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January 30, 2008

Mr. Dean Tagliaferro
EPA Project Coordinator
US Environmental Protection Agency
c/o Weston Solutions, Inc.
One Lyman Street
Pittsfield, MA 01201

Re: GE-Pittsfield/Housatonic River Site
Upper ½-Mile Reach of the Housatonic River (GECD800)
2007 Annual Monitoring Report

Dear Mr. Tagliaferro:

Enclosed is a memorandum presenting the results of the 2007 annual monitoring activities associated with the Upper ½-Mile Reach of the Housatonic River in Pittsfield, Massachusetts.

Please call me with any questions.

Very truly yours,

Andrew T. Silfer/dmn

Andrew T. Silfer, P.E.
GE Project Coordinator

TLC/dmn
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Pittsfield, Massachusetts

2007 Annual Monitoring Report

Upper ½-Mile Reach of the Housatonic River

January 2008

ARCADIS

2007 Annual Monitoring Report

Upper ½-Mile Reach of the Housatonic River

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1. Introduction

1.1 Purpose and Scope

This *2007 Annual Monitoring Report* summarizes the results of various post-restoration monitoring activities conducted by the General Electric Company (GE) during 2007 for the Upper ½-Mile Reach of the Housatonic River in Pittsfield, Massachusetts, under the Consent Decree (CD) for the GE-Pittsfield/Housatonic River Site. This report was prepared on GE's behalf by ARCADIS and AMEC Earth & Environmental (AMEC). These monitoring activities were performed in accordance with the requirements of the *Removal Action Work Plan for the Upper ½-Mile Reach of the Housatonic River* (Work Plan) (BBL, 1999) (Appendix F to the CD).

During 2007, monitoring activities for the Upper ½-Mile Reach were performed for the restored bank and river areas addressing the following categories:

- Restored bank vegetation;
- Restored bank erosion;
- Aquatic habitat enhancement structures;
- Armor stone layer;
- Water column;
- Isolation layer materials; and
- Deposited sediments on top of cap (referred to as "restored sediments" in the Work Plan).

This report describes the 2007 monitoring activities and associated response actions, where conducted, for the above components.

1.2 Report Organization

Following this introductory section, this report is organized into the following sections.

- Section 2 – Restored Bank Vegetation Monitoring. This section summarizes the restored bank vegetation inspections and associated response actions conducted during 2007. As detailed in the Work Plan, these activities were performed in those

bank areas that were restored as part of the Upper ½-Mile Reach Removal Action – i.e., those areas where bank soils were excavated as part of that Removal Action and/or areas that were cleared to allow access for the removal activities.

- Section 3 – Restored Bank Erosion Monitoring. This section summarizes the restored bank erosion inspections during 2007, as well as the evaluation of the need and timing for response actions.

- Section 4 – Aquatic Habitat Enhancement Structures and Armor Stone Layer Monitoring. This section summarizes the inspections conducted in 2007 for the aquatic habitat enhancement structures and armor stone layer and presents the results of these activities.

- Section 5 – Water Column Monitoring. This section summarizes the water column sampling conducted in 2007 and presents the results of these monitoring activities.

- Section 6 – Isolation Layer Sampling. This section summarizes the isolation layer sampling conducted in 2007 and presents the results of these monitoring activities.

- Section 7 – Deposited Sediments Sampling. This section summarizes the sampling conducted in 2007 of the sediments that have deposited on top of the cap installed in the Upper ½-Mile Reach and presents the results of these monitoring activities.

- Section 8 – Summary and Future Activities. This section summarizes the overall activities completed as part of the 2007 monitoring program and describes future monitoring activities.

- Section 9 – References. This section presents references cited throughout this report.

2. Restored Bank Vegetation Monitoring

2.1 General

Vegetative restoration activities were implemented in those areas where bank soils were excavated as part of the Upper ½-Mile Reach Removal Action and in areas cleared to allow access for the removal activities (see Figure 2-1). The restoration techniques outlined in the Work Plan were intended to restore the vegetative community in such disturbed riparian areas to a functional value consistent with the riparian habitat present prior to the Removal Action. All soil removal activities along the riverbank were completed in 2002 and the disturbed banks have been restored. As part of the restoration process, GE, in conjunction with representatives of the Natural Resource Trustees (Trustees), monitors those areas that were restored to verify the success and biological integrity of the intended vegetative community.

2.2 Monitoring Program

An annual summary monitoring report is required to document the results of that year's monitoring visits and the conditions of the restored areas within the Upper ½-Mile Reach. This section fulfills the annual summary monitoring report requirement for the calendar year 2007.

As outlined in the Work Plan, GE and the Trustees agreed to a monitoring methodology that was used in 2001 and revised for implementation in 2002 and beyond. The Standard Operating Procedure that was agreed upon at that time for conducting the restored banks vegetation monitoring is included as Appendix A.

In 2005, GE proposed certain modifications to the existing vegetation monitoring program in response to changing conditions and vegetative growth on the restored banks. The proposed modifications were submitted to the Trustees, with a copy to the U.S. Environmental Protection Agency (EPA) in a communication dated August 3, 2005. The proposed modifications were conditionally approved in a communication from the Trustees dated February 27, 2006. For reference, the modified monitoring approach is summarized in Appendix B. In general, the modified monitoring program includes the use of smaller sub-plots in older planting areas to allow for a more focused assessment of representative portions of those areas.

For each planting area, the Work Plan required that the vegetative monitoring program consist of two visits per year for the first 3 years after planting and an annual visit during the fifth and seventh years after planting. In each of the first 3 years after planting, visits were

required to be conducted in the late spring after the first leaf flush (May/June) and in the summer (July/August) to assess plant survival. The single visits in the fifth and seventh years after planting are to be conducted in the summer (July/August). At the end of the 7-year monitoring period, GE is required to propose a long-term monitoring program that will be implemented upon EPA approval. In the event of a significant loss of plantings (greater than ¼ acre), the schedule for monitoring must be restarted following actions to replant the lost trees or shrubs (except in the case where a third party is responsible for such losses).

Survival rates, based on stem counts of planted trees and shrubs and the extent of areal coverage for herbaceous cover, are the key components of measuring the success of planted areas. The following performance standards are used to assess the adequacy of the restoration efforts over the Upper ½-Mile Reach:

1. All planted trees, shrubs, and vines must meet an 80% survival rate of the amount originally planted. To confirm this survival rate, supplemental plantings of appropriate species must be made if a monitoring event indicates a loss greater than 20%. Any dead trees or shrubs in excess of 20% of the original planting are to be replaced in the year in which monitoring occurs.

2. Herbaceous coverage of 100% must be maintained outside the foliar extent of the trees. If necessary, supplemental seeding or other activities are to be used to maintain 100% herbaceous coverage.

3. No greater than 5% of the restoration area of either bank may be allowed to be covered by invasive plant species. Any invasive species in excess of the 5% coverage limit must be removed in accordance with the requirements of the *Invasives Control Plan* (BBL, 2001).

The survivability of the plants is to be determined by both mortality and apparent vigor. Monitoring also assesses whether supplemental activities, such as stem protection, fertilization, or watering, are necessary.

In accordance with the Work Plan, a certified arborist (selected in consultation with the Trustees) assists in the completion of the monitoring program. The arborist, Chris Frank of C.L. Frank & Company of Northampton, Massachusetts, uses best professional judgment to assess the apparent vigor of the planted specimens. To the extent practicable, Mr. Frank observes any supplemental plantings and is present for the restored bank vegetation monitoring visits.

During each of the monitoring visits, the restoration areas must also be inspected for the presence of the following invasive plant species:

- Asiatic Bittersweet *Celastrus orbiculatus*
- Common Buckthorn *Rhamnus cathartica*
- Norway Maple *Acer platanoides*
- Staghorn Sumac *Rhus typhina*
- Morrows Honeysuckle *Lonicera morrowii*
- Amur Honeysuckle *Lonicera maackii*
- Tatarian Honeysuckle *Lonicera tatarica*
- Autumn-olive *Elaeagnus umbellata*
- Russian-olive *Elaeagnus angustifola*
- Black Locust *Robinia pseudoacacia*
- Buckthorn *Rhamnus frangula*
- Japanese Honeysuckle *Lonicera japonica*
- Japanese Barberry *Berberis thunbergii*
- European Barberry *Berberis vulgaris*
- Porcelain Berry *Ampelopsis brevipedunculosa*
- Black Swallow-wort *Vincetoxicum nigrum*
- Garlic Mustard *Allaria petiolata*
- Goutweed *Aegopodium podagraria*
- Japanese Knotweed *Polygonum cuspidatum*
- Multiflora Rose *Rosa multiflora*

- Common Reed *Phragmites australis*
- Purple Loosestrife *Lythrum salicaria*
- Yellow Iris *Iris pseudacorus*
- Winged Euonymus (or Burning Bush) *Euonymus alata*

Each monitoring visit consists of a pedestrian survey of all areas on both banks where restoration activities have occurred. During the field visit, personnel conducting the inspection, supported by the certified arborist, perform a stem count of planted trees and shrubs to determine respective survival rates. The inspection team estimates groundcover by herbaceous species to verify coverage outside the foliar extent of the canopy, and notes any indications of damage from trespassing or herbivory. The inspection team also makes observations related to the necessary initiation, if any, of actions to address invasive species. The monitoring visits are documented through field notes and photographs. Based on the results of each visit, the inspection team recommends response actions, such as replanting, watering, fertilization, and implementing 2007.

2.3 2007 Monitoring Activities

During 2007, there was one scheduled restored bank vegetation inspection – performed on August 16 and 17, 2007 (i.e., a late summer inspection). Representatives of GE and the Trustees jointly conducted the vegetation monitoring visit. Planting areas 1, 2, 3, 4A, 5, 12, 13, 14, 15, 16 and 17 were quantitatively monitored during this event. The 2007 monitoring visit constituted the 7th-year and final scheduled inspection in planting areas 1, 2, 3, 4A, and 5, the 5th-year scheduled inspection in planting areas 12, 14, and 17, and the deferred 3rd-year inspection in planting areas 13, 15, and 16. A discussion of future long-term monitoring activities for the restored bank vegetation is presented in Section 8.1. Table 2-1 presents a summary of recent planting quantities and activities completed in previous years. All planting areas are shown on Figure 2-1. A trip report summarizing the results of this monitoring visit was submitted to EPA on December 7, 2007, with a copy to the Trustees; a copy of that trip report is included in Appendix C.

It should be noted that planting area 13, as well as the composite planting area 6, 6A, 7, 8A and the composite planting area 8, 9, 9A, 11 and 11A, which are scheduled for inspection in 2008, have been impacted by the performance of remediation activities associated with Newell Street Area II and/or by the restoration activities for the ½-Mile banks associated with areas of erosion identified in either 2006 or 2007. Following discussions with EPA, it

was determined that, due to the resultant reduction in size of the available planting space, the original performance standards for canopy and understory species are no longer applicable in these planting areas, as there is no longer sufficient space to support the planting frequencies described in the Work Plan. As a result, GE proposed that, following the completion of the bank restoration activities to address erosion (discussed in Section 3 below), the performance standards for canopy and understory species in the affected planting areas would be recalculated, considering only the remaining available space (i.e., the available planting area between the lower extent of the Newell Street Area II engineered barrier and the upper extent of the newly restored areas on the south bank of the ½-Mile). (The recalculated performance standards for these areas are set forth in Section 2.4 below.)

The bank vegetation monitoring visit was conducted on August 16 and 17, 2007 by Charles Harman of AMEC as a representative of GE. Todd Chadwell of Stantec (formerly Woodlot Alternatives) was present for the Trustees, and Chris Frank of C. L. Frank accompanied the monitoring party as the certified arborist. Water in the river was at a seasonably low level, and was generally below the top of the rip-rap at the toe of the bank.

The following describes the results of the 2007 vegetation inspection for those areas inspected in 2007. Tables 2-2 through 2-7 present a detailed summary with respect to each applicable performance standard. These results are presented for all performance standards for planting areas 1, 2, 3, 4A, 5, 12, 14, 15, 16, and 17. However, for the reasons given above, the results of the inspection for planting area 13 are presented only in terms of achieving the performance standards which are not based on available planting space (i.e., red-osier dogwoods, herbaceous coverage, and invasive species), since the previous performance standards for canopy and understory species were not applicable to that area.

Canopy Species

For canopy species, most areas met the performance standard. Planting area 5 did not meet the performance standard, with a negative variance of 4 specimens. This area had been disturbed by remedial activities performed within or adjacent to this area. Planting area 16 did not meet the performance standard, with a negative variation of 2 specimens, and appears to have been impacted by remedial actions conducted in the vicinity of the power line corridor. Canopy species monitoring results are summarized in Table 2-2.

Understory Species, Red-Osier Dogwoods, and Grapevines

For understory species, most of the areas met the performance standard. Area 5 did not meet the performance standard, with a negative variance of 28 specimens, and appears to

have lost understory species during remedial construction activities performed within or adjacent to this area. Understory species monitoring results are summarized in Table 2-3. All planting areas met the performance standard for red-osier dogwoods and grapevines, and results are summarized in Tables 2-4 and 2-5.

Herbaceous Cover and Invasive Species

All planting areas met the required performance standards for herbaceous cover and invasive species. The results of the monitoring surveys for these species are shown in Tables 2-6 and 2-7, respectively.

2.4 Response Actions

GE will implement corrective actions in spring 2008 for the two planting areas where the performance standards for canopy and/or understory specimens were not met. New plantings will be installed in those areas. The number of canopy and/or shrub specimens anticipated for each planting area is listed below:

Planting area 5: 8 canopy specimen, 36 shrub specimen

Planting area 16: 4 canopy specimen

Depending on species availability, canopy plantings will be divided equally among boxelder (*Acer negundo*), eastern cottonwood (*Populus deltoids*), silver maple (*Acer saccharinum*), and black willow (*Salix nigra*) species. Shrub plantings will be comprised of northern arrowwood (*Viburnum dentatum*), silky dogwood (*Cornus amomum*), winterberry (*Ilex verticillata*), and choke-cherry (*Prunus virginiana*), depending upon species availability. Canopy species will be installed in open spaces in each respective planting area, while understory species will be planted in open areas within the respective shrub plots in the affected planting areas.

As discussed above, planting area 13, as well as the composite planting area 6, 6A, 7, 8A and the composite planting area 8, 9, 9A, 11 and 11A, were impacted by the performance of remediation and/or bank erosion restoration activities. As a result, these planting areas have been reassessed for available planting space, and new performance standards have been developed. Due to the performance of remediation and/or bank restoration activities, planting area 13 decreased in area by approximately 10%, composite planting area 6, 6A, 7, 8A decreased in area by approximately 20% and composite planting area 8, 9, 9A, 11, 11A decreased in size by approximately 20%. Based on this reduction in available planting space, the performance standards for planting area 13, composite area 6, 6A, 7, 8A, and composite planting area 8, 9, 9A, 11, 11A have been decreased by approximately 10%,

20% and 20%, respectively. The following table summarizes the changes in the planting area-specific performance standards:

	Canopy		Understory	
	Original	Revised	Original	Revised
Planting Area 13	56	51	58	52
Planting Areas 8, 9, 9A, 11, 11A	76	60	58	46
Planting Area 6, 6A, 7, 8A	90	72	--	--

These areas will be inspected in 2008, as discussed in Section 8.1 below, and will be evaluated against the revised performance standards listed above.

3. Restored Bank Erosion Monitoring

3.1 General

In 2007, restored bank erosion monitoring activities were implemented in those bank areas disturbed and restored as part of the Upper ½-Mile Reach Removal Action. Specifically, the cleared and restored bank areas of the Upper ½-Mile Reach (excluding those portions of the river included in the Building 68 Area Removal Action) are required to be inspected for significant areas of soil erosion or bank failure. In areas where a significant amount of erosion (e.g., ruts, gullies, washouts, or sloughing) is observed within the cleared and restored or riprap protective areas, GE is required to implement measures to replace/restore the eroded soil or riprap to the original restoration design conditions.

3.2 Monitoring Program

The Work Plan requires that the post-restoration monitoring program consist of a visual inspection of the cleared and restored bank areas for signs of erosion on a semi-annual basis during the first year after restoration of the herbaceous cover and annually in years 2 through 5. At the end of the 5-year period, GE is required to propose a long-term monitoring program that will be implemented upon EPA approval. 2007 was the fifth year of erosion monitoring for the restored banks. A long-term monitoring program that will be implemented upon EPA approval is proposed in Section 8.2 of this report.

3.3 2007 Monitoring Activities

To complete the monitoring requirements set forth in the Work Plan, the restored banks in the Upper ½-Mile Reach were inspected to assess cleared and restored areas for evidence of erosion. The restored bank erosion monitoring visit was conducted on September 13, 2007. Paolo Filipetti of ARCADIS BBL performed the inspection, and was accompanied by Tom Czlusniak of Weston, Inc., representing EPA. During this visit, three areas of measurable erosion were noted. In accordance with the Work Plan, GE identified, to the extent practical, the likely cause of the erosion and evaluated the source, dispersal, and quantity, if any, of eroded soil in the River. In addition, GE evaluated the need and timing for response actions. The results of the 2007 restored bank inspection are summarized in Table 3-1, and the three areas where measurable erosion was observed are shown on Figure 3-1. A summary of these three areas is provided below. A trip report documenting the results of this inspection was submitted to EPA on November 16, 2007; a copy of that report is included in Appendix C.

During the 2007 bank inspection, flow in the river was approximately 36 cubic feet per second (cfs), as measured at U.S. Geological Survey (USGS) River Gauge Station No. 01197000 on the East Branch of the Housatonic River in Coltsville, MA. It should be noted that there were two high-flow events during 2007 exceeding 440 cubic feet per second (cfs), including flows greater than 1,500 cfs on April 16 and 17, 2007. With the exception of certain minor areas of erosion that are likely associated with concentrated surface run-off (as further discussed below), the erosion noted during the 2007 inspection appears to be related to these or previous high flows in the Upper ½-Mile Reach.

Three areas were noted with either a visually observable loss of bank materials or movement of bank armoring during the 2007 inspection. Portions of these areas, or in one case the entire area of erosion discussed herein, are outside of the cleared and restored bank area associated with the Upper ½-Mile Reach Removal Action. As such, under the Work Plan, GE is not responsible for restoration/repair of these areas. GE's November 16, 2007 letter stated that GE would nevertheless address the erosion issues in those areas. However, following further field inspection, the restoration of certain areas identified in the November 2007 trip report was limited to only those areas within GE's area of responsibility.

It should also be noted that, with EPA consent, the restoration actions described below for the erosion areas identified in 2007 (except for Area 7, as discussed below) were initiated in October 2007, in conjunction with the ongoing restoration of similar areas identified in 2006, and were completed in November 2007. For ease of reference, areas of erosion identified in 2006 are also included on Figure 3-1.

3.3.1 Area 1A

Area 1A consists of undercut banks along the northern bank starting downstream of Building 64X. The trip report submitted in November 2007 identified Area 1A as 250 feet in length; however, based on additional field inspection made during restoration activities, Area 1A was reassessed as extending approximately 350 feet downstream to a point that is just upstream of the outfall at Building 64W. As part of the reassessment made in the field, GE restored approximately 150 feet of this area that was considered to be within a previously restored area (i.e., the area for which GE is responsible) (Figure 3-1). Erosion in this area was generally located in the low- to mid-bank area (i.e., above any adjacent riprap in previously remediated areas and the apparent bank-full elevation). The total volume of eroded material from within GE's area of responsibility was estimated to be less than approximately 15 cy of native material and/or clean backfill; however, there was no evidence of eroded soil in the river. To reduce the potential for further erosion in the portion of Area 1A within GE's area of responsibility, riprap was added to cover the eroded areas and keyed into the bank such that, to the extent practicable, areas receiving armor stone

were restored to previous grades. The armor stone placed as part of these restoration activities was similar to that used during the implementation of the Upper ½-Mile Reach Removal Action (i.e., graded riprap, D_{100} = 12-inch), as fully described in the Work Plan.

In addition, there were two areas of erosion located near the top-of-bank (Figure 3-1) noted in this area. This erosion was likely caused by concentrated surface run-off. To reduce the potential for future erosion in this area, riprap was placed within the eroded areas, and temporary hay bales were positioned to help reduce concentrated runoff.

3.3.2 Area 2A

Area 2A consists of approximately 200 feet of undercut banks along the southern bank immediately upstream of 2006 Area 2 directly across the river from Building 64 (Figure 3-1). Portions of this area intersect or are adjacent to previously cleared or restored areas. As with Area 1A, erosion in this area was generally located in the low- to mid-bank area. The total volume of eroded material was estimated to be less than approximately 30 cy of native materials and/or clean backfill; however, there was no evidence of eroded soil in the river. To restore this area to approximate previous grades and reduce the potential for further erosion in this area, riprap was added to this area and keyed into the bank.

3.3.3 Area 7

Area 7 consists of approximately 30 feet of undercut banks along the southern bank approximately 130 feet downstream from the western edge of Area 2A (see Figure 3-1). Erosion in this area was generally located at the mid-bank elevation. The total volume of eroded material from this area was estimated to be less than 1 cy of native material from an area that was not previously cleared or restored as part of the Upper ½-Mile Reach Removal Action. There was no evidence of eroded soil in the river. GE's plan to address this area is to add riprap keyed into the bank area such that the undercut area is entirely filled and restored to the approximate previous grades. However, GE has not yet been able to reach agreement with the property owner adjacent to this area for permission to access Area 7 to perform these restoration activities. GE is continuing to negotiate with the property owner for appropriate access, and to the extent access permission is obtained, will address this area.

4. Aquatic Habitat Enhancement Structures and Armor Stone Layer Monitoring

4.1 General

Periodic monitoring of the aquatic habitat enhancement structures is required to evaluate structural stability, effect on aquatic habitat, and potential for increased bank-side erosion. The armor stone layer placed over the isolation layer within the riverbed must also be monitored periodically to confirm that it effectively prevents erosion of the underlying sediment cap isolation layer.

4.2 Monitoring Program

The Work Plan required that the post-restoration monitoring program for both the aquatic habitat enhancement structures and armor stone layer consist of annual visual inspections during low-flow conditions for 5 years following completion of remedial activities. At the end of the 5-year period, GE is required to propose a long-term monitoring program that will be implemented upon EPA approval. 2007 was the fifth year of aquatic habitat enhancement structure and armor stone layer monitoring. A proposed long-term monitoring program that will be implemented upon EPA approval is described in Section 8.3 of this report.

4.3 2007 Monitoring Activities

During 2007, monitoring activities for the aquatic habitat enhancement structures and the armor stone layer were performed jointly on August 15, 2007. Charles Harman of AMEC (representing GE) conducted the inspection and Michael Chelminski of Stantec was present on behalf of the Trustees. The results of this monitoring event were presented in the November 28, 2007 trip report, which is included in Appendix C.

The inspection consisted of visual observation of the condition of each of the aquatic habitat structures and the armor stone layer. At the time of inspection, the water level of the Upper ½-Mile Reach was seasonably low, as recorded by the USGS flow gauge located in Coltsville, MA; flow in the river on the day of the inspection was approximately 14 cfs.

4.3.1 Aquatic Habitat Enhancement Structures

The aquatic habitat enhancement structures that were monitored during the 2007 survey included:

- Wing deflectors;

- Vortex weirs;
- Modified vortex weirs;
- W-weir; and
- Habitat enhancement boulders and boulder clusters.

As defined by the Work Plan, the general objectives of the placement of these aquatic habitat structures were to:

- Recreate riffle/pool structural variability in the in-stream habitat;
- Provide in-stream and bankside cover for aquatic organisms;
- Increase variability in water flow and depth;
- Increase bank stability; and
- Improve substrate conditions.

The approximate location of each habitat enhancement structure is presented on Figure 4-1.

The aquatic structures appeared to be providing good cover and habitat. The aquatic structures also appeared to be structurally stable and were creating variations in water velocity and flow, as evidenced by the presence of scour zones and depositional areas in the sediment surrounding the structures. The development of these variations in sediment elevation and the creation of flow changes in the water column appear to be providing good habitat for fish and aquatic invertebrates. Detailed results of the aquatic habitat enhancement structures inspection are included in the November 28, 2007 trip report found in Appendix C.

4.3.2 Armor Stone Layer

As in past years, the armor stone layer appeared to be stable with no evidence of erosion or material movement observed. In many areas, the armor layer has been covered with sediment deposits in a continuing indication of sedimentation processes within the Upper

½-Mile Reach. Detailed results of the armor stone inspection are included in the November 28, 2007 trip report found in Appendix C.

5. Water Column Monitoring

5.1 General

The objectives of the post-restoration water column monitoring program are to identify and evaluate water column impacts that may be a result of post-removal and restoration activities in the Upper ½-Mile Reach. Water column monitoring activities use procedures consistent with the monitoring previously performed for the during-construction water column monitoring program, as set forth in the Work Plan.

5.2 Monitoring Program

The Work Plan required that water column monitoring be conducted for the first 5 years following completion of remedial activities. The monitoring program consists of water column sampling performed three times annually – during a high-flow event (flow > 440 cfs), a storm-flow event (i.e., following a rainfall of > 0.25 inch in a 24-hour period), and a low-flow period (flow < 100 cfs). Samples are collected at the Newell and Lyman Street Bridge locations and are analyzed for polychlorinated biphenyls (PCBs) in both unfiltered and filtered form and for total suspended solids (TSS). Field data such as turbidity, temperature, and depth are also collected for each event. At the end of the 5-year period, GE is required to propose a long-term monitoring program that will be implemented upon EPA approval. 2007 was the fifth year of water column monitoring. A proposal regarding the need for continued long-term water column monitoring under this program is presented in Section 8.4 of this report.

5.3 2007 Monitoring Activities

The low-flow monitoring event for 2007 was conducted on September 05, 2007, while flow in the river was approximately 11 cfs. The storm-flow monitoring event for 2007 was conducted on June 05, 2007, following a 24-hour period in which the Pittsfield area received approximately 0.45 inch of precipitation. Flow in the river at this time was approximately 305 cfs. The high-flow monitoring event for 2007 was conducted on March 28, 2007, while the flow in the river was approximately 528 cfs. During all of these events, water-column samples and associated field data were collected at the Lyman and Newell Street bridges.

For each monitoring event, the flow in the river was reported from data collected at the USGS flow gauge located in Coltsville, MA. Precipitation data were compiled from daily National Oceanic and Atmospheric Administration's National Weather Service (NOAA/NWS) data reported for the Pittsfield, MA airport.

PCBs were not detected in any water column samples collected during these events, with a reporting limit of 0.022 micrograms per liter (µg/L). TSS results across the entire water column data set ranged from not detected to 57.6 parts per million (ppm). The complete results of the 2007 water column monitoring are presented in Table 5-1.

6. Isolation Layer Sampling

6.1 General

The objective of the isolation layer monitoring is to compile a temporal-based database to enable a long-term assessment of the performance of the isolation layer in controlling PCB migration from the underlying materials. The Work Plan requires the periodic sampling of the isolation layer at one- and five-year intervals following the completion of cap placement.

6.2 Monitoring Program

Isolation layer sampling performed in 2003 fulfilled the requirement of 1-year post-cap placement monitoring for all monitoring locations. As stated in the Work Plan, isolation layer monitoring would have been required at some locations in 2005 (5-year monitoring requirements for three of the eight locations). However, in the *2003 Annual Monitoring Report*, GE proposed, and EPA subsequently agreed, that the isolation layer monitoring for all eight locations would be consolidated and performed in 2007 (BBL, 2004). As such, the 2007 sample collection event satisfied the 5-year monitoring requirement for all eight collection locations. Note that as proposed in a letter report related to TOC sampling and seepage meter monitoring submitted to EPA on March 14, 2007, GE will collect additional samples of the isolation layer materials at the same locations in 2012, in conjunction with the deposited sediment sampling program.

6.3 2007 Monitoring Activities

The 2007 isolation layer sample collection event was performed on August 10, 2007 and resulted in the collection of 24 samples; 3 each from the 8 locations shown on Figure 6-1. Samples were processed in the field and sent to Northeast Analytical, Inc. (NEA) in Schenectady, New York, for PCB and TOC analysis. Overall, PCB concentrations were relatively infrequent and low; only 6 of the 24 total samples (25%) had detectable PCB concentrations, with 3 of the reportable concentrations below 0.10 mg/kg, and the remaining 3 below 0.25 mg/kg. Four of these 6 samples were collected from the 2- to 4-inch depth interval, with one each from the 4- to 6-inch and 6- to 8-inch depth intervals. TOC concentrations ranged from 0.21% to 1.8%, with an average of approximately 0.98%. TOC analytical data for the full-depth core ranged from 0.15% to 1.7%, with an average of 0.72%. The analytical results associated with the 2007 isolation layer monitoring (along with the results of such sampling in prior years, as well as the post-excavation surface sediment sampling results) are presented in Table 6-1.

A summary of the sediment cap isolation layer monitoring and related analytical results was submitted to EPA in the *Summary of 2007 Sediment Sampling Activities and Analytical Results* (2007 Sediment Summary Letter Report) dated September 14, 2007. A copy of that report is attached as Appendix D. It includes a detailed discussion of the results of this monitoring. A proposal for future isolation layer sampling is provided in Section 8.5 below.

7. Deposited Sediment Sampling

7.1 General

The objectives of the deposited sediment sampling program are to identify and evaluate the potential presence of PCBs in the materials that have been deposited on top of the armor stone since completion of the Upper ½-Mile sediment remediation and restoration activities.

7.2 Monitoring Program

The Work Plan requires the performance of three rounds of sampling of the materials on top of the cap in the Upper ½-Mile Reach at 5-year intervals, beginning 5 years after completion of construction of the sediment removal/replacement activities. The sampling conducted in 2007 was the first such sampling event, and involved the collection of sediment grab samples at locations specified in the Work Plan. Additional sampling of the deposited sediments on the cap will be conducted in 2012 and 2017, as discussed in Section 8.6 of this report.

7.3 2007 Monitoring Activities

Sediment samples were collected from the Upper ½-Mile Reach on May 24 and 25, 2007. In total, GE collected 39 samples (plus two duplicates) of the surface sediments (top 6 inches or less) and 12 samples (plus one duplicate) of subsurface sediments (deeper than 6 inches), for a total of 51 sediment samples (plus three duplicates). Approximate locations where these sediment samples were collected are shown on Figure 6-1. All samples were analyzed for PCB and TOC by NEA and portions of 23 of these samples were also submitted to Geotechnics, Inc. in Pittsburgh, Pennsylvania, for grain size analysis. At the time of sample processing, Weston Solutions, Inc., on EPA's behalf, collected 12 split samples (plus one duplicate) for analysis.

Location-specific sediment probing thickness, maximum recovery lengths and grain size analytical data are summarized in Table 7-1. Field observations at the time of sample collection noted a petroleum odor at five locations; four of these locations were located at the upstream end of the Upper ½-Mile and the fifth (RS-C17) was located at the approximate mid-point of the Upper ½-Mile (see Table 7-1 and Figure 6-1).

Analytical results for PCBs and TOC in the sediment samples collected by GE are presented in Table 7-2. Of the 51 sediment samples (after averaging the duplicate results), 45 samples (88%) showed PCB concentrations less than 1.0 mg/kg, 44 (86%) less than 0.5 mg/kg, and 12 (24%) less than 0.1 mg/kg. Three samples had no detectable PCB

concentrations. TOC concentrations ranged from 0.13% to 2.3%, with an average of approximately 0.4%. PCB and TOC concentrations were generally lower at the surface samples (i.e., 0- to 6-inch or less). Additionally, of the six samples with PCB analytical results greater than 1.0 mg/kg, four were collected from the subsurface, and PCB analytical results for 10 of the 12 locations from which subsurface samples were collected were greater in the subsurface than in the corresponding surface samples.

For the split samples collected by Weston for EPA, Table 7-3 presents the PCB analytical results both for the co-located GE samples and for the EPA split samples. In general, the results of the split samples were consistent with the results of the GE samples; the highest EPA result corresponded to the highest GE result, and the majority of the samples showed low PCB levels with similar variability. Consistent with the GE samples, PCB concentrations were higher in the subsurface samples.

The complete results of the 2007 sampling activities can be found in the 2007 Sediment Summary Letter Report to EPA dated September 14, 2007 (Appendix D). That report also includes a detailed discussion of the results of this sampling.

8. Summary and Future Activities

8.1 Restored Bank Vegetation Monitoring

In 2008, vegetation monitoring will be conducted once during the late summer (July/August). As per the monitoring schedule, planting areas 4B, 6, 6A, 7, 8, 8A, 9, 9A, 10, 11, and 11A, 13, 15, and 16 will be inspected in 2008. GE will revisit planting area 5 in 2009 to assess the success of the corrective actions discussed in Section 2.4 above. The 2008 monitoring visit will constitute the Year 5 monitoring visit for planting areas 13, 15, and 16, and will be the seventh yearly and therefore last planned monitoring visit for planting areas 4B, 6, 7, 8, 8A, 9, 9A, 10, 11, and 11A.

Results of this monitoring event will be summarized and submitted to EPA in a trip report and in the *2008 Annual Monitoring Report*. A summary of the future restored bank vegetation monitoring activities is included in Table 8-1. Restored bank vegetation monitoring is expected to continue through 2009 when all of the remaining planting areas will have fulfilled their 7-year monitoring requirements. With the exception of those planting areas disturbed by remediation or bank erosion restoration activities, there have been no significant negative variances in the planting areas over the past several years. As such, GE proposes that for those planting area for which the 7-year inspection requirement has been fulfilled (i.e., planting areas 1, 2, 3, 4A), no future or long-term monitoring is required.

Basic maintenance activities to address the state of the wire tree cages and the stem protectors will be ongoing in 2008. GE will continue maintenance actions, as necessary, to prune back some of the more rapidly growing canopy species, as appropriate, allowing for a more extensive development of the tree trunk, and thereby preventing loss of these trees. The Trustees will be informed of the schedule for any such pruning activities.

As noted above, GE anticipates performing the 2008 restored bank vegetation inspection in the late summer (July/August). GE will coordinate scheduling of the 2008 inspection visit with EPA and the Trustees' representative to avoid potential high-water events in the Upper ½-Mile Reach or other scheduling conflicts.

8.2 Restored Bank Erosion Monitoring

As noted in Section 3 of this report, the restoration of the three areas of erosion identified during the 2007 monitoring event (except for Area 7) was initiated and completed in the fall of 2007 in conjunction with the ongoing restoration of the areas of erosion noted in 2006.

With the performance of the 2007 inspection, GE has completed the fifth and final year of the restored bank erosion monitoring program as outlined in the Work Plan, and proposes implementation of a new long-term monitoring program. The proposed program will include a site visit and bank reconnaissance in the late summer or fall of the year if there has been any flow event greater than 1,500 cfs during the preceding year. The proposed program will be implemented for an additional five years, ending in 2012, at which time GE will discuss with EPA the termination of the bank erosion monitoring program. Similar to the program outlined in the Work Plan, these monitoring events will consist of a visual inspection of the cleared and restored bank areas for signs of erosion. If any such areas are identified, GE will discuss with EPA the appropriate response measures, if necessary. A summary of the proposed future monitoring for restored bank erosion is included in Table 8-1.

8.3 Monitoring of Aquatic Habitat Enhancement Structures and Armor Stone Layer

Monitoring of the aquatic habitat enhancement structures and armor stone layer was conducted in August 2007. The aquatic habitat enhancement structures appeared to be performing as intended, and no side-bank or armor layer erosion was noted. The armor stone layer appeared to be stable with no areas of erosion noted.

2007 represented the fifth year of monitoring following completion of restoration activities. This event represented the conclusion of the 5-year monitoring program specified in the Work Plan. In this situation, GE proposes a long-term monitoring program for future inspections of the aquatic habitat enhancement structures and armor stone layer. The proposed program will include a site visit and visual inspection of the aquatic habitat enhancement structures and armor stone layer in the late summer or fall of the year if there has been any flow event greater than 1,500 cfs during the preceding year. The proposed program will be implemented for an additional five years, ending in 2012, at which time GE will discuss with EPA the termination of the long-term monitoring program. A summary of the proposed future monitoring for the aquatic habitat enhancement structures and armor stone layer is included in Table 8-1.

8.4 Water Column Monitoring

The 2007 water column monitoring was performed on three occasions (i.e., a low-flow event in September 2007, a high-flow event in March 2007 and a storm-flow event in June 2007) at the Newell and Lyman Street Bridge locations. PCBs were not detected in any water column samples (at a reporting limit of 0.022 µg/L).

2007 represented the fifth year that water column monitoring was conducted following restoration of the Upper ½-Mile Reach, and therefore marked the completion of the water column monitoring program detailed in the Work Plan.

Over the past five years, GE has collected 28 water column samples associated with the Upper ½-Mile Reach water column monitoring program. Of these 28 samples, only five have had analytical results that indicated the presence of PCBs above the standard reporting limit. Further, all of five of these results were from unfiltered water samples; none of the 28 filtered sample results indicated the presence of PCBs. Additionally, only one of these results was from within the past two years (low-flow sample on 03/26/06), and this sample was collected upstream of the Upper ½-Mile Reach at the Newell Street location. Considering these data, GE proposes to terminate this specific sampling program as part of the Upper ½-Mile Reach monitoring activities. Water column sampling will continue to be performed and reported as part of the ongoing monthly water column sampling efforts being performed under the Housatonic River Monthly Water Column Sampling Program.

8.5 Isolation Layer Sampling

Overall, as discussed in the 2007 Sediment Summary Letter Report (Appendix D), the available isolation layer sampling data do not show a consistent pattern indicative of PCB transport from the underlying sediments and do not allow any definitive conclusions regarding the performance of the isolation layer relative to the long-term predictions on which the isolation layer design was based. It is too early to make any such conclusion. However, as also discussed in that report, the data do indicate that, at the present time, the isolation layer is preventing the migration of PCBs from the underlying sediments to the surface of the isolation layer. In these circumstances, GE does not believe that any corrective action is necessary or required at this time to address the isolation layer.

GE proposes the collection and analysis of an additional round of isolation layer samples at the same general time as the "10-Year" deposited sediments sampling events (currently anticipated for 2012). This proposal is included in Table 8-1. Based on review of those results, GE will further evaluate the effectiveness of the isolation layer. In addition, at that time, GE will evaluate the scope and frequency of further long-term monitoring of the isolation layer, and will make a proposal to EPA regarding such further monitoring.

8.6 Deposited Sediment Sampling

The PCB data from the deposited sediments collected from the Upper ½-Mile indicate the presence of low levels of PCBs in the materials that have been deposited on top of the armor stone since completion of the Upper ½-Mile sediment remediation and restoration

activities. Overall, as discussed in the 2007 Sediment Summary Letter Report (Appendix D), it cannot be concluded that the PCBs in the Upper ½-Mile surface sediments are attributable to sources other than those that have been or are being addressed by GE at the Pittsfield/Housatonic River Site (as defined in the Work Plan). In these circumstances, in accordance with the Work Plan, GE believes that no further response actions are required at this time to address the PCBs in the surface of the Upper ½-Mile sediments.

As required by the Work Plan, GE will conduct two additional rounds of deposited sediment sampling at 5-year intervals – i.e., the "10-Year" sampling event (currently anticipated for 2012) and the "15-Year" sampling event (currently anticipated for 2017). A summary of these events is included in Table 8-1. Upon the conclusion of that program, GE will evaluate the scope and frequency of further long-term monitoring of the deposited sediment, and will make a proposal to EPA regarding such further monitoring.

8.7 Future Reporting

GE proposes to include the results from the long-term monitoring events described above in an annual report to be submitted with EPA. In addition, interim trip reports will be submitted as appropriate.

References

BBL. 2007. *2006 Annual Monitoring Report – Upper ½-Mile Reach of the Housatonic River.* Prepared for GE, Pittsfield, MA.

BBL. 2006. *2005 Annual Monitoring Report – Upper ½-Mile Reach of the Housatonic River.* Prepared for GE, Pittsfield, MA.

BBL. 2005. *2004 Annual Monitoring Report – Upper ½-Mile Reach of the Housatonic River*. Prepared for GE, Pittsfield, MA.

BBL. 2004. *2003 Annual Monitoring Report – Upper ½-Mile Reach of the Housatonic River*. Prepared for GE, Pittsfield, MA.

BBL. 2001. *Invasives Control Plan*. Prepared for GE, Pittsfield, MA.

BBL. 1999. Removal Action Work Plan for Upper ½-Mile Reach of Housatonic River. Prepared for GE, Pittsfield, MA.

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Tables

TABLE 2-1
SUMMARY OF BANK PLANTING AREAS

2007 ANNUAL MONITORING REPORT
UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

					Vines	Understory				Dogwood Band	Canopy				
Area	Planting Date	Cell Area	Planting Area (ac)	Toe Planting Length (lf)	Woody Vines *Vitus riparia*	Serviceberry *Amelanchier canadensis* *Amelanchier arborea*	Northern Arrowwood *Viburnum dentatum*	Silky Dogwood *Cornus amomum*	Winterberry Holly *Ilex verticillata*	Red-Osier Dogwood *Cornus sericea*	Eastern Cottonwood *Populus deltoides*	Boxelder *Acer negundo*	Black Willow *Salix nigra*	Silver Maple *Acer saccharinum*	Total
1	May-00	A,C	0.30	328	0	0	37	37	36	82	79	79	26	26	**402**
1	Oct-00	A,C	--	--	0	36	0	0	0	0	0	0	0	0	**36**
1	Jun-01	A,C	--	--	22	0	1	1	0	0	0	0	0	0	**24**
1	Oct-01	A,C	--	--	0	10 *	10	9	10	8	10	10	24	21	**112**
1	Oct-02	A,C	--	--	0	6 *	5	6	6	6	0	0	0	0	**29**
1	Oct-03	A,C	--	--	0	0	0	36	0	9	0	0	0	0	**45**
2	May-00	D	0.17	NA	0	0	0	0	0	0	44	44	15	15	**118**
2	Oct-01	D	--	--	0	0	0	0	0	0	9	9	14	8	**40**
2	Oct-03	D	--	--	0	0	0	0	0	0	0	30	0	0	**30**
3	May-00	E	0.05	45	0	0	18	18	19	11	13	13	4	4	**100**
3	Oct-00	E	--	--	0	18	0	0	0	0	0	0	0	0	**18**
3	Jun-01	E	--	--	0	0	0	0	1	0	1	1	0	0	**3**
3	Oct-01	E	--	--	0	5 *	4	4	4	0	5	5	4	4	**35**
3	Oct-02	E	--	--	0	6 *	0	6	0	8	3	0	0	2	**25**
3	Oct-03	E	--	--	0	0	0	12	0	0	0	0	0	0	**12**
3	Nov-05	E	--	--	0	0	0	0	0	0	4	3	3	3	**13**
4A	Oct-00	G1,G2	0.16	395	0	19	18	18	18	74	64	63	5	10	**289**
4A	Oct-01	G1,G2	--	--	0	12 *	6	6	6	12	3	4	10	5	**64**
4A	Oct-02	G1,G2	--	--	0	8 *	4	4	10	8	30	10	0	0	**74**
4A	Oct-03	G1,G2	--	--	0	0	0	12	0	0	0	33	0	0	**45**
4A	Nov-05	G1,G2	--	--	0	4	4	4	4	0	5	4	4	4	**33**
4B	Jun-01	G2,G3	0.40	416	22	54	56	56	0	134	95	95	33	33	**578**
4B	Oct-01	G2,G3	--	--	0	0	0	0	53	0	0	0	0	0	**53**
4B	Oct-02	G2,G3	--	--	0	8 *	4	6	2	8	10	0	10	10	**58**
4B	Oct-03	G2,G3	--	--	0	0	0	34	0	0	0	0	0	0	**34**
4B	Oct-04	G2,G3	--	--	0	0	12	12	12	0	0	0	0	0	**36**
4B	Nov-06	G2,G3	--	--	0	3 *	4	3	3	0	0	0	0	0	**13**
5	Oct-00	F1,F2	0.10	NA	0	19	18	18	18	0	25	25	8	8	**139**
5	Oct-03	F1,F2	--	--	0	0 0	0	21	0	0	0	10	0	0	**31**
5	Nov-05	F1,F2	--	--	0	6	6	6	6	0	3	3	3	2	**35**
6	Jun-01	F3	0.07	226	0	0	0	0	0	57	21	21	7	7	**113**
6A	Jun-01	F3	0.05	NA	0	0	0	0	0	0	8	8	3	3	**22**
7	Jun-01	F3	0.01	NA	0	0	0	0	0	0	3	3	1	1	**8**
8	Oct-01	H1	0.02	32	0	0	0	0	0	6	6	4	2	2	**20**
8	Oct-02	H1	--	--	0	0	0	0	0	2	0	0	0	0	**2**
8	Nov-06	H1	--	--	0	0	0	0	0	0	0	0	0	0	**0**
8A	Oct-01	H1	0.05	104	0	0	0	0	0	29	12	7	4	4	**56**
9	Oct-01	H1	0.01	NA	0	0	0	0	0	0	3	2	1	1	**7**
9	Nov-06	H1	--	--	0	0	0	0	0	0	0	0	0	0	**0**
9A	Oct-01	H1,H2	0.06	187	0	0	0	0	0	31	12	7	4	4	**58**
9A	Oct-02	H1	--	--	0	0	0	0	0	2	0	0	0	0	**2**
9A	Nov-06	H1	--	--	0	0	0	0	0	0	0	0	0	0	**0**
10	Oct-01	B68	0.18	NA	0	36 *	36	37	37	0	47	47	16	16	**272**
10	Oct-04	B68	--	NA	0	0	3	3	2	0	0	0	0	0	**8**
10	Nov-06	B68	--	NA	0	0	1	0	0	0	0	0	0	0	**1**
11	Oct-01	H2	0.04	88	0	0	0	0	0	20	8	6	3	3	**40**
11	Oct-02	H2	--	--	0	0	0	0	0	2	0	0	0	0	**2**
11	Oct-03	H2	--	--	0	0	0	19	0	0	0	0	0	0	**19**
11	Nov-06	H2	--	--	0	0	0	0	0	0	0	0	0	0	**0**
11A	Oct-01	H2	0.06	83	0	0	0	0	0	28	12	7	4	4	**55**
11A	Oct-02	H2	--	--	0	0	0	0	0	2	0	0	0	0	**2**
11A	Nov-06	H2	--	--	0	0	0	0	0	0	0	0	0	0	**0**
12	May-02	J1	0.19	269	0	18 *	0	19	18	67	50	50	0	17	**239**
12	Oct-02	J1	--	--	22	0	18	0	0	0	0	0	17	0	**57**
12	Oct-03	J1	--	--	0	0	0	12	0	13	0	0	0	0	**25**
12	Oct-04	J1	--	--	0	0	3	3	2	0	0	0	0	0	**8**
13	May-02	I1	0.10	234	0	18 *	0	18	19	41	26	26	0	9	**157**
13	Oct-02	I1	--	--	0	0	18	0	0	18	0	0	9	0	**45**
14	Oct-02	J3	0.21	192	22	37 *	37	36	36	48	56	56	19	19	**366**
15	May-02	I2	0.00	40	0	0	0	0	0	10	0	0	0	0	**10**
16	Oct-02	I2	0.01	72	0	0	0	0	0	18	3	3	1	1	**26**
17	Oct-02	I3	0.04	108	0	0	0	0	0	27	10	10	3	3	**53**
Total			--	--	***88***	***323***	***323***	***476***	***322***	***781***	***680***	***698***	***257***	***249***	***4197***

Notes:

1. 2007 Restoration planting activities have not yet been preformed.
2. Woody vines planted at an approximate density of 40 vines/acre on 4' centers in a 15'x30' patch with a minimum of 150' between patches.
3. Understory planted at an approximate density of 730 shrubs/acre (including red-osier dogwood) on 4' centers in a 30'x50' patch with a minumum of 40' between patches.
4. Canopy planted in varying densities, clumps, or if necessary, sinuous lines.
5. Dogwood band planted on 4' centers in a single row along the toe of the bank.
6. * - In consultation with EPA and Trustees, Chokecherry (*prunus virg*iniana) was planted in substitution of Serviceberry for these areas.

TABLE 2-2
CANOPY MONITORING RESULTS

2007 ANNUAL MONITORING REPORT
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Planting Area	Date Planted	Quantity Planted	Target Performance Standard	Monitoring Count - Live Specimens			Dead	Variance
					Non-stressed	Stressed	Total		
8/16/2007	1[1]	May 00	210	168	207	0	207	0	+39
	2[2]	May 00	118	94	109	0	109	0	+15
	3	May 00	34	27	28	0	28	0	+1
	4A[3]	Oct 00	142	114	136	0	136	0	+22
	5	June 01	66	53	49	0	49	0	-4
	12	May/Oct 02	134	107	119	0	119	0	+12
	13	May/Oct 02	70	TBD	48	0	48	0	NA
	14	Oct 02	150	120	121	0	121	0	+1
	15	---	---	---	---	---	---	---	---
	16	Oct 02	8	6	4	0	4	0	-2
	17	Oct 02	26	21	25	0	25	0	+4

Notes:

[1] – Monitoring was conducted using the modified protocol based on sampling of three representative sub-plots; monitoring sub-plots accounted for 29% of Area 1.
[2] – Monitoring was conducted using the modified protocol based on sampling of three representative sub-plots; monitoring sub-plots accounted for 34% of Area 2.
[3] – Monitoring was conducted using the modified protocol based on sampling of three representative sub-plots; monitoring sub-plots accounted for 36% of Area 4A.
[4] – TBR is defined as To Be Recalculated
[5] – NA is defined as Not Applicable

TABLE 2-3
UNDERSTORY MONITORING RESULTS

2007 ANNUAL MONITORING REPORT
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Planting Area	Date Planted	Quantity Planted	Target Performance Standard	Monitoring Count - Live Specimens			Dead	Variance
					Non-stressed	Stressed	Total		
8/16/2007	1[1]	May 00	146	117	126		126	0	+9
	2[2]	---	---	---	---	---	---	---	---
	3	May 00	73	58	61	0	61	0	+3
	4A[3]	Oct 00	73	58	59	0	59	0	+1
	5	June 01	73	58	30	0	30	0	-28
	12	May/Oct 02	73	58	62	0	62	0	+4
	13	May/Oct 02	73	TBR	30	0	30	0	NA
	14	Oct 02	146	117	131	0	131	0	+14
	15	---	---	---	---	---	---	---	---
	16	---	---	---	---	---	---	---	---
	17	---	---	---	---	---	---	---	---

Notes:

[1] – Monitoring was conducted using the modified protocol based on sampling of three representative sub-plots; monitoring sub-plots accounted for 29% of Area 1.
[2] – Monitoring was conducted using the modified protocol based on sampling of three representative sub-plots; monitoring sub-plots accounted for 34% of Area 2.
[3] – Monitoring was conducted using the modified protocol based on sampling of three representative sub-plots; monitoring sub-plots accounted for 36% of Area 4A.
[4] – TBR is defined as To Be Recalculated
[5] – NA is defined as Not Applicable

TABLE 2-4
RED-OSIER DOGWOOD MOITORING RESULTS

2007 ANNUAL MONITORING REPORT
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Area	Date Planted	Quantity Required	Target Performance Standard	Monitoring Count		Comments
					Gaps in Dogwood Line, Missing Plants	Meets target performance standard, < 4 foot on center,	
8/16/2007	1	May 00	82	66	---	All present	Meets performance criteria
	2	---	---	---	---	---	---
	3	May 00	11	9	---	All present	Meets performance criteria
	4A	Oct 00	74	59	---	All present	Meets performance criteria
	5	---	---	---	---	---	---
	12	May/Oct 02	67	54	---	All present	Meets performance criteria
	13	May/Oct 02	59	47	---	All present	Meets performance criteria
	14	Oct 02	48	38	---	All present	Meets performance criteria
	15	May 02	10	8	---	All present	Meets performance criteria
	16	Oct 02	18	14	---	All present	Meets performance criteria
	17	Oct 02	27	22	---	All present	Meets performance criteria

TABLE 2-5
GRAPE VINE MONITORING RESULTS

2007 ANNUAL MONITORING REPORT
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Area	Date Planted	Quantity Required	Target Performance Standard	Monitoring Count - Planted Live Specimens			Dead	Wild Grapes or Grape Patches	Comments
					Non-stressed	Stressed	Total Vines			
8/16/2007	1	May 00	22	18	7	0	6	0	22+	The number of planted grapes plus the number of individual native grape plants noted in this planting area meet the performance criteria.
	12	Oct 02	22	18	3	0	3		22+	The number of planted grapes plus the number of individual native grape plants noted in this planting area meet the performance criteria.
	14	Oct 02	22	18	18	0	18	0	22+	The number of planted grapes plus the number of individual native grape plants noted in this planting area meet the performance criteria.

TABLE 2-6
HERBACEOUS GROUNDCOVER MONITORING RESULTS

2007 ANNUAL MONITORING REPORT
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Area	Date Planted	Target Performance Standard (Cover)	General Monitoring Results (Total Percent Herbaceous Coverage)[1]	Meets Performance Standard (Yes/No)	Comments
8/16/2007	1	May 00	100%	First 100' ~100% coverage Second 100' ~100% coverage Third 100'~100% coverage Final 60' ~100% coverage	Yes	The canopy layer has extensively shaded on to the majority of the herbaceous stratum
	2	May 00	100%	~100% coverage	Yes	
	3	May 00	100%	~100% coverage	Yes	
	4A	Oct 00	100%	First 100' ~100% coverage Second 100' ~100% coverage Third 100' ~100% coverage	Yes	
	5	June 01	100%	~100% coverage	Yes	
	12	May/Oct 02	100%	First 100' ~100% coverage Second 100' ~100% coverage Third 100' ~100% coverage	Yes	Herbaceous cover meets the performance standard. No significant bare areas.
	13	May/Oct 02	100%	~100% coverage	Yes	
	14	Oct 02	100%	~100% coverage	Yes	
	15	May 02	100%	---	---	---
	16	Oct 02	100%	~100% coverage	Yes	
	17	Oct 02	100%	~100% coverage	Yes	

Note:
1 – Percent herbaceous coverage is assessed outside the extent of the layer.

TABLE 2-7
INVASIVE SPECIES MONITORING RESULTS

2007 ANNUAL MONITORING REPORT
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Area	Date Planted	Target Performance Standard (Invasive Species)	Monitoring Results (Percent Invasive Species)	Meets Performance Objectives (Yes/No)	Primary Observed Invasive Species
8/16/2007	1	May 00	100%	First 100' <5% Second 100' <5% Third 100'<5% Final 60' <5%	Yes	Isolated specimens of purple loosestrife and bittersweet
	2	May 00	100%	<5%	Yes	Isolated specimens of purple loosestrife, cypress spurge
	3	May 00	100%	<5%	Yes	Isolated specimens of purple loosestrife, cypress spurge
	4A	Oct 00	100%	First 100' <5% Second 100' <5% Third 100' <5%	Yes	Isolated specimens of purple loosestrife, garlic mustard
	5	June 01	100%	<5%	Yes	Isolated specimens of Japanese knotweed, bittersweet
	12	May/Oct 02	100%	First 100' <5% Second 100' <5%	Yes	None noted
	13	May/Oct 02	100%	<5%	Yes	Isolated specimens of purple loosestrife
	14	Oct 02	100%	<5%	Yes	None noted
	15	May 02	100%	<5%	Yes	Isolated specimens of purple loosestrife
	16	Oct 02	100%	<5%	Yes	Isolated specimens of purple loosestrife
	17	Oct 02	100%	<5%	Yes	None noted

TABLE 3-1
2007 RESTORED BANK EROSION INSPECTION SUMMARY

2007 ANNUAL MONITORING REPORT
UPPER ½ -MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY – PITTSFIELD MASSACHUSETTS

Areas with Measurable Erosion	Description	Approximate Size	Action
1A - North bank of river, immediately west of 2006 Area 1	Area of undercut banks likely due to high flow. Additional top-of-bank erosion likely due to concentrated runoff. No evidence of eroded soil in river	~350 ft of undercut banks ~Less than 15 cy of material loss in area for which GE is responsible	Resoration activites included the installation of riprap to protect against further high flow erosion in area for which GE is responsible and placement of hay bales at top-of-bank to divert concentrated runoff
2A - South bank of river, across from Bldg 64W	Area of undercut banks likely due to high flow. No evidence of eroded soil in river	~200 ft of undercut banks ~Less than 30 cy of material loss	Restoration activites included the installation of riprap to protect against further erosion
7 - South bank of river, approximately 130 ft downstream from western edge of Area 2A	Area of undercut banks likely due to high flow. No evidence of eroded soil in river	~30 ft of undercut banks ~Less than 5 cy of material loss	Restoration activities to include the installation of riprap to protect against further erosion

TABLE 5-1
WATER COLUMN MONITORING

2007 ANNUAL MONITORING REPORT
UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in parts per million, ppm)

Parameter / Sample ID:	LOCATION-2	LOCATION-4	LOCATION-2	LOCATION-4	LOCATION-2	LOCATION-4
Sample Location:	Newell St. Bridge	Lyman St. Bridge	Newell St. Bridge	Lyman St. Bridge	Newell St. Bridge	Lyman St. Bridge
Date Collected:	03/28/07	03/28/07	06/05/07	06/05/07	09/05/07	09/05/07
Sampling Event:	High Flow	High Flow	Storm Flow	Storm Flow	Low Flow	Low Flow
PCBs-Unfiltered						
Total PCBs	ND [0.0000220]	ND [0.0000220]	ND(0.0000220)	ND(0.0000220)	ND [0.0000220]	ND [0.0000220]
PCBs-Filtered						
Total PCBs	ND [0.0000220]	ND [0.0000220]	ND(0.0000220)	ND(0.0000220)	--	--
Conventional Parameters						
Particulate Organic Carbon	--	--	--	--	0.60	0.35
Total Suspended Solids	57.6	54.3	19.2	18.3	5.70	ND [1.00]
Chlorophyll (a)	--	--	--	--	.0020	0.0020
Field Measurements						
Conductivity (mS/cm)	0.432	0.421	0.279	0.280	0.716	0.728
pH (Standard Units)	6.75	6.81	6.82	6.67	7.36	7.61
Sample Depth (m)	2.23	2.18	1.45	1.52	0.27	0.42
Turbidity (ntu)	46	32	10	11	3	4
Water Temperature (^{o}C)	3.05	3.63	16.60	16.38	19.00	19.26

Notes:

1. Samples were collected by Blasland, Bouck & Lee, Inc. and submitted to Northeast Analytical, Inc. for analysis of filtered and unfiltered PCBs
2. and total suspended solids (TSS).
   Sampling methods involved the collection of composite grab samples at each location, representative of three stations (25, 50, and 75 percent
3. of the total river width at each location) at 50 percent of the total river depth at each station. Reported sample depth is the average of the three depths at the composite sample locations.
   ND - Analyte was not detected. The number in parentheses is the associated reporting limit.

TABLE 6-1
SUMMARY OF RECENT AND PRIOR ISOLATION LAYER PCB & TOC ANALYTICAL RESULTS

2007 ANNUAL MONITORING REPORT
UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

		Post Excavation Sediment Results				Depth Interval	Isolation Layer - Baseline			Isolation Layer - 1-Year			Isolation Layer - 5-Year		
Cell	Sample ID	Date	Depth Interval	Total PCB (mg/kg)	AVG TOC (%)		Sample Date	Total PCB (mg/kg)	AVG TOC (%)	Sample Date	Total PCB (mg/kg)	AVG TOC (%)	Sample Date	Total PCB (mg/kg)	AVG TOC (%)
G1	CAP-MON -1	6/23/00	Surface	20	0.45	2" - 4"	11/9/00	0.027J	Rejected	11/5/01	ND(0.0551)	0.10	8/10/07	0.064	0.55
						4" - 6"	11/9/00	ND(0.038)	Rejected	11/5/01	0.0790	0.15	8/10/07	ND(0.055)	0.45
						6" - 8"	11/9/00	ND(0.040)	Rejected	11/5/01	ND(0.0576)	0.14	8/10/07	ND(0.056)	0.34
G1	CAP-MON -2	8/17/00	Surface	19.0	ND(0.60)	2" - 4"	11/9/00	ND(0.039)	Rejected	11/5/01	0.0845[0.074]	0.15 [0.10]	8/10/07	0.076	0.75
						4" - 6"	11/9/00	ND(0.040)	Rejected	11/5/01	ND(0.0581)	0.09	8/10/07	ND(0.057)	0.49
						6" - 8"	11/9/00	ND(0.039)	Rejected	11/5/01	ND(0.0588)	0.08	8/10/07	ND(0.056)	0.43
G2	CAP-MON -3	8/17/00	Surface	1.72	ND(0.12)	2" - 4"	11/9/00	ND(0.039)	Rejected	11/5/01	ND(0.0570)	0.07	8/10/07	ND(0.057)	0.46
						4" - 6"	11/9/00	0.030J	Rejected	11/5/01	ND(0.0552)	0.09	8/10/07	ND(0.056)	0.21
						6" - 8"	11/9/00	ND(0.039)	Rejected	11/5/01	ND(0.0575)	0.11	8/10/07	0.07	0.38
G3	CAP-MON -4	2/22/01	Surface	519	NS	2" - 4"	2/27/01	ND(0.0636)	Rejected	2/27/02	ND(0.0570)	0.46	8/10/07	ND(0.058)	1.2
						4" - 6"	2/27/01	ND(0.0580)	Rejected	2/27/02	ND(0.0569)	0.36	8/10/07	ND(0.058)	1.4
						6" - 8"	2/27/01	ND(0.0558)	Rejected	2/27/02	ND(0.0553)	0.36 [0.35]	8/10/07	ND(0.057)	1.2
F3	CAP-MON -5	5/4/01	Surface	8.46	NS	2" - 4"	5/10/01	ND(0.0582)	Rejected	7/3/02	ND(0.0588)	0.63 [0.50]	8/10/07	ND(0.057)	1.8
						4" - 6"	5/10/2001	ND(0.0559)	Rejected	7/3/2002	ND(0.0589)	0.46	8/10/07	ND(0.059)	1.2
						6" - 8"	5/10/2001	ND(0.0583)	Rejected	7/3/2002	ND(0.0591)	0.51	8/10/07	ND(0.058)	1.1
J1	CAP-MON -6	1/15/02	Surface	1,000	NS	2" - 4"	1/30/02	ND(0.061) [ND(0.0586)]	0.87 [0.91]	8/27/03	ND(0.061)	1.00	8/10/07	0.21	1.2
						4" - 6"	1/30/02	ND(0.061) [ND(0.0586)]	1.22	8/27/03	ND(0.059	1.30	8/10/07	ND(0.060)	1.7
						6" - 8"	1/30/02	ND(0.061) [ND(0.0586)]	1.50 [1.10]	8/27/03	ND(0.061) [ND(0.060)]	1.50 [1.10]	8/10/07	ND(0.060)	1.8
J3	CAP-MON -7	8/2/02	Surface	88.8	NS	2" - 4"	8/16/02	ND(0.054) [ND(0.053)]	1.0 [0.89]	8/27/03	ND(0.058)	1.10	8/10/07	ND(0.059)	1.5
						4" - 6"	8/16/02	ND(0.055)	1.10	8/27/03	ND(0.058)	1.10	8/10/07	ND(0.058)	1.1
						6" - 8"	8/16/02	ND(0.058)	0.67	8/27/03	ND(0.060)	1.20	8/10/07	ND(0.057)	1.2
J3	CAP-MON -8	8/2/02	Surface	216	NS	2" - 4"	8/16/02	ND(0.057)	0.91	8/27/03	ND(0.060)	1.10	8/10/07	0.16	0.78
						4" - 6"	8/16/02	ND(0.052)	0.62	8/27/03	ND(0.058)	0.88	8/10/07	0.11	1.1
						6" - 8"	8/16/02	ND(0.054)	0.73	8/27/03	0.062	0.97	8/10/07	ND(0.055)	1.1

Notes: 1. TOC = Total Organic Carbon
NA = Not Applicable
ND - Analyte was not detected. The value in parentheses is the associated detection limit.
J - Indicates an estimated value less than the practical quantitation limit (PQL).
2. Duplicate sample results presented in brackets.
3. Depth intervals were measured upward from the geotextile liner at the sediment/isolation layer interface in 2-inch increments.

TABLE 7-1
SUMMARY OF DEPOSITED SEDIMENT GRAIN SIZE DISTRIBUTION ANALYTICAL DATA

2007 ANNUAL MONITORING REPORT
UPPER 1/2 MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Grain size distribution data presented in % passing)

Sample Location	Date Collected	Sediment Probing Depth (inches)	Sediment Recovery Depth (Inches)	Sample Increment (inches)	SIEVE OPENING (mm)														
					300	150	75	50	37.5	25	19	12.5	9.5	4.75	2	0.85	0.425	0.25	0.106	0.075
RS-C1	05/25/07	3	3	--											--					
RS-C4*	5/25/2007	7	7	0-7	100	100	100	100	100	100	100	89.87	84.39	68.45	48.04	32.32	13.16	4.26	1.55	1.12
RS-C7*	05/25/07	5	5	--											--					
RS-C10	5/25/2007	3	3	0-3	100	100	100	100	100	97.02	89.49	81.29	73.68	58.41	41.53	23.50	10.99	5.56	1.93	1.27
RS-C14	5/25/2007	6	6	0-6	100	100	100	100	100	100	100	98.07	95.42	88.19	74.60	55.26	26.70	6.87	1.51	0.98
RS-C17 *	5/25/2007	30	25	0-6	100	100	100	100	100	100	100	99.73	98.91	96.42	85.14	59.77	34.84	15.91	2.95	1.61
				6-25	100	100	100	100	100	100	100	99.43	99.13	97.12	94.45	91.66	85.74	68.51	16.80	9.69
RS-C26	5/24/2007	8	6	0-6	100	100	100	100	100	100	100	97.64	95.58	87.76	75.85	56.25	34.75	14.90	4.78	3.60
RS-C29	5/24/2007	9	8	0-6	100	100	100	100	100	100	100	99.90	99.80	96.12	71.54	36.06	8.89	2.60	0.65	0.46
RS-C31	5/24/2007	6	6	0-6	100	100	100	100	100	100	100	99.58	99.29	96.24	74.91	37.97	9.63	2.05	0.55	0.44
RS-C34	5/24/2007	6	6	0-6	100	100	100	100	100	100	100	99.43	98.96	94.58	73.06	49.69	26.07	11.68	2.40	1.41
RS-C37	05/24/07	9	8	--											--					
RS-N2*	05/25/07	3	3	--											--					
RS-N5	5/25/2007	6	6	0-6	100	100	100	100	100	100	100	99.64	97.37	91.67	80.44	59.84	28.61	7.61	1.67	1.17
RS-N8	05/25/07	2	2	--											--					
RS-N11	5/25/2007	11	10	0-6	100	100	100	100	100	100	100	99.37	97.65	87.74	65.12	42.16	21.80	6.84	2.17	1.71
				6-10	100	100	100	100	100	92.99	92.08	91.58	89.10	77.80	58.48	39.18	21.19	7.29	2.18	1.64
RS-N12	5/25/2007	6	5	0-5	100	100	100	100	100	100	100	99.10	95.43	84.35	57.75	29.60	11.32	4.92	1.34	0.85
RS-N15	05/25/07	11	9	--											--					
RS-N18	05/24/07	14	14	--											--					
RS-N27	5/24/2007	7	6	0-6	100	100	100	100	100	100	100	100	99.83	91.87	49.39	22.94	10.70	4.89	1.43	0.96
RS-N30	05/24/07	4	4	--											--					
RS-N32	5/24/2007	9	9	0-6	100	100	100	100	100	100	100	100	100	99.95	97.43	55.42	2.89	0.84	0.29	0.20
				6-9	100	100	100	100	100	100	100	100	99.93	97.06	89.15	45.83	7.11	3.92	1.14	0.73
RS-N35	05/24/07	9	8	--											--					
RS-S3*	5/25/2007	6	6	0-6	100	100	100	100	100	100	97.34	85.74	79.71	57.47	29.40	10.89	4.04	2.16	0.82	0.61
RS-S6	05/25/07	3	3	--											--					
RS-S9	05/25/07	3	3	--											--					
RS-S13	05/25/07	3	3	--											--					
RS-S16	05/25/07	11	11	--											--					
RS-S19	5/25/2007	6	6	0-6	100	100	100	100	100	100	100	99.67	99.12	72.51	16.10	3.86	2.86	2.24	0.59	0.35
RS-S20	05/24/07	12	10	--											--					
RS-S21	5/24/2007	9	6	0-6	100	100	100	100	100	100	100	99.22	98.68	94.39	77.21	43.50	14.60	3.30	1.26	0.94
RS-S22	05/24/07	6	6	--											--					
RS-S23	5/24/2007	12	11	0-6	100	100	100	100	100	100	100	99.81	99.81	98.69	81.99	29.72	7.02	2.32	0.63	0.44
				6-11	100	100	100	100	100	100	100	100	99.96	98.63	88.69	64.39	48.32	21.04	8.09	5.06
RS-S24	05/24/07	9	9	--											--					
RS-S25	5/24/2007	4	4	0-4	100	100	100	100	100	100	97.50	96.38	95.15	94.46	93.94	79.58	24.99	9.09	2.21	1.21
RS-S28	05/24/07	6	6	--											--					
RS-S33	05/24/07	5	5	--											--					
RS-S36	5/24/2007	6	5	0-5	100	100	100	100	100	100	100	99.68	99.62	98.08	89.63	49.64	13.52	3.39	1.14	0.93
RS-XXX	05/24/07	6	6	--											--					
RS-YYY	05/25/07	3	3	--											--					

Notes:
1. Samples were collected by ARCADIS BBL, and submitted to Geotechnics, Inc. for particle size analysis.
2. Shaded samples were not analyzed for particle size distribution, but are included here to represent location specfic probing thicknesses and sediment core recovery lengths.
3. *Indicates field observations made at the time of collection noted a petroleum odor at this location.

TABLE 7-2
SUMMARY OF DEPOSITED SEDIMENT PCB AND TOC ANALYTICAL DATA

2007 ANNUAL MONITORING REPORT
UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results for PCBs are presented in dry weight mg/kg and results for TOC are presented in percent TOC)

Location ID:	RS-C1	RS-C4	RS-C7	RS-C10	RS-C14	RS-C17	RS-C17
Sample ID:	RS-C1	RS-C4	RS-C7	RS-C10	RS-C14	RS-C17	RS-C17
Sample Depth(Inches):	0-3	0-7	0-5	0-3	0-6	0-6	6-25
Parameter / Date Collected:	05/25/07	05/25/07	05/25/07	05/25/07	05/25/07	05/25/07	05/25/07
PCBs							
Aroclor-1221	ND(0.023)	ND(0.024)	ND(0.024) [ND(0.023)]	ND(0.066)	ND(0.024)	ND(0.023)	ND(0.26)
Aroclor-1242	ND(0.023)	ND(0.024)	ND(0.024) [ND(0.023)]	ND(0.066)	ND(0.024)	ND(0.023)	ND(0.26)
Aroclor-1248	0.060 J	0.025 J	ND(0.024) [ND(0.023)]	0.19 J	ND(0.024)	ND(0.023)	1.1 J
Aroclor-1254	0.088	0.039	ND(0.024) [ND(0.023)]	0.54	0.055	0.046	2.3
Aroclor-1260	0.032	0.097	0.061 J [0.036 J]	1.3	0.11	0.11	7.2
Total PCBs	0.18 J	0.161 J	0.061 J [0.036 J]	2.03 J	0.165	0.156	10.6 J
Total Organic Carbon							
TOC - Replicate 1 (%)	0.21	0.35	0.19 [0.21]	0.26	0.23	0.24	0.56
TOC - Replicate 2 (%)	0.18	0.67	0.25 [0.77]	0.22	0.23	0.13	1.30
TOC - Replicate 3 (%)	0.16	0.25	0.27 [0.40]	0.23	0.17	0.19	0.94
TOC - Replicate 4 (%)	NA	0.21	[0.16]	NA	NA	0.12	0.57
TOC - Average (%)	0.18	0.37	0.24 [0.38]	0.24	0.21	0.17	0.85
TOC - % RSD	14	56	18 [72]	11	17	33	43

Location ID:	RS-C26	RS-C29	RS-C29	RS-C31	RS-C34	RS-C37	RS-C37
Sample ID:	RS-C26	RS-C29	RS-C29	RS-C31	RS-C34	RS-C37	RS-C37
Sample Depth(Inches):	0-6	0-6	6-8	0-6	0-6	0-6	6-8
Parameter / Date Collected:	05/24/07	05/24/07	05/24/07	05/24/07	05/24/07	05/24/07	05/24/07
PCBs							
Aroclor-1016	ND(0.028)	ND(0.024)	ND(0.23) [ND(0.093)]	ND(0.023)	ND(0.023)	ND(0.024)	ND(0.024)
Aroclor-1221	ND(0.028)	ND(0.024)	ND(0.23) [ND(0.093)]	ND(0.023)	ND(0.023)	ND(0.024)	ND(0.024)
Aroclor-1232	ND(0.028)	ND(0.024)	ND(0.23) [ND(0.093)]	ND(0.023)	ND(0.023)	ND(0.024)	ND(0.024)
Aroclor-1242	ND(0.028)	ND(0.024)	ND(0.23) [ND(0.093)]	ND(0.023)	ND(0.023)	ND(0.024)	ND(0.024)
Aroclor-1248	0.063 J	ND(0.024)	ND(0.23) [0.43 J]	ND(0.023)	ND(0.023)	ND(0.024)	ND(0.024)
Aroclor-1254	0.098	0.024	ND(0.23) [0.49]	0.026	0.094	ND(0.024)	ND(0.024)
Aroclor-1260	0.16	0.091	4.6 J [2.5 J]	0.045	0.064	0.038	0.033
Total PCBs	0.321 J	0.115	4.6 J [3.42 J]	0.071	0.158	0.038	0.033
Total Organic Carbon							
TOC - Replicate 1 (%)	0.53	0.45	1.40 [2.70]	0.13	0.31	0.36	0.81
TOC - Replicate 2 (%)	0.48	0.30	1.30 [3.70]	0.37	0.27	0.52	0.48
TOC - Replicate 3 (%)	0.36	0.26	2.10 [2.40]	0.16	0.23	0.28	0.62
TOC - Replicate 4 (%)	NA	0.42	1.80	0.15	NA	0.17	0.50
TOC - Average (%)	0.46 J	0.36	1.63 J [2.95 J]	0.20	0.27	0.33 J	0.60
TOC - % RSD	20	25	23 [24]	57	15	45	25

TABLE 7-2
SUMMARY OF DEPOSITED SEDIMENT PCB AND TOC ANALYTICAL DATA

2007 ANNUAL MONITORING REPORT
UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results for PCBs are presented in dry weight mg/kg and results for TOC are presented in percent TOC)

Location ID:	RS-N2	RS-N5	RS-N8	RS-N11	RS-N11	RS-N12	RS-N15
Sample ID:	RS-N2	RS-N5	RS-N8	RS-N11	RS-N11	RS-N12	RS-N15
Sample Depth(Inches):	0-3	0-6	0-2	0-6	6-10	0-5	0-6
Parameter / Date Collected:	39,227	39,227	39,227	39,227	39,227	05/25/07	05/25/07
PCBs							
Aroclor-1016	ND(0.023)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.095)	ND(0.024)	ND(0.024)
Aroclor-1221	ND(0.023)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.095)	ND(0.024)	ND(0.024)
Aroclor-1232	ND(0.023)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.095)	ND(0.024)	ND(0.024)
Aroclor-1242	ND(0.023)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.095)	ND(0.024)	ND(0.024)
Aroclor-1248	0.045 J	ND(0.024)	0.023 J	ND(0.023)	ND(0.095)	0.20 J	0.025 J
Aroclor-1254	0.033	0.033	0.25	0.069	1	0.59	0.064
Aroclor-1260	0.051	0.095	0.17	0.19	1.9	0.32	0.085
Total PCBs	0.129 J	0.128	0.443 J	0.259	2.9	1.11 J	0.174 J
Total Organic Carbon							
TOC - Replicate 1 (%)	0.30	0.15	0.24	0.13	0.38	0.20	0.20
TOC - Replicate 2 (%)	0.64	0.17	0.23	1.20	1.20	0.30	3.30
TOC - Replicate 3 (%)	0.40	0.20	0.77	0.45	0.25	0.20	0.21
TOC - Replicate 4 (%)	0.63	NA	0.45	NA	0.25	NA	0.15
TOC - Average (%)	0.49	0.18	0.42	0.55	0.51	0.23	0.97
TOC - % RSD	35	13	60	80	86	24	160

Location ID:	RS-N15	RS-N18	RS-N18	RS-N27	RS-N30	RS-N32	RS-N32
Sample ID:	RS-N15	RS-N18	RS-N18	RS-N27	RS-N30	RS-N32	RS-N32
Sample Depth(Inches):	6-9	0-6	6-14	0-6	0-4	0-6	6-9
Parameter / Date Collected:	39,227	39,226	39,226	39,226	39,226	05/24/07	05/24/07
PCBs							
Aroclor-1016	ND(0.024)	ND(0.025)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.022)	ND(0.025)
Aroclor-1221	ND(0.024)	ND(0.025)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.022)	ND(0.025)
Aroclor-1232	ND(0.024)	ND(0.025)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.022)	ND(0.025)
Aroclor-1242	ND(0.024)	ND(0.025)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.022)	ND(0.025)
Aroclor-1248	0.35 J	0.078 J	0.11 J	ND(0.022)	0.025 J	ND(0.022)	0.039 J
Aroclor-1254	0.96	0.18	0.048	ND(0.022)	0.1	ND(0.022)	0.046
Aroclor-1260	0.2	0.11	0.068	0.034	0.04	ND(0.022)	0.14
Total PCBs	1.51 J	0.368 J	0.226 J	0.034	0.165 J	ND(0.022)	0.225 J
Total Organic Carbon							
TOC - Replicate 1 (%)	0.20	0.26	0.14	0.19	1.60	0.15	0.26
TOC - Replicate 2 (%)	0.22	0.51	0.26	0.14	0.29	0.17	0.25
TOC - Replicate 3 (%)	0.20	0.34	0.17	0.13	0.43	0.21	0.22
TOC - Replicate 4 (%)	NA	0.20	0.16	NA	0.25	NA	NA
TOC - Average (%)	0.21	0.33	0.18	0.15	0.65	0.17	0.24
TOC - % RSD	4	41	28	21	100	17	8

TABLE 7-2
SUMMARY OF DEPOSITED SEDIMENT PCB AND TOC ANALYTICAL DATA

2007 ANNUAL MONITORING REPORT
UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results for PCBs are presented in dry weight mg/kg and results for TOC are presented in percent TOC)

Location ID:	RS-N35	RS-N35	RS-S3	RS-S6	RS-S9	RS-S13	RS-S16
Sample ID:	RS-N35	RS-N35	RS-S3	RS-S6	RS-S9	RS-S13	RS-S16
Sample Depth(Inches):	0-6	6-8	0-6	0-3	0-3	0-3	0-6
Parameter / Date Collected:	39,226	39,226	39,227	39,227	39,227	05/25/07	05/25/07
PCBs							
Aroclor-1016	ND(0.023)	ND(0.023)	ND(0.022)	ND(0.021)	ND(0.024)	ND(0.025)	ND(0.025)
Aroclor-1221	ND(0.023)	ND(0.023)	ND(0.022)	ND(0.021)	ND(0.024)	ND(0.025)	ND(0.025)
Aroclor-1232	ND(0.023)	ND(0.023)	ND(0.022)	ND(0.021)	ND(0.024)	ND(0.025)	ND(0.025)
Aroclor-1242	ND(0.023)	ND(0.023)	0.042 J	ND(0.021)	ND(0.024)	ND(0.025)	ND(0.025)
Aroclor-1248	ND(0.023)	0.039 J	ND(0.022)	ND(0.021)	ND(0.024)	ND(0.025)	ND(0.025)
Aroclor-1254	ND(0.023)	0.073	0.044	0.058	ND(0.024)	0.049	0.047
Aroclor-1260	0.044	0.12	0.034	0.24	ND(0.024)	0.074	0.094
Total PCBs	0.044	0.232 J	0.12 J	0.298	ND(0.024)	0.123	0.141
Total Organic Carbon							
TOC - Replicate 1 (%)	0.16	0.35	0.33	0.24	0.15	0.19	0.15
TOC - Replicate 2 (%)	0.13	0.26	0.19	0.31	0.17	0.39	0.19
TOC - Replicate 3 (%)	0.24	0.25	0.13	0.26	0.12	0.11	0.15
TOC - Replicate 4 (%)	0.27	NA	0.14	NA	NA	0.17	NA
TOC - Average (%)	0.20	0.29	0.20	0.27	0.14	0.22	0.17 J
TOC - % RSD	32	20	47	14	17	58	15

Location ID:	RS-S16	RS-S19	RS-S20	RS-S20	RS-S21	RS-S22	RS-S23
Sample ID:	RS-S16	RS-S19	RS-S20	RS-S20	RS-S21	RS-S22	RS-S23
Sample Depth(Inches):	6-11	0-6	0-6	6-10	0-6	0-6	0-6
Parameter / Date Collected:	39,227	39,227	39,226	39,226	39,226	05/24/07	05/24/07
PCBs							
Aroclor-1016	ND(0.027)	ND(0.020)	ND(0.022)	ND(0.022)	ND(0.025)	ND(0.024) [ND(0.024)]	ND(0.023)
Aroclor-1221	ND(0.027)	ND(0.020)	ND(0.022)	ND(0.022)	ND(0.025)	ND(0.024) [0.051 J]	ND(0.023)
Aroclor-1232	ND(0.027)	ND(0.020)	ND(0.022)	ND(0.022)	ND(0.025)	ND(0.024) [ND(0.024)]	ND(0.023)
Aroclor-1242	ND(0.027)	0.12 J	ND(0.022)	ND(0.022)	ND(0.025)	ND(0.024) [ND(0.024)]	ND(0.023)
Aroclor-1248	0.17 J	ND(0.020)	ND(0.022)	ND(0.022)	ND(0.025)	ND(0.024) [0.025 J]	0.024 J
Aroclor-1254	0.2	0.076	ND(0.022)	0.026	0.044	0.047 [0.06]	0.11
Aroclor-1260	0.35	0.048	ND(0.022)	0.024	0.08	0.13 J [0.047 J]	0.028
Total PCBs	0.72 J	0.244 J	ND(0.022)	0.050	0.124	0.177 J [0.183 J]	0.162 J
Total Organic Carbon							
TOC - Replicate 1 (%)	0.87	0.09	0.39	0.41	0.36	0.30 [0.750]	0.16
TOC - Replicate 2 (%)	1.10	0.10	0.14	0.12	0.79	0.31 [0.72]	0.12
TOC - Replicate 3 (%)	0.90	2.40	0.21	0.11	0.20	0.39 [1.30]	0.10
TOC - Replicate 4 (%)	NA	0.21	3.00	0.13	0.20	[0.53]	NA
TOC - Average (%)	0.96	0.70	0.94	0.19	0.39	0.33 J [0.81 J]	0.13
TOC - % RSD	14	160	150	76	72	15 [38]	21

TABLE 7-2
SUMMARY OF DEPOSITED SEDIMENT PCB AND TOC ANALYTICAL DATA

2007 ANNUAL MONITORING REPORT
UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results for PCBs are presented in dry weight mg/kg and results for TOC are presented in percent TOC)

Location ID:	RS-S23	RS-S24	RS-S24	RS-S25	RS-S28	RS-S33	RS-S36
Sample ID:	RS-S23	RS-S24	RS-S24	RS-S25	RS-S28	RS-S33	RS-S36
Sample Depth(Inches):	6-11	0-6	6-9	0-4	0-6	0-5	0-5
Parameter Date Collected:	39,226	39,226	39,226	39,226	39,226	05/24/07	05/24/07
PCBs							
Aroclor-1016	ND(0.024)	ND(0.026)	ND(0.022)	ND(0.025)	ND(0.025)	ND(0.024)	ND(0.024)
Aroclor-1221	ND(0.024)	ND(0.026)	ND(0.022)	ND(0.025)	ND(0.025)	ND(0.024)	ND(0.024)
Aroclor-1232	ND(0.024)	ND(0.026)	ND(0.022)	ND(0.025)	ND(0.025)	ND(0.024)	ND(0.024)
Aroclor-1242	ND(0.024)	ND(0.026)	ND(0.022)	ND(0.025)	ND(0.025)	ND(0.024)	ND(0.024)
Aroclor-1248	0.047 J	ND(0.026)	0.062 J	0.040 J	0.030 J	ND(0.024)	0.076 J
Aroclor-1254	0.073	ND(0.026)	0.27	0.054	0.047	0.056	0.18
Aroclor-1260	0.083	0.052	0.11	0.2	0.073	0.032	0.11
Total PCBs	0.203 J	0.052	0.442 J	0.294 J	0.15 J	0.088	0.366 J
Total Organic Carbon							
TOC - Replicate 1 (%)	0.43	0.22	0.17	0.15	0.81	0.35	0.16
TOC - Replicate 2 (%)	0.44	0.40	0.11	0.18	0.32	0.29	0.14
TOC - Replicate 3 (%)	0.37	0.25	0.15	0.55	0.38	0.23	0.20
TOC - Replicate 4 (%)	NA	1.10	NA	0.12	0.39	NA	NA
TOC - Average (%)	0.41	0.49	0.14	0.25	0.47	0.29	0.17
TOC - % RSD	8	84	22	80	48	21	17

Location ID:	RS-XXX	RS-YYY
Sample ID:	RS-XXX	RS-YYY
Sample Depth(Inches):	0-6	0-3
Parameter Date Collected:	39,226	39,227
PCBs		
Aroclor-1016	ND(0.023)	ND(0.023)
Aroclor-1221	ND(0.023)	ND(0.023)
Aroclor-1232	ND(0.023)	ND(0.023)
Aroclor-1242	ND(0.023)	ND(0.023)
Aroclor-1248	0.044 J	0.066 J
Aroclor-1254	0.11	0.14
Aroclor-1260	0.16	0.26
Total PCBs	0.314 J	0.466 J
Total Organic Carbon		
TOC - Replicate 1 (%)	0.26	0.33
TOC - Replicate 2 (%)	0.13	0.17
TOC - Replicate 3 (%)	0.23	0.31
TOC - Replicate 4 (%)	0.13	0.26
TOC - Average (%)	0.19	0.26
TOC - % RSD	36	27

Notes:

1. Samples were collected by ARCADIS BBL, and submitted to Northeast Analytical, Inc. for analysis of PCBs and TOC.
2. Samples have been validated as per Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP), General Electric Company, Pittsfield, Massachusetts, ARCADIS BBL (approved June 13, 2007).
3. NA - Not Analyzed - TOC Replicate 4 was analyzed and reported by the laboratory only if the percent relative standard deviation (% RSD) of Replicate 1 through Replicate 3 was greater than 25%.
4. Field duplicate sample results are presented in brackets.

Data Qualifiers:

J - Indicates that the associated numerical value is an estimated concentration.

TABLE 7-3
GE DEPOSITED SEDIMENT PCB AND ASSOCIATED EPA SPLIT SAMPLE ANALYTICAL RESULTS

2007 ANNUAL MONITORING REPORT
UPPER 1/2 MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight mg/kg)

Parameter	Location ID: / Sample ID: / Sample Depth(Inches): / Date Collected:	RS-C7 RS-C7[1] 0-5 05/25/07	RS-C7 H1-SE001576-0-0000[2] 0-5 05/25/07	RS-C14 RS-C14[1] 0-6 05/25/07	RS-C14 H1-SE001573-0-0000[2] 0-6 05/25/07	RS-C17 RS-C17[1] 6-25 05/25/07	RS-C17 H1-SE001572-0 / [1]-0005[2] 6-25 05/25/07
PCBs							
Aroclor-1221		ND(0.024) [ND(0.023)]	ND(0.019)	ND(0.024)	ND(0.021)	ND(0.26)	ND(0.25) [ND(0.24)]
Aroclor-1232		ND(0.024) [ND(0.023)]	ND(0.019)	ND(0.024)	ND(0.019)	ND(0.26)	ND(0.24) [ND(0.021)]
Aroclor-1242		ND(0.024) [ND(0.023)]	ND(0.019)	ND(0.024)	ND(0.021)	ND(0.26)	ND(0.25) [ND(0.24)]
Aroclor-1248		ND(0.024) [ND(0.023)]	ND(0.019)	ND(0.024)	ND(0.021)	1.1 J	ND(0.25) [ND(0.24)]
Aroclor-1254		ND(0.024) [ND(0.023)]	0.026	0.055	0.066	2.3	1.4 [1.1]
Aroclor-1260		0.061 J [0.036 J]	0.064	0.11	0.073	7.2	1.6 [2.4]
Total PCBs		0.061 J [0.036 J]	0.090	0.165	0.14	10.6 J	3.0 [3.5]

Parameter	Location ID: / Sample ID: / Sample Depth(Inches): / Date Collected:	RS-C34 RS-C34[1] 0-6 05/24/07	RS-C33 H1-SE001567-0-0000[2] 0-6 05/24/07	RS-C37 RS-C37[1] 0-6 05/24/07	RS-C37 H1-SE001566-0-0000[2] 0-6 05/24/07	RS-N5 RS-N5[1] 0-6 05/25/07	RS-N5 H1-SE001577-0-0000[2] 0-6 05/25/07
PCBs							
Aroclor-1221		ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)	ND(0.024)	ND(0.021)
Aroclor-1232		ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)	ND(0.024)	ND(0.021)
Aroclor-1242		ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)	ND(0.024)	ND(0.021)
Aroclor-1248		ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)	ND(0.024)	ND(0.021)
Aroclor-1254		0.094	0.17	ND(0.024)	0.051	0.033	0.091
Aroclor-1260		0.064	0.071	0.033	0.14	0.095	0.16
Total PCBs		0.158	0.241	0.033	0.191	0.128	0.251

TABLE 7-3
GE DEPOSITED SEDIMENT PCB AND ASSOCIATED EPA SPLIT SAMPLE ANALYTICAL RESULTS

2007 ANNUAL MONITORING REPORT
UPPER 1/2 MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight mg/kg)

Parameter	Location ID: / Sample ID: / Sample Depth(Inches): / Date Collected:	RS-N11 RS-N11[1] 6-10 05/25/07	RS-N11 H1-SE001574-0-0005[2] 6-10 05/25/07	RS-N27 RS-N27[1] 0-6 05/24/07	RS-N27 H1-SE001569-0-0000[2] 0-6 05/24/07	RS-N30 RS-N30[1] 0-4 05/24/07	RS-N30 H1-SE001568-0-0000[2] 0-4 05/24/07	RS-S9 RS-S9[1] 0-3 05/25/07	RS-S9 H1-SE001575-0-0000[2] 0-3 05/25/07
PCBs									
Aroclor-1221		ND(0.095)	ND(0.063)	ND(0.022)	ND(0.037)	ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)
Aroclor-1232		ND(0.095)	ND(0.063)	ND(0.022)	ND(0.037)	ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)
Aroclor-1242		ND(0.095)	ND(0.063)	ND(0.022)	ND(0.037)	ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)
Aroclor-1248		ND(0.095)	ND(0.063)	ND(0.022)	ND(0.037)	0.025 J	ND(0.020)	ND(0.024)	ND(0.021)
Aroclor-1254		1	0.38	ND(0.022)	ND(0.037)	0.1	0.035	ND(0.024)	ND(0.021)
Aroclor-1260		1.9	0.17	0.034	0.24	0.04	0.14	ND(0.024)	0.040
Total PCBs		2.9	0.55	0.034	0.24	0.165 J	0.175	ND(0.024)	0.040

Parameter	Location ID: / Sample ID: / Sample Depth(Inches): / Date Collected:	RS-S21 RS-S21[1] 0-6 05/24/07	RS-S21 H1-SE001571-0-0000[2] 0-6 05/24/07	RS-S24 RS-S24[1] 0-6 05/24/07	RS-S24 H1-SE001570-0-0000[2] 0-6 05/24/07
PCBs					
Aroclor-1221		ND(0.025)	ND(0.022)	ND(0.026)	ND(0.042)
Aroclor-1232		ND(0.025)	ND(0.022)	ND(0.026)	ND(0.042)
Aroclor-1242		ND(0.025)	ND(0.022)	ND(0.026)	ND(0.042)
Aroclor-1248		ND(0.025)	ND(0.022)	ND(0.026)	ND(0.042)
Aroclor-1254		0.044	0.050	ND(0.026)	0.069
Aroclor-1260		0.08	0.038	0.052	0.29
Total PCBs		0.124	0.088	0.052	0.359

Notes:
1. GE Samples were collected by ARCADIS BBL, and submitted to Northeast Analytical, Inc. for analysis of PCBs and TOC.
2. EPA split samples were collected by Weston Solutions, Inc.
3. GE analytical data have been validated as per Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP), General Electric Company, Pittsfield, Massachusetts, ARCADIS BBL (approved June 13, 2007).
4. Field duplicate SAMPLE ANALYTICAL RESULTS are presented in brackets.
5. Sample pairs are alternately shaded and unshaded.

Data Qualifiers:

J - Indicates that the associated numerical value is an estimated concentration.

TABLE 8-1
SUMMARY OF FUTURE POST-CONSTRUCTION MONITORING ACTIVITIES [1]

2007 ANNUAL MONITORING REPORT
UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

Monitoring Activity[2]	2008	2009	2010	2011	2012	2017	Comments
Sediment Cap Isolation Layer (CAP-MON-1 through CAP-MON-8)	---	---	---	---	Second Round	---	Consists of sampling of the isolation layer at select locations along the Upper 1/2-Mile Reach. To be conducted with the Second Round of Deposited Sediments sampling.
Armor Stone Layer	Long-term 1-Year	Long-term 2-Year	Long-term 3-Year	Long-term 4-Year	Long-term 5-Year	---	Visual inspection to be performed for five years during low flow conditions during years in which there has been any flow event above 1,500 cfs.
Aquatic Habitat Enhancement Structures	Long-term 1-Year	Long-term 2-Year	Long-term 3-Year	Long-term 4-Year	Long-term 5-Year	---	Visual inspection to be performed for five years during a period of low-flow condition during years in which there has been any flow event above 1,500 cfs.
Deposited Sediments[4]	---	---	---	---	Second Round	Third Round	Sampling to consist of 39 grab samples, collected at the locations identified in the Upper 1/2-Mile Work Plan after five and ten additional years from the conclusion of the "5-Year" Monitoring Requirements.[3]
Cleared and Restored Bank Soil Areas	Long-term 1-Year	Long-term 2-Year	Long-term 3-Year	Long-term 4-Year	Long-term 5-Year	---	Visual inspection of the cleared and restored bank areas for signs of erosion during years in which there has been any flow event greater than 1,500 cfs.
Restored Bank Vegetation							
Planting Areas 1, 2, 3, and 4A	Completed						Consists of an annual visit during the fifth and seventh years after planting.
Planting Area 5	---	Revisit Canopy and Understory[6]	---	---	---	---	
Planting Areas 4B, 6, 6A 7, 8, 8A, 9, 9A, 10, 11, and 11A	Year 7	---	---	---	---	---	
Planting Areas 13, 15, and 16	Deferred Year 5	Year 7	---	---	---	---	
Planting Areas 12, 14, and 17	---	Year 7	---	---	---	---	

Notes:

1. Please refer to the *Removal Action Work Plan - Upper 1/2-Mile Reach of Housatonic River* (Upper 1/2-Mile Work Plan; BBL, August 1999) for additional details.
2. EPA and EOEA shall be notified at least one week prior to conducting monitoring activities.
   EPA contact is Dean Tagliaferro: (413) 236-0969
   EOEA contact is Dale Young: (413) 447-9771
   GE contact is Andy Silfer: (413) 448-5904
3. To consolidate sampling efforts, GE proposed, and EPA concurred, that 5-year monitoring for all isolation layer locations would be performed in 2007, and 10- and 15- year events in 2012 and 2017 respectively.
4. GE is required to conduct three rounds of periodic sampling of the restored sediments at five-year intervals, beginning five-years after completion of construction on the sediment removal/replacement activities. The first sampling round occured in 2007. The second and third round of sampling is anticipated to be performed in 2012 and 2017. Sampling shall be performed in accordance with the Upper 1/2-Mile Work Plan.
5. Long-term monitoring is proposed to be initiated in 2008, and will be performed annually for five years (i.e., 2008 through 2011) and once again in 2017.
6. Area 5 will be revisited in 2008 due to recent restoration activities.

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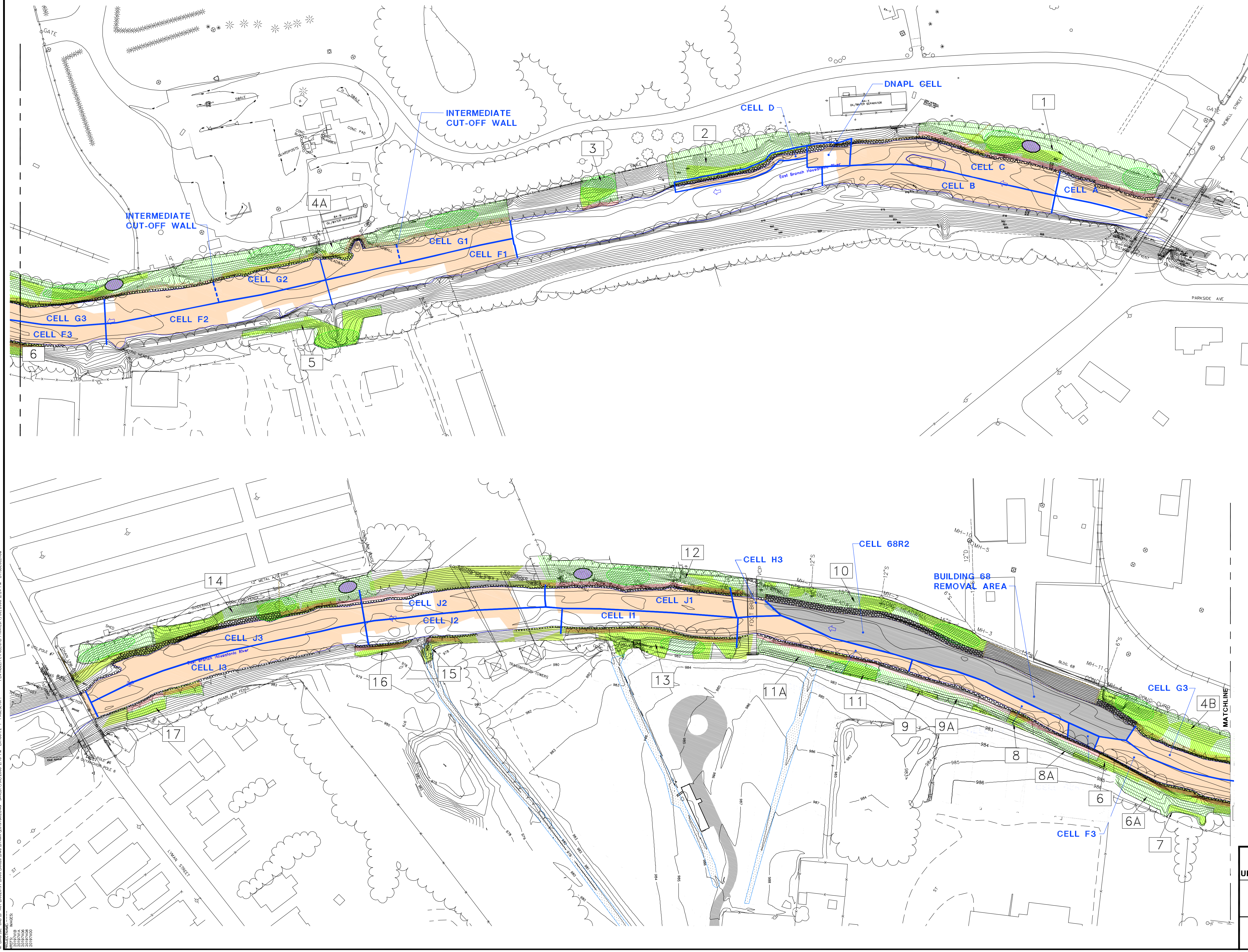
Figures



LEGEND:

- SEDIMENT WORK AREA
- BANK SOIL REMOVAL AREA
- TOP OF BANK
- BUILDING 68 REMOVAL AREA
- CLEARING LIMITS/PLANTING AREA
- CONTAINMENT BARRIER LOCATION
- UNDERSTORY SPECIES
- VINE PATCHES
- STONE/RIP-RAP
- RED-OSIER-DOGWOOD
- 4A APPROXIMATE RESTORED BANKPLANTING AREA

NOTES:

1. ALL DIMENSIONS AND LOCATIONS ARE APPROXIMATE.

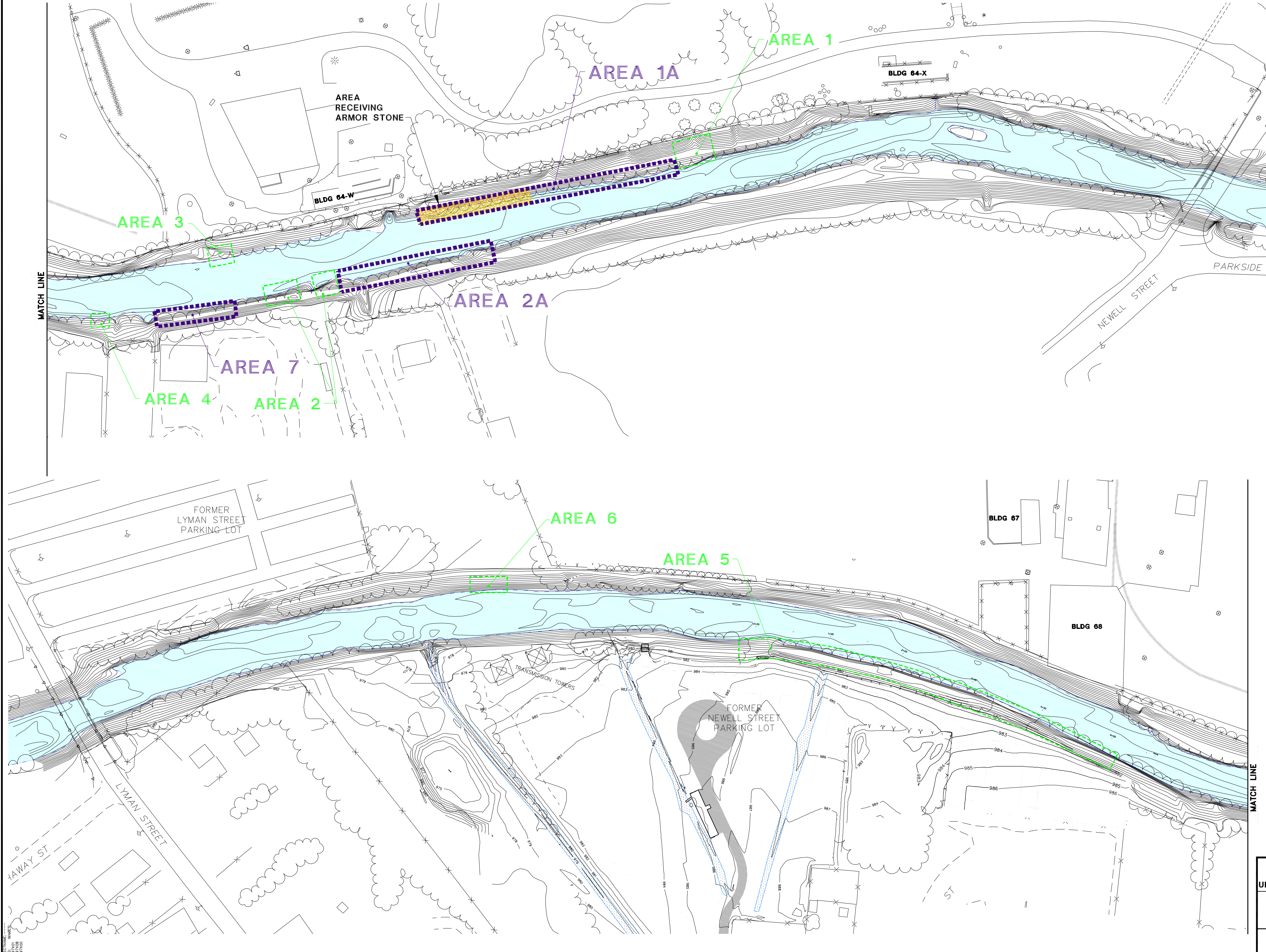
0 80' 160'
GRAPHIC SCALE

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
2007 ANNUAL MONITORING REPORT
UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER

RESTORED BANK PLANTING AREAS

ARCADIS

FIGURE
2-1



LEGEND:

TOP OF BANK

APPROXIMATE LOCATION OF EROSION AREAS NOTED DURING 2006 INSPECTION

APPROXIMATE LOCATION OF EROSION AREAS NOTED DURING 2007 INSPECTION

NOTE:

1. ALL FEATURES AND LOCATIONS SHOWN ARE APPROXIMATE.

0 80' 160'

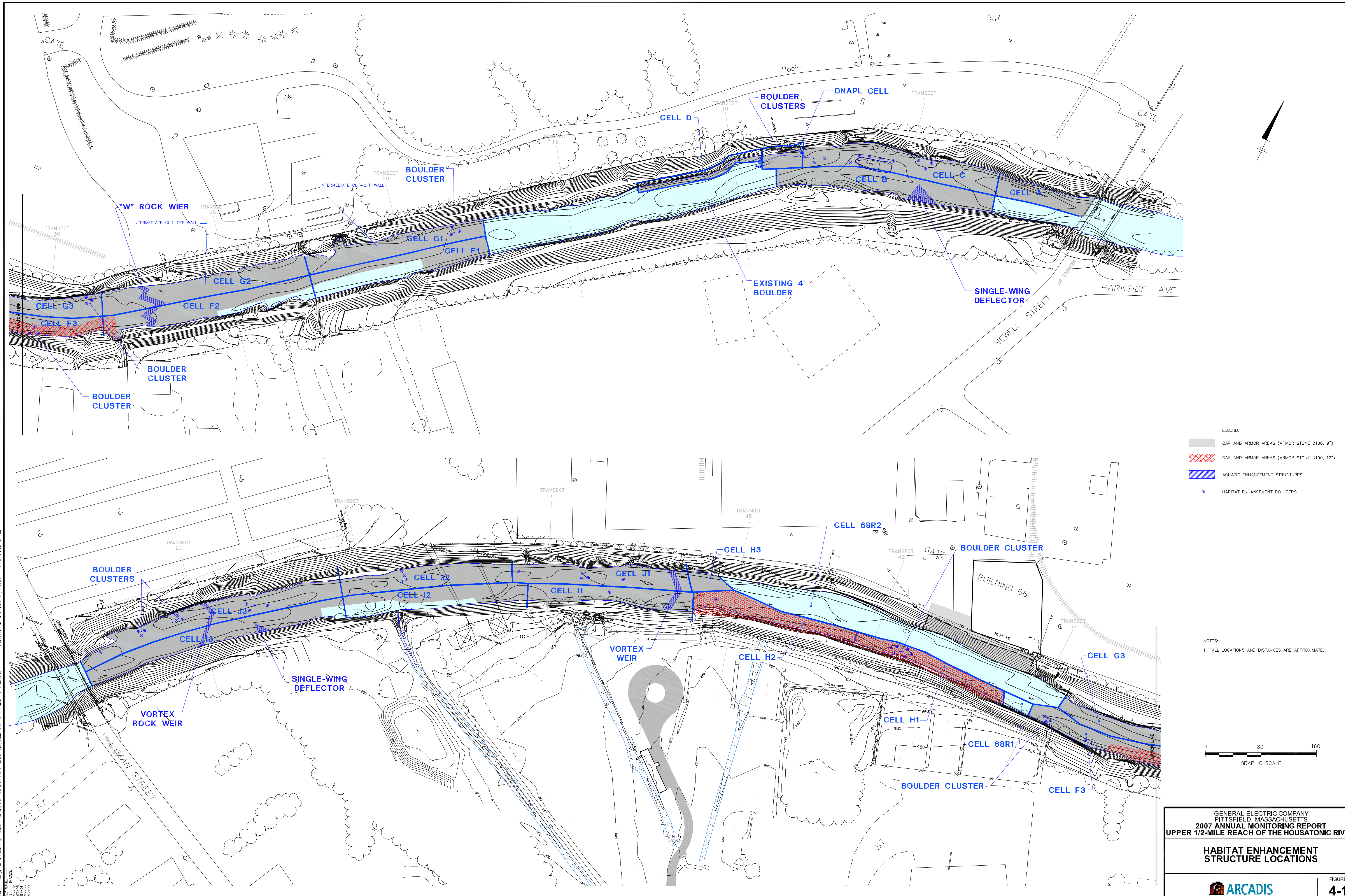
GRAPHIC SCALE

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
2007 ANNUAL MONITORING REPORT
UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER

2007 BANK EROSION INSPECTION

ARCADIS

FIGURE
3-1



GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
2007 ANNUAL MONITORING REPORT
UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER

HABITAT ENHANCEMENT STRUCTURE LOCATIONS

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FIGURE
4-1

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Appendices

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Appendix A

Standard Operating Procedure for Restored Bank Vegetation Monitoring

Appendix A –
Standard Operating Procedure for Riverbank Vegetation Monitoring Program

The General Electric Company (GE) and the Massachusetts NRD Trustees (NRD Trustees) agreed to an approach to the restored bank vegetation monitoring methodology for the Upper ½–Mile Reach of the Housatonic River that was utilized in 2001 and refined in 2002. From these earlier monitoring methodologies a detailed approach to the monitoring program was created and has been utilized since 2003 as described below.

1. The monitoring team is to include representatives of GE and representatives of NRD Trustees. The team will assemble at the onsite construction trailer, or similar central location, on the day of the inspection in order to coordinate activities and cover any issues.

2. The stem count is to be performed; and data recorded, by GE. The representative for the NRD Trustees will observe to ensure the accuracy of the count. Specifically, the NRD's Trustees representative will: ensure agreement over species identification, assist with the determination of stressed species, assist with the identification of invasive plant species, assist with the determination of percent herbaceous and invasive cover, and advise on other technical issues as required. The certified arborist will assist in the assessment of the apparent health and vigor of installed plants. Copies of all data sheets will be provided to the NRD Trustee's representative at the conclusion of the monitoring event. The identification of all parties involved in an inspection event will be made in the results section of the report.

3. In general, the planting areas will be inspected beginning with the furthest upstream on the north side of the Housatonic River (planting area 1) and will proceed downstream. Once the north side of the river has been inspected, the monitoring team will move to the most upstream planting area on the south side of the Housatonic River (planting area 5) and proceed downstream.

4. If the inspection is being held in the spring, only planting areas planted up to the fall of the previous year will be inspected. Similarly, if the inspection is being held in the summer, only the planting areas planted up to the fall of the previous year will be inspected.

5. As a means of streamlining the inspection process, an agreement was made between GE and the NRD Trustee's representative concluding that planting areas 6, 6A, 7, and 8A would be inspected as a single unit and planting areas 8, 9, 9A, 11, and 11A would be inspected as a single unit. An easily identifiable landmark was noted as the boundary between these two composite areas. An easily identifiable landmark was also noted as the boundary between planting areas 4A and 4B.

6. Where the linear distance of the planting area exceeds 100 feet, the planting area will be divided into sections of 100 feet or shorter to increase the accuracy of the count. As of this date, that includes planting areas 1, 4A, 4B, composite planting area 6, 6A, 7, and 8A, and composite planting area 8, 9, 9A, 10, 11, and 11A.

7. Where the riverbank width (slope length) is greater than 25 feet, and/or the density and height of vegetation obscures the observer's vision to clearly see the entire riverbank slope, a line or tape will be used to divide the bank into upper and lower bank areas to increase the accuracy of the count.

8. The areas of planting will be monitored by slowly walking from one end of a specific planting area to the other. As the team walks through an area, the counter will visually note the number of planted trees, shrubs, and vines based on observation of stems, as well as the number of resprouts of species consistent with those planted species. After the woody plants have been inspected in an area, the team will stop and estimate herbaceous cover and percent coverage of invasive species. The recorder will take down the inspection information as the team proceeds through a given planting area.

9. The recorder will keep the tally of results on a field datasheet developed by GE for the monitoring program. On the tally sheet, woody vegetation will be listed as either live (either stressed or unstressed) or dead. Any additional general observations of the planting area will also be reported on the tally sheet.

10. The decision as to whether some specimens are stressed will be based on visual observation of the plant and the agreed judgment of the two observers (representatives of GE and the NRD Trustees); however, to meet performance criteria, replanting needs are to be based on the number of dead specimens or those missing from the final count for a particular species. Stressed plants are still alive, but physical indicators such as leaf wilt, nutrient deficiency, bug infestation, die back, herbicide injury, and animal damage (e.g., woodchuck) may represent evidence of diminished vigor. Plants are also to be considered stressed if they are reduced in height (less than four feet for trees, though the plant may be a stump sprout following topping of the planted specimen from

herbivorous activity or other action). Non-stressed plants show very limited signs of these stress indicators (<5%) and are growing vigorously as determined by the certified arborist based on such characteristic as annual growth, leaf color, stem integrity, and fruit and flower production.

11. For the Red-osier dogwood band, it was determined that the ability to count individual stems was made problematic by the multiple-stem nature of the developing plant. Therefore, it has been decided that performance determination for the band would be made by visually determining, based on best professional judgment of the observers, whether the band in a planting area appears to meet the 4-foot on-center planting scheme. Areas of the band that were noted as not meeting the 4-foot on-center planting scheme were measured, and identified as to location, then noted on the tally sheets.

12. Stump resprouts from trees and shrubs cut during clearing or cut by herbivorous actions are counted in the live-but-stressed column. If the stump has multiple resprouts, it is still counted as a single specimen.

13. Canopy and understory stump resprouts from specimens cut during clearing activities are only to be counted as part of the tally if the stump was one of the species that was listed in the planting plan. However, if the specimen is a different species, it will be noted on the tally sheets for information purposes.

14. Aerial herbaceous cover will be determined by walking through each planting area (or 100-foot section) and visually estimating the total cover to the nearest 5%. For riverbank areas that are predominately covered by vegetation, estimating the percentage of bare ground first, and then subtracting that from 100% most accurately determines herbaceous cover. Litter is considered to be bare ground. Minor gaps between herbaceous plant branches and the bare soil (mulch) beneath trees and shrubs are not counted as bare ground. Determination of the percentage of open/bare ground in a planting area will be made based on visual observation using best professional judgment of the two observers; agreement on the percentage is to be reached before the value is noted on the tally sheet.

15. In addition to herbaceous coverage, an estimation of the percentage of significant areas of bare soil will be included in the tally. This is a qualitative assessment based on best professional judgment of those significant areas of bare soil in which there is no plant growth of any kind. This is not intended to assess bare ground between individual plant stems, but large (>15-20 square feet) areas where herbaceous growth does not occur.

16. A determination of the percentage of invasive species will be made based on visual observation using the best professional judgment of the two observers, with agreement of the percentage to be reached before the value is noted on the tally sheet. Identification of the dominant invasive species in a given area will also be noted on the tally sheets. Areas of invasive species will be flagged if necessary to facilitate remediation.

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Appendix B

Modifications to Restored Bank Vegetation Monitoring Program

Appendix B –
Proposed Modifications to Restored Bank Vegetation Monitoring Program

As outlined in Section 9.2 of the *Removal Action Work Plan – Upper ½ Mile Reach of Housatonic River* (BBL, 1999), habitat restoration activities were implemented in sections of the riparian area bordering the Housatonic River where bank soils were excavated as part of remedial activities implemented by GE, and in areas that were cleared to allow access for the removal activities. As part of the habitat restoration process and as specified in Section 11.6.2 of the *Removal Action Work Plan – Upper ½ Mile Reach of Housatonic River* (Work Plan; BBL, 1999), GE agreed to monitor those areas that were restored to ensure the success and biological integrity of the intended vegetative community.

Based on the state of vegetative development in planting areas that were planted in 2000 and 2001; in 2005, GE requested approval of a modification to the existing vegetative monitoring program as described in the Work Plan. The proposed modifications were conditionally approved in a communication from the Trustees dated February 27, 2006. The proposed alteration in the monitoring methodology changed how the planting areas are monitored in their later years of development, but did not change the monitoring period or frequency, reporting requirements for monitoring, or the performance standards. The following sections summarize the existing monitoring program and outline the proposed changes to the vegetative monitoring program.

1.1 Existing Vegetation Monitoring Program Overview

As detailed in the Work Plan, for each planting area, the current vegetative monitoring program consists of two visits per year for the first 3 years after planting, and an annual visit to be conducted during the fifth and seventh years after planting. In each of the first 3 years after planting, visits were scheduled to be conducted in the late spring after the first leaf flush (May/June) and in the summer (July/August), while the single visits in the fifth and seventh years after planting were scheduled to be conducted in the summer (July/August). In the event of a significant loss of plantings (greater than 1/4 acre) being noted in any vegetation monitoring visit, the existing monitoring plan calls for the timing for monitoring to be restarted following appropriate actions to replant the lost trees or shrubs (except in the case where a third party is responsible for growth failure). Table 1 summarizes the monitoring schedule for the Upper ½ Mile Reach as specified in the Work Plan.

Under the existing monitoring plan, survival rates, based on stem counts of trees and shrubs and percent of herbaceous cover, are the key components of measuring the success of planted areas. The following performance standards are currently used to assess the adequacy of the restoration efforts over the Upper ½-Mile Reach:

1. All planted trees, shrubs, and vines must meet an 80% survival rate of the amount originally planted. To confirm this survival rate, supplemental plantings of appropriate species will be made if a monitoring event indicates a loss greater than 20%. Any dead trees or shrubs in excess of 20% of the original planting will be replaced in the fall of the year in which monitoring occurs.

2. Herbaceous coverage of 100% will be maintained outside the foliar extent of the trees. Supplemental seeding or other activities will be utilized to maintain 100% herbaceous coverage.

3. No greater than 5% of the restoration area of either bank will be allowed to be covered by invasive plant species. Any invasive species in excess of the 5% coverage limit will be removed in accordance with the requirements of the *Invasives Control Plan* (BBL, 2001).

The survivability of the plants is to be determined both by mortality and by apparent vigor. Monitoring also assesses whether supplemental activities, such as additional fertilizing or watering, may be necessary.

Each monitoring visit is to consist of a pedestrian survey of all areas on both banks where restoration activities have occurred. During the field visit, personnel conducting the inspection, supported by the certified arborist, are to perform a stem count of planted trees and shrubs to determine survival rates. The inspection team is to estimate groundcover by herbaceous species to verify aerial coverage, and note any indications of damage from trespassing or herbivory. Additionally, the inspection team is to note signs of erosion and initiate any actions to address invasive species. The monitoring visits are to be documented through field notes and photographs. Based on the results of each visit, the inspection team is able to recommend remedial actions, such as replanting, watering, repairing areas impacted by erosion, and implementing measures to reduce herbivory.

1.2 Rationale for Methodology Change

In older planting areas, significant growth has made the ability to count individual stems difficult to complete. While it is accepted that stem counts are an appropriate means of determining vegetative success in newly planted areas, in areas that are more mature and established, such as many of those on the Upper ½-Mile Reach, stem counts over the entire planting area are not necessarily the most appropriate means of documenting the development of the vegetative community. For purposes of meeting the overall objective of the stream bank restoration (i.e., a plant community that affords increased habitat function

relative to the pre-existing system), GE requested the opportunity to modify the monitoring methodology approach, in those planting areas where it is appropriate and feasible, to one that is more appropriate for a mature planted community.

1.3 Proposed Methodology

GE proposed to modify the vegetative monitoring program to include the integration of quantitative and qualitative activities to evaluate the vegetative success of certain older planting areas. The proposed approach is modeled after the restoration monitoring program used by the U.S. Environmental Protection Agency (EPA) on the 1½-Mile Reach of the Housatonic River.

Instead of conducting stem counts for the entire planting area, GE proposed to conduct stem counts in monitoring plots to be established within those individual planting areas larger than 2,500 ft^2. Planting areas less than 2,500 ft^2 in size will continue to be evaluated as in previous monitoring visits. The use of such monitoring plots allows for a more focused assessment of select representative portions of the planting areas, under the assumption that environmental conditions and vegetative growth are generally uniform across the planting areas – an assumption that has been shown to be accurate based on monitoring that has occurred at the site to date. Additionally, the use of monitoring plots will allow for the continued use of existing performance standards and the comparison to data from previous monitoring events. Plant survey techniques such as the line intercept method or point-centered-quarter technique that generally provide data more specific to density, frequency, and dominance were initially considered, then discounted in favor of monitoring plots because of the difficulties in correlating that information to existing performance standards and to historical survivability data.

The monitoring plots will be fixed in place at select locations within the planting areas in order to evaluate both canopy and understory species. Each plot will measure approximately 50 feet by 25 feet (1,250 square feet). In each planting area where such monitoring plots are appropriate, at least one plot will be located such that it encompasses approximately ½ (lengthwise) of an understory plot (oval shapes measuring approximately 50 feet long by 30 feet wide), should one exist in that planting area. Additionally, a sufficient number of plots will be placed in each planting area to cover a minimum of 20% of the planting area.

In addition to the stem counts within the monitoring plots, GE will conduct a random pedestrian survey of each of the planting areas with the objective of providing a qualitative assessment of the overall condition of the plant growth within the planting area. The focus

of this survey will be to determine whether there are any large areas of plant loss outside of the planting plots, or any areas outside the plots that might raise some level of concern with vegetative vigor.

GE will continue to monitor the red-osier dogwood band, grape vines, invasive species and herbaceous coverage in the same manner as is currently performed.

1.4 Performance Standards

As part of the modified monitoring program, the performance standard for planted trees and shrubs within the monitoring plot will continue to be an 80% survival rate of the amount originally planted. Stem counts of canopy species and understory species within the monitoring plot will be used to confirm that performance standards are being met. Under the assumption that plant growth and development is uniform across the planting areas, stem counts from the monitoring plots will then be extrapolated across the entire planting area to assess area-wide survival.

In the event that the calculated survival rate for trees and shrubs shows a significant negative variance from the performance standard in comparison to the last full monitoring event, GE reserves the right to resurvey the entire planting area to verify the planting results.

1.5 References

BBL. 1999. Removal Action Work Plan for Upper ½-Mile Reach of Housatonic River. Prepared for GE, Pittsfield, MA.

APPENDIX B
TABLE 1
UPPER ½-MILE VEGETATIVE MONITORING PROGRAM
MONITORING SCHEDULE

2007ANNUAL MONITORING REPORT
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY – PITTSFIELD, MASSACHUSETTS

Planting Areas	2001		2002		2003		2004		2005		2006		2007		2008		2009	
	sp	s	sp	s	sp	s	sp	s	sp	s	sp	s	sp	s	sp	s	sp	s
1	X	X	X	X	X	X				X				X				
2	X	X	X	X	X	X				X				X				
3	X	X	X	X	X	X				X				X				
4A	X	X	X	X	X	X				X				X				
4B			X	X	X	X	X	X				X				X		
10			X	X	X	X	X	X				X				X		
5	X	X	X	X	X	X				X				X				
6, 6A, 7, 8A			X	X	X	X	X	X				X				X		
8, 9, 9A, 11, 11A			X	X	X	X	X	X				X				X		
12					X	X	X	X	X	X				X				X
13					X	X	X	X	X	X				X				X
14					X	X	X	X	X	X				X				X
15					X	X	X	X	X	X				X				X
16					X	X	X	X	X	X				X				X
17					X	X	X	X	X	X				X				X

Notes: sp. = spring
s. = summer

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Appendix C

Previously Submitted Trip Reports

GE
159 Plastics Avenue
Pittsfield, MA 01201
USA

November 16, 2007

Dean Tagliaferro
On-Scene Coordinator
U.S. Environmental Protection Agency
c/o Weston Environmental Engineering
One Lyman St.
Pittsfield, MA 01201

Re: 2007 Bank Erosion Inspection
GE Pittsfield/Housatonic River Site
Upper ½-Mile Reach Removal Action (GECD800)

Dear Mr. Tagliaferro:

Consistent with requirements set forth in the *Removal Action Work Plan – Upper ½ Mile Reach of Housatonic River* (Work Plan) (Blasland, Bouck & Lee, Inc. [BBL], August 1999), General Electric (GE) has recently performed monitoring activities for the banks of the Upper ½-Mile Reach of the Housatonic River (½-Mile) to assess the cleared and restored areas within the ½-Mile for evidence of erosion. This monitoring event was performed on September 13, 2007 by representatives of GE and the U.S. Environmental Protection Agency (EPA). Specifically, the following people performed the inspection:

- Paolo Filippetti, ARCADIS BBL, for GE; and
- Tom Czlusniak, Weston, Inc., for EPA.

This trip report has been prepared to describe the findings of the 2007 bank erosion inspection – i.e., the areas identified with evidence of measurable bank material erosion or armor stone movement – and the proposed response actions to address those areas. In addition, in accordance with the Work Plan, GE has identified, to the extent practicable, the likely cause of the erosion and has made observations related to the dispersal and quantity of eroded soil (if any) in the river. The results of the inspection, as well as measures to restore the identified areas to previous conditions and to protect against further erosion, are described below for each area and are summarized in Table 1. Figure 1 illustrates the location of the areas at which measurable erosion or material movement was observed in 2007. That figure also shows, for reference, the areas of erosion observed during the 2006 erosion inspection (designated Areas 1 through 6), as documented in the April 6, 2006 trip report, which were the subject of response actions being performed at the time of inspection.

On the day of the inspection, flow in the river was approximately 36 cubic feet per second (cfs), as measured at USGS River Gauge Station No. 01197000 on the East Branch of the Housatonic River in Coltsville, MA. It should be noted that there was a high-flow event (i.e., estimated flow greater than 440 cfs) earlier in 2007. Specifically, between April 16 and April 22, 2007, the Coltsville gauge reported maximum daily flows greater than 440 cfs, including flows greater than 1,500 cfs on April 16 and April 17, 2007. With the exception of certain minor areas of erosion that are likely associated with concentrated surface run-off (as further discussed below), the erosion noted during the 2007 inspection appears to be related to these high flows in the ½-Mile and/or extreme flow events observed in 2005.

Three areas were noted with either a visually observable loss of bank materials or movement of bank armoring during the 2007 inspection. Portions of these areas, or in one case the entire area of erosion

discussed herein, are outside of the cleared and restored bank area associated with the Upper ½-Mile Reach Removal Action. As such, under the Work Plan, GE is not responsible for restoration/repair of these areas. Nonetheless, based on discussions with EPA, GE has agreed to address the erosion issues for each of the areas discussed in this report. Descriptions of these areas, along with proposed area-specific response actions, are presented below and summarized in Table 1. Additionally, the approximate locations of these areas (as well as those areas similarly identified in 2006) are illustrated on Figure 1. It should be noted that, with EPA consent, the restoration actions described below for the erosion areas identified in 2007 (except for Area 7, as discussed below) were initiated in October 2007, in conjunction with the ongoing restoration of the erosion areas identified in 2006.

Area 1A – This area consists of undercut banks along the northern bank starting downstream of Building 64X (immediately west of 2006 Area 1) and extending approximately 250 ft downstream (Figure 1, Photos 1 and 2). Portions of this area intersect or are adjacent to previously cleared or restored areas. Erosion in this area is generally located in the mid-bank area (i.e., above adjacent riprap and the apparent bank-full elevation). The total volume of eroded material is estimated to be less than approximately 15 cubic yards (cy) of native materials and/or clean backfill; however, there was no evidence of eroded soil in the river. To reduce the potential for further erosion in this area, riprap will be added to the affected areas and keyed into the bank such that, to the extent practicable, areas receiving armor stone will be restored to previous grades. [Note that any armor stone placed as part of the proposed remedial/restoration activities will be similar to that used during the implementation of the Upper ½-Mile Reach Removal Action (i.e., graded riprap, D_{100} = 12-inch), as fully described in the Work Plan.]

In addition, there are two areas of erosion located near the top-of-bank (Figure 1, Photos 3 and 4) in this area. This erosion was likely caused by concentrated surface run-off. To reduce the potential for future erosion in this area, hay bales will be positioned, as appropriate, to help divert concentrated runoff, and riprap will be placed within the eroded areas.

Area 2A – This area consists of approximately 200 ft of undercut banks along the southern bank immediately upstream of 2006 Area 2 directly across the river from Building 64 (Figure 1, Photos 5 and 6). Portions of this area intersect or are adjacent to previously cleared or restored areas. As with Area 1A, erosion in this area is generally located in the low- to mid-bank area. The total volume of eroded material is estimated to be less than approximately 30 cy of native materials and/or clean backfill; however, there was no evidence of eroded soil in the river. Riprap will be added to this area and keyed into the bank such that the undercut area is entirely filled and restored to approximate previous grades.

Area 7 – This area consists of approximately 30 ft of undercut banks along the southern bank approximately 130 feet downstream from the western edge of Area 2A (Figure 1, Photo 7 through 8). Erosion in this area is generally located at the mid-bank elevation. The total volume of eroded material from this area is estimated to be less than 1 cy of native material from an area that was not previously cleared or restored as part of the Upper ½-Mile Reach Removal Action. There was no evidence of eroded soil in the river. Riprap will be added to this area and keyed into the bank such that the undercut area is entirely filled and restored to approximate previous grades. Note that GE has not yet been able to reach agreement with the property owner adjacent to this area for permission to access Area 7 to perform these restoration activities. GE is continuing to negotiate with the property owner for appropriate access, and to the extent access permission is obtained, will address this area.

As noted above, the restoration of the areas of erosion identified above (except for Area 7) was initiated in October 2007, with EPA consent, in conjunction with the ongoing restoration of the areas of erosion noted in 2006. GE will continue to seek access to perform the restoration in Area 7. Further, GE will summarize the performance of these activities in the 2007 Annual Report. With the performance of the 2007 inspection, GE has completed the restored bank erosion monitoring program as outlined in the Work Plan. In the upcoming 2007 Annual Report, GE will propose a long-term monitoring plan related to erosion in the ½-Mile. The 2007 Annual Report will also include a summary of the performance of recent restoration activities performed in the ½-Mile in the areas of erosion discussed herein.

Please contact me if you have any questions.

Sincerely,

Andrew T. Silfer /dmn

Andrew T. Silfer, P.E.
GE Project Coordinator

ATS/dmn

Attachments

cc: Holly Inglis, USEPA
Tim Conway, USEPA
Rose Howell, USEPA (without attachments)
K.C. Mitkevicius, USACE
R. Goff, USACE
Linda Palmieri, Weston
Dale Young MA EOEA
Susan Steenstrup, MDEP (2 copies)
Jane Rothchild, MDEP (without attachments)
Anna Symington, MDEP (without attachments)
Nancy Harper, MA AG (without attachments)
Mayor James Ruberto, City of Pittsfield
Michael Carroll, GE (without attachments)
Rod McLaren, GE (without attachments)
James Bieke, Goodwin Procter
Mark Gravelding, ARCADIS BBL
Todd Cridge, ARCADIS BBL
Mike Chelminski, Woodlot Alternatives
Public Information Repositories
GE Internal Repositories

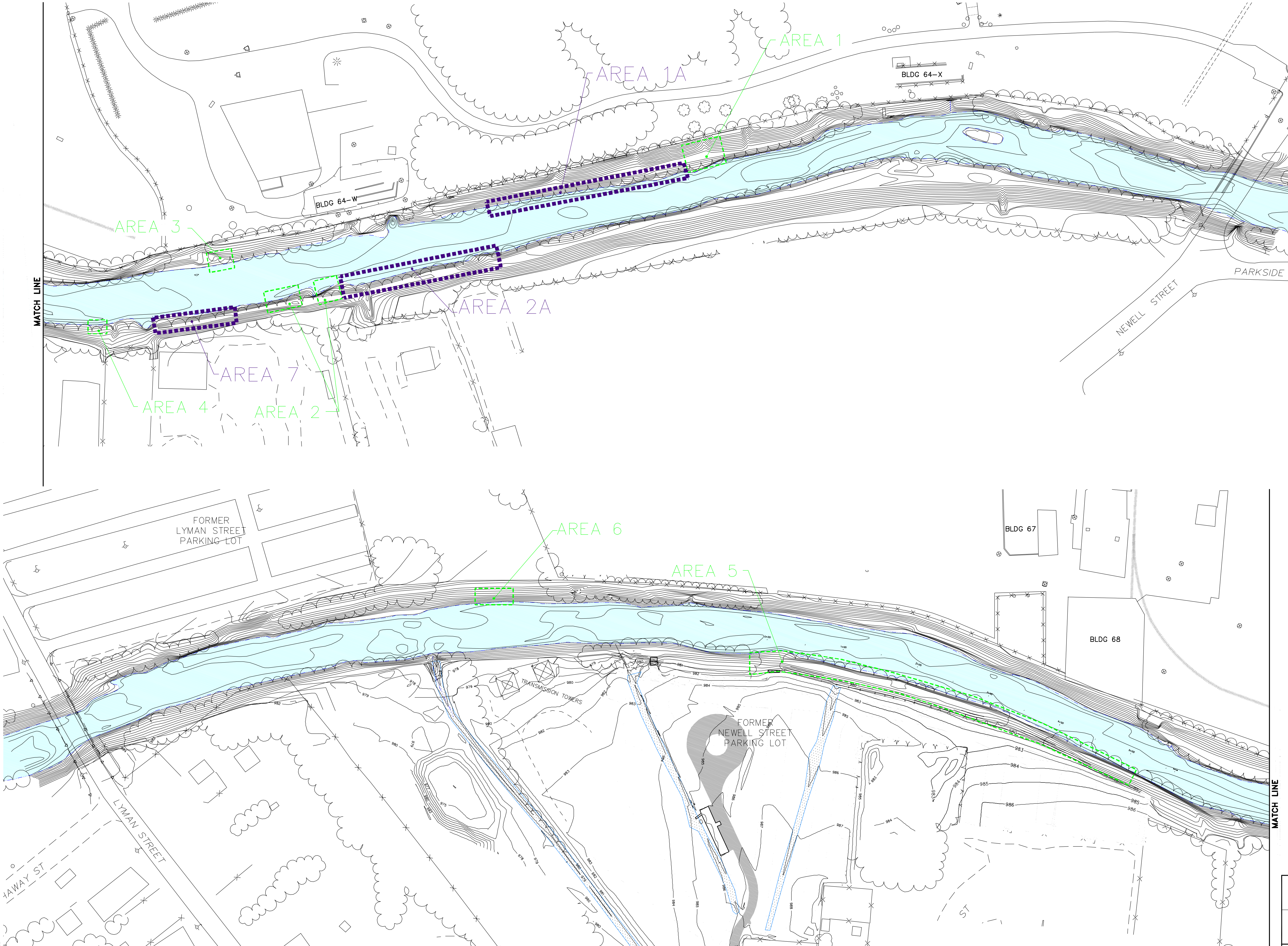
Table

TABLE 1
2007 RESTORED BANK EROSION INSPECTION SUMMARY

UPPER ½ -MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY – PITTSFIELD MASSACHUSETTS

Areas with Measurable Erosion	Description	Approximate Size	Action
1A - North bank of river, just downstream of Bldg 64X, immediately west of 2006 Area 1	Area of undercut banks likely due to high flow. Additional top-of-bank erosion likely due to concentrated runoff. No evidence of eroded soil in river	~250 ft of undercut banks ~Less than 15 cy of material loss	Restoration activities to include the installation of riprap to protect against further high flow erosion and placement of hay bales at top-of-bank to divert concentrated runoff
2A - South bank of river, across from Bldg 64W	Area of undercut banks likely due to high flow. No evidence of eroded soil in river	~200 ft of undercut banks ~Less than 30 cy of material loss	Restoration activities to include the installation of riprap to protect against further erosion
7 - South bank of river, approximately 130 ft downstream from western edge of Area 2A	Area of undercut banks likely due to high flow. No evidence of eroded soil in river	~30 ft of undercut banks ~Less than 1 cy of material loss	Restoration activities to include the installation of riprap to protect against further erosion

Figure



LEGEND:

TOP OF BANK

APPROXIMATE LOCATION OF EROSION AREAS NOTED DURING 2006 INSPECTION

APPROXIMATE LOCATION OF EROSION AREAS NOTED DURING 2007 INSPECTION

NOTE:

1. ALL FEATURES AND LOCATIONS SHOWN ARE APPROXIMATE.
2. BASEMAP PREPARED FROM 1990 AERIAL PHOTOGRAPHY MAPPING PROVIDED BY LOCKWOOD MAPPING, INC. COORDINATE GRID BASED ON 1927 STATE PLANE COORDINATES, ELEVATION DATUM BASED ON NGVD 1929. ALL FEATURES AND LOCATIONS SHOWN ARE APPROXIMATE.

0 80' 160'

GRAPHIC SCALE

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS

UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER

2007 BANK EROSION INSPECTION

ARCADIS BBL
infrastructure, environment, facilities

FIGURE
1

ARCADIS BBL

Attachment

Photographic Log

Photo 1 – Area 1A: Undercut bank

Photo 2 – Area 1A: Approximately 250 ft of undercut bank

Photo 3 – Downstream Swale: Top-of- bank erosion in Area 1A

Photo 4 – Upstream Swale: Top-of- bank erosion in Area 1A

Photo 5 – Area 2A: Approximately 200 ft of undercut bank

Photo 6 – Area 2A: Approximately 200 ft of undercut bank

Photo 7 – Area 7: Approximately 30 ft of undercut bank above Riprap

Photo 8 – Area 7: Approximately 30 ft of undercut bank above Riprap

GE
159 Plastics Avenue
Pittsfield, MA 01201
USA

Transmitted via Overnight Courier

November 28, 2007

Mr. Dean Tagliaferro
EPA Project Coordinator
US Environmental Protection Agency
c/o Weston Solutions, Inc.
One Lyman Street
Pittsfield, MA 01201

Re: 2007 Inspection of Restored Bank Vegetation and Aquatic Habitat Enhancement Structures
GE-Pittsfield/Housatonic River Site
Upper ½-Mile Reach of the Housatonic River (GECD800)

Dear Mr. Tagliaferro:

Enclosed is a memorandum presenting the results of the 2007 inspection of the restored banks vegetation and aquatic habitat enhancement structures associated with the Upper ½-Mile Reach of the Housatonic River in Pittsfield, Massachusetts.

Please call me with any questions.

Very truly yours,

for

Andrew T. Silfer, P.E.
GE Project Coordinator

Attachment
G:\GE\GE_Housatonic_Upper_Half_Mile\Reports and Presentations\2007 Vegetation Inspection Report\368711160Ltr.doc

cc: Susan Steenstrup, MDEP
Jane Rothchild, MDEP*
Anna Symington, MDEP*
Holly Inglis, EPA
Tim Conway, EPA
Rose Howell, EPA
K.C. Mitkevicius, USACE
R. Goff, USACE
Dale Young, MA EOEA
Nancy Harper, MA AG*
Linda Palmieri, Weston
Mayor James Ruberto, City of Pittsfield
Michael Carroll, GE*
Rod McLaren, GE*
James Bieke, Goodwin Procter
Mark Gravelding, ARCADIS BBL
Todd Cridge, ARCADIS BBL
Public Information Repositories
GE Internal Repositories

** without attachments*

MEMORANDUM

TO: Andrew T. Silfer, P.E.
General Electric

FM: Charles R. Harman, P.W.S.
AMEC Earth & Environmental

CC: Todd Cridge
Mark Gravelding, P.E.
ARCADIS BBL

SUBJ: **Trip Report**
2007 Inspections of Restored Bank Vegetation and of Aquatic Habitat Enhancement Structures and Armor Stone
Upper ½-Mile Reach of the Housatonic River, Pittsfield, Massachusetts

DATE: November 28, 2007

This document reports the results of the 2007 Restored Bank Vegetation Inspection of select areas of the Upper ½-Mile Reach of the Housatonic River (½-Mile), which was performed on August 16 and 17, 2007. Additionally, this document reports the results of the 2007 Aquatic Habitat Enhancement Structures and Armor Stone Inspection, which was performed on August 15, 2007.

As outlined in Section 9.2 of the *Removal Action Work Plan – Upper ½ Mile Reach of Housatonic River* (Work Plan; BBL, 1999), habitat restoration activities were implemented in those areas where bank soils were excavated as part of the Upper ½-Mile Reach Removal Action and in areas that were cleared to allow access for the removal activities.

As part of the habitat restoration process specified in Section 11.6.2 of the Work Plan, GE agreed to monitor the restored areas to ensure the success and biological integrity of the intended vegetative community. For each specific planting area, the monitoring program was required to consist of two visits during each of the first three years after planting (one in the late spring and one in the summer), and an annual visit during the fifth year and seventh year after planting (to be conducted in summer). Complete details of the monitoring program can be found in the Work Plan. As discussed further below, the inspection conducted on August 16-17, 2007, constituted the 5th-year required inspection for some planting areas and the 7th-year required planting inspection for other planting areas.

In addition to the vegetative survey, annual monitoring inspections are required for 5 years to visually assess the condition of the aquatic habitat structures that were placed within the ½-Mile and to evaluate the armor stone layer placed within that reach for evidence of erosion. The inspection of the aquatic habitat structures consists of the physical observation of the condition of each of the structures from a canoe. The monitoring also includes visual observations the armor stone layer for evidence of erosion. The inspection conducted on August 15, 2007 of the aquatic habitat enhancement structures and armor stone constituted the 5th-year inspection.

2007 Inspection Results for Aquatic Habitat Enhancement Structures and Armor Stone

On August 15, 2007, an inspection was conducted of the aquatic habitat enhancement structures and armor stone that were placed in the ½-Mile as part of the remediation and restoration of that reach. Charles Harman of AMEC conducted this inspection on behalf of GE and Michael Chelminski was present on behalf of the Natural Resource Trustees. The following observations were made during this visit:

1. Water in the bank was at a level that allowed for observations of the aquatic habitat structures.

2. In general, those aquatic structures that were visible appeared to be providing good cover and habitat. The aquatic structures appeared to be structurally stable and were creating variations in water velocity and flow, as evidenced by the presence of scour zones and depositional areas in the sediment surrounding the structures. The development of these variations in sediment elevation and the creation of flow changes in the water column appear to be providing good habitat for fish and aquatic invertebrates.

3. As in previous years, the armor stone layer appears to be stable with no areas of erosion or loss of armor materials noted.

Photographs of and observations related to the condition of the aquatic habitat enhancement structures and armor stone are presented in Attachment A.

2007 Inspection Results for Restored Bank Vegetation

On August 16 and 17, 2007, an inspection was conducted of the restored vegetation on the banks of the ½-Mile. Charles Harman of AMEC conducted the vegetative inspection on behalf of GE and Todd Chadwell of Woodlot Alternatives was present on behalf of the Natural Resource Trustees. Chris Frank of C. L. Frank & Associates accompanied the streambank monitoring party as the certified arborist. Planting areas 1, 2, 3, 4A, 5, 12, 13, 14, 15, 16, and 17 were inspected during this event.

It should be noted that planting area 13, as well as the composite planting area 6, 6A, 7, 8A and the composite planting area 8, 9, 9A, 11, and 11A, which are scheduled for inspection in 2008, have been impacted by the performance of remediation activities associated with Newell Street Area II and by the restoration activities for the ½-Mile banks associated with addressing areas of erosion identified in either 2006 or 2007. Following discussions with EPA, it was determined that, due to the resultant reduction in size of the available planting space, the original performance standards for canopy and understory species are no longer applicable in these planting areas, as there is no longer sufficient space to support the planting frequencies described in the Work Plan. As such, following the completion of the bank restoration activities to address erosion, the performance standards for canopy and understory species in the affected planting areas will be recalculated, considering only the remaining available space (i.e., the available planting area between the lower extent of the Newell Street Area II engineered barrier and the upper extent of the newly restored areas on the south bank of the ½-Mile). A discussion of the recalculated performance standards will be presented in the 2007 Annual Monitoring Report following receipt of Record Drawing

information from the contractor that performed restoration activities associated with the erosion areas.

The results of the 2007 inspection are described below and summarized in Tables 1 through 6 in terms of achievement of the applicable performance standards for the vegetative restoration. These results are presented for all performance standards for planting areas 1, 2, 3, 4A, 5, 12, 14, 15, 16 and 17. However, for the reasons given above, the results of the inspection for planting area 13 are presented only in terms of achieving the performance standards for which performance standards are not based on available planting space (i.e., red-osier dogwoods, herbaceous coverage, invasive species), since the performance standards will be recalculated for canopy and understory species.

1. The weather during the monitoring visit was partly cloudy and warm with the temperature at approximately 75° F at the beginning of the inspection. Water in the river was at a seasonably low level, and was generally below the top of the rip-rap at the toe of the bank.

2. Planting area 1 showed tremendous vegetative growth for all components of the restoration. In particular, the eastern cottonwood and the box elder specimens showed excellent growth with some diameter at breast height (DBH) measurements exceeding seven inches. All components of the vegetative community, including canopy, understory, red-osier dogwood, grape vines, herbaceous cover, and invasive species, met their performance standards.

3. Planting area 2 showed tremendous growth in each of the vegetative strata. All components of the vegetative community, including canopy, herbaceous coverage and invasive species, met their respective performance standards.

4. Planting area 3 met the performance standards for all components of the vegetative community, including canopy, understory, red-osier dogwood, herbaceous coverage, and invasive species.

5. Planting area 4A met the performance standards for all components of the vegetative community including canopy, understory, red-osier dogwood, herbaceous coverage and invasive species. While the canopy species in this planting area do not show as much vertical growth as was observed in other planting areas, the thickness of the vegetative growth is excellent.

6. Planting area 5 did not meet the performance standard for canopy or understory species; the canopy stratum is short by four specimens, and the understory is short by 28 specimens (the corrective actions for these variations are discussed below). All other components of the vegetative community, including herbaceous coverage and invasive species, met their performance standards.

7. Planting area 12 met the performance standards for all components of the vegetative community, including canopy, understory, red-osier dogwood, grape-vine, herbaceous coverage, and invasive species.

8. As noted above, since planting area 13 was disturbed by remedial construction activities, the available planting space has been changed, and the performance standards for canopy and understory species will be recalculated. The other components of the vegetative community, for which performance standards are not based on available planting space – namely, red-osier dogwoods, herbaceous coverage, and invasive species – met their performance standards.

9. Planting area 14 met the performance standards for all components of the vegetative community, including canopy, understory, red-osier dogwood, grape vine, herbaceous cover and invasive species.

10. The only metric to be evaluated in planting area 15 (the power line corridor) was red-osier dogwood, which met the performance standard.

11. Planting area 16 did not meet the performance standard for canopy species and is short by 2 specimens (the corrective action for this variation is discussed below). The other components of the vegetative community– namely, red-osier dogwoods, herbaceous coverage and invasive species – met their performance standards.

12. Planting area 17 met performance standards for all components of the vegetative community, including canopy species, red-osier dogwood, herbaceous coverage, and invasive species.

13. Protective screens were placed around the canopy specimens in the fall of 2001. These screens continue to provide good protection from herbivorous animals.

14. Invasive species control activities remain ongoing and are being performed along the banks of the entire ½-Mile.

Area-specific results of the monitoring visit are summarized in the attached tables. Photographs of the vegetative communities observed during the monitoring visit are included in Attachment B.

The next monitoring visit is scheduled for August 2008. Planting areas to be monitored include 4B, 10, the composite planting area 6, 6A, 7, 8A, the composite planting area 8, 9, 9A, 11, and 11A. Additionally, GE will revisit planting area 13 to assess its performance with respect to recalculated area-specific performance standards based on the reductions in available planting space, as well as planting areas 5 and 16 to monitor the success of the corrective actions discussed below.

CORRECTIVE ACTIONS

As discussed above, planting area 5, as well as the composite planting area 6, 6A, 7, 8A and the composite planting area 8, 9, 9A, 11, and 11A, have been impacted by remedial activities over the past few growing seasons. As a result, these planting areas will be reassessed for available planting space, and new performance standards applied prior to evaluating the success of the restoration of these areas. These areas will be inspected in 2008.

The 2007 inspection did not identify the need for any corrective actions at planting areas 1, 2, 3, 4A, 12, 14, 15, and 17. However, there were indications that two planting areas did not meet the performance standards with respect to canopy and/or understory specimens, and as such remedial actions are required. As discussed above and summarized in the table below, planting area 5 is missing 4 canopy specimens and 28 shrub specimens; and planting area 16 is missing 2 canopy specimens.

To meet the performance standards, the following plant totals will be installed by C. L. Frank and Associates in the fall of 2007:

Planting Area	Replacement Number
5	8 canopy specimen, 36 shrub specimen
16	4 canopy specimen

All such plantings will be performed in accordance with the practices set forth in the Work Plan. Depending upon species availability, canopy plantings will be divided equally among boxelder (*(Acer* negundo), eastern cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), and black willow (*Salix nigra*) species. Shrub plantings in planting area 5 will be divided equally among northern arrowwood (*Viburnum recognitum*), silky dogwood (*Cornus amomum*), winterberry (*Ilex verticillata*), and choke-cherry (*Prunus virginiana*), depending upon species availability. Canopy species will be installed in open spaces in each respective planting area, while understory species will be planted in open areas within the respective shrub plots in the affected planting areas.

Tables

TABLE 1
CANOPY MONITORING RESULTS

2007 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Planting Area	Date Planted	Quantity Planted	Target Performance Standard	Monitoring Count - Live Specimens			Dead	Variance
					Non-stressed	Stressed	Total		
8/16/2007	1[1]	May 00	210	168	207	0	207	0	+39
	2[2]	May 00	118	94	109	0	109	0	+15
	3	May 00	34	27	28	0	28	0	+1
	4A[3]	Oct 00	142	114	136	0	136	0	+22
	5	June 01	66	53	49	0	49	0	-4
	12	May/Oct 02	134	107	119	0	119	0	+12
	13	May/Oct 02	70	TBR	48	0	48	0	NA
	14	Oct 02	150	120	121	0	121	0	+1
	15	---	---	---	---	---	---	---	---
	16	Oct 02	8	6	4	0	4	0	-2
	17	Oct 02	26	21	25	0	25	0	+4

Notes:

[1] – Monitoring was conducted using the modified protocol based on sampling of three representative sub-plots; monitoring sub-plots accounted for 29% of Area 1.
[2] – Monitoring was conducted using the modified protocol based on sampling of three representative sub-plots; monitoring sub-plots accounted for 34% of Area 2.
[3] – Monitoring was conducted using the modified protocol based on sampling of three representative sub-plots; monitoring sub-plots accounted for 36% of Area 4A.
[4] – TBR is defined as To Be Recalculated
[5] – NA is defined as Not Applicable

TABLE 2
UNDERSTORY MONITORING RESULTS

2007 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Planting Area	Date Planted	Quantity Planted	Target Performance Standard	Monitoring Count - Live Specimens			Dead	Variance
					Non-stressed	Stressed	Total		
8/16/2007	1[1]	May 00	146	117	126		126	0	+9
	2[2]	---	---	---	---	---	---	---	---
	3	May 00	73	58	61	0	61	0	+3
	4A[3]	Oct 00	73	58	59	0	59	0	+1
	5	June 01	73	58	30	0	30	0	-28
	12	May/Oct 02	73	58	62	0	62	0	+4
	13	May/Oct 02	73	TBR	30	0	30	0	NA
	14	Oct 02	146	117	131	0	131	0	+14
	15	---	---	---	---	---	---	---	---
	16	---	---	---	---	---	---	---	---
	17	---	---	---	---	---	---	---	---

Notes:

[1] – Monitoring was conducted using the modified protocol based on sampling of three representative sub-plots; monitoring sub-plots accounted for 29% of Area 1.
[2] – Monitoring was conducted using the modified protocol based on sampling of three representative sub-plots; monitoring sub-plots accounted for 34% of Area 2.
[3] – Monitoring was conducted using the modified protocol based on sampling of three representative sub-plots; monitoring sub-plots accounted for 36% of Area 4A.
[4] – TBR is defined as To Be Recalculated
[5] – NA is defined as Not Applicable

TABLE 3
RED-OSIER DOGWOOD MONITORING RESULTS

2007 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Area	Date Planted	Quantity Required	Target Performance Standard	Monitoring Count		Comments
					Gaps in Dogwood Line, Missing Plants	Meets target performance standard, < 4 foot on center,	
8/16/2007	1	May 00	82	66	---	All present	Meets performance criteria
	2	---	---	---	---	---	---
	3	May 00	11	9	---	All present	Meets performance criteria
	4A	Oct 00	74	59	---	All present	Meets performance criteria
	5	---	---	---	---	---	---
	12	May/Oct 02	67	54	---	All present	Meets performance criteria
	13	May/Oct 02	59	47	---	All present	Meets performance criteria
	14	Oct 02	48	38	---	All present	Meets performance criteria
	15	May 02	10	8	---	All present	Meets performance criteria
	16	Oct 02	18	14	---	All present	Meets performance criteria
	17	Oct 02	27	22	---	All present	Meets performance criteria

TABLE 4
GRAPE VINE MONITORING RESULTS

2007 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Area	Date Planted	Quantity Required	Target Performance Standard	Monitoring Count - Planted Live Specimens			Dead	Wild Grapes or Grape Patches	Comments
					Non-stressed	Stressed	Total Vines			
8/16/2007	1	May 00	22	18	7	0	6	0	22+	The number of planted grapes plus the number of individual native grape plants noted in this planting area meet the performance criteria.
	12	Oct 02	22	18	3	0	3		22+	The number of planted grapes plus the number of individual native grape plants noted in this planting area meet the performance criteria.
	14	Oct 02	22	18	18	0	18	0	22+	The number of planted grapes plus the number of individual native grape plants noted in this planting area meet the performance criteria.

TABLE 5
HERBACEOUS GROUNDCOVER MONITORING RESULTS

2007 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Area	Date Planted	Target Performance Standard (Cover)	General Monitoring Results (Total Percent Herbaceous Coverage)[1]	Meets Performance Standard (Yes/No)	Comments
8/16/2007	1	May 00	100%	First 100' ~100% coverage Second 100' ~100% coverage Third 100'~100% coverage Final 60' ~100% coverage	Yes	The canopy layer has extensively shaded on to the majority of the herbaceous stratum
	2	May 00	100%	~100% coverage	Yes	
	3	May 00	100%	~100% coverage	Yes	
	4A	Oct 00	100%	First 100' ~100% coverage Second 100' ~100% coverage Third 100' ~100% coverage	Yes	
	5	June 01	100%	~100% coverage	Yes	
	12	May/Oct 02	100%	First 100' ~100% coverage Second 100' ~100% coverage Third 100' ~100% coverage	Yes	Herbaceous cover meets the performance standard. No significant bare areas.
	13	May/Oct 02	100%	~100% coverage	Yes	
	14	Oct 02	100%	~100% coverage	Yes	
	15	May 02	100%	---	---	---
	16	Oct 02	100%	~100% coverage	Yes	
	17	Oct 02	100%	~100% coverage	Yes	

Note:
1 – Percent herbaceous coverage is assessed outside the extent of the layer.

TABLE 6
INVASIVE SPECIES MONITORING RESULTS

2007 INSPECTION OF RESTORED BANK VEGETATION
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Date	Area	Date Planted	Target Performance Standard (Invasive Species)	Monitoring Results (Percent Invasive Species)	Meets Performance Objectives (Yes/No)	Primary Observed Invasive Species
8/16/2007	1	May 00	100%	First 100' <5% Second 100' <5% Third 100'<5% Final 60' <5%	Yes	Isolated specimens of purple loosestrife and bittersweet
	2	May 00	100%	<5%	Yes	Isolated specimens of purple loosestrife, cypress spurge
	3	May 00	100%	<5%	Yes	Isolated specimens of purple loosestrife, cypress spurge
	4A	Oct 00	100%	First 100' <5% Second 100' <5% Third 100' <5%	Yes	Isolated specimens of purple loosestrife, garlic mustard
	5	June 01	100%	<5%	Yes	Isolated specimens of Japanese knotweed, bittersweet
	12	May/Oct 02	100%	First 100' <5% Second 100' <5%	Yes	None noted
	13	May/Oct 02	100%	<5%	Yes	Isolated specimens of purple loosestrife
	14	Oct 02	100%	<5%	Yes	None noted
	15	May 02	100%	<5%	Yes	Isolated specimens of purple loosestrife
	16	Oct 02	100%	<5%	Yes	Isolated specimens of purple loosestrife
	17	Oct 02	100%	<5%	Yes	None noted

ARCADIS BBL

Attachment A

Aquatic Structures/Armor Stone
Monitoring Data Sheets

ATTACHMENT A
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2007 INSPECTION AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Monitoring Date: 8/15/2007

Persons Conducting the Monitoring: Chuck Harman (AMEC) and Mike Chelminski (Woodlot Alternatives)

Daily Stream Flow at Time of Monitoring (Based on USGS Station Coltsville, MA): 14 cfs

General River Stage/Depth Observations: River was very low, the majority of the structures were exposed for observation

General Weather Observations: Skies were cloudy with temps in the 70's

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
B	1. Single wing deflector	 1. Structures appear stable 2. Structure induced variations observed in areas immediately downstream of the deflector

ATTACHMENT A
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2007 INSPECTION AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
C	1. Boulders 2. Island	  1. Structures appear stable 2. Structure induced variations observed in areas immediately downstream of the island 3. The island is well vegetated with wetland herbaceous species 4. Boulders near island continue to appear to be creating beneficial scour zones in the immediate area; and are providing good cover

ATTACHMENT A
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2007 INSPECTION AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
D	1. Boulders	 1. Structures appear to be providing variation in habitat
G1	1. Boulder Cluster	 1. Structures appear to be providing variation in habitat

ATTACHMENT A
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2007 INSPECTION AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
G2/F2	1. W-weir	 1. Much of the weir is buried in soft silt/sand (i.e., depositional material); appears to offer good cover for aquatic organisms
G3	1. Three-boulder cluster	 1. Structure appeared stable, no issue or concern 2. Structure was functional appears to be providing variation in habitat

ATTACHMENT A
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2007 INSPECTION AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
F3	1. Three-boulder cluster 2. Two-boulder cluster 3. Three-boulder cluster	 1. All structures in this cell appear stable 2. Structures appear to be providing diversity in habitat
H1	1. Boulder cluster	1. Structure appears stable and is providing diversity in habitat 2. Good habitat, variations in velocity around structure producing variations in stream bottom topography
I1/J1	1. Vortex weir	 1. Structure appears stable and is providing diversity in habitat 2. Good habitat, variations in velocity around structure producing variations in stream bottom topography

ATTACHMENT A
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2007 INSPECTION AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
H2	1. Single boulder	1. Structure appears stable and is providing diversity in habitat 2. Good habitat, variations in velocity around structure producing variations in stream bottom topography
J1	1. Two-boulder cluster 2. Three-boulder cluster 3. Single-boulder	 1. Structures appear stable and are providing diversity in habitat 2. Good habitat, variations in velocity around structures producing variations in stream bottom topography 3. Boulders are being used as perches for feeding birds

ATTACHMENT A
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2007 INSPECTION AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations
J2	1. "J"- boulder formation	 1. Structure appears stable and is providing diversity in habitat 2. Good habitat, variations in velocity around structure producing variations in stream bottom topography
I3	1. Single-wing deflector	 1. Structure appears stable and is providing diversity in habitat 2. Good habitat, variations in velocity around structure producing variations in stream bottom topography

ATTACHMENT A
AQUATIC STRUCTURES/ARMOR STONE MONITORING DATA SHEETS

2007 INSPECTION AQUATIC HABITAT ENHANCEMENT STRUCTURES
UPPER ½-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC CORPORATION – PITTSFIELD, MASSACHUSETTS

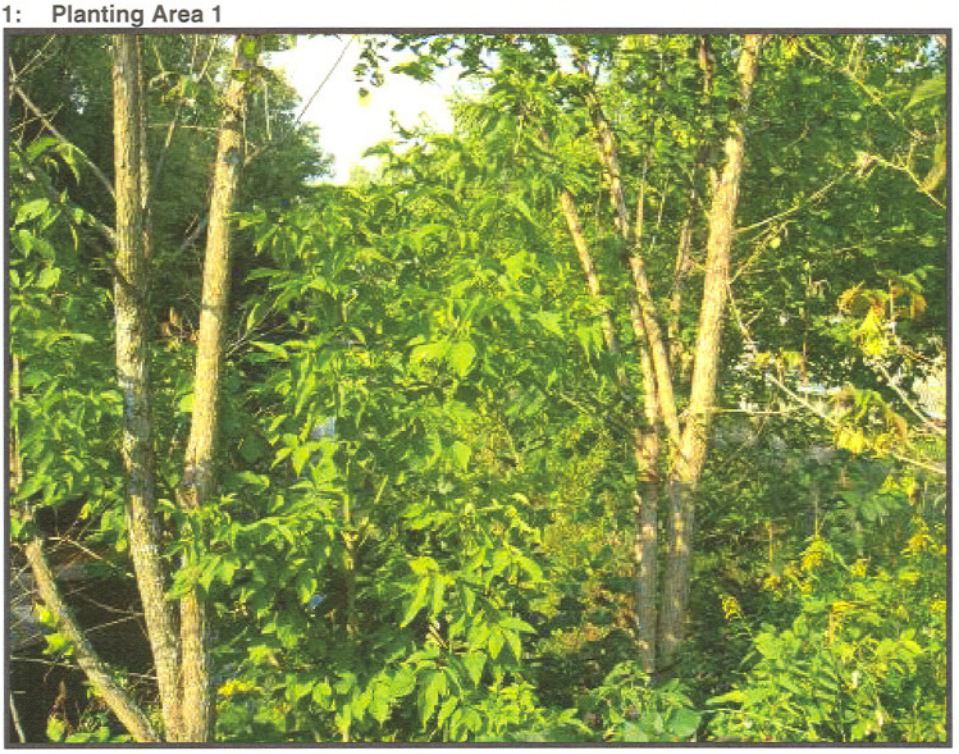
Cell	Aquatic Structures	Armor Stone Condition/General Biological Observations	
I3/J3	1. Vortex rock weir		1. Structure appears stable and is providing diversity in habitat 2. Good habitat, variations in velocity around structure producing variations in stream bottom topography
J3	1. Boulder cluster 2. Three-boulder cluster 3. Three-boulder cluster		1. Structures appears stable and is providing diversity in habitat 2. Good habitat, variations in velocity around structures producing variations in stream bottom topography

ARCADIS BBL

Attachment B

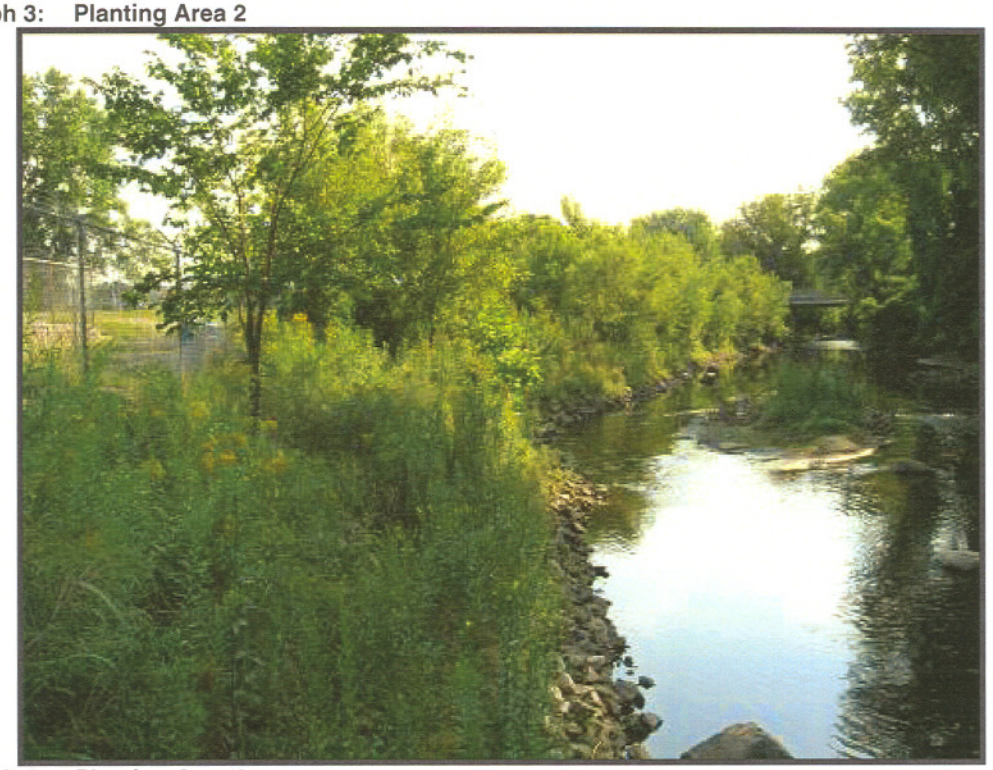
Photographic Log

Photograph 1: Planting Area 1



Photograph 2: Planting Area 1

Photograph 3: Planting Area 2

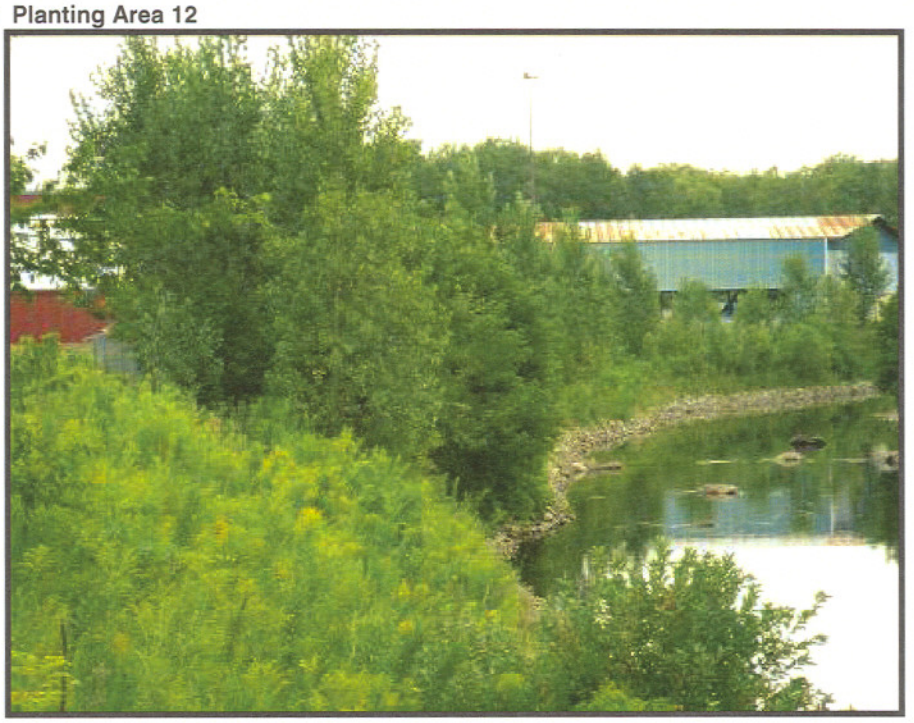


Photograph 4: Planting Area 3

Photograph 5: Planting Area 4A

Photograph 6: Planting Area 5

Photograph 7: Planting Area 12



Photograph 8: Planting Area 14

Photograph 9: Planting Area 14

ARCADIS

Appendix D

Summary of 2007 Sediment Sampling Activities and Analytical Results

GE
159 Plastics Avenue
Pittsfield, MA 01201
USA

September 14, 2007

Dean Tagliaferro
EPA Project Coordinator
c/o Weston Solutions, Inc.
10 Lyman Street
Pittsfield, MA 01201

Re: Summary of 2007 Sediment Sampling Activities and Analytical Results
Upper ½-Mile Reach of the Housatonic River (GECD800)
GE-Pittsfield/Housatonic River Site

Dear Mr. Tagliaferro:

As required by the *Removal Action Work Plan for the Upper ½-Mile Reach of Housatonic River* (Work Plan; BBL, 1999), which is Appendix F to the Consent Decree (CD) for the GE-Pittsfield/Housatonic River Site, the General Electric Company (GE) has collected and analyzed samples of (1) the sediments that have deposited on top of the cap installed as part of the remediation of the Upper ½-Mile Reach of the Housatonic River (½-Mile) in Pittsfield, Massachusetts, and (2) isolation layer materials within that cap. For both the deposited sediments (referred to as "restored sediments" in the Work Plan) and the isolation layer materials, these sampling and analytical activities were performed to satisfy the Work Plan's "5-Year" monitoring requirements. This letter summarizes the sampling activities performed and presents a summary and discussion of the associated analytical results.

Deposited Sediment Sampling and Analysis

Sampling Activities

GE collected post-remediation sediment samples at 39 locations within the ½-Mile on May 24-25, 2007 during low flow conditions. The locations sampled are depicted on Figure 1. This sampling was performed in satisfaction of the monitoring requirements set forth in Section 11.5.4 of the Work Plan and in accordance with the procedures described in GE's *Model Input Addendum* to the Corrective Measures Study Proposal for the Housatonic Rest of River (MIA;

QEA/ARCADIS BBL, 2007), as modified by the Environmental Protection Agency's (EPA's) May 24, 2007 conditional approval letter for the MIA. A summary of the sampling activities is provided below.

1. Sediment samples were collected from the 39 locations (shown on Figure 1) using Lexan® core tubes.

2. At each location, the approximate extent of sediment deposition was probed and the resultant location-specific thickness was recorded. To the extent practicable, following probing, sediment samples were collected such that the full sediment inventory deposited on top of the armor stone (i.e., those materials deposited since the completion of restoration activities) was collected at each sampling location. As a result, the approximate sediment thickness and sediment recovery length measured and recorded at each location represent the approximate net deposition on a location-specific basis and thus differ from location to location. To account for such variability, based on discussions between GE and EPA, samples were collected from the approximate 0- to 6-inch interval (or less where recovery was less than 6 inches) and from the 6- to X-inch interval, where X represents the maximum recovery depth of sediments from the depositional layer on top of the underlying armor stone. GE collected 39 samples (plus two duplicates) of the surface sediments (top 6 inches or less) and 12 samples (plus one duplicate) of subsurface sediments (deeper than 6 inches), for a total of 51 sediment samples (plus three duplicates).

3. Collected cores were processed in the field and samples from each core were submitted for analysis in accordance with GE's current *Field Sampling Plan/Quality Assurance Project Plan* (FSP/QAPP; ARCADIS BBL, 2007). For all 51 samples discussed above, laboratory analyses for polychlorinated biphenyls (PCBs) and total organic carbon (TOC) were performed by Northeast Analytical, Inc. (NEA) in Schenectady, New York. Portions of 23 of these samples were also submitted to Geotechnics, Inc. in Pittsburgh,

Pennsylvania, for grain size analysis. At the time of sample processing, Weston Solutions, Inc., on EPA's behalf, collected 12 split samples (plus one duplicate) for analysis.

Results

As discussed above, sediment recovery lengths and probing thicknesses were recorded at each location. Sediment thicknesses, as estimated in the field, ranged from 2 to 30 inches, with an average thickness of 7.28 inches and a median of 6.0 inches. Similarly, sediment core recovery lengths ranged from 2 to 25 inches, with an average recovery of 6.7 inches and a median of 6.0 inches. Location-specific sediment probing thicknesses and maximum recovery lengths are summarized in Table 1. Grain size analysis results indicate that the majority of the collected materials were within the fine- to coarse-sand size range, with a less frequent occurrence of gravel and with a small percentage of silt (typically less than 2% by weight). Grain size analytical data are also summarized in Table 1. Field observations at the time of sample collection noted a petroleum odor at five locations; four of these locations were located at the upstream end of the ½-Mile and the fifth (RS-C17) was located at the approximate mid-point of the ½-Mile (see Table 1 and Figure 1).

Analytical results for PCBs and TOC in the sediment samples collected by GE are presented in Table 2. PCB concentrations reported for GE's samples ranged from non-detect to 10.6 milligrams per kilogram (mg/kg) (sample location RS-C17, 6- to 25-inch depth interval), with an overall average of 0.6 mg/kg (duplicate samples have been averaged for this report). In calculating average concentrations for this report, one-half the detection limit was used for any sample in which the concentration was reported as non-detect. Of the 51 sediment samples (after averaging the duplicate results), 45 samples (88%) showed PCB concentrations less than 1.0 mg/kg, 44 (86%) less than 0.5 mg/kg, and 12 (24%) less than 0.1 mg/kg. Three samples had no detectable PCB concentrations. TOC concentrations ranged from 0.13% to 2.3% (location RS-C29, 6- to 8-inch depth interval), with an average of approximately 0.4%.

PCB concentrations were generally lower in the surface samples (i.e., 0- to 6-inch or less), with arithmetic average concentrations in the surface and subsurface samples of 0.24 mg/kg and 1.8 mg/kg, respectively. The subsurface average is skewed, however, by the highest PCB concentrations. Exclusion of the highest concentration (10.4 mg/kg) reduces the subsurface average by approximately half, from 1.8 mg/kg to 0.96 mg/kg. TOC concentrations were also generally lower in surface samples, with arithmetic average concentrations of 0.34% and 0.57% in the surface and subsurface samples, respectively. Additionally, of the six samples with PCB analytical results greater than 1.0 mg/kg, four were collected from the subsurface, and PCB analytical results for 10 of the 12 locations from which subsurface samples were collected were greater in the subsurface than in the corresponding surface samples.

For the split samples collected by Weston for EPA, Table 3 presents the PCB analytical results both for the co-located GE samples and for the EPA split samples. Analytical data from the EPA split samples ranged from 0.040 mg/kg to 3.25 mg/kg (average of two duplicate samples), with an overall average of 0.49 mg/kg (compared to an overall average of 0.60 mg/kg for the GE samples). In general, the results of the split samples were consistent with the results of the GE samples; the highest EPA result corresponded to the highest GE result, and the majority of the samples showed low PCB levels with similar variabilities. Consistent with the GE samples, PCB concentrations were higher in the subsurface samples.

Isolation Layer Sampling and Analysis

Sampling Activities

Section 11.5.1 of the Work Plan requires that sampling of the isolation layer materials within the ½-Mile cap be conducted at six locations immediately after placement of the cap, one year after cap placement, and at the end of the initial five-year period after cap placement. EPA subsequently selected two additional locations for such sampling. The immediate post-placement sampling and one-year post-placement sampling of the isolation layer materials were

conducted on staggered occasions during 2000, 2001, 2002, and 2003, depending on the timing of cap placement at those locations. The results of these sampling events were presented in GE's Annual Monitoring Reports for the ½-Mile for 2001 (dated March 2002), 2002 (dated December 2002), and 2003 (dated February 2004).

With EPA's concurrence, the timing for the 5-Year isolation layer monitoring event was consolidated for all 8 locations to a single event in 2007. GE collected isolation layer material samples at these 8 locations on August 10, 2007. A summary of these sampling activities is provided below.

1. At each of the 8 locations (shown on Figure 1), the overlying armor stone and any sediment deposited within or on top of the armor layer were, to the extent practicable, removed by hand to expose the geogrid and geotextile layers that had been placed on top of the isolation layer. Once exposed, the geogrid and geotextile layers were temporarily cut back to allow access to the underlying isolation layer. Two cores of the isolation layer material were then collected at each sampling location, using Lexan® core tubes.

2. Collected cores were processed in the field and samples from each core were submitted for analysis in accordance with GE's current FSP/QAPP (ARCADIS BBL, 2007). Consistent with the requirements of the Work Plan, one core from each location was sectioned into 2-inch increments, providing core segments from the 2- to 4-inch, 4- to 6-inch, and 6- to 8-inch intervals proceeding upward from the bottom geotextile layer (i.e., the 2- to 4-inch segment is the deepest). These core segment samples were sent to NEA for PCB and TOC analyses. The second core from each location remained intact, and a composite sample representing the entire length of that core was also sent to NEA for TOC analysis.

Results

Analytical results for PCBs and TOC in the isolation layer material samples are presented in Table 4. For comparison, the related results from the previous isolation layer sampling events, as well as the post-excavation surface sediment sample results for each location, are also included in Table 4. PCB concentrations reported for the most recent sampling event range from non-detect to 0.21 mg/kg (sample location CAP-MON-6, 2- to 4-inch depth interval). Overall, PCB detections were relatively infrequent and low; only 6 of the 24 total samples (25%) had detectable PCB concentrations, with 3 of the reportable concentrations below 0.10 mg/kg (i.e., approaching reportable detection limits), and the remaining 3 below 0.25 mg/kg. Four of these 6 samples were collected from the 2- to 4-inch depth interval, with one each from the 4- to 6-inch and 6- to 8-inch depth intervals. TOC concentrations ranged from 0.21% to 1.8%, with an average of approximately 0.98%. TOC analytical data for the full-depth cores ranged from 0.15% to 1.7%, with an average of 0.72%.

Discussion

Deposited Sediment

The PCB data from the deposited sediments collected from the ½-Mile indicate the presence of low levels of PCBs in the materials that have been deposited on top of the armor stone since completion of the ½-Mile sediment remediation and restoration activities. The Work Plan provides (pp. 2-3 & 11-6) that if such sampling indicates the deposition of PCBs on the surface of these sediments, GE will "evaluate, to the extent feasible, the source of such PCBs." It then states that, if that evaluation indicates that the surface PCBs "are attributable to sources other than those that have been or are being addressed at the GE-Pittsfield/Housatonic River Site" (as defined in the CD), then GE will evaluate potential source control measures for such sources. However, if those conditions are not met (i.e., if GE cannot attribute the surface PCBs to sources other than those that have been or are being addressed under the CD), then "no further response actions shall be required to address such PCBs deposited on the surface" (unless necessary to address bank erosion or unless the reopener conditions in the CD are met).

Given the sporadic distribution and very low concentrations of PCBs observed in the isolation layer materials (Table 4), it appears evident that upward migration of PCBs is not a potential source of the PCBs in the deposited sediments. Beyond that, based on review of the PCB data from the deposited sediments and from potential source areas, GE has determined that it is not feasible to make a definitive evaluation of the sources of the PCBs in these deposited sediments. GE's recent *Supplement to Model Input Addendum, Housatonic Rest of River CMS Proposal* (MIA Supplement; QEA/ARCADIS BBL, 2007) identifies a number of likely sources of PCBs to the ½-Mile. Most of these are located at the GE-Pittsfield/Housatonic River Site and have been or will be remediated under the CD. Such areas include the banks of the ½-Mile, portions of the GE Plant Area, Unkamet Brook, and certain Former Oxbow Areas. While other sources may also exist, the extent (if any) to which they may have contributed to the surface sediment PCBs in the ½-Mile cannot be determined at this time.

In short, it cannot be concluded that the PCBs in the ½-Mile surface sediments are attributable to sources other than those that have been or are being addressed by GE at the Pittsfield/Housatonic River Site (as defined in the CD). In these circumstances, in accordance with the Work Plan, GE believes that no further response actions are required at this time to address the PCBs in the surface of the ½-Mile sediments.

Isolation Layer

The Work Plan requires the periodic sampling of the isolation layer to assess the effectiveness of the isolation layer in limiting PCB migration from the underlying sediments. It provides that if this sampling indicates that "the isolation layer is not performing in general accordance with the predictions on which the isolation layer design was based in terms of controlling PCB migration from the underlying sediments into the surface water of the River," GE will evaluate and propose to EPA appropriate corrective actions (p. 2-2; see also p. 11-5). However, if

such sampling indicates that "the isolation layer is performing as generally predicted in terms of controlling PCB migration from the underlying sediments, no further response actions shall be required for the isolation layer" (unless necessary to address deficiencies in the armor stone or to address bank erosion or unless the reopener conditions in the CD are met) (p. 2-2). Further, the Work Plan provides that at the end of the initial five-year period, GE will propose an appropriate long-term monitoring frequency for the isolation layer (p. 11-5).

The analytical data from the recent 5-Year sampling event show no detected PCBs at 3 sampling locations, and the results from the other locations show sporadic and low-level detections in different depth increments. While several of the cores had detectable concentrations of PCBs in the lowest core increment (i.e., 2-4 inches), there are neither sufficient data nor has enough time passed to determine whether the PCBs detected in those samples originated from the underlying sediments or from other sources. First, the data show no consistent pattern of PCB detections at the eight isolation layer sample locations that would be indicative of transport from the underlying sediments. Further complicating any interpretation of the data, 2 of the 3 sample depth increments (and locations) that showed detected PCBs in the 1-Year sampling event did not show detected PCBs in the 5-Year event. Moreover, there are other potential explanations for the detected PCBs. For example, the isolation layer core collection methods and the presence of an overlying layer of deposited sediments that contain PCBs could potentially lead to limited mixing of the deposited sediments with the isolation layer material at some locations, which could explain the low concentrations and frequency of PCBs detected in the isolation layer.

Overall, the available isolation layer sampling data do not show a consistent pattern indicative of PCB transport from the underlying sediments and do not allow any definitive conclusions regarding the performance of the isolation layer relative to the long-term predictions on which the isolation layer design was based. It is simply too early to make any such conclusions.

However, the data do indicate that, at the present time, the isolation layer is preventing the migration of PCBs from the underlying sediments to the surface of the isolation layer.

In these circumstances, GE does not believe that any corrective action is necessary or required at this time to address the isolation layer. Rather, GE proposes to continue sampling the isolation layer materials coincident with the deposited sediment sampling program schedule. Specifically, GE proposes the collection and analysis of an additional round of isolation layer samples at the same general time as the "10-Year" deposited sediments sampling event (currently anticipated for performance in 2012). Based on review of those results, GE will further evaluate the effectiveness of the isolation layer. In addition, at that time, GE will evaluate the scope and frequency of further long-term monitoring of the isolation layer, and will make a proposal to EPA regarding such further monitoring.

Please contact me with questions or to discuss the information presented herein.

Sincerely,

Andrew T. Silfer, P.E.
GE Project Coordinator

ATS/dmn

Attachments

cc: Susan Svirsky, EPA
Holly Inglis, EPA
Tim Conway, EPA
Rose Howell, EPA
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Ray Goff, USACE
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Susan Steenstrup, MDEP

Jane Rothchild, MDEP
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Mayor James Ruberto, City of Pittsfield
Michael Carroll, GE
Rod McLaren, GE
James Bieke, Goodwin Procter
Samuel Gutter, Sidley Austin
Stu Messur, ARCADIS BBL
Mark Gravelding, ARCADIS BBL
Todd Cridge, ARCADIS BBL
Public Information Repositories
GE Internal Repositories

TABLE 1
SUMMARY OF DEPOSITED SEDIMENT GRAIN SIZE DISTRIBUTION ANALYTICAL DATA

UPPER 1/2 MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Grain size distribution data presented in % passing)

Sample Location	Date Collected	Sediment Probing Depth (inches)	Sediment Recovery Depth (Inches)	Sample Increment (inches)	SIEVE OPENING (mm)											
					37.5	25	19	12.5	9.5	4.75	2	0.85	0.425	0.25	0.106	0.075
RS-C1	05/25/07	3	3	--	--											
RS-C4*	5/25/2007	7	7	0-7	100	100	100	89.87	84.39	68.45	48.04	32.32	13.16	4.26	1.55	1.12
RS-C7*	05/25/07	5	5	--	--											
RS-C10	5/25/2007	3	3	0-3	100	97.02	89.49	81.29	73.68	58.41	41.53	23.50	10.99	5.56	1.93	1.27
RS-C14	5/25/2007	6	6	0-6	100	100	100	98.07	95.42	88.19	74.60	55.26	26.70	6.87	1.51	0.98
RS-C17 *	5/25/2007	30	25	0-6	100	100	100	99.73	98.91	96.42	85.14	59.77	34.84	15.91	2.95	1.61
				6-25	100	100	100	99.43	99.13	97.12	94.45	91.66	85.74	68.51	16.80	9.69
RS-C26	5/24/2007	8	6	0-6	100	100	100	97.64	95.58	87.76	75.85	56.25	34.75	14.90	4.78	3.60
RS-C29	5/24/2007	9	8	0-6	100	100	100	99.90	99.80	96.12	71.54	36.06	8.89	2.60	0.65	0.46
RS-C31	5/24/2007	6	6	0-6	100	100	100	99.58	99.29	96.24	74.91	37.97	9.63	2.05	0.55	0.44
RS-C34	5/24/2007	6	6	0-6	100	100	100	99.43	98.96	94.58	73.06	49.69	26.07	11.68	2.40	1.41
RS-C37	05/24/07	9	8	--	--											
RS-N2*	05/25/07	3	3	--	--											
RS-N5	5/25/2007	6	6	0-6	100	100	100	99.64	97.37	91.67	80.44	59.84	28.61	7.61	1.67	1.17
RS-N8	05/25/07	2	2	--	--											
RS-N11	5/25/2007	11	10	0-6	100	100	100	99.37	97.65	87.74	65.12	42.16	21.80	6.84	2.17	1.71
				6-10	100	92.99	92.08	91.58	89.10	77.80	58.48	39.18	21.19	7.29	2.18	1.64
RS-N12	5/25/2007	6	5	0-5	100	100	100	99.10	95.43	84.35	57.75	29.60	11.32	4.92	1.34	0.85
RS-N15	05/25/07	11	9	--	--											
RS-N18	05/24/07	14	14	--	--											
RS-N27	5/24/2007	7	6	0-6	100	100	100	100	99.83	91.87	49.39	22.94	10.70	4.89	1.43	0.96
RS-N30	05/24/07	4	4	--	--											
RS-N32	5/24/2007	9	9	0-6	100	100	100	100	100	99.95	97.43	55.42	2.89	0.84	0.29	0.20
				6-9	100	100	100	100	99.93	97.06	89.15	45.83	7.11	3.92	1.14	0.73
RS-N35	05/24/07	9	8	--	--											
RS-S3*	5/25/2007	6	6	0-6	100	100	97.34	85.74	79.71	57.47	29.40	10.89	4.04	2.16	0.82	0.61
RS-S6	05/25/07	3	3	--	--											
RS-S9	05/25/07	3	3	--	--											
RS-S13	05/25/07	3	3	--	--											
RS-S16	05/25/07	11	11	--	--											
RS-S19	5/25/2007	6	6	0-6	100	100	100	99.67	99.12	72.51	16.10	3.86	2.86	2.24	0.59	0.35
RS-S20	05/24/07	12	10	--	--											
RS-S21	5/24/2007	9	6	0-6	100	100	100	99.22	98.68	94.39	77.21	43.50	14.60	3.30	1.26	0.94
RS-S22	05/24/07	6	6	--	--											
RS-S23	5/24/2007	12	11	0-6	100	100	100	99.81	99.81	98.69	81.99	29.72	7.02	2.32	0.63	0.44
				6-11	100	100	100	100	99.96	98.63	88.69	64.39	48.32	21.04	8.09	5.06
RS-S24	05/24/07	9	9	--	--											
RS-S25	5/24/2007	4	4	0-4	100	100	97.50	96.38	95.15	94.46	93.94	79.58	24.99	9.09	2.21	1.21
RS-S28	05/24/07	6	6	--	--											
RS-S33	05/24/07	5	5	--	--											
RS-S36	5/24/2007	6	5	0-5	100	100	100	99.68	99.62	98.08	89.63	49.64	13.52	3.39	1.14	0.93
RS-XXX	05/24/07	6	6	--	--											
RS-YYY	05/25/07	3	3	--	--											

Notes:
1. Samples were collected by ARCADIS BBL, and submitted to Geotechnics, Inc. for particle size analysis.
2. Shaded samples were not analyzed for particle size distribution, but are included here to represent location specfic probing thicknesses and sediment core recovery lengths.
3. *Indicates field observations made at the time of collection noted a petroleum odor at this location.

TABLE 2
SUMMARY OF SEDIMENT PCB AND TOC ANALYTICAL DATA

UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results for PCBs are presented in dry weight mg/kg and results for TOC are presented in percent TOC)

Parameter	Location ID: / Sample ID: / Sample Depth(Inches): / Date Collected:	RS-C1 / RS-C1 / 0-3 / 05/25/07	RS-C4 / RS-C4 / 0-7 / 05/25/07	RS-C7 / RS-C7 / 0-5 / 05/25/07	RS-C10 / RS-C10 / 0-3 / 05/25/07	RS-C14 / RS-C14 / 0-6 / 05/25/07	RS-C17 / RS-C17 / 0-6 / 05/25/07	RS-C17 / RS-C17 / 6-25 / 05/25/07
PCBs								
Aroclor-1221		ND(0.023)	ND(0.024)	ND(0.024) [ND(0.023)]	ND(0.066)	ND(0.024)	ND(0.023)	ND(0.26)
Aroclor-1242		ND(0.023)	ND(0.024)	ND(0.024) [ND(0.023)]	ND(0.066)	ND(0.024)	ND(0.023)	ND(0.26)
Aroclor-1248		0.060 J	0.025 J	ND(0.024) [ND(0.023)]	0.19 J	ND(0.024)	ND(0.023)	1.1 J
Aroclor-1254		0.088	0.039	ND(0.024) [ND(0.023)]	0.54	0.055	0.046	2.3
Aroclor-1260		0.032	0.097	0.061 J [0.036 J]	1.3	0.11	0.11	7.2
Total PCBs		0.18 J	0.161 J	0.061 J [0.036 J]	2.03 J	0.165	0.156	10.6 J
Total Organic Carbon								
TOC - Replicate 1 (%)		0.21	0.35	0.19 [0.21]	0.26	0.23	0.24	0.56
TOC - Replicate 2 (%)		0.18	0.67	0.25 [0.77]	0.22	0.23	0.13	1.30
TOC - Replicate 3 (%)		0.16	0.25	0.27 [0.40]	0.23	0.17	0.19	0.94
TOC - Replicate 4 (%)		NA	0.21	[0.16]	NA	NA	0.12	0.57
TOC - Average (%)		0.18	0.37	0.24 [0.38]	0.24	0.21	0.17	0.85
TOC - % RSD		14	56	18 [72]	11	17	33	43

Parameter	Location ID: / Sample ID: / Sample Depth(Inches): / Date Collected:	RS-C26 / RS-C26 / 0-6 / 05/24/07	RS-C29 / RS-C29 / 0-6 / 05/24/07	RS-C29 / RS-C29 / 6-8 / 05/24/07	RS-C31 / RS-C31 / 0-6 / 05/24/07	RS-C34 / RS-C34 / 0-6 / 05/24/07	RS-C37 / RS-C37 / 0-6 / 05/24/07	RS-C37 / RS-C37 / 6-8 / 05/24/07
PCBs								
Aroclor-1016		ND(0.028)	ND(0.024)	ND(0.23) [ND(0.093)]	ND(0.023)	ND(0.023)	ND(0.024)	ND(0.024)
Aroclor-1221		ND(0.028)	ND(0.024)	ND(0.23) [ND(0.093)]	ND(0.023)	ND(0.023)	ND(0.024)	ND(0.024)
Aroclor-1232		ND(0.028)	ND(0.024)	ND(0.23) [ND(0.093)]	ND(0.023)	ND(0.023)	ND(0.024)	ND(0.024)
Aroclor-1242		ND(0.028)	ND(0.024)	ND(0.23) [ND(0.093)]	ND(0.023)	ND(0.023)	ND(0.024)	ND(0.024)
Aroclor-1248		0.063 J	ND(0.024)	ND(0.23) [0.43 J]	ND(0.023)	ND(0.023)	ND(0.024)	ND(0.024)
Aroclor-1254		0.098	0.024	ND(0.23) [0.49]	0.026	0.094	ND(0.024)	ND(0.024)
Aroclor-1260		0.16	0.091	4.6 J [2.5 J]	0.045	0.064	0.038	0.033
Total PCBs		0.321 J	0.115	4.6 J [3.42 J]	0.071	0.158	0.038	0.033
Total Organic Carbon								
TOC - Replicate 1 (%)		0.53	0.45	1.40 [2.70]	0.13	0.31	0.36	0.81
TOC - Replicate 2 (%)		0.48	0.30	1.30 [3.70]	0.37	0.27	0.52	0.48
TOC - Replicate 3 (%)		0.36	0.26	2.10 [2.40]	0.16	0.23	0.28	0.62
TOC - Replicate 4 (%)		NA	0.42	1.80	0.15	NA	0.17	0.50
TOC - Average (%)		0.46 J	0.36	1.63 J [2.95 J]	0.20	0.27	0.33 J	0.60
TOC - % RSD		20	25	23 [24]	57	15	45	25

TABLE 2
SUMMARY OF SEDIMENT PCB AND TOC ANALYTICAL DATA

UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results for PCBs are presented in dry weight mg/kg and results for TOC are presented in percent TOC)

Location ID:	RS-N2	RS-N5	RS-N8	RS-N11	RS-N11	RS-N12	RS-N15
Sample ID:	RS-N2	RS-N5	RS-N8	RS-N11	RS-N11	RS-N12	RS-N15
Sample Depth(Inches):	0-3	0-6	0-2	0-6	6-10	0-5	0-6
Parameter Date Collected:	39,227	39,227	39,227	39,227	39,227	05/25/07	05/25/07
PCBs							
Aroclor-1016	ND(0.023)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.095)	ND(0.024)	ND(0.024)
Aroclor-1221	ND(0.023)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.095)	ND(0.024)	ND(0.024)
Aroclor-1232	ND(0.023)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.095)	ND(0.024)	ND(0.024)
Aroclor-1242	ND(0.023)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.095)	ND(0.024)	ND(0.024)
Aroclor-1248	0.045 J	ND(0.024)	0.023 J	ND(0.023)	ND(0.095)	0.20 J	0.025 J
Aroclor-1254	0.033	0.033	0.25	0.069	1	0.59	0.064
Aroclor-1260	0.051	0.095	0.17	0.19	1.9	0.32	0.085
Total PCBs	0.129 J	0.128	0.443 J	0.259	2.9	1.11 J	0.174 J
Total Organic Carbon							
TOC - Replicate 1 (%)	0.30	0.15	0.24	0.13	0.38	0.20	0.20
TOC - Replicate 2 (%)	0.64	0.17	0.23	1.20	1.20	0.30	3.30
TOC - Replicate 3 (%)	0.40	0.20	0.77	0.45	0.25	0.20	0.21
TOC - Replicate 4 (%)	0.63	NA	0.45	NA	0.25	NA	0.15
TOC - Average (%)	0.49	0.18	0.42	0.55	0.51	0.23	0.97
TOC - % RSD	35	13	60	80	86	24	160

Location ID:	RS-N15	RS-N18	RS-N18	RS-N27	RS-N30	RS-N32	RS-N32
Sample ID:	RS-N15	RS-N18	RS-N18	RS-N27	RS-N30	RS-N32	RS-N32
Sample Depth(Inches):	6-9	0-6	6-14	0-6	0-4	0-6	6-9
Parameter Date Collected:	39,227	39,226	39,226	39,226	39,226	05/24/07	05/24/07
PCBs							
Aroclor-1016	ND(0.024)	ND(0.025)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.022)	ND(0.025)
Aroclor-1221	ND(0.024)	ND(0.025)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.022)	ND(0.025)
Aroclor-1232	ND(0.024)	ND(0.025)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.022)	ND(0.025)
Aroclor-1242	ND(0.024)	ND(0.025)	ND(0.024)	ND(0.022)	ND(0.023)	ND(0.022)	ND(0.025)
Aroclor-1248	0.35 J	0.078 J	0.11 J	ND(0.022)	0.025 J	ND(0.022)	0.039 J
Aroclor-1254	0.96	0.18	0.048	ND(0.022)	0.1	ND(0.022)	0.046
Aroclor-1260	0.2	0.11	0.068	0.034	0.04	ND(0.022)	0.14
Total PCBs	1.51 J	0.368 J	0.226 J	0.034	0.165 J	ND(0.022)	0.225 J
Total Organic Carbon							
TOC - Replicate 1 (%)	0.20	0.26	0.14	0.19	1.60	0.15	0.26
TOC - Replicate 2 (%)	0.22	0.51	0.26	0.14	0.29	0.17	0.25
TOC - Replicate 3 (%)	0.20	0.34	0.17	0.13	0.43	0.21	0.22
TOC - Replicate 4 (%)	NA	0.20	0.16	NA	0.25	NA	NA
TOC - Average (%)	0.21	0.33	0.18	0.15	0.65	0.17	0.24
TOC - % RSD	4	41	28	21	100	17	8

TABLE 2
SUMMARY OF SEDIMENT PCB AND TOC ANALYTICAL DATA

UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results for PCBs are presented in dry weight mg/kg and results for TOC are presented in percent TOC)

Location ID:	RS-N35	RS-N35	RS-S3	RS-S6	RS-S9	RS-S13	RS-S16
Sample ID:	RS-N35	RS-N35	RS-S3	RS-S6	RS-S9	RS-S13	RS-S16
Sample Depth(Inches):	0-6	6-8	0-6	0-3	0-3	0-3	0-6
Parameter Date Collected:	39,226	39,226	39,227	39,227	39,227	05/25/07	05/25/07
PCBs							
Aroclor-1016	ND(0.023)	ND(0.023)	ND(0.022)	ND(0.021)	ND(0.024)	ND(0.025)	ND(0.025)
Aroclor-1221	ND(0.023)	ND(0.023)	ND(0.022)	ND(0.021)	ND(0.024)	ND(0.025)	ND(0.025)
Aroclor-1232	ND(0.023)	ND(0.023)	ND(0.022)	ND(0.021)	ND(0.024)	ND(0.025)	ND(0.025)
Aroclor-1242	ND(0.023)	ND(0.023)	0.042 J	ND(0.021)	ND(0.024)	ND(0.025)	ND(0.025)
Aroclor-1248	ND(0.023)	0.039 J	ND(0.022)	ND(0.021)	ND(0.024)	ND(0.025)	ND(0.025)
Aroclor-1254	ND(0.023)	0.073	0.044	0.058	ND(0.024)	0.049	0.047
Aroclor-1260	0.044	0.12	0.034	0.24	ND(0.024)	0.074	0.094
Total PCBs	0.044	0.232 J	0.12 J	0.298	ND(0.024)	0.123	0.141
Total Organic Carbon							
TOC - Replicate 1 (%)	0.16	0.35	0.33	0.24	0.15	0.19	0.15
TOC - Replicate 2 (%)	0.13	0.26	0.19	0.31	0.17	0.39	0.19
TOC - Replicate 3 (%)	0.24	0.25	0.13	0.26	0.12	0.11	0.15
TOC - Replicate 4 (%)	0.27	NA	0.14	NA	NA	0.17	NA
TOC - Average (%)	0.20	0.29	0.20	0.27	0.14	0.22	0.17 J
TOC - % RSD	32	20	47	14	17	58	15

Location ID:	RS-S16	RS-S19	RS-S20	RS-S20	RS-S21	RS-S22	RS-S23
Sample ID:	RS-S16	RS-S19	RS-S20	RS-S20	RS-S21	RS-S22	RS-S23
Sample Depth(Inches):	6-11	0-6	0-6	6-10	0-6	0-6	0-6
Parameter Date Collected:	39,227	39,227	39,226	39,226	39,226	05/24/07	05/24/07
PCBs							
Aroclor-1016	ND(0.027)	ND(0.020)	ND(0.022)	ND(0.022)	ND(0.025)	ND(0.024) [ND(0.024)]	ND(0.023)
Aroclor-1221	ND(0.027)	ND(0.020)	ND(0.022)	ND(0.022)	ND(0.025)	ND(0.024) [0.051 J]	ND(0.023)
Aroclor-1232	ND(0.027)	ND(0.020)	ND(0.022)	ND(0.022)	ND(0.025)	ND(0.024) [ND(0.024)]	ND(0.023)
Aroclor-1242	ND(0.027)	0.12 J	ND(0.022)	ND(0.022)	ND(0.025)	ND(0.024) [ND(0.024)]	ND(0.023)
Aroclor-1248	0.17 J	ND(0.020)	ND(0.022)	ND(0.022)	ND(0.025)	ND(0.024) [0.025 J]	0.024 J
Aroclor-1254	0.2	0.076	ND(0.022)	0.026	0.044	0.047 [0.06]	0.11
Aroclor-1260	0.35	0.048	ND(0.022)	0.024	0.08	0.13 J [0.047 J]	0.028
Total PCBs	0.72 J	0.244 J	ND(0.022)	0.050	0.124	0.177 J [0.183 J]	0.162 J
Total Organic Carbon							
TOC - Replicate 1 (%)	0.87	0.09	0.39	0.41	0.36	0.30 [0.750]	0.16
TOC - Replicate 2 (%)	1.10	0.10	0.14	0.12	0.79	0.31 [0.72]	0.12
TOC - Replicate 3 (%)	0.90	2.40	0.21	0.11	0.20	0.39 [1.30]	0.10
TOC - Replicate 4 (%)	NA	0.21	3.00	0.13	0.20	[0.53]	NA
TOC - Average (%)	0.96	0.70	0.94	0.19	0.39	0.33 J [0.81 J]	0.13
TOC - % RSD	14	160	150	76	72	15 [38]	21

TABLE 2
SUMMARY OF SEDIMENT PCB AND TOC ANALYTICAL DATA

UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results for PCBs are presented in dry weight mg/kg and results for TOC are presented in percent TOC)

Location ID:	RS-S23	RS-S24	RS-S24	RS-S25	RS-S28	RS-S33	RS-S36
Sample ID:	RS-S23	RS-S24	RS-S24	RS-S25	RS-S28	RS-S33	RS-S36
Sample Depth(Inches):	6-11	0-6	6-9	0-4	0-6	0-5	0-5
Parameter / Date Collected:	39,226	39,226	39,226	39,226	39,226	05/24/07	05/24/07
PCBs							
Aroclor-1016	ND(0.024)	ND(0.026)	ND(0.022)	ND(0.025)	ND(0.025)	ND(0.024)	ND(0.024)
Aroclor-1221	ND(0.024)	ND(0.026)	ND(0.022)	ND(0.025)	ND(0.025)	ND(0.024)	ND(0.024)
Aroclor-1232	ND(0.024)	ND(0.026)	ND(0.022)	ND(0.025)	ND(0.025)	ND(0.024)	ND(0.024)
Aroclor-1242	ND(0.024)	ND(0.026)	ND(0.022)	ND(0.025)	ND(0.025)	ND(0.024)	ND(0.024)
Aroclor-1248	0.047 J	ND(0.026)	0.062 J	0.040 J	0.030 J	ND(0.024)	0.076 J
Aroclor-1254	0.073	ND(0.026)	0.27	0.054	0.047	0.056	0.18
Aroclor-1260	0.083	0.052	0.11	0.2	0.073	0.032	0.11
Total PCBs	0.203 J	0.052	0.442 J	0.294 J	0.15 J	0.088	0.366 J
Total Organic Carbon							
TOC - Replicate 1 (%)	0.43	0.22	0.17	0.15	0.81	0.35	0.16
TOC - Replicate 2 (%)	0.44	0.40	0.11	0.18	0.32	0.29	0.14
TOC - Replicate 3 (%)	0.37	0.25	0.15	0.55	0.38	0.23	0.20
TOC - Replicate 4 (%)	NA	1.10	NA	0.12	0.39	NA	NA
TOC - Average (%)	0.41	0.49	0.14	0.25	0.47	0.29	0.17
TOC - % RSD	8	84	22	80	48	21	17

Location ID:	RS-XXX	RS-YYY
Sample ID:	RS-XXX	RS-YYY
Sample Depth(Inches):	0-6	0-3
Parameter / Date Collected:	39,226	39,227
PCBs		
Aroclor-1016	ND(0.023)	ND(0.023)
Aroclor-1221	ND(0.023)	ND(0.023)
Aroclor-1232	ND(0.023)	ND(0.023)
Aroclor-1242	ND(0.023)	ND(0.023)
Aroclor-1248	0.044 J	0.066 J
Aroclor-1254	0.11	0.14
Aroclor-1260	0.16	0.26
Total PCBs	0.314 J	0.466 J
Total Organic Carbon		
TOC - Replicate 1 (%)	0.26	0.33
TOC - Replicate 2 (%)	0.13	0.17
TOC - Replicate 3 (%)	0.23	0.31
TOC - Replicate 4 (%)	0.13	0.26
TOC - Average (%)	0.19	0.26
TOC - % RSD	36	27

TABLE 2
SUMMARY OF SEDIMENT PCB AND TOC ANALYTICAL DATA

UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results for PCBs are presented in dry weight mg/kg and results for TOC are presented in percent TOC)

Notes:

1. Samples were collected by ARCADIS BBL, and submitted to Northeast Analytical, Inc. for analysis of PCBs and TOC.
2. Samples have been validated as per Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP), General Electric Company, Pittsfield, Massachusetts, ARCADIS BBL (approved June 13, 2007).
3. NA - Not Analyzed - TOC Replicate 4 was analyzed and reported by the laboratory only if the percent relative standard deviation (% RSD) of Replicate 1 through Replicate 3 was greater than 25%.
4. Field duplicate sample results are presented in brackets.

Data Qualifiers:

J - Indicates that the associated numerical value is an estimated concentration.

TABLE 3
GE DEPOSITED SEDIMENT PCB AND ASSOCIATED EPA SPLIT SAMPLE ANALYTICAL RESULTS

UPPER 1/2 MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight mg/kg)

Parameter / Location ID:	RS-C7	RS-C7	RS-C14	RS-C14	RS-C17	RS-C17
Sample ID:	RS-C7[1]	H1-SE001576-0-0000[2]	RS-C14[1]	H1-SE001573-0-0000[2]	RS-C17[1]	H1-SE001572-0 / [1]-0005[2]
Sample Depth(Inches):	0-5	0-5	0-6	0-6	6-25	6-25
Date Collected:	05/25/07	05/25/07	05/25/07	05/25/07	05/25/07	05/25/07
PCBs						
Aroclor-1221	ND(0.024) [ND(0.023)]	ND(0.019)	ND(0.024)	ND(0.021)	ND(0.26)	ND(0.25) [ND(0.24)]
Aroclor-1232	ND(0.024) [ND(0.023)]	ND(0.019)	ND(0.024)	ND(0.019)	ND(0.26)	ND(0.24) [ND(0.021)]
Aroclor-1242	ND(0.024) [ND(0.023)]	ND(0.019)	ND(0.024)	ND(0.021)	ND(0.26)	ND(0.25) [ND(0.24)]
Aroclor-1248	ND(0.024) [ND(0.023)]	ND(0.019)	ND(0.024)	ND(0.021)	1.1 J	ND(0.25) [ND(0.24)]
Aroclor-1254	ND(0.024) [ND(0.023)]	0.026	0.055	0.066	2.3	1.4 [1.1]
Aroclor-1260	0.061 J [0.036 J]	0.064	0.11	0.073	7.2	1.6 [2.4]
Total PCBs	0.061 J [0.036 J]	0.090	0.165	0.14	10.6 J	3.0 [3.5]

TABLE 3
GE DEPOSITED SEDIMENT PCB AND ASSOCIATED EPA SPLIT SAMPLE ANALYTICAL RESULTS

UPPER 1/2 MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight mg/kg)

Parameter	Location ID: / Sample ID: / Sample Depth(Inches): / Date Collected:						
	Location ID:	RS-C34	RS-C33	RS-C37	RS-C37	RS-N5	RS-N5
	Sample ID:	RS-C34[1]	-SE001567-0-00	RS-C37[1]	H1-SE001566-0-0000[2]	RS-N5[1]	H1-SE001577-0-0000[2]
	Sample Depth(Inches):	0-6	0-6	0-6	0-6	0-6	0-6
	Date Collected:	05/24/07	05/24/07	05/24/07	05/24/07	05/25/07	05/25/07
PCBs							
Aroclor-1221		ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)	ND(0.024)	ND(0.021)
Aroclor-1232		ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)	ND(0.024)	ND(0.021)
Aroclor-1242		ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)	ND(0.024)	ND(0.021)
Aroclor-1248		ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)	ND(0.024)	ND(0.021)
Aroclor-1254		0.094	0.17	ND(0.024)	0.051	0.033	0.091
Aroclor-1260		0.064	0.071	0.033	0.14	0.095	0.16
Total PCBs		0.158	0.241	0.033	0.191	0.128	0.251

TABLE 3
GE DEPOSITED SEDIMENT PCB AND ASSOCIATED EPA SPLIT SAMPLE ANALYTICAL RESULTS

UPPER 1/2 MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight mg/kg)

Location ID:	RS-N11	RS-N11	RS-N27	RS-N27	RS-N30	RS-N30	RS-S9	RS-S9
Sample ID:	RS-N11[1]	H1-SE001574-0-0005[2]	RS-N27[1]	-SE001569-0-00(	RS-N30[1]	H1-SE001568-0-0000[2]	RS-S9[1]	H1-SE001575-0-0000[2]
Sample Depth(Inches):	6-10	6-10	0-6	0-6	0-4	0-4	0-3	0-3
Parameter Date Collected:	05/25/07	05/25/07	05/24/07	05/24/07	05/24/07	05/24/07	05/25/07	05/25/07
PCBs								
Aroclor-1221	ND(0.095)	ND(0.063)	ND(0.022)	ND(0.037)	ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)
Aroclor-1232	ND(0.095)	ND(0.063)	ND(0.022)	ND(0.037)	ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)
Aroclor-1242	ND(0.095)	ND(0.063)	ND(0.022)	ND(0.037)	ND(0.023)	ND(0.020)	ND(0.024)	ND(0.021)
Aroclor-1248	ND(0.095)	ND(0.063)	ND(0.022)	ND(0.037)	0.025 J	ND(0.020)	ND(0.024)	ND(0.021)
Aroclor-1254	1	0.38	ND(0.022)	ND(0.037)	0.1	0.035	ND(0.024)	ND(0.021)
Aroclor-1260	1.9	0.17	0.034	0.24	0.04	0.14	ND(0.024)	0.040
Total PCBs	2.9	0.55	0.034	0.24	0.165 J	0.175	ND(0.024)	0.040

TABLE 3
GE DEPOSITED SEDIMENT PCB AND ASSOCIATED EPA SPLIT SAMPLE ANALYTICAL RESULTS

UPPER 1/2 MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS
(Results are presented in dry weight mg/kg)

Parameter	Location ID: / Sample ID: / Depth(Inches): / Date Collected:	RS-S21 RS-S21[1] 0-6 05/24/07	RS-S21 H1-SE001571-0-0000[2] 0-6 05/24/07	RS-S24 RS-S24[1] 0-6 05/24/07	RS-S24 H1-SE001570-0-0000[2] 0-6 05/24/07
PCBs					
Aroclor-1221		ND(0.025)	ND(0.022)	ND(0.026)	ND(0.042)
Aroclor-1232		ND(0.025)	ND(0.022)	ND(0.026)	ND(0.042)
Aroclor-1242		ND(0.025)	ND(0.022)	ND(0.026)	ND(0.042)
Aroclor-1248		ND(0.025)	ND(0.022)	ND(0.026)	ND(0.042)
Aroclor-1254		0.044	0.050	ND(0.026)	0.069
Aroclor-1260		0.08	0.038	0.052	0.29
Total PCBs		0.124	0.088	0.052	0.359

Notes:

1. GE Samples were collected by ARCADIS BBL, and submitted to Northeast Analytical, Inc. for analysis of PCBs and TOC.

2. EPA split samples were collected by Weston Solutions, Inc.
3. GE analytical data have been validated as per Field Sampling Plan/Quality Assurance Project Plan (FSP/QAPP), General Electric Company, Pittsfield, Massachusetts, ARCADIS BBL (approved June 13, 2007).

4. Field duplicate SAMPLE ANALYTICAL RESULTS are presented in brackets.
5. Sample pairs are alternately shaded and unshaded.

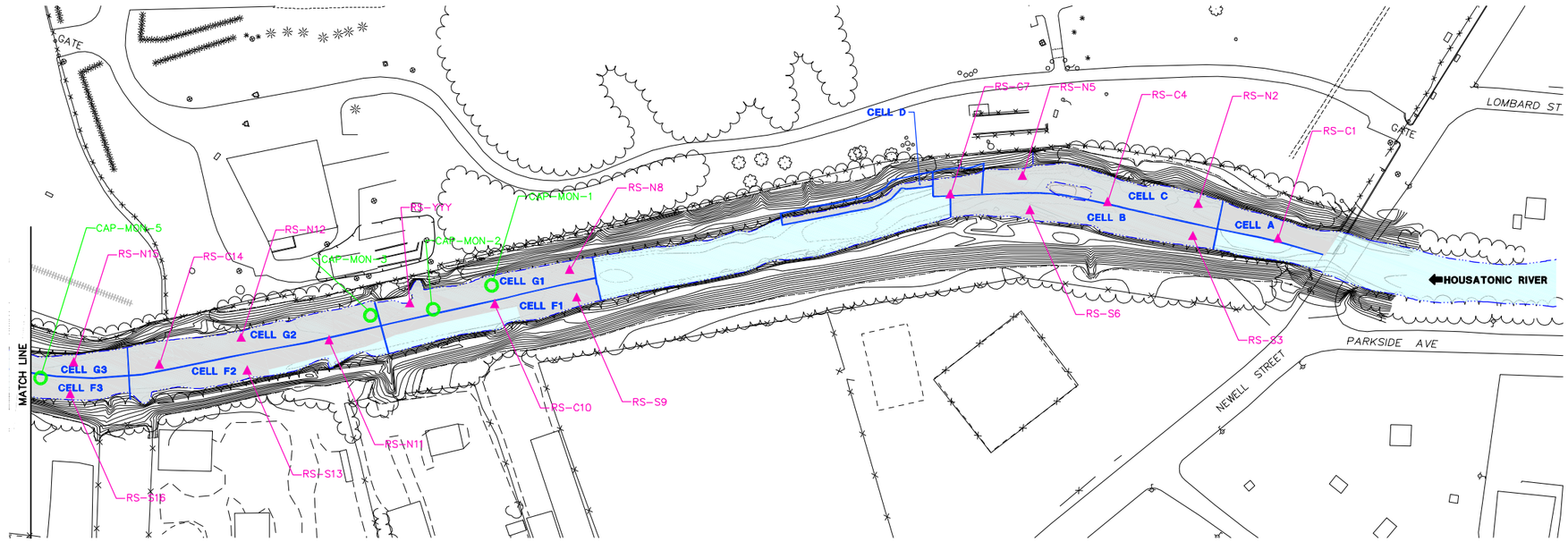
Data Qualifiers:
J - Indicates that the associated numerical value is an estimated concentration.

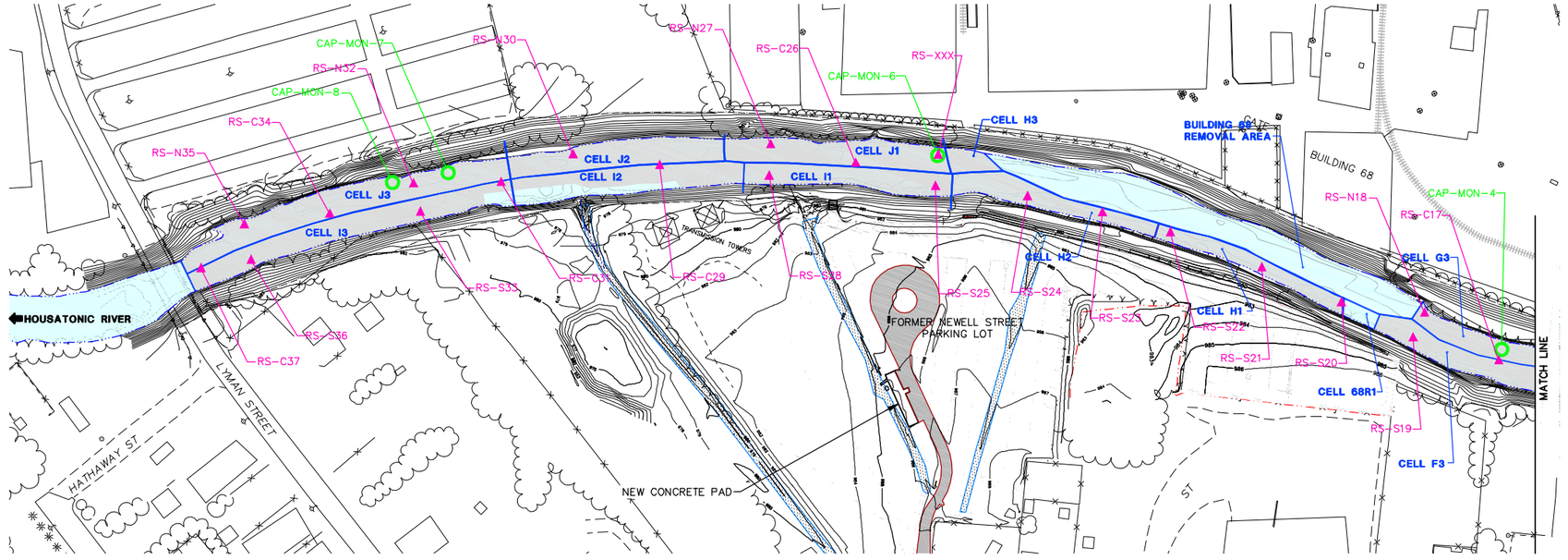
TABLE 4
SUMMARY OF RECENT AND PRIOR ISOLATION LAYER PCB & TOC ANALYTICAL RESULTS

UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER
GENERAL ELECTRIC COMPANY - PITTSFIELD, MASSACHUSETTS

		Post Excavation Sediment Results				Depth Interval	Isolation Layer - Baseline			Isolation Layer - 1-Year			Isolation Layer - 5-Year		
Cell	Sample ID	Date	Depth Interval	Total PCB (mg/kg)	AVG TOC (%)		Sample Date	Total PCB (mg/kg)	AVG TOC (%)	Sample Date	Total PCB (mg/kg)	AVG TOC (%)	Sample Date	Total PCB (mg/kg)	AVG TOC (%)
G1	CAP-MON -1	6/23/00	Surface	20	0.45	2" - 4"	11/9/00	0.027J	Rejected	11/5/01	ND(0.0551)	0.10	8/10/07	0.064	0.55
						4" - 6"	11/9/00	ND(0.038)	Rejected	11/5/01	0.0790	0.15	8/10/07	ND(0.055)	0.45
						6" - 8"	11/9/00	ND(0.040)	Rejected	11/5/01	ND(0.0576)	0.14	8/10/07	ND(0.056)	0.34
G1	CAP-MON -2	8/17/00	Surface	19.0	ND(0.60)	2" - 4"	11/9/00	ND(0.039)	Rejected	11/5/01	0.0845[0.074]	0.15 [0.10]	8/10/07	0.076	0.75
						4" - 6"	11/9/00	ND(0.040)	Rejected	11/5/01	ND(0.0581)	0.09	8/10/07	ND(0.057)	0.49
						6" - 8"	11/9/00	ND(0.039)	Rejected	11/5/01	ND(0.0588)	0.08	8/10/07	ND(0.056)	0.43
G2	CAP-MON -3	8/17/00	Surface	1.72	ND(0.12)	2" - 4"	11/9/00	ND(0.039)	Rejected	11/5/01	ND(0.0570)	0.07	8/10/07	ND(0.057)	0.46
						4" - 6"	11/9/00	0.030J	Rejected	11/5/01	ND(0.0552)	0.09	8/10/07	ND(0.056)	0.21
						6" - 8"	11/9/00	ND(0.039)	Rejected	11/5/01	ND(0.0575)	0.11	8/10/07	0.07	0.38
G3	CAP-MON -4	2/22/01	Surface	519	NS	2" - 4"	2/27/01	ND(0.0636)	Rejected	2/27/02	ND(0.0570)	0.46	8/10/07	ND(0.058)	1.2
						4" - 6"	2/27/01	ND(0.0580)	Rejected	2/27/02	ND(0.0569)	0.36	8/10/07	ND(0.058)	1.4
						6" - 8"	2/27/01	ND(0.0558)	Rejected	2/27/02	ND(0.0553)	0.36 [0.35]	8/10/07	ND(0.057)	1.2
F3	CAP-MON -5	5/4/01	Surface	8.46	NS	2" - 4"	5/10/01	ND(0.0582)	Rejected	7/3/02	ND(0.0588)	0.63 [0.50]	8/10/07	ND(0.057)	1.8
						4" - 6"	5/10/2001	ND(0.0559)	Rejected	7/3/2002	ND(0.0589)	0.46	8/10/07	ND(0.059)	1.2
						6" - 8"	5/10/2001	ND(0.0583)	Rejected	7/3/2002	ND(0.0591)	0.51	8/10/07	ND(0.058)	1.1
J1	CAP-MON -6	1/15/02	Surface	1,000	NS	2" - 4"	1/30/02	ND(0.061) [ND(0.0586)]	0.87 [0.91]	8/27/03	ND(0.061)	1.00	8/10/07	0.21	1.2
						4" - 6"	1/30/02	ND(0.061) [ND(0.0586)]	1.22	8/27/03	ND(0.059	1.30	8/10/07	ND(0.060)	1.7
						6" - 8"	1/30/02	ND(0.061) [ND(0.0586)]	1.50 [1.10]	8/27/03	ND(0.061) [ND(0.060)]	1.50 [1.10]	8/10/07	ND(0.060)	1.8
J3	CAP-MON -7	8/2/02	Surface	88.8	NS	2" - 4"	8/16/02	ND(0.054) [ND(0.053)]	1.0 [0.89]	8/27/03	ND(0.058)	1.10	8/10/07	ND(0.059)	1.5
						4" - 6"	8/16/02	ND(0.055)	1.10	8/27/03	ND(0.058)	1.10	8/10/07	ND(0.058)	1.1
						6" - 8"	8/16/02	ND(0.058)	0.67	8/27/03	ND(0.060)	1.20	8/10/07	ND(0.057)	1.2
J3	CAP-MON -8	8/2/02	Surface	216	NS	2" - 4"	8/16/02	ND(0.057)	0.91	8/27/03	ND(0.060)	1.10	8/10/07	0.16	0.78
						4" - 6"	8/16/02	ND(0.052)	0.62	8/27/03	ND(0.058)	0.88	8/10/07	0.11	1.1
						6" - 8"	8/16/02	ND(0.054)	0.73	8/27/03	0.062	0.97	8/10/07	ND(0.055)	1.1

Notes: 1. TOC = Total Organic Carbon
NA = Not Applicable
ND - Analyte was not detected. The value in parentheses is the associated detection limit.
J - Indicates an estimated value less than the practical quantitation limit (PQL).
2. Duplicate sample results presented in brackets.
3. Depth intervals were measured upward from the geotextile liner at the sediment/isolation layer interface in 2-inch increments.





LEGEND:

- APPROXIMATE WATER LINE
- BUILDING
- CHAIN LINK FENCE
- TREE/SHRUB
- 2007 DEPOSITED SEDIMENT SAMPLING LOCATION
- 2007 ISOLATION LAYER SAMPLE COLLECTION LOCATION
- REMOVAL CELL BOUNDARY
- REMOVAL AREAS INCLUDED IN THE 1/2-MILE REACH REMOVAL ACTION

NOTES:

1. ALL LOCATIONS AND SURFACE FEATURES ARE APPROXIMATE.

0 80' 160'
GRAPHIC SCALE

GENERAL ELECTRIC COMPANY
PITTSFIELD, MASSACHUSETTS
UPPER 1/2-MILE REACH OF THE HOUSATONIC RIVER

2007 SEDIMENT AND ISOLATION LAYER SAMPLING LOCATIONS

ARCADIS

FIGURE
1

SYR-85-NES JHR BGP
G:\CAD\GE-CAD\N-ACT\B0020197\0000\00026\20197101.DWG SAVED:1/30/2008 2:39 PM LAYOUT:1 PAGESETUP:---- PENTABLE:PLTFULL.CTB PRINTED:1/30/2008 2:41 PM BY:BDECLERCQ
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