Total Live Trees: 7 Total Live Shrubs: 6

Herbaceous Cover (%): >95%

Invasive Plant Cover (%): <5%

*Meander Survey Comments (Use Additional Sheets As Necessary):*

## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page      of     

Observer(s): TC, MS

Date: 8/14/07 10:24 AM *PHOTO*

Phase:      Flow @ Coltsville (cfs)     

Weather: clear sunny 70 *10:31 AM USE*

Planting Area Location: 4E-2

Riverbank Length (ft):      Avg width (ft):     

Planting Area (sf):      10-20% Area (sf):     

Comments:     

Random Sample Location Number:      Riverbank length (ft):      Width (ft):     

Slope length (ft):      Sample Area (sf):     

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		2	Red-osier Dogwood		
Silver Maple			Silky Dogwood		4
Eastern Cottonwood		1	Winterberry Holly		2
Box Elder	 <i>(grainy from photo)</i>	1 <i>(1)</i>	Chokecherry		1
			Northern Arrowwood		3

Total Live Trees: 4 + (1) Total Live Shrubs: 16

Herbaceous Cover (%): 100%

Invasive Plant Cover (%): Knapweed, < 5%

Meander Survey Comments (Use Additional Sheets As Necessary):

## Revegetation Monitoring Field Form

1.5 Mile Reach, GE/Housatonic River Site, Pittsfield, MA

Page \_\_\_ of \_\_\_

Observer(s): TG, MS

Date: 8/14/07 10:53AM

Phase: \_\_\_\_\_ Flow @ Coltsville (cfs) \_\_\_\_\_

Weather: clear, sunny, 70

Planting Area Location: 4E-3

Riverbank Length (ft): \_\_\_\_\_ Avg width (ft): \_\_\_\_\_

Planting Area (sf): \_\_\_\_\_ 10-20% Area (sf): \_\_\_\_\_

Comments: \_\_\_\_\_

Random Sample Location Number: \_\_\_\_\_ Riverbank length (ft): \_\_\_\_\_ Width (ft): \_\_\_\_\_  
 Slope length (ft): \_\_\_\_\_ Sample Area (sf): \_\_\_\_\_

**Plant Survivorship:**

Trees	Quantity (live)	Total	Shrubs	Quantity (live)	Total
Black Willow		3	Red-osier Dogwood		
Silver Maple		5	Silky Dogwood		7
Eastern Cottonwood		2	Winterberry Holly		
Box Elder	 ①①	7 ②	Chokecherry	①①①①	6 ①
			Northern Arrowwood	 ①	5 ①

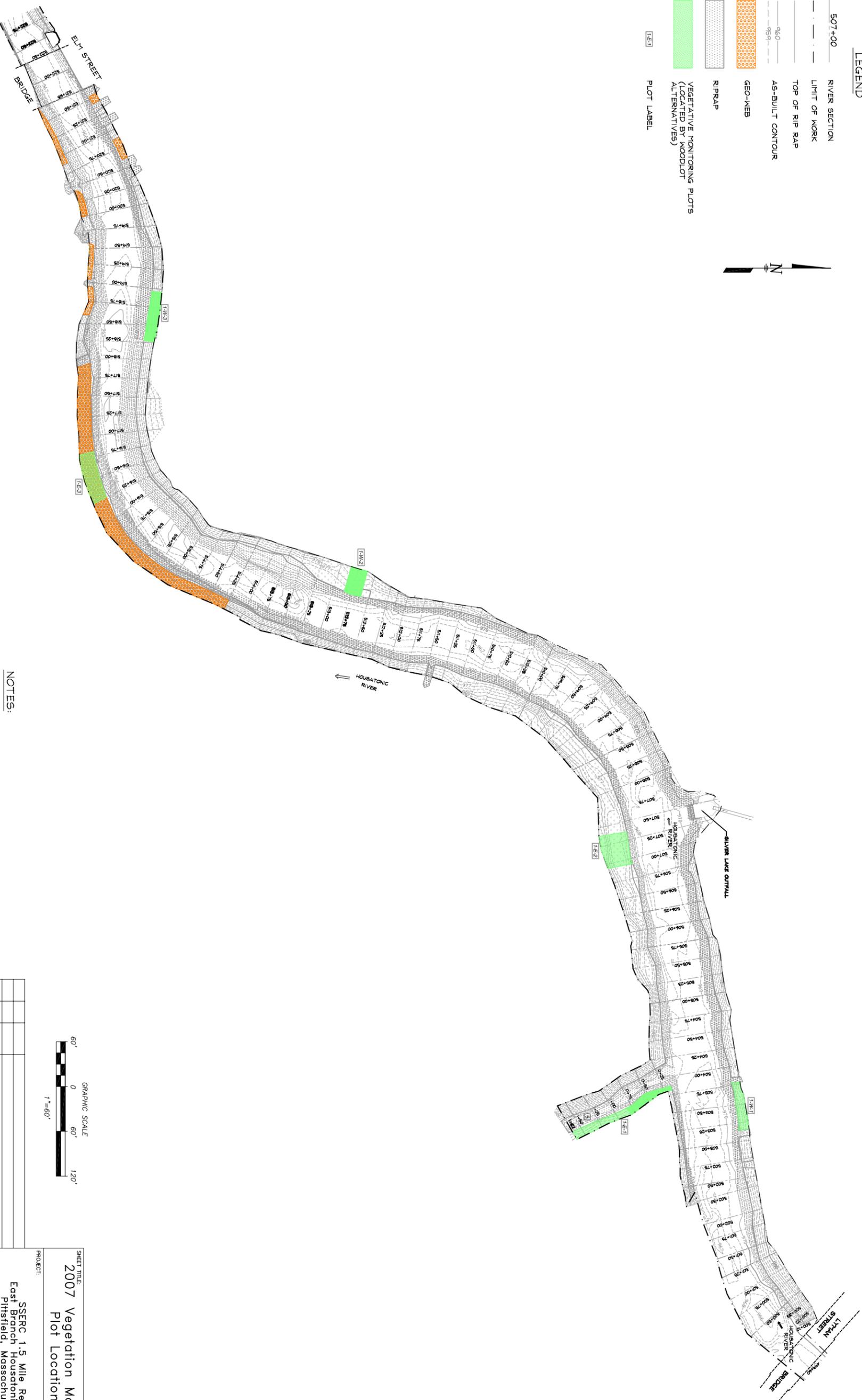
Total Live Trees: 7 + 4 + 2 = 14 Total Live Shrubs: 18 + 2

Herbaceous Cover (%): 100%

Invasive Plant Cover (%): Spurge, hard St. com, 45%

Meander Survey Comments (Use Additional Sheets As Necessary): \_\_\_\_\_

- LEGEND**
- 507+00 RIVER SECTION
  - LIMIT OF WORK
  - TOP OF RIP RAP
  - 9%0 AS-BUILT CONTOUR
  - 95-9
  - GEO-MEB
  - RIPRAP
  - VEGETATIVE MONITORING PLOTS (LOCATED BY WOODLOT ALTERNATIVES)
  - 1-E-1 PLOT LABEL



- NOTES:**
1. AS-BUILT TOPOGRAPHIC SURVEY PERFORMED BY HILL ENGINEERS, ARCHITECTS, PLANNERS, INC. BETWEEN SEPTEMBER 2002 (PHASE #1) AND APRIL 2006 (END PHASE #3).
  2. GEO-MEB LOCATIONS ARE BASED ON PLANS PROVIDED BY WESTON SOLUTIONS, INC. AND WERE NOT LOCATED IN THE FIELD (WITH AN INSTRUMENT) BY HILL-ENGINEERS, ARCHITECTS, PLANNERS, INC.

REV.	BY	DATE	STATUS

**SHEET TITLE:**  
2007 Vegetation Monitoring Plot Locations

**PROJECT:**  
SSERC 1.5 Mile Reach  
East Branch Housatonic River  
Pittsfield, Massachusetts

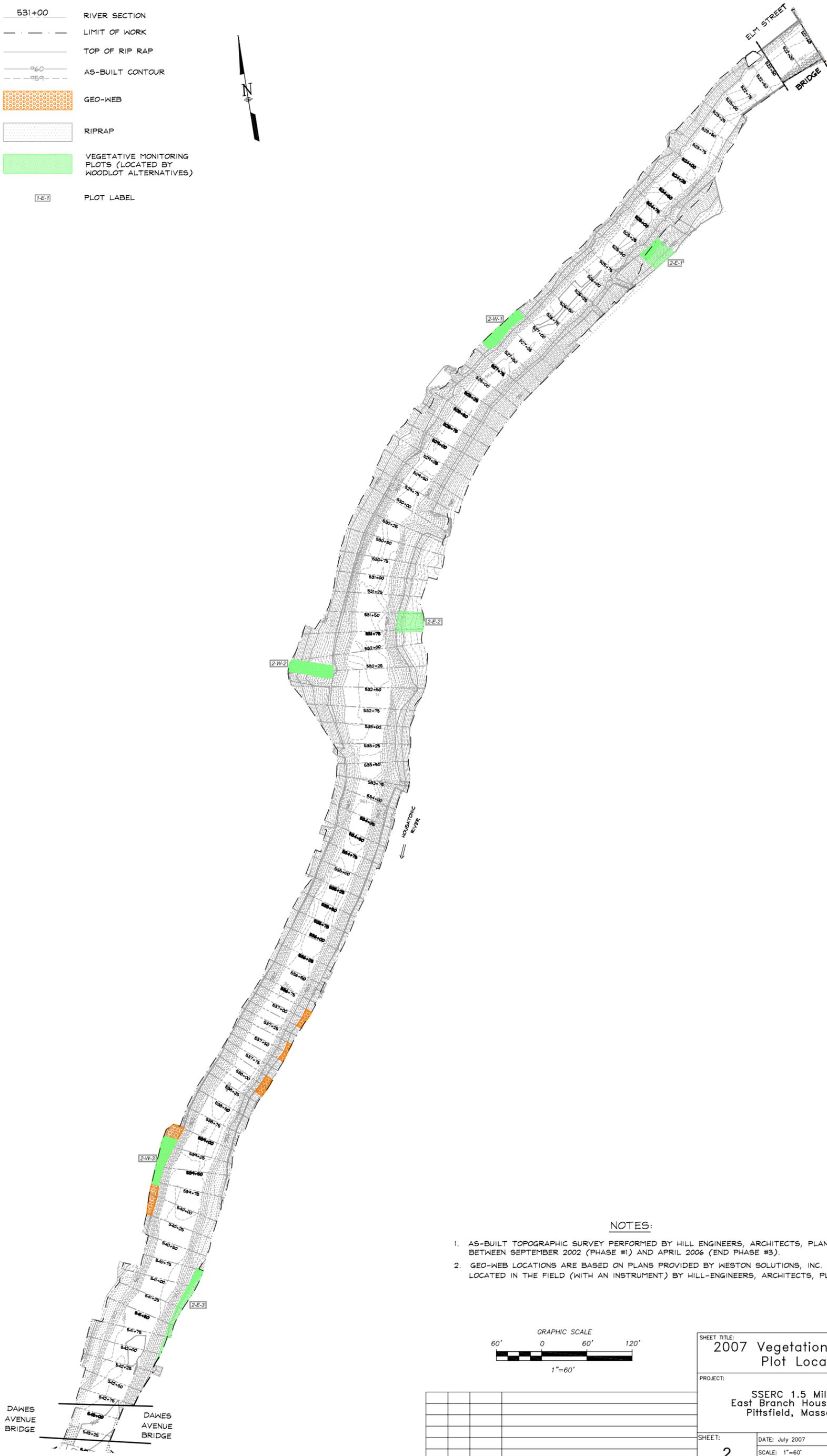
**SHEET:** 1

**DATE:** July 2007  
**SCALE:** 1"=60'  
**PROJ. NO.:** 104141.03



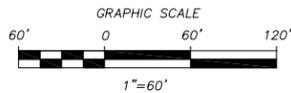
**LEGEND**

- 531+00 RIVER SECTION
- LIMIT OF WORK
- TOP OF RIP RAP
- 960 AS-BUILT CONTOUR
- 959
-  GEO-WEB
-  RIPRAP
-  VEGETATIVE MONITORING PLOTS (LOCATED BY WOODLOT ALTERNATIVES)
-  PLOT LABEL



**NOTES:**

1. AS-BUILT TOPOGRAPHIC SURVEY PERFORMED BY HILL ENGINEERS, ARCHITECTS, PLANNERS, INC. BETWEEN SEPTEMBER 2002 (PHASE #1) AND APRIL 2006 (END PHASE #3).
2. GEO-WEB LOCATIONS ARE BASED ON PLANS PROVIDED BY WESTON SOLUTIONS, INC. AND WERE NOT LOCATED IN THE FIELD (WITH AN INSTRUMENT) BY HILL-ENGINEERS, ARCHITECTS, PLANNERS, INC.



SHEET TITLE:  
**2007 Vegetation Monitoring Plot Locations**

PROJECT:  
SSERC 1.5 Mile Reach  
East Branch Housatonic River  
Pittsfield, Massachusetts

SHEET: **2**      DATE: July 2007  
SCALE: 1"=60'       WOODLOT  
PROJ. NO.: 104141.03      ENVIRONMENTAL CONSULTANTS

REV.	BY	DATE	STATUS

S:\104141\104141-03-2006\MapDocs\104141-03-2006\MapDocs\104141-03-2006.dwg



- LEGEND**
- 562+00 RIVER SECTION
  - LIMIT OF WORK
  - TOP OF RIP RAP
  - 96.0 AS-BUILT CONTOUR
  - 95.9
  - GEO-MEB
  - RIPRAP
  - VEGETATIVE MONITORING PLOTS (LOCATED BY WOODLOT ALTERNATIVES)
  - 40x4 PLOT LABEL



- NOTES:**
1. AS-BUILT TOPOGRAPHIC SURVEY PERFORMED BY HILL ENGINEERS, ARCHITECTS, PLANNERS, INC. BETWEEN SEPTEMBER 2002 (PHASE #1) AND APRIL 2006 (END PHASE #3).
  2. GEO-MEB LOCATIONS ARE BASED ON PLANS PROVIDED BY WESTON SOLUTIONS, INC. AND WERE NOT LOCATED IN THE FIELD (WITH AN INSTRUMENT) BY HILL-ENGINEERS, ARCHITECTS, PLANNERS, INC.

REV.	BY	DATE	STATUS

**SHEET TITLE**  
**2007 Vegetation Monitoring Plot Locations**

**PROJECT:**  
 SSERC 1.5 Mile Reach  
 East Branch Housatonic River  
 Pittsfield, Massachusetts

**SHEET:**  
 4

**DATE:** July 2007  
**SCALE:** 1"=60'  
**PROJ. NO.:** 104141.03

**WOODLOT**  
 WOODLOT ALTERNATIVES, INC.  
 1000 WOODLOT DRIVE  
 PITTSFIELD, MASSACHUSETTS 01201