HOUSATONIC RIVER
NATURAL RESOURCE DAMAGES FUND
ROUND 2, 2008
Massachusetts SubCouncil

Project Proposal Form

PART A. APPLICANT AND PROJECT INFORMATION.

Responses may be entered electronically, saved, and printed. Or, print and complete form with black ink.

APPLICANT INFORMATION

Type of Entity Check the box that best describes the applicant.

[ ] Private individual
[x] Non-profit organization
[ ] State government
[ ] Federal government
[ ] Tribal government
[ ] Municipal government
[ ] Corporation or Business
[ ] County government
[ ] Academic Institution
[ ] Other (explain)

Housatonic Valley Association

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Project Name Provide a brief working name:

Columbia Mill Dam Removal, Housatonic River, Lee, Massachusetts

Project Location

Attach an 8.5 x 11-inch map or copy of an aerial photograph showing project location and extent. Include pertinent topographic and geographic information, a scale, and north arrow.

State(s), Municipality/ies: Massachusetts, Lee

Longitude for approximate center of project area: -73.247545

Latitude for approximate center of project area: 42.317563

Restoration Priority Category See instructions for category descriptions.

Primary Category. Check one box.

[x] Aquatic Biological Resources and Habitat
[ ] Wildlife Resources and Habitat

Secondary Categories. Check all relevant boxes.

[ ] Aquatic Biological Resources and Habitat
[x] Wildlife Resources and Habitat
[ ] Recreational Uses
[ ] Environmental Education and Outreach

List Specific Injured Natural Resources and/or Impaired Natural Resource Services to Benefit from Project (*see* Section 1.2 of the Restoration Project Selection Procedure for a summary of injuries)

Housatonic River and Floodplain

Service Benefits: Ecological, Recreational (fishing and boating), Passive-use values (aesthetic)
Natural Resource Benefits: Surface water, Aquatic species (fish, invertebrates, amphibians, mammals)

Project Type See instructions for project type descriptions. Check all relevant boxes.

[x] Resource-based [ ] Access-based [ ] Maintenance-based

Project Budget Summary

Complete the table below to summarize the budget information that is detailed in Part E: Project Budget. Applicants are advised to complete Part E of the proposal (Project Budget) before filling in the boxes below.

Housatonic River NRD Fund – Requested	Other Contributions Cash or In-Kind (Committed)	Other Contributions Cash or In-Kind (Not Committed)	Total Project Cost (boxes 1+2+3)
1. $250,000	2. $400,000 (Cash)	3. $55,000 (In-kind or cash)	4. ~$1,800,000

Amount of Other Contributions to Be Considered as Cost-Share to NRD Fund Request (boxes 2+3)
5. $455,000

Authorizing Statement

I hereby declare that the information included in this project proposal and all attachments is true, complete, and accurate to the best of my knowledge, and that the proposed project complies with all applicable state, local, and federal laws and regulations.

Denis C Ryan — **Signature of Applicant or Applicant Representative**

5/6/09 — **Date**

PART B. PROJECT ABSTRACT

The Housatonic Valley Association (HVA), in partnership with the Riverways Program (Massachusetts Department of Fish and Game), American Rivers, and Schweitzer-Mauduit International, Inc., proposes to remove the Columbia Mill Dam in Lee to restore ecological integrity to a mainstem reach of the Housatonic River. Dam removal will facilitate fish passage, enhance navigability, improve water quality, protect public safety and provide continuity of habitat for a range of aquatic species.

Columbia Mill Dam

The Columbia Mill Dam is owned by Schweitzer-Mauduit and the company is in full support of the dam removal. Schweitzer-Mauduit has agreed to contribute up to $400,000 to assist in this effort (the largest contribution to date in Massachusetts from a private dam owner for a pro-active habitat-based dam removal). An initial feasibility study has been completed and the project is estimated to cost 1.8 million dollars. The Columbia Mill Dam is approximately 25' tall, with a hydraulic height of 20' and a crest length of 170'.

NRD funds will be used for project management, preliminary and final design, and dam removal . The project will also remove the remnants of the Eagle Mill Dam below the Columbia Mill Dam.

Dam removal is one of the few tangible restoration techniques that can immediately heal prior injuries to the Housatonic River, including damages to ecological integrity, recreational use, and the passive enjoyment of the river.

PART C. PROJECT NARRATIVE

1. Project Goals and Objectives

The primary goal of the Columbia Mill Dam removal project is to improve natural stream conditions, facilitate movement of resident aquatic species, improve water quality and enhance public access along the mainstream of the Housatonic in Lee. Removal of the dam will open up approximately three miles of river upstream and approximately six miles downstream along the mainstem of the Housatonic River and its tributaries, totaling nine miles of improved continuity.

Columbia Mill Complex and Dam

2. Project Benefits

Removal of the Columbia Mill Dam will result in the following natural resource benefits:

Surface Water: Dam removal, riverbank restoration, and contaminated sediment remediation will positively impact water quality by: reducing water temperatures, establishing natural dissolved oxygen levels, establishing more natural base flows, and improving water and river bottom sediment quality through contaminant remediation (contaminated river sediments are a significant source of surface water pollution).

Biological Resources: Dam removal and associated contaminated sediment remediation will positively impact fish, invertebrates, amphibians, birds, and other wildlife by establishing continuity of aquatic and terrestrial habitat and by removing persistent bioaccumulative toxins. Establishment of a natural river bank will also improve canopy conditions, enhance wildlife migration along the river corridor and ameliorate water temperature conditions.

Sediments: Riverbank restoration and contaminated sediment remediation will improve general biological function impaired by contamination. Dam removal re-establishes a natural sediment transport regime and restores natural river geomorphic processes.

Boating: Dam removal facilitates boating and improves recreational usage of the river by eliminating a navigational hazard and portage location by restoring the natural, free flowing waterway.

Passive use and Aesthetics: Dam removal will enhance the aesthetic quality of the river reach by eliminating an Instream barrier.

3. Project Implementation Plan

Description of Current Conditions

The Columbia Mill Dam is in the Housatonic River Watershed and is located between the Woods Pond (Lenox/Lee) and Hurlbut Dams (Lee). According to the Office of Dam Safety Database the Columbia Mill Dam was built in 1901 and is approximately 25' tall, with a hydraulic height of 20' and a crest length of 170'.

Schweitzer-Mauduit staff have indicated that the dam has a timber-crib foundation that is capped with concrete. Prior to the most recent repairs the structure was considered a significant hazard, in fair condition (as of 1999). Columbia Mill Dam is approximately 2.5 miles downstream of Woods Pond. The Woods Pond Dam is owned by General Electric. Woods Pond has been adversely impacted by PCB (Polychlorinated Biphenyls) contamination and is the approximate downstream limit of the proposed General Electric Housatonic River clean-up plan. The Hurlbut Dam in Lee is located approximately six miles downstream of the Columbia Mill Dam.

It is anticipated that sediments behind the Columbia Mill Dam are compromised, based on the industrial history of the Housatonic River and known sources of upstream contamination. Sediment quality information is available from EPA reports, under the title location of *Rest of River*.

The Housatonic River has been negatively affected by industry and urbanization. Point and non-point source pollution has impaired the waterbody and greatly reduced habitat value. PCBs, PAHs (Polycyclic Aromatic

Hydrocarbons) and heavy metals are present throughout the watershed further impacting the biological integrity of the river.

The reach surrounding the dam lacks important habitat features that are created by natural sediment transport such as pools, riffles, point bars, cut banks and a defined low flow channel. By moving forward with dam removal that will re-establish the natural sediment regime, habitat will be enhanced for aquatic species. Proper sediment management will also remove an unnatural sink of hazardous contaminants.

Description of Desired Future Conditions

Through the removal of the Columbia Mill Dam, the community and environment will benefit in the following ways:

- Restoration of river habitat and improvement of fish passage and movement
- Improvement of water quality and restoration of natural water temperatures and oxygen levels
- Improvement of sediment transport by restoring natural water velocities and depths
- Restoration and re-connection of floodplain and bordering vegetated wetlands
- Reduction of liability concerns for the dam owner
- Prevention of a potential uncontrolled dam breach, ensuring public and environmental safety
- Elimination of a long-standing public safety hazard

In summary, dam removal is considered a proven and effective ecological restoration technique that restores or enhances water quality and aquatic species habitat. Dam removal can improve water temperatures for native species by eliminating shallow warm water impoundment areas and can enable the upstream and downstream movement of resident and migratory fish and aquatic organisms. Dams impede the natural transport of sediment, exacerbate flooding, and act as a sink for contaminated sediments.

A. Implementation Approach

Riverways Program contracted with Stantec Consulting in spring of 2008 to produce a preliminary feasibility study to examine dam removal and river restoration. The overall approach will be to implement recommendations outlined by Stantec engineers in their report, which can be found on the HVA website (http://www.hvatoday.org/). The report outlines general site conditions, restoration alternatives, project planning and costs. Dam removal has been indentified as a technically feasible and preferred alternative.

It is anticipated that the dam removal will follow the following steps or phases, typical of dam removal projects statewide.

- Preliminary Design and Sediment Management Sample/Implementation Plan
- Pre-Monitoring
- Final Design
- Permitting and Supplemental Fundraising
- Construction
- Post Monitoring

Residents, town officials, abutters and neighborhood groups will be continually updated on the progress of the dam removal via the HVA website, which will act as a clearinghouse for technical information. HVA staff acting as the project coordinator will facilitate local outreach and hold public meetings at critical milestones, roughly after completion of the critical phases listed above. HVA will also coordinate a Technical Advisory Committee made up of experienced dam removal experts from American Rivers, Riverways Program, and Schweitzer-Mauduit. America Rivers will directly assist HVA via the Technical Advisory Committee in contract and scope-of-work development and the review of technical reports, data and plans.

B. Project Schedule

The following outlines the anticipated schedule for the major activities, not included in the timeline are project management, reporting and other administrative tasks which will be ongoing throughout the contract period.

Activity	Pre-app.	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
1. Dam Removal Feasibility Study						
2. Pre and Post Monitoring						
3. Prelim. Design/Sediment Mgmt. Plan						
4. Final Design						
5. Permitting						
6. Dam Removal &Sediment Mgmt.						

C. Major Phases and Milestones

The following lists the major phases and milestones as outlined in the project schedule above:

1. Dam Removal Feasibility Study (complete) – Riverways completed a contract with Stantec Consulting to produce a preliminary feasibility study to outline a scope of work and move forward a preferred alternative for the Columbia Mill Dam removal and river restoration. The execution strategy will be to implement the approach outlined by Stantec engineers. The alternatives considered were full and

partial dam removal. Fish ladders and dam repair were not considered in the suite of alternatives as these alternatives would not meet the restoration goals outlined in the Housatonic River Watershed, Natural Resources Damages Assessment, Restoration Project Selection Procedure.

2. Pre/Post Monitoring – Monitoring will begin prior to construction activities, and is anticipated to begin in Year 1 and continue thru Year 5. This monitoring will include a suite of physical and biological parameters as outlined in the Gulf of Maine, Barrier Removal Guide. Typical monitoring variables include longitudinal profile, monumented, cross sections, water quality, macro-invertebrates and fish passage. A combination of some of all of these variables will be incorporated into a Trustees approved monitoring plan. For a full description of the monitoring approach please see Section 5: Monitoring/Evaluation and Contingency Plan.

3. Preliminary Design and Sediment Management Plan – Preliminary design at a minimum includes a comprehensive topographic survey of the area, in addition to topographic survey a geomorphic survey will be completed that includes a series of cross sections and a longitudinal profile. This information will help define the limit of the impoundment and provide information on the extent and volume of impounded sediments. Hydrologic modeling will also be completed as part of the preliminary design phase. HEC-RAS is the standard software used for dam removal post construction predicative modeling. HEC-RAS helps inform flood profiles for a variety of storm events, but also can be used to determine scour potential of surrounding infrastructure. A structural inventory of the adjacent mill building will be completed as part of this phase to ensure the building is not compromised during removal.

Thirty percent complete design plans will be a key deliverable during this phase and may or may not include conceptual design plans or photo renderings to help inform the public and local stakeholders. The 30% design plans will include a natural resource area delineation and resource area impact evaluation.

To ensure that the project can move forward from a human and ecological risk perspective a comprehensive sediment management plan will be completed as part of preliminary design which will verify sediment volumes of both clean and contaminated sediment. Initial engineering estimates that a relatively small amount of 4,000 cubic yards of material will need to be dredged and disposed of off-site.

This task will include sampling and testing of a series of samples throughout the impoundment at determined intervals. An attempt will be made to find a potentially responsible party (PRP) to defray the total project remediation costs and satisfy the legal obligation that, "NRD funds cannot be used to fund remediation at known contaminated sites identified pursuant to Chapter 21E of the Massachusetts General Law or the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)." To help identify PCB sources, dam-sediment data will be compared with existing data from potential upstream sources of PCBs, typically using Aroclor-basis PCB analysis. Prior to implementing a sampling plan for PCBs and other constituents of concern, DEP will review the proposed testing plan as has become standard for dam removal projects that involve contaminated sediments.

4. Final Design – Final engineering will be completed following completion and approval of the sediment management plan and 30% design completion. The final design will incorporate the results of the sediment management plan and articulate dewatering, erosion control, construction staging and access, and may also include scour protection measures to protect infrastructure including the Columbia Mill Building. Final design plans typically include details of bank stabilization measures, native planting plans, invasive species management, woody debris installation, interpretative signage and access.

5. Permitting – Permitting will follow final engineering design. Multiple permits will be required, based on selected preferred removal/restoration alternative, a comprehensive list of permits are detailed in section D-3.

6. Dam Removal and Sediment Management - Based on selected alternative, all or a portion of dam will be removed and sediment remediated from the affected area, as recommended. The construction phase will also address final channel configuration, bank stabilization (preferably with bio-engineering), native plantings, access, and signage. The construction phase also includes construction monitoring and oversight, usually by the design engineer.

D. Required Agreements

Dam removal has support from the dam owner Schweitzer-Mauduit (see attached letter of support). Additional agreements are not anticipated.

E. Long Term Effectiveness and Sustainability

Dams are not self-sustaining structures; dams typically require constant repair and upkeep given their location in a dynamic, high-energy environment. Abandoned dams or dams that no longer serve a useful purpose are notorious for lack of upkeep and are often under threat of failure. Full or partial dam removal for the Columbia Mill Dam will re-establish natural, self-sustaining river processes that will effectively achieve the natural resource goals of the Massachusetts Sub Council.

Either of the two proposed preferred restoration and remediation eliminates long-term maintenance, as neither employs a fish ladder or other fish passage structure that would require upkeep and repair. Care and attention will be given to a design that also protects surrounding infrastructure.

To ensure that long term effectiveness and sustainability are the result of the preferred alternative, a site-specific monitoring plan will be implemented. This plan is detailed in Section 6.

F. Coordination and Integration with other Ongoing and Planned Activities

The Eagle and Columbia Mills are fixtures in downtown Lee. The Eagle Mill, recently sold by Schweitzer-Mauduit is being proposed for redevelopment as a mixed-use complex, plans are for a combination of residential and commercial uses. Removal of the dam helps protect the investment of the Eagle Mill by eliminating a potential flood hazard and a residential component of the mill by providing better access to the river for boating, fishing, and passive enjoyment.

The community of Lee is interested in utilizing the Housatonic River as a major resource attribute to the community. The town Master Plan, and the Open Space and Recreation Plan as well as the Harvard University's Graduate School of Design and the Downtown Economic Development Plan recommends that the Housatonic River in Lee should be a focus point for the community, and create such projects as a Lee riverwalk, provide additional recreational river access and various vista improvements.

G. Complimentary Planning Efforts

The removal of the Columbia Mill Dam is consistent with the following:

- *Charting the Course: A Blue Print for the Future of Aquatic Habitat Restoration in Massachusetts, Report of the Secretary of Energy and Environmental Affairs, Aquatic Habitat Restoration Task Force, January 2008*

  Dam removal is integral part of the plan as a technique to restore degraded streams from the legacy of the industrial revolution.

- *Housatonic River Restoration Plan, 1999:* Two of the goals of the Housatonic River Restoration Plan both strongly support the removal of the Columbia Mill Dam and are as follows:

  1. *River Navigation:* "The River should be made safe for normal, non-motorized recreational river activities through the removal or relocation of hazardous trees, industrial debris, and other objects that pose a threat. Limitations for canoeing imposed by abandoned dams and bridge abutments should be removed wherever possible."
  2. *Watershed and River Management:* "The development of the Housatonic River, its floodplain, and watershed has created an array of artificial barriers to its natural restoration. These include the construction of more than a dozen dams, the presence of many dumps and trash sites along its riverbanks, and the widespread development of its watershed. The restoration effort should attempt to address and as much as possible mitigate the impacts of these factors."

4. Technical / Technological Feasibility

a. Methods

The process of dam removal relies heavily on sound planning and strong project management; the actual dam removal and sediment management implementation may only take a fraction of the total time and resources dedicated to the complete restoration effort. This process is not formulaic; rather it is unique to each site. Oversight and leadership are key attributes of steering a project towards success and meeting the challenges of coordinating multiple tasks and contracts for engineering, construction, permitting and monitoring.

The Columbia Mill Dam removal project has a core group of three project partners with a distinct project lead for the dam removal component of the project. HVA staff will provide the local project management, assisted by staff from American Rivers and Riverways Program. American Rivers will take

a leading role in technical assistance. This team brings together experience in multiple dam removals combined with a unique local expertise and knowledge. Among other projects, Riverways was instrumental in the removal of the Silk Mill Dam in 2003 and the Yokum Brook Dam in 2006. Both dams were on Yokum Brook, a tributary to the West Branch of the Westfield River. The removal of these dams restored habitat continuity for coldwater fisheries in Yokum Brook.

Technical methods for dam removal are well documented and have been used across the country to meet aquatic restoration targets. Physical de-construction of structures is commonplace and many of the same technologies used for upland structural demolition are also employed for dam removal. In Massachusetts in the past six years, eight dams have been removed to improve habitat conditions and presently two dozen dam removal projects are in design and permitting.

Demolition is usually done in discrete stages and is preferred, from a regulatory standpoint, to be done in dry conditions to reduce sedimentation. Dam removal implementation includes the creation of a staging and de-watering plan and follows a defined construction schedule. Scheduling usually corresponds to low flow conditions and includes time-of-year restrictions to avoid sensitive life stages for aquatic organisms.

If funded the engineering studies will review successful alternatives for remediation of contaminated sediments, including those high in concentrations of PCBs, and will choose proven options that best fit the conditions found at the site. Techniques for sediment contaminate remediation include: in-situ treatment or stabilization, sediment removal and onsite or off-site disposal, capping (isolation and/or erosion protection), bioengineering and natural attenuation. Usually remediation activities include a combination of these techniques depending upon the varying levels of contamination. These techniques are also successful for other contaminates including heavy metals and Polycyclic Aromatic Hydrocarbons (PAHs).

b. Successful use of the approach and/or method

The Commonwealth's first pro-active dam breach took place in the Housatonic watershed in Dalton in 2000. Crane and Co. working in partnership with Riverways breached the 200-year-old, Old BerkshireMill Dam on the East Branch of the Housatonic River. HVA's local Stream Team was involved in this project planning. The project posed a multitude of technical challenges, including: the discovery of an older timber crib dam above the former dam, the protection of an in-stream water line, bridge abutment

protection, extensive sediment sampling and education of stakeholders. Despite these challenges the project was completed in just over a year and a half.

Adjacent the Housatonic watershed in the Westfield Basin, the Silk Mill, and Ballou Dams were removed in 2003 and 2007 respectively under the direction of Riverways and the Town of Becket. The dams on Yokum Brook, a tributary of the West Branch of the Westfield River, were both approximately 15 feet high and were constructed of stone and concrete. The dam removals required excavating 3,600 yards of sediment combined. This project was considered successful for trout and salmon restoration and received a national award from Coastal America.

In-stream sediment remediation has been a proven restoration technique nationally and even locally. In the City of Pittsfield, clean-up activities associated with General Electric include capping and dry excavation with temporary sheet piles. In Massachusetts, clean-up of New Bedford Harbor uses a variety of techniques including, in-situ stabilization, and dredging. Other projects include a highly successful clean up of PCBs in the Great Lakes region at Ruck Pond Dam and multiple examples in the Hudson River Watershed. The final engineering plans will include evaluation of alternatives to see which ones best fit the conditions found at the Columbia Mill dam.

c. Certainties and uncertainties associated with innovative approaches to the proposed project.

Nationwide, dam removal is a proven technique to restore rivers and streams, although each restoration presents unique challenges, some of which are only discovered during implementation. Uncertainties of dam removal can have been known to derail a project in its infant stages. Fortunately at Columbia Mill Dam, a preliminary engineering study has helped to minimize uncertainty.

Sediment management and infrastructure protection, especially for urban dam removal projects, are two issues that need clear definition for a project to move forward. This project, if funded, will address uncertainties at this site such as the quantity of impounded sediment, depth to bedrock and hydrologic changes in the river profile by providing a detailed sediment management plan and final engineering plans.

d. Uncertainties regarding the project's technical/technological feasibility

Elimination of uncertainty is best achieved by comprehensive engineering and adaptive management. This proposal will provide the appropriate amount of engineering detail and the SubCouncil process of project implementation allows for an adaptive management approach to address cooperatively and effectively any unexpected issues or complications.

e. Potential technical/technological complications

Clearly defined project leadership is the best means to reduce adversity and project complications. The project head will outline and execute a clear communication plan with stakeholders and to the general public. Another vital ingredient to reduce complications is having a small and responsive steering committee with both technical experience and experience in the local community. The project team structure for the Columbia Mill Dam removal includes all of these critical components and the team looks forward to establishing a strong working relationship with members of the Massachusetts Sub Council if funded.

5. Monitoring/Evaluation and Contingency Plan

Monitoring is an important component of river restoration. Monitoring is necessary in order to improve practitioners' understanding of river restoration and its ecological effects. The monitoring plan will use parameters, methods, and study designs recommended in the Barrier Removal Monitoring Guide published by the Gulf of Maine Council (GOMC) in December of 2007. The monitoring plan outlined below is based on the SubCouncil approved monitoring plan for the Mill St. Dam removal in Pittsfield, which is underway.

Monitoring methods

Beyond what is required by the SubCouncil, the project proposes to monitor multiple structural and functional parameters to provide an objective evaluation. This restoration effort seeks to also remediate contaminated sediments and will be done so under a strict regulatory framework, therefore pre-and post restoration sediment testing will be included in the monitoring and evaluation reports but is not considered a pro-active evaluation criteria for purposes of this section.

Monitoring objectives are commonly established in relation to restoration objectives and questions of interest. The Columbia Mill Dam is in a degraded watershed; it will be important to document the extent to which dam removal can restore aquatic habitat in this context. Questions for the Columbia Mill Dam Removal Project include the following:

- To what extent do the aquatic communities change following removal of the dam?

- How does water quality in the impounded reach change following removal of the dam?
- How does the longitudinal profile of the affected reach change over time after the dam is removed?
- Given the degraded nature of the reach, can we improve instream habitat conditions post-removal?
- How do channel morphology and substrate change over time?

Monitoring objectives are to:

- Document water quality (dissolved oxygen, conductivity, temperature) pre-and post restoration. Collect water quality data from three locations: downstream of the dam, in the impoundment, and upstream of the impoundment (background).
- Document any changes in aquatic habitat condition by collecting macroinvertebrate data pre- and post-removal following state-approved protocols.
- Document changes in channel morphology and instream habitat by measuring stream channel cross sections, particle size, and the longitudinal profile
- Document changes in habitat and morphology by establishing photostations and taking photos annually.
- Document short and long term sediment quality at the site after the immediate sources (the impoundment) are managed and stabilized.

The monitoring design will emphasize cross-sections, the longitudinal profile, water quality, and macroinvertebrates. Fish and vegetation data will be collected if resources allow. Exact locations for monitoring cross-sections, the extent of the longitudinal profiles, and water quality probes will be determined as the design process proceeds. At this time the extent of upstream impounding and sediment deposition is not known. Macroinvertebrate monitoring locations and timing will be determined by the technical review team.

Structural Parameters

- Cross sections: The monitoring design will include a minimum of four cross-sections: one downstream of the dam; two in the impoundment; and one upstream of the impoundment.
- Longitudinal profile: The longitudinal profile will extend from downstream of the dam, upstream through the impoundment, to a control upstream of the impoundment.
- Photopoints: Photostations will be established in the fall of 2008.
- Hydraulics: A hydraulic model will be built to inform final channel design (please see below for a more detailed description).

Functional Parameters

- Water quality: Water quality data will be collected in the impoundment, upstream of the impoundment, and downstream of the impoundment before and after the dam is removed. Data on ambient water quality (typically temperature, dissolved oxygen, pH and conductivity), river flow, cover and substrate type and quality, and other relevant physical factors that may dynamically influence fish distribution and abundance are recorded. Sampling time and distance is also recorded so that catch-per–unit effort can be determined.
- Macroinvertebrates: Macroinvertebrate data will be collected from sites at the discretion of the project scientist.
- Vegetation: Vegetation data will be collected in the impoundment and adjacent to the impoundment if funding becomes available.
- Sediment. Sediment samples will be tested upstream of the dam site, at the dam site, and downstream of the dam with a ponar (surficial grab) sampling device. These samples will be taken after the project site has stabilized in order to document contaminants from upstream that may still be affecting the site. (Sediment characterization will also be competed, which is a structural parameter)

Another important structural parameter is hydraulics. Given that the goal of the restoration is to reestablish natural hydrological conditions, a comparison of pre and post restoration hydrology is proposed as a key structural parameter. Pre and post hydraulic modeling under variable, seasonal flow conditions is proposed for multiple years. Hydraulic modeling coupled with pre and post longitudinal profiles of the riverbed and cross sectional profiles will assist in evaluating this parameter. The longitudinal profile will extend through the project area from below the dam through the existing impoundment past defined grade control.

Representative cross sections at set intervals will be also be conducted (see above). Cross sectional end points will be monumented or geo-referenced for repeat surveys. Both cross-sectional and longitudinal profiles will be compared before and after project implementation to monitor changes in bed features, bank features, geomorphic stability, and sediment transport. All of these aspects are critical to the re-development of habitat following dam removal.

HEC-RAS will be used for hydraulic modeling. HEC-RAS is an industry standard river modeling software program developed at the Hydrologic Engineering Center (HEC) for the Army Corps of Engineers. The software allows the user to perform one-dimensional, gradually varied, and steady flow analysis. The steady flow component is capable of modeling sub critical, supercritical, and mixed flow regime water surface profiles. The effects of various obstructions, such as bridges and designed habitat structures in the river and

floodplain, can be considered in the computations and evaluated compared to necessary hydraulic conditions for native species.

Data Collection

Pre-and post-restoration monitoring will be conducted by multiple partners and organizations. Monitoring will follow methods outlined in the GOMC's Barrier Removal Monitoring Guide: http://www.gulfofmaine.org/streambarrierremoval/. Macroinvertebrate monitoring methods will be chosen in collaboration with Mass Division of Fisheries and Wildlife and the Department of Environmental Protection. Survey work for HEC-RAS modeling, including longitudinal profiles and cross sections, will be conducted by qualified surveyors and the outcome of the model will be stamped by a professional engineer. The overall geographic scope of the surveys will be pre-determined by project team consultation, and if necessary field-reconnoitered. All work for both the structural and functional parameters will be guided by a written Standard Operating Procedure (SOP) that will be pre-approved by the Massachusetts Sub Council so that future monitoring can duplicate the same effort.

Trained personnel will be used to collect all data. Volunteers may participate on a case-by-case basis, but will be overseen by experienced scientists. All data will be documented using data sheets provided by the Barrier Removal Monitoring Guide. This will allow the data to be compared with monitoring data from other sites across New England. Data sheets are available at http://www.gulfofmaine.org/streambarrierremoval/.

Monitoring Overview

	Design Consultant	**Riverways Program**	**HVA/American Rivers**	**Mass SubCouncil**
Monitoring Plan Development		X	X	
Monitoring plan review	X	X	X	X
Cross Sections	X (post removal)			
Longitudinal profile	X (post removal)			
Particle size	X (post removal)			
Water quality	X		X	
Vegetation monitoring*				
Photopoints	X			
Macroinvertebrate monitoring*	X			
Sediment Quality	X*			

Monitoring				
Data management and interpretation	X			

*The lead will for these parameters will depend on availability of resources.

Describe how problems will be addressed if monitoring/ evaluation activities indicate that objectives or target values are not being met (i.e., the Contingency Plan).

This project will use the same data quality objectives outlined in the Gulf of Maine Council's Barrier Removal Monitoring Guide[2]. The Guide describes how, when and where each parameter should be collected, as well as the precision and accuracy of each.

If restoration benchmarks or targets are not being met, an adaptive management approach will be employed. Examples of an adaptive management approach include modifying stream structures to facilitate fish or aquatic species migration or re-examining the background or reference conditions to re-establish accurate target goals. Information from the monitoring and evaluation reports will be shared with partners and the general public.

Describe how the monitoring/ evaluation effort considers or coordinates with other monitoring being conducted in the Housatonic River watershed.

All data will be housed at the Massachusetts Riverways Program and will be shared with the project partners identified in the notification list. Partners will compile monitoring reports and share it with a broader audience if applicable.

HVA has an active Quality Assurance Project Plan (QAPP) approved volunteer water quality monitoring program on the Housatonic River that has been monitoring since 2001. This program will continue monitoring several chemical parameters in the area pertaining to the health of the river. Volunteers will monitor for temperature and dissolved oxygen above and below the dam site. We will also visually continue to monitor the river banks for signs of erosion and monitor the public use of the area.

6. Qualifications of Applicant and Project Team

a. Technical Capacity

[2] Collins, M., K. Lucey, B. Lambert, J. Kachmar, J. Turek, E. Hutchins, T. Purinton, and D. Neils. 2007. Stream barrier removal monitoring guide. Gulf of Maine Council on the Marine Environment. www.gulfofmaine.org/streambarrierremoval

The technical team includes Beth Lambert, Restoration Scientist, Riverways Program, Brian Graber, Associate Director, American Rivers and Roger Scheurer, PE, Manager – Lee Mills. A description of the applicant organization is listed below:

Riverways Program (www.mass.gov/dfwele/river) mission is to promote the restoration and protection of the ecological integrity of the Commonwealth's watersheds: rivers, streams and adjacent lands. Riverways works with local, state, and federal partners to promote and establish policies that protect and restore valuable riverine and watershed resources.

Riverways is based on the belief that local action is the key to river protection. Riverways staff work side-by-side with local citizens, town officials, watershed-based groups and other partners to restore and protect the state's rivers and their ecosystems. In addition, Riverways believes in working with partners from state agencies, federal agencies, municipalities and nonprofit organizations to ensure that policies, actions and regulations protect river and riverine systems.

The Riverways Program was established in 1987 in recognition that river and stream corridors are a crucial component of the state's ecological infrastructure and that protection of these watershed resources could not be accomplished through land acquisition alone. The Riverways Program was created to encourage and support local river protection initiatives as a vital complement to state action. (M.G.L. Ch21A Sec.8) (See attached resume of Beth Lambert, Restoration Scientist)

American Rivers is the leading national organization standing up for healthy rivers so our communities can thrive. Through national advocacy, innovative solutions and our growing network of strategic partners, American Rivers protects and promotes rivers as valuable assets that are vital to our health, safety and quality of life.

Founded in 1973, American Rivers has more than 65,000 members and supporters nationwide, with offices in Washington, DC and the Mid-Atlantic, Northeast, Midwest, Southeast, California and Northwest regions. One of the four major campaigns of American Rivers is River Renewal, the River Renewal campaign 1) provides communities with technical and financial assistance to restore natural river functions, floodplains and wetlands and 2) advances new policies to protect communities from flooding.

Schweitzer-Mauduit International, Inc. (Schweitzer-Mauduit) is a diversified producer of premium specialty papers and the world's largest supplier of fine papers to the tobacco industry. Schweitzer-Mauduit conducts business in over 90 countries and employs approximately 3,600 people worldwide, with operations

in the United States, France, Brazil, Indonesia, the Philippines and Canada and with a joint venture under construction in China.

Schweitzer-Mauduit became an independent public company on December 1, 1995 with the spin-off by Kimberly-Clark Corporation of its United States, French and Canadian operations that produced tobacco-related products. Schweitzer-Mauduit is listed on the New York Stock Exchange under the symbol SWM.

Schweitzer-Mauduit's manufacturing facilities have a history of producing paper dating back to 1545. The Company's domestic mills led the development of the North American tobacco-related papers manufacturing industry, which was originated by Peter J. Schweitzer, Inc. that began as an importer of cigarette papers from France in 1908.

b. Administrative Capacity

Overall project administration will be the responsibility of Dennis Regan, Berkshire Program Director for HVA. Mr. Regan has over 15 years of administration for federal- and state-funded grants. Under his direction, HVA's Berkshire Office has initiated and managed important projects, such as an EPA Healthy Communities grant in Pittsfield (2004) and several large Natural Resources Damages Fund projects (presently).

In addition he has managed projects such as trail acquisition, layout and maintenance, and development of appropriate educational programs and management plans. Over the past several years, he has been organizing volunteers to collect baseline water quality data for the Housatonic watershed. This effort has already alerted towns and businesses to serious problems, in addition to supplying data to the Massachusetts environmental database. He has created excellent relationships with commissions and departments in Berkshire County towns, and has worked tirelessly to involve citizens in volunteer work on the river and environmental education. For several years, the Berkshire office has also run well-received programs in the county's elementary schools, to educate youngsters about watersheds and the Housatonic. (See attached resume of Dennis Regan.)

The Housatonic Valley Association (HVA) is dedicated solely to protecting the Housatonic River and its entire 2,000-square-mile watershed, stretching from the Berkshires in Massachusetts, through western Connecticut and part of eastern New York State, to Long Island Sound. HVA' s mission is to save the natural character and environmental health of our communities by protecting land and water in the Housatonic Watershed. Since 1941, HVA fulfills its mission through research, education, advocacy and technical assistance to communities.

7. Supporting Technical Documentation

The engineering report completed by Stantec Consultants (2008) that was developed for the Columbia Mill Dam removal project is available on the HVA website; www.hvatoday.org

Support Attachments for Columbia Mill Dam Removal Project.

Resumes:

Brian Graber, American Rivers

Tim Purinton, Massachusetts Riverways Program

Dennis Regan, Housatonic Valley Association

Letters of Commitment:

Roger G. Scheurer, Manager Lee Mills, Schweitzer-Mauduit

Brian Graber, American Rivers

Tim Purinton, Massachusetts Riverways Program

Topographic Map of Lee and Columbia Mill Dam

Arial Photograph of Columbia Mill and Dam

BRIAN E. GRABER

37 Phillips Place #2, Northampton, MA 01060
(413) 585-5896; bgraber@amrivers.org

WORK EXPERIENCE

ASSOCIATE DIRECTOR OF RIVER RESTORATION, AMERICAN RIVERS **2007 – present**

Programmatically work to increase the practice of stream barrier removal throughout the northeast U.S.:

- Provide technical services and programmatic capacity building assistance to state river restoration programs to help efficiently implement more river restoration projects
- Provide on-the-ground engineering and geomorphic services to stream barrier removal projects
- Coordinate the northeast AR-NOAA partnership grant program, providing funding and technical assistance to stream barrier removal projects for migratory species

RIVER RESTORATION SCIENTIST, MA RIVERWAYS PROGRAM **2003 – 2007**

Promoted, facilitated, and enhanced the practice of stream restoration through outreach, trainings, on-the-ground projects and policy efforts. Responsibilities included:

- Provided trainings on watershed assessment, fluvial geomorphology, stream crossing design, dam removal, and stream restoration theory and techniques
- Managed and provided technical expertise on stream restoration implementation projects, including dam removal, stream crossing rehabilitation, and instream habitat enhancement
- Led efforts to institutionalize dam removal in Massachusetts, provided effective advocacy to regulators, policy-makers, dam safety officials, dam owners, consultants, funders, and the public

WATER RESOURCES CONSULTANT (self-employed) **2001 – 2003**

Provided a range of watershed assessment, river rehabilitation design, and research services:

- Dam removal/channel rehabilitation design, implementation, and monitoring
- Hydrologic and ecological research on dam impacts
- Watershed assessment for habitat restoration

WATERSHED RESTORATION SPECIALIST, TROUT UNLIMITED **1999 – 2001**

Coordinated Trout Unlimited's National Small Dams Program:

- Implemented and monitored dam removal/channel rehabilitation projects
- Co-authored four stand-alone publications and edited an issue-oriented video
- Instructed and spoke at trainings, workshops, and professional meetings around the country
- Served as a national information clearinghouse: providing technical advice, working with media, and developing Web content

WATER RESOURCES CONSULTANT (self-employed) **1999**

- Developed precipitation depth-duration-frequency curves for southeast Wisconsin
- Collaborated on wetland restoration engineering field research, analyzing how hydrology influences species diversity

PROFESSIONAL TRAINING, AFFILIATIONS, and AWARDS

- Co-recipient of a 2005 Aldo Leopold Award for Excellence in Restoration
- EIT in the State of Wisconsin
- American Water Resources Association (AWRA)
- American Society of Civil Engineers (ASCE); Environmental & Water Resources Institute (EWRI)
- Completed trainings on dam removal, stream crossing design, natural channel design, and hydraulics
- Served as technical reviewer for Great Lakes Protection Fund, *BioScience*, and USGS

EDUCATION

UNIVERSITY OF WISCONSIN – MADISON **Madison, WI**

Master of Science in Civil & Environmental Engineering, emphasis in hydrology **1999**
Master of Science in Geography, emphasis in fluvial geomorphology **1997**
Wisconsin Alumni Research Foundation Graduate Fellow **1994 – 1998**

DARTMOUTH COLLEGE *magna cum laude* **Hanover, NH**

Timothy A. Purinton

tim.purinton@state.ma.us 617-626-1542

Acting Director, Riverways Program, a Division of Massachusetts Department of Fish & Game

Experience

Riverways Program, Boston MA
Acting Director, 2009- present
River Restoration Planner, 2005-2009

Massachusetts Audubon Society, North Shore Conservation Advocacy Office, Wenham MA
Community Outreach Coordinator, 1999 – 2005

Town of Rowley, Rowley MA
Conservation Administrator, 1998-2000

Northeast Wetland Restoration, Rowley MA
Partner, 1997-1998

Parker River Clean Water Assoc., Byfield MA
Volunteer Coordinator, 1996-1997

Recent Accomplishments

In the past three years coordinated three dam removals and raised over 1 million dollars in grant funds for various river restoration projects

Education

McGill University, Montreal, Quebec, 1988-1992
Bachelor of Arts, *cum laude*
Major: Geography, Minor: Environmental Studies

Organizations, Committees and Associations

Massachusetts Association of Conservation Commissions, Officer and Board of Directors, Vice-President of Advocacy 2005-Present

Northeast Stream Barrier Task Force, Massachusetts Representative, 2005- Present

Town of Ipswich, Planning Board, Co-chair, 2003- Present (chair from 2005-2007)

Gulf of Maine Barrier Removal Monitoring Standards Steering Group, MA Representative 2006-2007

Democratic Nominee for the 4th Essex Legislative District, 2004, (endorsed by the Sierra Club & Clean Water Action Coalition)

Eight Towns and the Bay Committee, Newburyport and Ipswich Representative, 1996-2003

Awards and Distinctions

Coastal America Partnership Award – Awarded to Riverways Program and Partners for the removal of two dams on Yokum Brook (lead staff)

Efroymson Fellow, Selected by the Nature Conservancy to develop conservation strategies for salt marshes on the East Coast of the United States

EPA Environmental Merit Award, Awarded to Mass Audubon and the Green Neighborhoods Alliance for work promoting Open Space Residential Design in Massachusetts (co-lead staff)

Harvard Kennedy School of Government, Mass Audubon's smart growth work was selected as a finalist for the 2005 Roy Family Environmental Partnership Award (co-lead staff)

Coastal America Award, Awarded to the Parker River Clean Water Association for the Tidal Restriction Atlas (lead staff)

Technical Publications and Reports

- 2007; Co-author, Gulf of Maine Council on the Marine Environement, *Stream Barrier Removal Monitoring Guide*
- 2003; **Purinton, T.** Doyle, F., Stevenson, R. *Status of River Herring on the North Shore of Massachusetts*. Prepared for the Riverways Programs within Massachusetts Department of Fish Game and Environmental Law Enforcement.
- 2002:**Purinton, T.** *City of Gloucester Comprehensive River and Stream Habitat Restoration Plan*. Prepared for the City of Gloucester.
- 2001: Cooper, A., **Purinton, T.** *The Great Marsh Initiative and North Shore Regional Municipal Networks: A Regional Collaborative Approach to Coastal Watershed Protection*. Proceedings of the 12th Biennial Coastal Zone Conference Cleveland, OH, July 15-19, NOAA
- 2001: Buchsbaum, R., **Purinton, T.**, Magnusson, B. *A Study of the Marine Resources of the Parker River Plum Island Sound Estuary.* Prepared for the MA CZM
- 1997: Mountain, D., **Purinton, T.**, Pillion, J. *A Simple Methodology for Tidal Crossing Assessment.* CZ 97, The Next 25 Years, Conf. Proceedings, Ed. Miller, M. and Cogan, J., MA

DENNIS C. REGAN

Housatonic Valley Association
PO Box 251
South Lee, Ma. 01206
(413)394-9796 dregan@hvatoday.org

881 East Washington Rd.
Hinsdale, Ma. 01235
(413)655-8145
cdsandl@bcn.net

RELEVANT SKILLS AND EXPERIENCE:

- Experience and success in developing working partnerships and coordinating efforts of diverse interest groups and governmental agencies to reach desired goals.
- Success in developing positive working relationships with staff, Board members, and volunteers in developing and implementing strategic plans and mission statements.
- Ability to develop and implement appropriate training and educational programs to foster appreciation, continued use, and protection of natural resources.
- Success in developing, writing and managing grant proposals, effective management plans, and budgets for multiple programs.
- Effective use of oral, written and interpersonal communication skills to promote resource protection.
- Effective experience in dealing with various media resources.

EMPLOYMENT:

Massachusetts Program Director, Housatonic Valley Association. Responsibilities include developing partnerships within the community on issues affecting the quality of the Housatonic River Watershed and the development of programs to effectively reach identified goals. Specific programs include development of data collection programs, greenway development, educational programs, and coordination of community involvement. Tasks included supervision of staff and volunteer development, with major emphases on grant and report writing and budget development and management with Board involvement. 1999 - present

Regional Director, Appalachian Mountain Club. Responsibilities included developing and implementing regional land use and protection programs in Massachusetts, Connecticut, New York and Pennsylvania. Emphasis was on developing partnership programs with federal, state, and local governmental agencies and volunteers in managing and maintaining public lands. Developed and implemented environmental education and trail programs based at the Mt. Greylock Regional office. Managed budget and staff. 1988 - 1998

Trails Coordinator, Appalachian Mountain Club. Responsibilities included developing and implementing trail management programs on regional, state, and national trail systems. These programs included coordinating efforts with National Park Service and state governmental agencies on trail acquisition, layout and maintenance and development of Cooperative Agreements and management plans. Emphasis on Appalachian Trail use, management and acquisition issues in Massachusetts and Connecticut. Managed budget and staff. 1982 - 1988

Marine Advisory Service Extension Agent, University of North Carolina Sea Grant. Assisted local, state and regional community groups, both public and private, in developing educational programs associated with coastal waterways resource use. Identified needs and provided assistance through research and/or education programs. 1977 – 1981

EDUCATION:

Master of Agriculture in Natural Resource Development. Texas A&M University, College Station, Texas. December 1977

Bachelor of Science Degree in Community and Outdoor Recreation, Springfield College, Springfield MA. May 1974

PROFESSIONAL AFFILIATIONS:

President - Massachusetts Watershed Coalition
Member - Advisory Committee of Massachusetts Environmental Trust; Ecosystem Grants
Board Member – Upper Housatonic Valley National Park Service Heritage Designation
Previous Board Member - Executive Committee of Housatonic River Restoration
Previous Board Member – Appalachian Trail Conference

SCHWEITZER-MAUDUIT INTERNATIONAL, INC.

November 26, 2008

Massachusetts Riverways Program
Department of Fish and Game
251 Causeway Street, Suite 400
Boston, MA 02114

Attention: Tim Puriton

Reference: Columbia Mill Dam, Lee, MA

Dear Tim:
Schweitzer-Mauduit International, Inc. (SWM) and Massachusetts Riverways Program employees began discussion regarding the restoration of the Housatonic River between the SWM Columbia and Eagle Mills in the Town of Lee on or about April 2, 2008. This discussion was undertaken as a result of SWM's interest in pursuing the best alternative for the Columbia Mill Dam, which has become unnecessary after the recent closing of three paper mills owned by SWM. Subsequently, a site visit was completed on April 17, 2008 by you, Beth Lambert of Massachusetts Riverways, and Brian Grayber of American Rivers.

This initial discussion and site visit resulted in a Site Reconnaissance and Cost Estimate (Report) prepared by Stantec Consulting of Topsham Maine, dated June 2008. The Report was sponsored by Massachusetts Riverways.

On October 23, 2008 a meeting was held at the SWM office in Lee, MA to discuss the Report and to review the steps that lie ahead. A general outline of a typical river restoration program was described as follows:

- Year 1 – Funds and fees are established.
- Year 2 – Design and permits are completed
- Year 3 - Construction is completed.

SWM is interested in working toward the restoration of the river by breaching the Columbia Mill Dam, if the cost to take this path is considerably less than the cost to continue maintenance of the dam. Upon removal of the dam, this industrial site will lose a significant water source and lose the ability to generate hydroelectric power.

SWM will commit $400,000 towards the Construction phase of the project and will support the State and local efforts to complete the project. We reserve the right to review the status of the restoration efforts and withdraw if, in our opinion, actions are not proceeding in an acceptable manner.

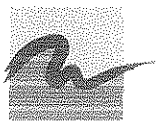
We welcome the next phase of activity and look forward to possibility of restoring the Housatonic River to its natural course. Should you have any questions or comments, feel free to call upon the undersigned at any time.

Sincerely,
SCHWEITZER-MAUDUIT INTERNATIONAL, INC.

Roger G. Scheurer

Roger G. Scheurer, PE
Manager- Lee Mills

Cc: Dennis C. Regan, Housatonic Valley Association
Elizabeth Knight



May 6, 2009

Dennis Regan
Berkshire County Director
Housatonic Valley Association
P.O. Box 251
South Lee, MA 01260

RE: Housatonic River NRD Fund – Habitat Continuity Project Proposal

Dear Mr. Regan:

I am writing to express American Rivers' strong support for the Housatonic Valley Association's Housatonic River Natural Resources Damages proposal to remove the Columbia Mill Dam from the river's mainstem in Lee, Massachusetts. The dam's removal will be a critical step to improving habitat, fish passage, and recreation in the Housatonic River. While our staff have worked on more than one hundred dam removal projects around the country, it is a rare opportunity to achieve the benefits associated with removing a dam from the mainstem of a river.

American Rivers has been involved in the planning stages of the project and we are committed to providing technical and scientific assistance through project implementation. Together with the Housatonic Valley Association and the Massachusetts Riverways Program, the project is being led by a strong team of experienced dam removal project managers and scientists. In addition, the dam's owner has shown a commitment to the project that will greatly facilitate completing the dam's removal and associated river restoration.

The American Rivers River Restoration Program is staffed by engineers, scientists, and planners with cumulatively decades of experience completing dam removal projects. We continue to support the efforts of community partners to remove dams that no longer make sense and open opportunities for ecological restoration. American Rivers is the leading national organization standing up for healthy rivers so communities can thrive. American Rivers protects and restores America's rivers for the benefit of people, wildlife and nature. Founded in 1973, American Rivers has more than 65,000 members and supporters nationwide.

Please feel free to contact me with any questions.

Sincerely,

Brian Graber
Associate Director, River Restoration Program
American Rivers
413-585-5896

Commonwealth of Massachusetts
RIVERWAYS PROGRAM
Building Partnerships, Protecting Rivers

Tim Purinton, *Riverways Acting Director*

March 26, 2009

Housatonic River NRD Fund – Project Proposal
Stantec Consulting
30 Park Drive
Topsham, ME 04086-1737

Dear Members of the Massachusetts SubCouncil,

Riverways Program (Riverways) in the Massachusetts Department of Fish and Game strongly supports the Housatonic Valley Association's (HVA) proposal to remove the Columbia Mill Dam and restore a significant reach of the mainstem of the Housatonic River in Lee. Removal of the dam will restore continuity to a total of 69 miles above and below the dam, including 9 miles of mainstem river and 60 miles of tributary streams.

Riverways provided funding for the initial feasibility study and has worked closely with Dennis Regan of HVA and Brian Graber of American Rivers to develop this project and ensure its eventual success. Riverways staff is prepared to continue to provide technical assistance to the project leads, sharing information and lessons learned from our multiple dam removals – including experience gained on the Mill Street Dam in Pittsfield. Removal of the Columbia Mill dam and the remnants of the Eagle Mill Dam will promote a more natural flow regime, improve aquatic habitat, and, importantly, enhance fishery resource values.

Dam removal is important not only for the ecological health of the Housatonic River Watershed but also complements efforts to improve access and promote recreational use of the river. This project is not only technically feasible but is an exciting initiative that will serve as a model of partnership building and ecological restoration.

We urge you to support this worthy proposal and look forward to continuing our strong working relationship with HVA.

Sincerely,

Tim Purinton, Acting Director

CC: Roger Scheurer, Schweitzer-Mauduit International, Inc.


Coumbia Mill Dam Removal
Feet
1,000 0 1,000 2,000
N
Map prepared on 5/6/09 by
Kirk Sinclair, PhD, GIS Manager
Housatonic Valley Association
HVA
Gravel Pits
Lenox Dale
Golf Course
Lenox Dale
Trailer Park
Sewage Disp
Trailer Park
Laurel Lake
299.5
330
300
283
336.5
316
GOLDEN HILL RD
SUMMER STREET
The Pinnacle
300
Dam Site
315
COLUMBIA ST
308.5
CENTER RD
EAST
316
288
Lee
St Marys Cem
HOUSATONIC
St Marys Sch
High Sch
SPRING ST
Perkins Pond
ROAD
BM 269.3
Greenock Country Club
Lee
(BM 270.6)
SPRINGFIELD
MAPLE
CEM
Quarry
Service Areas
Willow
BR 295
Tollgate
Saunders

PART D. ENVIRONMENTAL AND SOCIOECONOMIC IMPACT

The MA SubCouncil will review the information provided and determine whether further information is required.

1. CHECKLIST: POTENTIAL ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS

Project Name: Columbia Mill Dam Removal

Applicant: HVA

Impact Category	Impact	No Effect	Minimal Adverse Impacts*	Significant Adverse Impacts*	Beneficial Impacts*	Mitigation Required*	Permit or Approval Required**
Environmental	Air quality impacts		X				
	Instream flow impacts			X	X		X
	Surface water quality impacts			X	X		X
	Sediment quality impacts				X		X
	Soil quality impacts		X	X	X		
	Groundwater quality impacts				X		
	Wetlands quality and services				X		X
	Diversity and abundance of aquatic species				X		
	Diversity and abundance of terrestrial wildlife species				X		
	Diversity of plant communities				X		

The MA SubCouncil will review the information provided and determine whether further information is required.

CHECKLIST: POTENTIAL ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS

Project Name: Columbia Mill Dam Removal

Applicant: HVA

Impact Category	Impact	No Effect	Minimal Adverse Impacts*	Significant Adverse Impacts*	Beneficial Impacts*	Mitigation Required*	Permit or Approval Required**
Social	Impacts on minority or low income populations	X					
	Impacts on local sense of community and well being				X		
	Impacts on aesthetics		X		X		
	Impacts on public health or safety				X		
	Impacts on recreational activity		X		X		
	Impacts to Native American Trust Resources	X					
	Impacts on non-Tribal cultural sites	X					
	Impacts on education				X		
	Impacts on local partnerships and collaborative efforts				X		
	Impacts on availability and quality of drinking water	X					
	Impact on subsistence activity	X					
	Nuisance impacts				X		
	Other:						

The MA SubCouncil will review the information provided and determine whether further information is required.

CHECKLIST: POTENTIAL ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS

Project Name: Columbia Mill Dam Removal

Applicant: HVA

Impact Category	Impact	No Effect	Minimal Adverse Impacts*	Significant Adverse Impacts*	Beneficial Impacts*	Mitigation Required*	Permit or Approval Required**
Economic	Short-term commercial economic impact of restoration action				X		
	Impacts on property values				X		
	Impacts on recreational expenditures and related businesses				X		
	Impacts on existing resource-based industries	X					
	Impacts on commercial water users	X					
	Impacts on river-based commercial navigation	X					
	Impact on wastewater dischargers	X					
	Other:						
	Other:						

* Requires narrative discussion; see instructions in text.
** List and description of permits required; see instructions in text.

2. **Impact Explanations**

Environmental Impact Explanation

- **Air quality impacts:** The project may increase potential for release of pollutants to ambient air from dust associated with the dam-removal construction activities, as well as short-term emission releases from construction vehicles at the site. Best construction practices will be employed to reduce the impacts to air quality. This may include wetting down of the construction access road during especially hot and dry days and reducing idling times of construction vehicles. Applicable Permit or Approval: MEPA
- **Instream flow impacts:** Instream flow will need to be altered during the dam removal construction phase, causing short-term impacts to aquatic life. Over the long term, though, instream flow will be restored and this will benefit aquatic life such as fish and macroinvertebrates. Permits will be required which detail how these impacts will mitigated. Applicable Permit or Approval: MEPA, Water Quality Certificate, Wetlands Protection Act, 404
- **Surface water quality impacts:** The dam removal project may have significant adverse impacts to surface water quality in the form of increased turbidity during the construction phase. Through the permitting process, measures will be outlined that will control turbidity during construction. Such measures will be further developed once the preferred alternative is chosen. In the long term, the dam removal will result in beneficial impacts to surface water quality. The pool behind the dam will have been removed and the river restored to free flowing, thereby reducing water temperatures in the stretch of the river. Applicable Permit or Approval: MEPA, Water Quality Certificate, Wetlands Protection Act, 404
- **Sediment quality impacts:** Sediment has collected behind the dam and the reach below the dam has been characterized as sediment-starved. During construction, methods will be employed to reduce the chance of contaminated sediment escaping down river, but flows will still need to be maintained. Once the sediment is removed and the river stretch restored, upstream sediment transport will be restored to a more natural process. Applicable Permit or Approval: MEPA, Water Quality Certificate, Wetlands Protection Act, 404
- **Soil quality impacts:** The banks of the river will be disturbed during construction, causing short-term impacts in the form of soil erosion. Pre-construction activities will require adequate erosion control, so soil erosion should be minimal and if erosion does occur it will not have the opportunity to migrate into the river system. River bank restoration plans, to be developed, will call for native shrub and tree species. Bio-controls will decrease bank erosion over time, leading to beneficial impacts to soil quality. Applicable Permit or Approval: Wetlands Protection Act
- **Groundwater quality impacts:** Though there may be short-term decrease in ground water quality, it is believed that through the removal of contaminated sediment, groundwater will no longer be interfacing

with contaminated sediment—thus producing benefits to groundwater quality. Applicable Permit or Approval: MEPA

- **Wetlands quality and services:** A restored free-flowing river, free of contaminated sediments, will allow the river to more naturally interface with adjacent wetland areas, producing long-term benefits to wetlands. Applicable Permit or Approval: MEPA, Water Quality Certificate, Wetlands Protection Act, 404
- **Diversity and abundance of aquatic species:** The project may influence the population and diversity of aquatic species during the construction period. Pre-construction monitoring will detail these populations and efforts will be made during construction to allow for migration up and down river. Post-construction monitoring will also be required, and it is believed that restoration of the river to a free-flowing, natural system will improve both the population and diversity of resident aquatic species. Applicable Permit or Approval: MEPA and Wetlands Protection Act
- **Diversity and abundance of terrestrial wildlife species:** Construction will produce short-term disruption to resident species such as mink and beaver, both of which have been observed in the immediate area. It is believed that such species will move out of the construction area during the relatively short time span required for construction without negative impacts to them. Long term, terrestrial species will benefit from a restored river and riverbank system that has a more native assemblage of plant, tree, and shrub species. Applicable Permit or Approval: MEPA and Wetlands Protection Act
- **Diversity of plant communities:** Aquatic and terrestrial plant species will be adversely affected during construction activities. Some riverbank plant species may not survive the construction activities. Some shrub and tree species may be deliberately removed, such as alien non-natives. The long-term approach is to restore the riverine and riverbank plant communities in a deliberate way through a well-thought-out plan for restoration. Applicable Permit or Approval: MEPA and Wetlands Protection Act

Social Impact Explanation

- **Impacts on local sense of community and well-being:** This project will be beneficial to the local sense of community and well-being. River restoration is a priority for the community. Much planning work has occurred over the years, and it has consistently pointed to the fact that residents want to feel more connected with the river. Removal of contaminated sediment will also improve the perception that the river is completely polluted.
- **Impacts on aesthetics:** During construction, there will be a decrease in aesthetics associated with construction. In the long term, with the dam removed and the river restored to a more natural look this location will be a place for quiet reflection.

- **Impacts on public health or safety:** Currently, the site is an attractive nuisance and a liability. The removal of the dam will eliminate the potential for dam failure and will increase the safety of downstream residents and property owners. Dam removal will also remove a source of contamination, improving ecological and human health conditions.
- **Impacts on recreational activity:** The dam is a barrier to in-river recreational activities such as canoeing. Fishing quality is limited due to the high amount of sediment and poor water quality. With the dam removed and the river restored to free flowing, canoeists and kayakers will be able to float down stream without disruption, and the quality of fishing will be improved.
- **Impacts on education:** There will be positive new educational opportunities with this project. Locally, educators may wish to use the site as a component to their environmental curriculum with the topic of river restoration. It is envisioned that interpretive signage will be erected at the site so that a passersby might better understand the restoration project. More importantly, though, this restoration project will provide an opportunity for technology transfer to other communities that are exploring dam removal and river restoration. The project will also be well publicized and help raise the profile of river restoration and dam removal.
- **Impacts on local partnerships and collaborative efforts:** The dam removal and river restoration project involves a suite of partners and has been previously outlined in the project narrative. Through such cooperation, the restoration project outcome will be improved.
- **Nuisance impacts:** The dam site is a nuisance and a liability to navigation, recreation and general river use, removal will encourage safe use of a public resource.

Economic Impact Explanation

- **Short-term commercial economic impact of restoration action:** The river restoration and dam removal will produce benefits to the local economy through employment in the engineering and construction trades.
- **Impacts on property values:** The dam removal will improve the market rate of the adjacent properties, including the soon to be redeveloped Eagle Mill site.
- **Impacts on recreational expenditures and related businesses:** The restored river system will produce positive benefits to businesses that are affected by the river, namely those that sell canoes and fishing equipment.

3. **List of Permits or Regulatory Approvals**

The list below represents the specific types of 'Approvals or Permits Required' for the dam removal component. Please refer to the Impact Checklist Narrative for specifics regarding which permits would be needed for which activities. Please be aware that at present no permits have been secured for this project.

Local

- Demolition Permit – Lee Building Inspector

State

- MEPA Review – Secretary of EOEA
  - Environmental Notification Form
  - Environmental Impact Report (if no waiver is granted)
- Wetlands Protection Act Order of Conditions - Lee Conservation Commission
- Water Quality Certification – MA DEP
- Chapter 253 Dam Safety Permit - MA Office of Dam Safety
- Chapter 91 Waterways License – MA DEP (TBD)
- MHC Project Notification Form – MA Historic Commission

Federal

- Section 404 Permit - US Army Corps of Engineers

PART E. PROJECT BUDGET

Budget Narrative:

The cost of the engineering and removal of the Columbia Mill Dam is estimated at $1,798,000 dollars, which assumes $900,000 for sediment disposal. Final costs will be driven by the outcome of the sediment sampling and thoughtful discussion regarding which alternative will best achieve the restoration goals established by the Trustees. The cost for the sediment sampling tasks is anticipated at $30,000 (includes characterization) which are shown as Year 1 NRD expenses. Based on the results of the sediment sampling, and associated investigation of whether a responsible party for contamination can be identified, subsequent years' expenses (engineering, permitting, sediment removal, monitoring, contingencies etc.) may be reduced. This will only be known following Year 1 work. The project team has been mindful in attempting to detail assumptions and to factor in related construction contingencies, which are shown spread throughout the project timeline. Permitting has been estimated at a lump sum cost of $ 55,000 based on experience with permitting other dam removal. Dam removal costs are approximately $1,495,000 (includes $900,000 for sediment removal). Actual project advancement decisions will be made in full cooperation with the NRD Trustees.

Committed contributions amount to $55,000 from the MA Riverways Program. A contribution was made in early 2008 when the Riverways Program hired Stantec to conduct an initial feasibility report Riverways will also provide a match of in-kind labor and costs associated with Riverways employee fringe benefits and travel related to the project. Riverways tasks will include project assistance as well as monitoring help. This overall figure is shown on the budget sheets as ' other committed contribution'.
Additional Committed funding from Schweitzer-Mauduit; letter attached: $400,000
Lead Agency: Housatonic Valley Association, provide overall project coordination, reporting and disseminating **$8,715**

Personnel, Dennis Regan, Project Director; $6,786

Travel: $600

Indirect @ 18%: $1,329

SUBCONTRACTOR EXPENSES

American Rivers: $5,488

Personnel, Brian Graber, $4,051

Travel: $600

Indirect @ 18%: $837

The total removal is project to be ~$1,798,000. We are asking NRD for $250,000. We will need to fundraise for the remaining funding. Ma. Riverways and American rivers feel confident that we can raise the remaining required amount as they have been successful in these endeavors in the past.

TABLE 1. HOUSATONIC RIVER NRD FUNDING ALLOCATION BY STATE FISCAL YEARS *

PROJECT TITLE:	Columbia Mill Dam Removal			
APPLICANT NAME:	Housatonic Valley Association			
EXPENSE CATEGORY	FISCAL YEAR 1	FISCAL YEAR 2	FISCAL YEAR 3	FISCAL YEAR 4
	Housatonic River NRD Funds	Housatonic River NRD Funds	Housatonic River NRD Funds	Housatonic River NRD Funds
A. SALARIES	$3,114	$3,114	$3,114	
B. EMPLOYEE BENEFITS	498	498	498	
C. TRAVEL	400	400	400	
D. . Indirect @ 18%	722	722	722	
E. Monitoring & Sediment Sampling	$30,000			
F Permitting		$55,000		
G. Sediment removal			$150,798	
TOTAL BY FISCAL YEAR	1 $34,734	2 $59,734	3 $155,532	4
GRAND TOTAL (sum of boxes 1+2+3+4) [This sum is the total NRD fund request and should match Part A, Budget Summary, Box 1]				

* **The state fiscal year is July 1 – June 30. If the proposed project will be completed in one year, fill in only the column titled "Fiscal Year 1."**

TABLE 2. PROJECT BUDGET SUMMARY BY TASK AND FUNDING SOURCE

PROJECT TITLE:	Columbia Mill Dam Removal		
APPLICANT NAME:	Housatonic Valley Association		
TASK*	HOUSATONIC RIVER NRD FUNDS	OTHER CONTRIBUTIONS	TOTAL COST BY TASK
		COMMITTED / NOT COMMITTED	
A. Monitoring	$10,000		$10,000
B. Design Work	$4,000		40,000
C. Sampling	$30,000		$30,000
D. Permitting	$55,000		$55,000
E. Sediment Removal	$159,000	$400,000	$900,000
F. Dam Deconstruction			$763,000
G.			
TOTAL BY FUNDING SOURCE	5	6 / 7	8 GRAND TOTAL $1,798,000

NOTES: Box 5 should be the same as the Grand Total indicated in Part E: Table 1. Box 6 above should match Part A, Budget Summary, Box 2. Box 7 above should match Part A, Budget Summary, Box 3. Box 8 should match Part A, Budget Summary, Box 4.

* The listed tasks should correspond with information provided in the Project Implementation Plan.

Request for Responses: Project Proposal Instructions

Definitions of Expense Categories

A. Salaries – Identify the number of employees required to complete the project, the estimated number of hours that each employee will work and the hourly wage rate for each employee. Include in this category clerical, bookkeeping, and other support staff services that would be reimbursed by the Housatonic River NRD Fund (unless these activities are contracted; if so, indicate under Contracted Services.). For salary-related overhead and indirect costs, include an explanation for how these costs are charged on a project-specific basis.

B. Employee Benefits – Indicate the dollar value of employee benefits to be paid and the rate or method by which they were calculated.

C. Contracted Services – Indicate the dollar value of any services to be provided by others hired under contract for professional services or construction. This category includes, but is not limited to, consultant and construction services, materials, equipment, data processing, printing, and laboratory testing. Identify the specific service(s) to be performed and associated wage rates. Construction service contracts should include at least a 10 percent contingency to cover unexpected expenses.

D. Supplies, Materials and Equipment – Identify the costs of major supplies, materials and equipment necessary to prepare, conduct, or construct this project. These items include articles rented, leased or purchased for use on the project by the applicant, with a cost of $250 or more.

E. Travel – Indicate travel costs that are essential to conduct the project. Explain expected travel destination(s), purpose of travel, number of people traveling, and number of trips to be made. Travel rates may not exceed current state or federal employee rates for meals, lodging, and mileage.

F. Other – Identify other costs required to complete the project. List other anticipated project costs, such as repairs or maintenance, that have not been addressed in other budget categories. For non-salary related indirect costs, include an explanation for how these costs are charged on a project-specific basis. Housatonic River NRD Funds cannot be used to pay interest on loans taken out to cover project expenses.