

Housatonic River Basin Natural Resources Restoration Project
Natural Resources Trustee SubCouncil for Connecticut
Request for Supplemental Information (RSI)
INSTRUCTIONS

RECEIVED
JUN 20 2007
WATER RESOURCES

PART A: SPONSOR AND PROJECT SUMMARY FORM

Please read "Request for Supplemental Information (RFI) OVERVIEW" and this document, "Request for Supplemental Information (RSI) INSTRUCTIONS" before completing this form.

Part A must be completed using this "Sponsor and Project Summary Form"

SPONSOR INFORMATION

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

- | | |
|---|--|
| <input type="checkbox"/> Private individual | <input type="checkbox"/> Municipal government |
| <input checked="" type="checkbox"/> Non-profit organization | <input type="checkbox"/> Corporation or Business |
| <input type="checkbox"/> State government | <input type="checkbox"/> County government |
| <input type="checkbox"/> Federal government | <input type="checkbox"/> Academic Institution |
| <input type="checkbox"/> Tribal government | <input type="checkbox"/> Other (explain) |

Authorized Representative of Sponsor

Hunter Brawley

Name

Hunter Brawley

Title

Land Manager

Address

PO Box 265

City

Sherman

State

CT

Zip

06784

Phone

860-354-0260

Email

naromi@sbcglobal.net

Contact Person (if different from Authorized Representative):

Name

Title

Address

City

State

Zip

Phone

Email

Project Name Provide a brief working name:

Wimisink Preserve Restoration and Access

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:

Sherman, CT

Longitude for approximate center of project area:

73° 30' 5" N

Latitude for approximate center of project area:

41° 38' 10" W

NOTE: If a specific location(s) has/have not been selected yet, include in Part C a narrative describing how project location(s) will be selected.

Restoration Priority Category See Appendix C of these Instructions for Restoration Priority Category Descriptions

Primary Category. Check the restoration category that is the primary goal of the project.

Check one box.

- Aquatic Natural Resources Restoration/Enhancement
- Riparian & Floodplain Natural Resources Restoration/Enhancement
- Restoration/Enhancement of Recreational Uses of Natural Resources

Secondary Categories. Check all relevant boxes.

- Aquatic Natural Resources Restoration/Enhancement
- Riparian & Floodplain Natural Resources Restoration/Enhancement
- Restoration/Enhancement of Recreational Uses of Natural Resources

List Specific Injured Natural Resources and/or Impaired Natural Resource Services to Benefit from Project

This project will enhance habitat for sensitive wildlife and bird species that also inhabit the Housatonic River and provide a unique recreational opportunity within hiking distance of the Housatonic mainstem.

Project Budget Summary

Complete the table below to summarize the budget information that is detailed in Part D: Project Budget Narrative and Forms. Sponsors are advised to complete Part D (Project Budget Narrative and Forms) before filling in the table below.

Housatonic River NRD Funds – Requested	Other Contributions (Committed)	Other Contributions (Not Committed)	Total Project Cost (boxes 1+2+3)
1. From Part D, Table 2, Box 5 \$100,000	2. From Part D, Table 2, Box 6 \$10,000	3. From Part D, Table 2, Box 7 \$15,000	4. From Part D, Table 2, Box 8 \$125,000
Amount of Other Contributions to Be Considered as Cost-Matching to NRD Fund Request			
5. \$7,000			

Authorizing Statement

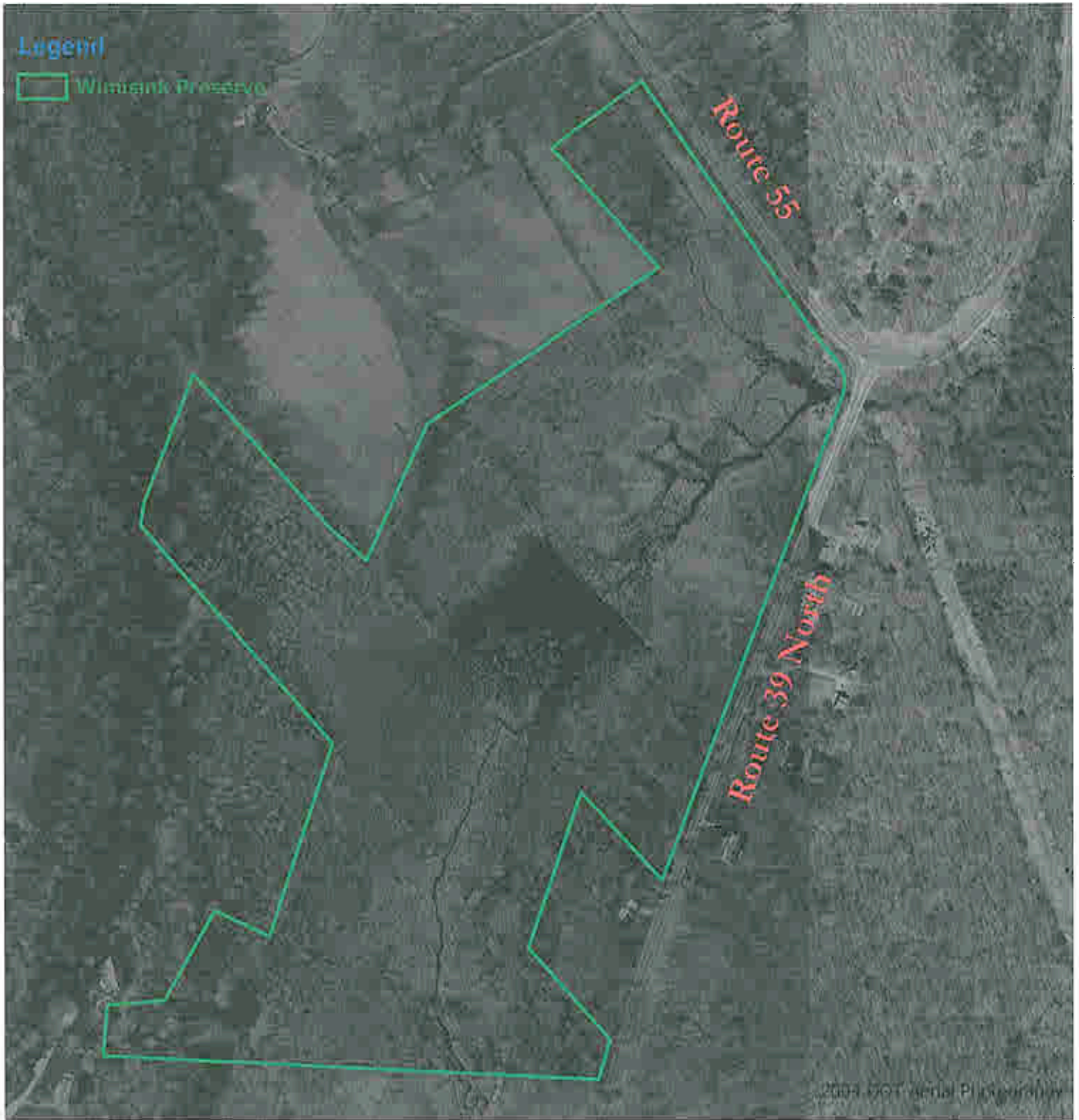
I hereby declare that the information included in this project submission and all attachments is true, complete, and accurate to the best of my knowledge, and that the proposed project complies with all applicable state, local, and federal laws and regulations.

Hunter Brawley
Signature of Sponsor or Sponsor Representative

6/19/07
Date

Hunter Brawley
Name of Sponsor or Sponsor Representative
(Type or print clearly)

Wimisink Preserve Restoration and Access Aerial Photograph



0 250 500 1,000 Feet



Naromi Land Trust, Inc.
PO Box 265, Sherman, CT 06784

This map contains no authoritative data
and is intended for planning purposes only

Wimisink Preserve Restoration and Access

Request for Supplemental Information (RSI)

PART B. PROJECT ABSTRACT

Naromi Land Trust, a 501(c) non-profit organization, seeks to enhance aquatic natural resources and restore recreational opportunities at the Wimisink Preserve in Sherman, Connecticut. This 57-acre wetland preserve, which is within the Housatonic River watershed and less than 1500 meters from the Housatonic mainstem, contains suitable habitat for the Federally Threatened and State Endangered bog turtle as well as a suite of sensitive wetland birds including the State Endangered American bittern. Project tasks include completing a thorough floristic inventory and preserve management plan, continuing on-going habitat restoration in the wetland by controlling invasive plants (primarily purple loosestrife and *Phragmites australis*), and the construction of a gravel parking area and handicapped-accessible observation platform accessed via 300± foot raised boardwalk. The on-going wetland habitat restoration will replace natural resources and associated ecological and cultural services that were lost as a result of GE's release of hazardous materials into the Housatonic River. The new observation stand will create a unique recreational opportunity for handicapped individuals living in northwestern Connecticut, providing access into the interior of the preserve for environmental education and passive recreation such as bird-watching.

Naromi Land Trust's Land Manager will coordinate this project working with an experienced trail building contractor, a consulting botanist and community volunteers. The project will take approximately two years to complete. The Wimisink Preserve Restoration and Access initiative will provide lasting ecological and recreational benefits to the community and restore critical habitat for wildlife within the Housatonic river watershed.

Wimisink Preserve Restoration and Access

Request for Supplemental Information (RSI)

PART C. PROJECT NARRATIVE

1.0 GENERAL DESCRIPTION

1.1 Project Goals and Objectives

Naromi Land Trust (NLT) is a 501(c)3 organization that owns approximately 1000 acres of open space in Sherman, Connecticut. The mission of the organization is to serve the people of Sherman by fostering preservation of its natural resources, protecting open spaces, farmlands, ridges and scenic vistas and maintaining its preserves as wildlife habitat. Public hiking trails have been established on several NLT preserves with the long-term objective of developing a town-wide trail system to be used for passive recreation and education.

In 2005 NLT began a large-scale wetland restoration project at its Wimisink Preserve in northern Sherman after receiving a \$16,000 NRCS Wildlife Habitat Incentive Program (WHIP) Grant. The 55-acre Wimisink Swamp, which is within the Housatonic River watershed and less than 1500 meters from the Housatonic River mainstem, is a complex of wet meadows and open water habitat that supports a suite of sensitive wetland plants and wildlife. The Wimisink Brook that flows through the swamp discharges into the Housatonic River in the Gaylordsville section of New Milford. During the 7-year WHIP contract, the NRCS is providing partial funding to restore habitat by eradicating invasive non-native woody vegetation and infestations of *Phragmites australis* and purple loosestrife (*Lythrum salicaria*). One of the restoration partners in this project includes a local Boy Scout troop which cultivated and released *Galerucella* beetles during the spring of 2006 as a biological control for purple loosestrife. A licensed herbicide applicator will treat several stands of *Phragmites* within the preserve in the fall of 2007.

In the spring of 2006 biologists from the Connecticut DEP and U.S. Fish and Wildlife Service surveyed the Wimisink swamp and identified suitable habitat for the Federally Threatened and State Endangered bog turtle, which was historically recorded in the vicinity. Recent DEP wetland call-back surveys in the preserve identified wood ducks, hooded mergansers, green herons, great blue herons and belted kingfisher as well as the secretive Virginia rail, sora, and American bittern, which is an Endangered Species in Connecticut. Many of the wading birds and waterfowl recorded at the Wimisink historically inhabited the Housatonic River corridor. In addition to the wildlife recorded, the Connecticut Natural Diversity Database (NDDB) has records of several State Listed plant species in and around the Wimisink swamp.

The Wimisink Preserve currently contains a wooden observation stand accessed via a small trail that was built as an Eagle Scout project in the mid 1990's. Recent improvements to the preserve include a 50 ft. section of boardwalk along the trail to the observation stand and a new informational kiosk and preserve sign that were funded by a \$10,000 Iroquois Gas Company Land Enhancement and Acquisition Fund (LEAF) Grant. The Wimisink wetland restoration was featured as a *Living Lands* case study by Defenders of Wildlife at the 2006 national Land Trust Alliance Rally in Nashville, TN. A second \$9500 LEAF grant in 2007 will be used to create presentation trail maps that will be featured in the informational kiosks.

The goal of this project is to enhance aquatic natural resources at the Wimisink Preserve and provide a unique recreational opportunity within the Housatonic River watershed at a site that is within walking distance of the Housatonic River and the Appalachian Trail (AT). These goals will be accomplished by continuing the on-going wetland restoration and building a handicapped accessible observation platform in the preserve that is accessed via a small (4-6 vehicles) gravel parking area near the intersection of Routes 55 and 39 North. A 300± ft. raised boardwalk that meanders along the edge of the open water portion of the swamp will connect the new observation stand with the parking area. These new structures will allow hikers and disabled individuals increased access into the swamp to observe waterfowl and other wildlife: a recreational opportunity that is diminished along the Housatonic River corridor due to the release of hazardous materials from the GE facility in Pittsfield, MA. Visitors to the preserve will be provided with educational material regarding the on-going wetland restoration and the control of invasive plants via maps and postings in the informational kiosk.



Figure 1 - Wimisink Preserve from Route 39 highway bridge, October 18, 2005

The success of this project will be evaluated based on two parameters: the enhancement of wildlife habitat via the removal of non-native invasive plants and the increase in visitation at the preserve due to the new observation stand and boardwalk. The success of the invasive plant eradication will be measured by establishing ten vegetation survey plots throughout the marsh that will be monitored for two years. The methodology for the vegetation surveys will be determined based on consultations with local universities, and ideally the surveys will be conducted by student researchers. An adaptive management approach will ensure that the invasive eradication techniques are effective and appropriate for the site. Visitation at the preserve will be recorded on sign-in sheets available at the preserve kiosk and monitored for a two year period. Media articles and town mailings will be used to raise awareness of the new recreational opportunity in Sherman, and Naromi Land Trust staff and volunteers will lead interpretive hikes at the Wimisink Preserve to promote the project.

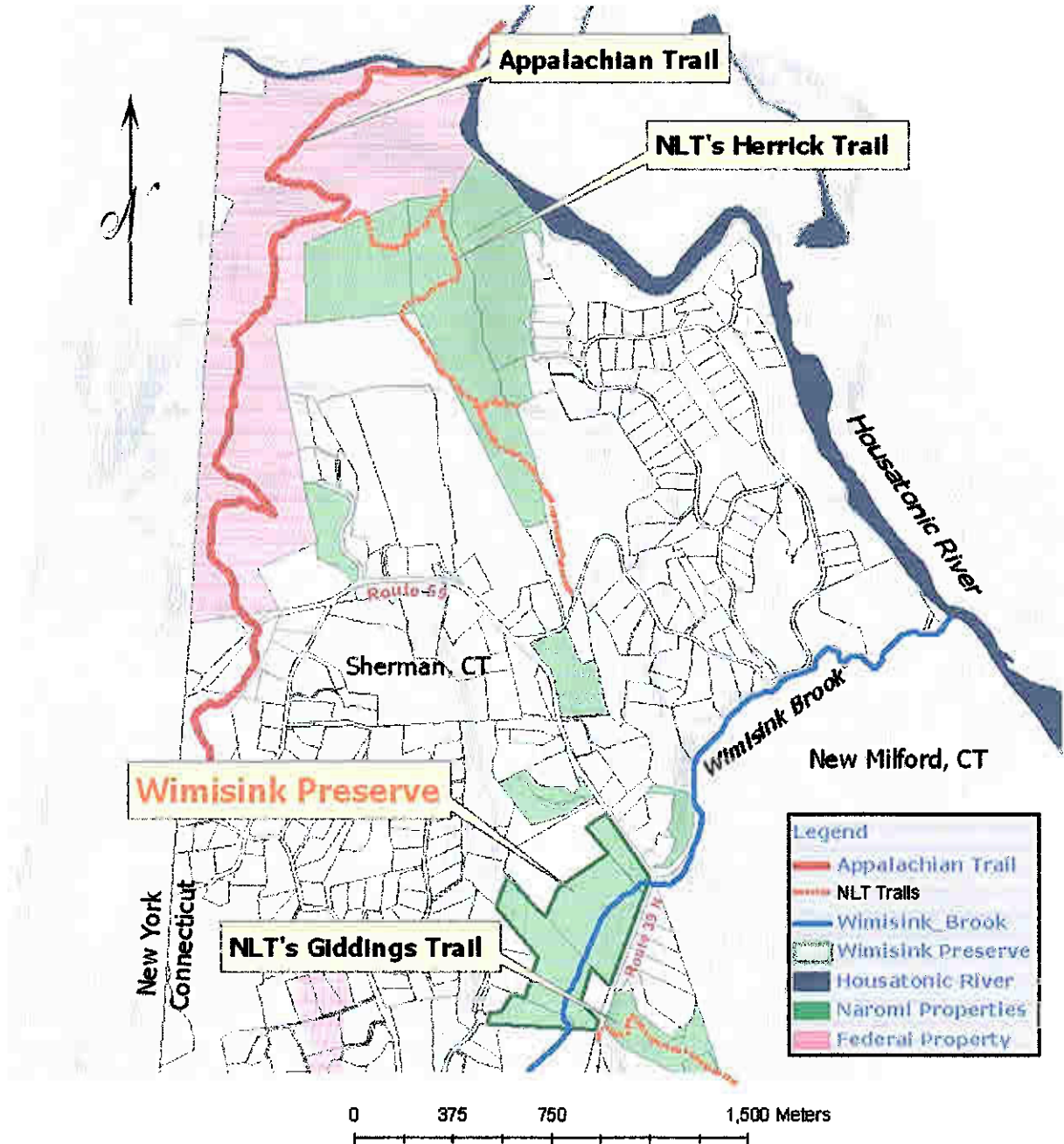
1.2 Project Scope and Project Implementation Plan

The Wimisink Preserve encompasses a 57-acre wetland/old field complex associated with Wimisink Brook that has been increasingly dominated by invasive plants over the past fifteen years. Along the perimeter of the swamp are several wet meadow/post-agricultural fields historically used for pasture. In the early 1990's Iroquois Gas Company installed a natural gas pipeline through the northern border of the swamp and shortly thereafter the invasive aquatic plants purple loosestrife and *Phragmites australis* became established in the preserve. The post-agricultural fields became colonized by woody, early successional vegetation including non-native invasive plants such as multiflora rose (*rosa multiflora*) and shrub honeysuckle (*Lonicera spp.*). By the time the wetland restoration began in 2005 a majority of the marsh was inundated by purple loosestrife (See figure 1), several dense stands of *Phragmites* had become established, and the wet, post-agricultural fields had become overgrown and impenetrable.

The wildlife potential of the Wimisink Preserve has become seriously threatened by the infestations of non-native invasive plants, and until recently public use of the preserve was minimal. The entrance to the trail leading to the existing observation stand was overgrown and barely visible and there was no signage identifying the area as a land trust property or a wildlife preserve. The recent restoration efforts have increased the preserve's visibility and numerous articles in area newspapers have raised awareness of the Wimisink project.

The short-term management goal for the preserve is to continue the on-going wetland restoration efforts with the remaining WHIP grant funds to control non-native invasive plants which are displacing sensitive native species throughout the preserve. An equally important goal is to complete a floristic inventory of both sensitive native wetland plants and non-native invasive plants and as the basis of a long-term management plan for the property. Particular emphasis will be placed on vegetation surveys within the project impact area where the observation stand and boardwalk will be located. The management plan will include a natural resources inventory of the site and outline the long-term approach to protect sensitive wetland plants and habitats for wildlife.

Project Location Map Wimisink Preserve, Sherman, CT



 Naromi Land Trust, Inc.
PO Box 265, Sherman, CT 06784

This map contains no authoritative data and is intended for planning purposes only

Figure 2 - Project Location Map

The long-term approach is to maintain the preserve as a wildlife sanctuary to provide habitat for sensitive wetland species and protect regional biodiversity, and to provide the community with handicapped access to the wetland for educational and passive recreational activities. The Wimisink is within a corridor of NLT preserves with public trails and is also within close proximity of the Appalachian Trail (See Fig. 2, Project Location Map). The preserve, which is permanently protected, will continue to be open to the public with limited pedestrian access for educational programs and wildlife viewing. The project, which is anticipated to take approximately two years to complete, will commence in 2008 and construction of the boardwalk and observation platform will commence in FY 2010 once the design and engineering is complete and funding has been secured.

The project team will be coordinated by NLT Land Manager Hunter Brawley working with trail building contractor Peter S. Jensen & Associates LLC, a consulting engineer, consulting botanist Christopher Mangels and community volunteers. Mr. Jensen is a regionally recognized trail building expert and his projects include the Housatonic River Walk in Great Barrington MA and the Bay Circuit Trail in Andover, MA. Botanical surveys will be completed at the preserve by Christopher Mangels, forming the basis of a long-term preserve management plan. Mr. Mangels has previously conducted botanical surveys for The Nature Conservancy and the State of Connecticut. The new access structures will be constructed using proven construction methods and synthetic materials and will meet all applicable ADA standards. No property access agreements, easements, rights-of-way or other agreements will be needed to complete this project. The project will require permits from the Sherman Inland Wetlands and Zoning commissions and the Building Department, which will be acquired prior to construction. The total estimated cost of the project is \$125,000.

Project Tasks	Completion Date
Wetland restoration / invasive plant control	On-going
Complete botanical surveys and preserve management plan	FY 2008
Acquire necessary permits	FY 2009
Complete project design & engineering	FY 2009
Construction of access structures	FY 2010
Follow-up monitoring	On-going

I. Invasive Plant Control - In June 2007 areas of the post-agricultural fields were mowed to stunt the growth of woody invasive plants. Funding is available to mow the fields again in 2009. In the fall of 2007, a licensed herbicide applicator will treat stands of *Phragmites* at the Wimisink Preserve. This on-going restoration control is being funded by a WHIP grant and NLT, and all necessary permits have been obtained to complete this work.

II. Botanical Surveys & Preserve Management Plan - During the spring and summer of 2008, NLT Land Manager Hunter Brawley will assist Consulting Botanist/Ecologist Christopher Mangels in conducting a floristic inventory of the Wimisink Swamp. Inventories will be conducted throughout the growing season with an emphasis on sensitive or at-risk plants. During the field surveys all wildlife and wildlife signs observed will be recorded and added to a flora and fauna being compiled by NLT. Any *Endangered, Threatened, or Special Concern* plants or

animals identified on the site will be submitted to the CT Department of Environmental Protection's Natural Diversity Database (NDDDB). In addition, a list of all invasive plants will be compiled and their location noted on a GIS map.

Based on the on-going results of the invasives control and the botanical survey, a long-term management plan will be developed for the Wimisink preserve that details plant and animals of concern and methods to protect and enhance their habitats. The plan will include a description of all invasive plants identified and reference material on the best available control methods. A list of reptiles, amphibians, mammals and birds potentially utilizing or confirmed in the preserve will also be compiled. Plant communities that provide critical habitat for wildlife (e.g. tussock sedge or *Potentilla spp.*) will be noted and their GPS coordinates added to the GIS map. The plan will also address potential human concerns such as disturbance to wildlife during the breeding season, etc. Input on the plan will be sought from biologists at CT DEP and the US Fish and Wildlife Service. Estimated completion date for the management plan is December 2008.

IV. Acquire Necessary Permits – Construction of the access structures at the Wimisink Preserve will require a permit from the Sherman Inland Wetlands and Zoning commissions and a local Building Permit. NLT will submit an application for these permits during the summer of 2009 and attend meetings/public hearings as necessary. Permits from State or Federal regulatory agencies will likely not be required. Anticipated costs for permit applications, meetings and fees is \$5000.

V. Project Design and Engineering – The new access structures will be designed and engineered by an national engineering firm such as Vanasse, Hangen & Brustlin, Inc. (www.vhb.com) or local firm such as Milone & MacBroom (www.miloneandmacbroom.com). A request for bids will be sent to at least two firms and reviewed by the project management team before an engineering firm is chosen. Anticipated cost of the design and engineering is \$15,000. The design phase will be completed by December 2009.

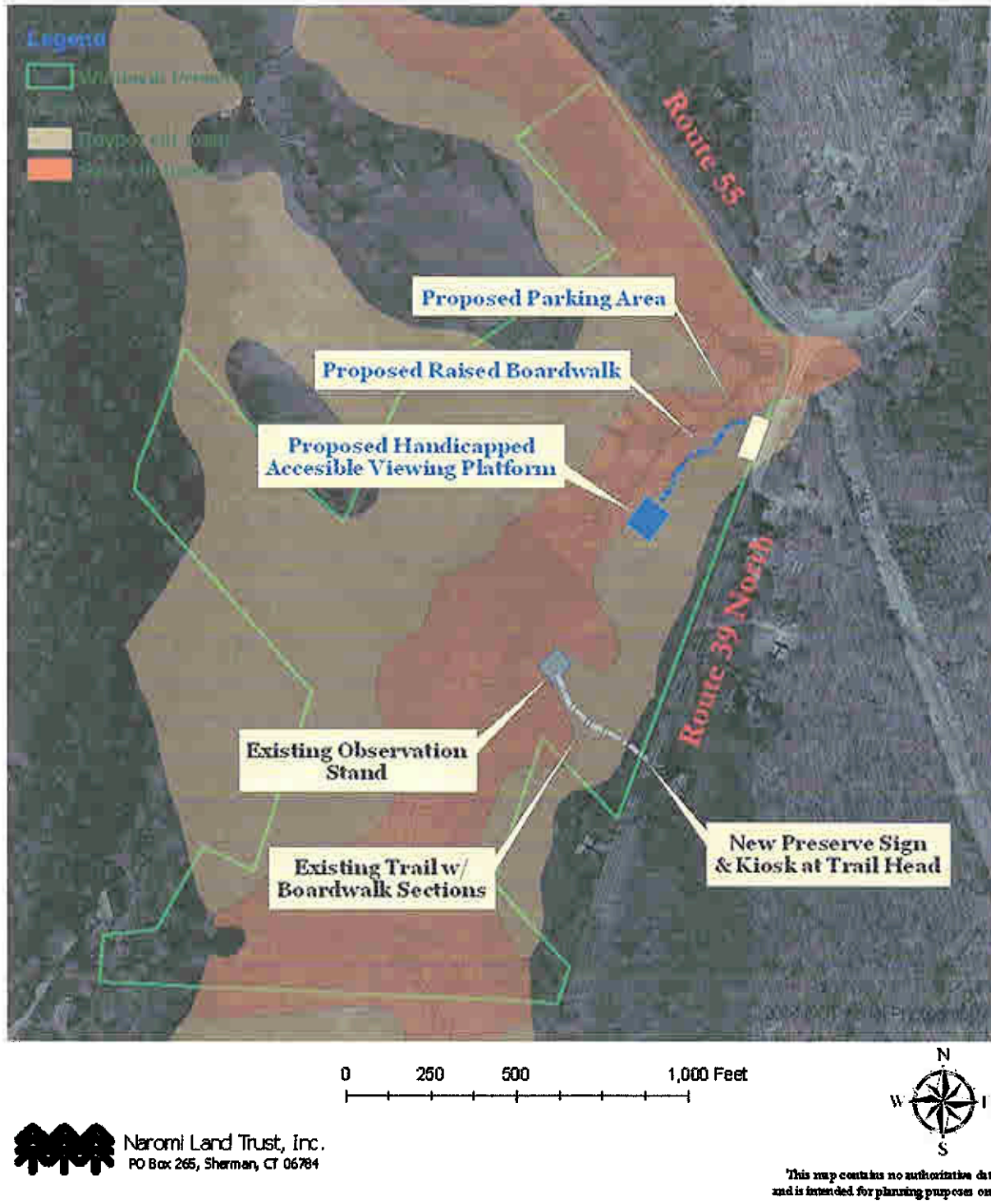
VI. Construction of Access Structures

The new viewing platform will be constructed by Peter S. Jensen & Associates LLC using synthetic materials such as TREX where possible (See Fig. 3). The construction methods will meet all ADA Design Standards. The observation platform will be located along the edge of the post-agricultural field that abuts Route 39 North. This field is underlain by Raypol Silt Loam, which is both hydric and an *Additional Important Farmland Soil* in Connecticut (See Fig. 4, Proposed Site Development Plan). Helical anchors or other material appropriate for a wetland application will used for all footings (See Fig. 5). A gravel parking area will be constructed near the intersection of Routes 39 and 55 that will accommodate up to six cars, and signage will be provided indicating the trail is handicapped accessible. A 4' wide raised boardwalk will lead from the parking area to a 12' x 12' observation platform. The construction of new access structures will be completed by December 2010.



Figure 3 - Example of wetland boardwalk materials to be used at Wimisink Preserve

Wimisink Preserve Restoration and Access Proposed Site Development Plan



 Naromi Land Trust, Inc.
PO Box 265, Sherman, CT 06784

Figure 4 - Proposed Site Development Plan



Figure 5 – Example of wetland boardwalk construction proposed for the Wimisink Preserve.

VII. Follow-up Monitoring – Project monitoring will begin during the summer of 2008 when five vegetation plots are established throughout the wetland and surveyed by the consulting botanist. The plots will be surveyed for the next two years to determine the effectiveness of the invasives control. Visitation to the site will be monitored for two years beginning in the spring of 2009 to determine whether NLT outreach efforts are attracted more visitors to the preserve.

2.0 EVALUATION CRITERIA NARRATIVE

2.1 Relevance and Applicability of Project

2.1.1 Location of Project

The project site is within the Housatonic River subregional watershed and is less than 1500 meters from the Housatonic mainstem (Fig. 2). The Wimisink Brook that flows through the preserve discharges directly into the Housatonic River in the Gaylordsville section of New Milford. The Wimisink Preserve is also located approximately 1250 meters from NLT's Herrick Trail which connects to the Appalachian Trail (AT), providing easy access to the restoration site by AT hikers.

2.1.2 Natural Recovery Period

The natural recovery period for a wetland the size of the Wimisink Swamp that is heavily impacted by invasive plants is impossible to determine. The long-term impacts of aquatic invasive plants on native vegetation and associated wildlife is currently the subject of intensive scientific study. Although inconclusive, recent scientific studies on *Phragmites* and purple loosestrife suggest that it is changes in habitat structure associated with these infestations that have the greatest impact on sensitive wildlife species. For example, the development of dense stands of purple loosestrife in a calcareous wetland could reduce the number of basking sites for bog turtles, rendering otherwise high quality habitat unsuitable. Land Trust staff and other land managers must choose between either taking a hands-off approach, which will likely lead to the further spread of invasive plants, or actively managing their properties to enhance wildlife habitat.

The Wimisink wetland restoration project has already resulted in a reduction in woody invasives in the post-agricultural fields and a perceivable reduction in the density of flowering purple loosestrife since the introduction of the *Galerucella* beetles in the spring of 2006 (See Fig. 6). In addition, the clearing of woody invasives has made the Wimisink swamp more visible from Route 39 North and has increased use of the existing trail and observation stand. The post-agricultural fields are being maintained via bi-annual mowing with a brush hog and herbicide treatments of the *Phragmites* stands will begin in the fall of 2007. These continuing efforts to control invasive plants will clearly provide restoration benefits in advance of the natural recovery period. In addition, the increased access to the preserve will raise awareness and knowledge of the importance of controlling invasive plants.

2.1.3 Sustainable Benefits

The Wimisink Preserve Restoration project has been underway for almost two years and these efforts have significantly enhanced wetland habitats equivalent to those damaged along the Housatonic River corridor. However, the effort and expense of the current restoration project has been commensurate with the lack of management that occurred during the previous 15 years. The intensive management over the past two years will result in long-term ecological benefits to this wetland and minimal maintenance will be likely be required in the future to control invasive plants. As native vegetation becomes re-established the need for large-scale active management will diminish. Anticipated management activities over the next five years include follow-up herbicide treatments of the *Phragmites* as needed and the manual removal of woody invasives such as multi-flora rose in the post-agricultural fields. The resident beaver population will likely help create and maintain aquatic habitat as well. Using the best synthetic materials currently available (e.g. Trex decking), the new handicapped accessible observation stand and boardwalk will also provide a unique, long-term recreational opportunity that will require little or no maintenance over time.



Figure 6 - Wimisink Preserve from Route 39 highway bridge, July 2006

2.1.4 Magnitude of Ecological Benefits

The proposed restoration project will restore, rehabilitate and replace natural resources and natural resource services equivalent to those that were injured by the release of toxins from the GE facility. The on-going wetland restoration at the Wimisink is enhancing critical habitat for wetland-dependent birds, amphibians and reptiles. This includes waterfowl and wading birds that inhabit riparian and near-shore areas of the Housatonic River and many species considered to be at-risk and of Greatest Conservation Need (GCN) in Connecticut. This includes several plant and animals species listed as *Of Special Concern*, *Threatened*, or *Endangered* that have been identified on or near the project site. The new handicapped accessible observation stand and boardwalk will enhance recreational and educational opportunities along the Housatonic River corridor at a project site that is within hiking distance from the Housatonic River with trail connections through a Naromi Land Trust preserve and the Appalachian Trail.

The Wimisink restoration is consistent with the goals of Connecticut's Comprehensive Wildlife Conservation Strategy (CWCS) which identifies Herbaceous Inland Wetland Habitat, including freshwater marshes as one of Connecticut's key habitats that support species of Greatest Conservation Needs (GCN). Among the GNC bird species identified in this habitat are American bittern, green heron, sora and Virginia rail (Chapter 4-33), all of which have been recorded at the Wimisink swamp. In addition, the Connecticut CWCS identifies bog turtle as one of the *Most Important* reptile GNC species in this habitat and spotted turtle as a *Very Important* species. Spotted turtles have been recorded at the Wimisink Swamp, and biologists from the Connecticut DEP and U.S. Fish and Wildlife Service have identified the Wimisink as potential Bog Turtle

habitat. The CWCS recommends the implementation of wetland restoration or enhancement projects and specialized habitat management techniques to benefit GCN species as priority conservation actions (Chapter 4, P. 35).

Partners-in-Flight is an international coalition of government agencies and conservation organizations dedicated to conserving migratory bird species. This project is also consistent with the Partners-in-Flight Bird Conservation Plan for Southern New England which also identifies freshwater wetlands as a priority habitat that is either in need of critical conservation attention or is critical for long-term planning to conserve regionally important bird populations. American Bittern is listed as a priority species for this habitat with a recommended conservation action of long-term planning to ensure a stable population (P.16).

2.1.5 Magnitude of Recreational Benefits

The newly revised Connecticut DEP website has a page entitled "Access for the Disabled" which lists one handicapped accessible trail – the Saugatuck Universal Access Trail in Redding. The Appalachian Mountain Club (AMC) website also lists one handicapped accessible trail in Connecticut which is "along the Housatonic River in northwestern Connecticut", but the site does not provide the actual trail location. Residents from Sherman have approached the President of NLT and specifically requested that the land trust offer recreational opportunities for the handicapped. The new observation platform and boardwalk will not only serve a demonstrated need but will also provide access to one of Naromi Land Trust's premier preserves. The new recreational features at Wimisink Preserve will enhance the existing network of trails in the area, which provide access to three NLT preserves, the Appalachian Trail and the Housatonic River Corridor.

2.2 Technical Merit

2.2.1 Technical/Technological Feasibility

The on-going wetland restoration is based upon the best available information on invasive plant control and is being conducted with the advise and technical oversight of biologists from the USDA Natural Resources Conservation Service, the Connecticut DEP and the U.S. Fish and Wildlife Service. The design and construction of the observation platform and raised boardwalk will be based upon proven construction methods utilized at numerous locations throughout the Northeastern United States.

2.2.2 Adverse Environmental Impact

Potential adverse environmental impacts associated with this project are limited primarily to short-term disturbances to wetland wildlife and vegetation during the construction of the observation stand and boardwalk. Potential impacts to sensitive or rare wetland vegetation will be minimized by conducting a thorough botanical survey of the entire project impact area prior to construction. If necessary the trail structures can be re-aligned to avoid sensitive plant species. After construction is complete the boardwalk will keep pedestrian traffic off of the marsh surface which will eliminate damage to wetland soils, vegetation and wildlife.

The project site is situated at the intersection of two state highways and therefore additional negative effects of noise is not anticipated. Potential impacts to nesting birds and other wetland dependant wildlife will be minimized by locating the new structures along the perimeter of the post-agricultural fields away from open water areas of the marsh where sensitive species such as turtles and wading birds tend to nest. These fields were historically disturbed by either mowed or grazing by cattle, and the wildlife using this habitat should not be adversely affected by the presence of the new access structures.

2.2.3 Human Health and Safety

The proposed project poses no human health or safety risk other than can be expected during a construction project involving the use of power tools. Other minor risks associated with this project are those associated with working or hiking outdoors in New England, such as sun burns, poison ivy and/or the risk of Lyme Disease from deer ticks. We will minimize these risks by requiring all workers to wear appropriate protective clothing and operate all equipment and tools in accordance with the manufacturer's safety recommendations.

2.2.4 Measurable Results

To evaluate the success of the project, we will monitor both plant and wildlife populations to determine whether our management techniques are effectively preserving or enhancing the biological diversity of the site. We will seek volunteers and graduate students from area colleges/universities to continue conducting field surveys for sensitive wildlife species and establish ten permanent vegetation sampling transects or plots. These plots will be monitored annually for two years to document vegetation change and assess the effectiveness of our management approach. The project will be evaluated based on how effectively we can replace invasive plants with native wetland vegetation and thus create additional habitat for species of greatest conservation concern. Long-term monitoring of birds and other wildlife will be benchmark's used to measure the project's success. Standardized DEP wetland call-back surveys for birds conducted by volunteers will be used to determine population trends for breeding bird populations. For example, American Bitterns were identified at the Wimisink for the first time during the summer of 2006. Confirmed nesting of American bittern or bog turtle, both of which are Endangered in Connecticut, would indicate our management techniques are effectively creating and/or maintaining habitat for at-risk species. Natural resources information on threatened or endangered species will be shared with the CT Natural Diversity Database.

2.3 Project Budget-

2.3.1 Relationship of Expected Costs to Expected Benefits

The restoration and increased access at the Wimisink Preserve is helping replace natural resource functions lost along the Housatonic River and will serve a demonstrated social need by providing a handicapped-accessible viewing platform at one of NLT's premier preserves. The on-going wetland restoration has increased the visibility of a large, productive wetland and will help preserve the rural, scenic quality of the northern end of Sherman. The new access structures will also provide an important educational resource for local elementary and high schools. The

costs of this project will be greatly outweighed by the natural resources and recreational benefits services provided.

2.3.2 Implementation-Oriented

The Wimisink restoration is on-going and therefore will require no start-up costs. Necessary permits will be acquired during the summer prior to actually construction. The construction of the access structures will require little additional planning other than the engineering for the boardwalk. Implementation of the project can start immediately and will result in lasting, measurable natural resources and recreational benefits.

2.3.3 Budget Justification and Understanding

Budget estimates for this project have been based upon preliminary conversations with trail builder Peter Jensen, Bill DeSantis of Vanasse, Hangen & Brustlin, Inc., representatives from the Connecticut DEP, the National Park Service and local contractors. Estimated costs are listed in the budget tables in Part D.

2.3.4 Leveraging of Additional Resources

Matching funds for this project include a portion of a \$16,000 Wildlife Habitat Incentives Program (WHIP) grant to continue the invasive plant control. NLT will provide matching funds to cover the consulting services of their Land Manager, who leads the project team. Other funds for this project are being sought from the DEP Recreational Trails Grant Program. Local volunteers will continue to provide in-kind donations during construction and the follow-up monitoring.

2.4 Socioeconomic Merit

2.4.1 Community Involvement and Diversity

Volunteers have already made substantial contributions to the Wimisink project and will continue to be involved in the future. The existing observation stand was build as an Eagle Scout project in the early 1990's. During the spring of 2005 and 2006 a former NLT Board member conducted DEP call back surveys for birds at the preserve. In the summer of 2006 a local Boy Scout Troup assisted with the restoration by cultivating and releasing beetles for the biological control of purple loosestrife. In 2007 local girl scout Becky Berger was the first woman in Sherman in over 20 years to earn the Girl Scout's prestigious Gold Award for coordinating the design and construction of NLT's new informational kiosks at the Wimisink and other preserves (See Fig. 7). The Eagle Scouts have expressed an interest in assisting with the construction of the proposed observation stand and boardwalk along with other volunteers, and will provide a substantial in-kind donation of time towards this project. Volunteer researchers from area high schools, college's and universities will be sought to help with on-going vegetation and wildlife surveys at the preserve.



Figure 7 - NLT staff and local volunteers building an NLT informational kiosk in 2006.

2.4.2 Adverse Socioeconomic Impacts

There are no adverse socioeconomic impacts associated with this project.

2.4.3 Coordination and Integration

NLT has already contributed substantial staff times to the Wimisink restoration and access by applying for and receiving three grants that have been used to remove invasives, improve signage and trails, build an informational kiosk, and develop a new trail map for the Wimisink and abutting trails. As discussed in Section 2.1.4 the habitat restoration is consistent with the goals of both Connecticut's newly released Comprehensive Wildlife Conservation Strategy and the Partner's in Flight Bird Conservation Plan for Southern New England.

In addition, Sherman's Plan of Conservation and Development states that "The major federal and state highways that provide long-distance access to Sherman (primarily Connecticut Route 7 and New York Route 22) lie entirely outside the boundaries and control, of the Town. Three smaller state highways, Connecticut Routes 37, 39 and 55, provide immediate access into and through the Town. The remaining network of town and private roads is entirely under the control for the Town. These roadways are important to quality of life within the town not only as transportation routes, but also as primary vantage points for enjoying the scenic attractions of the Town... Town roadways shall be only as large as is necessary to handle normal traffic burdens and to ensure superior access at all times for emergency vehicles. Subject to these considerations, town roadways should retain as much as possible the character of scenic rural lanes, rather than modern interurban highways."

2.4.4 Public Outreach

This project will be promoted locally in periodic articles in local newspapers (e.g. Danbury News Times, Litchfield County Times, Citizens News) and NLT's bi-annual newsletter which is distributed via postal patron to the entire town of Sherman. The project will also be featured on the NLT website at www.naromi.org.

2.5 Applicant Implementation Capacity

2.5.1 Technical Capacity of Applicant and Project Team

This project will be led by NLT Land Manager Hunter Brawley, who has a Masters Degree in Botany from Connecticut College and has managed numerous land management and research projects over his 15 year career in the environmental field. Mr. Brawley was formerly the Executive Director of the Pomperaug River Watershed Coalition in Southbury, CT where he managed a multi-year, \$350,000+ project to develop a watershed management plan for the region. In addition, he has served as Research Coordinator at the Bent of the River Audubon Center in Southbury and as an environmental consultant. Botanical Surveys will be conducted by Christopher Mangels, who has been a Botanical and Ecological Consultant for over 20 years. Mr. Mangels has conducted surveys for the Nature Conservancy and the State of Connecticut (See attached resumes).

The boardwalk and handicapped accessible viewing platform will be designed by a an engineering firm that specializes in constructing wetland structures such as such as Vanasse, Hangen & Brustlin (www.vhb.com) or Milone & MacBroom (www.miloneandmacbroom.com) working with the trail building contractor. The firm to be contracted for these services will be chosen after funding has been secured. The boardwalk and observation stand will be constructed by Peter S. Jensen who was recommended to NLT by representatives of the National Park Service in Boston.

2.5.2 Administrative Capacity of Applicant and Project Team

Working with the NLT President and Administrative Assistant, the project administration will be the responsibility of the Project Team leader Hunter Brawley, who over the past two years has sought, received and administered six grants for land management projects totaling over \$75,000.

2.5.3 Project Commitments

Commitments necessary to complete this project are limited to hiring and scheduling engineering and construction contractors. These commitments will be secured once project funding is available.

3.0 LAND ACQUISITION PROJECTS

N/A. The project site is owned in fee by NLT

PART D PROJECT BUDGET NARRATIVE AND FORMS

The proposed budget of \$125,000 for this project is based upon discussions with an experienced trail building contractor who has constructed numerous wetland boardwalks throughout New England, and a project engineer from the engineering firm of Vanasse, Hangen & Brustlin, Inc. The proposed budget is estimated and actual costs will vary depending on the type of materials used and which firm is hired to complete the construction design and engineering. This project can be phased depending on the availability of funding and to address cost overruns, and the scale of the access structures (e.g. length of wetland boardwalk, size of the parking area) can also be modified based on the funding available. Current committed funds include an additional \$3000 from NLT's WHIP grant to cover the on-going wetland restoration and a cost match of \$7,000 from NLT (staff time for land manager) to cover a portion of the cost of obtaining the necessary permits, developing a management plan for the preserve, project administration and follow-up monitoring. Anticipated but uncommitted funds include \$15,000 of in-kind labor provided by volunteers to assist with the construction and monitoring. An application for \$50,000 from the CT Recreational Trails Grant Program has also been submitted that would provided significant matching funds for this project if granted.

Housatonic River NRD funds requested will be used to hire an engineering firm to complete the project design and engineering. According to a project engineer from Vanasse, Hangen & Brustlin, Inc., the anticipated cost for engineering and permitting for a project of this size is \$20,000. NRD funds will also be used to offset a portion of the cost of developing the management plan (\$5000) and acquiring the necessary permits (\$4000). The majority of the grant funds will be used to purchase materials to build the proposed parking area, boardwalk and observation stand, with costs estimated at \$60,000. Labor associated with constructing the access structures is estimated at \$16,000. The labor costs will be minimized to the extent possible due to in-kind services from local eagle scouts and other volunteers.

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

PROJECT TITLE:	Wimisink Preserve Restoration and Access							
SPONSOR NAME:	Naromi Land Trust							
EXPENSE CATEGORY <small>(See App. A)</small>	FISCAL YEAR 1	FISCAL YEAR 2	FISCAL YEAR 3	FISCAL YEAR 4				
A. SALARIES	Housatonic River NRD Funds N/A	Housatonic River NRD Funds N/A	Housatonic River NRD Funds	Housatonic River NRD Funds				
B. OVERHEAD AND BENEFITS	N/A	N/A						
C. CONTRACTED SERVICES	20,000	16,000						
D. SUPPLIES, MATERIALS AND EQUIPMENT		60,000						
E. TRAVEL	N/A	N/A						
F. PERMITTING	4,000							
G. MONITORING	N/A	N/A						
TOTAL BY FISCAL YEAR	1	2	3	4				
	24,000	16,000						
GRAND TOTAL (sum of boxes 1+2+3+4)					100,000			
[This sum is the total NRD fund request and should match Part A, Budget Summary, Box 1]								

¹ The 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:	Wimisink Preserve Restoration and Access							
SPONSOR NAME:	Naromi Land Trust							
TASK²	HOUSATONIC RIVER NRD FUNDS	OTHER CONTRIBUTIONS		TOTAL COST BY TASK				
		COMMITTED	NOT COMMITTED					
A. Invasives Control		3,000				3,000		
B. Botanical Surveys & Management Plan	5,000	5,000				10,000		
C. Acquire Necessary Permits	4,000	1,000				5,000		
D. Construction Design & Engineering	15,000					15,000		
E. Construct Parking Area, Boardwalk & Observation Stand	76,000				10,000	86,000		
F. Follow-up Monitoring		1,000			5,000	6,000		
G.								
TOTAL BY FUNDING SOURCE	5	100,000	6	10,000	7	15,000	8 GRAND TOTAL \$125,000	

NOTES: Box 5 should be the same as the Grand Total indicated in Part D 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

² The listed tasks should correspond with information provided in the Project Implementation Plan.

A. Hunter Brawley

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Litchfield, CT 06759
860-567-7725
hbrawley@pomperaug.org

PROFESSIONAL EXPERIENCE

Management / Non-profit Administration

Executive Director, Pomperaug River Watershed Coalition, Southbury, CT
(July 2001 to May 2003).

Managed all activities of non-profit watershed management organization dedicated to conserving regional water resources, including research, outreach, budgets, grant writing, website development, fundraising, and volunteer relations.

Senior Project Manager, LabLite LLC, New Milford, CT
(January 2000 to June 2001).

Product development, testing, sales, and customer service for a software company that provides Laboratory Information Management Software (LIMS) to environmental and other laboratories.

Environmental Assessment

Research Coordinator, National Audubon Society, Southbury, CT
(March 1998 to January 2000).

Designed and implemented all research on birds and other wildlife at the 625-acre wildlife sanctuary. Conducted natural resources inventory, created checklists of wildlife and plants, established environmental education programs, and coordinated cooperative research projects with state agencies and regional conservation organizations to promote the mission and goals of The National Audubon Society.

Environmental Analyst, Land-Tech Consultants, Inc., Southbury, CT
(November 1996 to February 1998).

As Project manager conducted environmental impact statements, wetland assessments, and wildlife surveys; prepared federal, state and local permit applications; designed pond and tidal wetland restoration projects; and conducted lake diagnostic studies. Worked with state agencies and local land use agencies to mitigate impacts of residential and commercial development projects.

Scientific Research / Field Studies

Land Manager, Naromi Land Trust, Inc., Sherman, CT
(March 2004 to present).

Manage land trust properties to enhance wildlife habitat, protect water resources and promote agricultural land uses in Sherman, Connecticut. Work cooperatively with the Town and other conservation organizations to identify and prioritize lands for future acquisition. Assist with administrative tasks, including developing a new website, writing newsletters, fundraising and GIS mapping.

Project Manager, University of Massachusetts Instream Habitat Program, Amherst MA.
(January 2004 to March 2005).

Responsibilities: Coordinate all facets of two fisheries habitat assessment projects, including project planning, data collection, hiring and overseeing seasonal staff, data analysis and report preparation.

EDUCATION

Connecticut College, New London, CT. Master of Arts in Botany, 1995.

Connecticut College, New London, CT. Bachelor of Arts in American History, 1982.

The Loomis Chaffee School, Windsor, CT. Graduated 1978.

PUBLICATIONS

Brawley, A. H., Zitter, R. and L. Marsicano, Editors. 2005. Candlewood Lake Buffer Guidelines. *Candlewood Lake News Special Edition*, Vol 1:21.

Warren, R.S., P. E. Fell, R. Rozsa, A. H. Brawley, A. C. Orsted, E. T. Olson, V. Swamy and W. A. Niering. 2002. Salt Marsh Restoration in Connecticut: 20 years of Science and Management. *Restoration Ecology* 10 (3) 497-513.

Markow, J. and H. Brawley. 2001. Herpetofaunal and Avifaunal Surveys of Vaughn's Neck Peninsula, Candlewood Lake, Connecticut. Report to the Town of New Fairfield, CT. 32 p.

Brawley, A. H. 1998. A Vegetation Survey and Conservation Analysis of Vaughn's Neck Peninsula. Report to The Candlewood Lake Authority. The National Audubon Society. 11 p.

Brawley, A. H., R. S. Warren and R. A. Askins. 1998. Bird Use of Restoration and Reference Marshes Within the Barn Island Wildlife Management Area, Stonington, Connecticut, USA. *Environmental Management* 22(4): 625-633.

Marsicano, L. J. and A. H. Brawley. 1997. Land Use, Watersheds, and Aquatic Resources. *Connecticut Woodlands* 62(3): p. 21.

Niering, W. A., and A. H. Brawley. 1996. Functions and Values Assessment of Area A Downstream Wetlands and Watercourses. Naval Submarine Base New London, Groton, CT. Report to Brown & Root Environmental, The Environmental Protection Agency, and The United States Navy. 36 p.

Brawley, A.H. 1995. Pratt and Post Coves: A Vegetation Survey and Conservation Analysis. Report to the Deep River Land Trust, Deep River, CT. 62 p.

Brawley, A.H. 1995. Birds of Connecticut's Tidal Wetlands: Relating Patterns of Use to Environmental Conditions. Master's Thesis, Connecticut College, New London, CT. 87 p.

Brawley, A.H. 1994. Birds of the Connecticut River Estuary: Relating Patterns of Use to Environmental Conditions. Report to the Nature Conservancy Connecticut Chapter Conservation Biology Research Program, Middletown, CT. 23 p.

Brawley, A.H., G.D. Dreyer. 1994. Master Plan for the Future Management and Use of Moore Woods. Connecticut College Arboretum Publication. New London, CT. 65 p.

Niering, W.A., R.S. Warren and A.H. Brawley. 1994. A Preliminary Inventory of the Ostrom Enders Estate, Waterford, CT. Connecticut College Report, New London, CT. 32 p.

Brawley, A.H., G.D. Dreyer and W.A. Niering. 1993. Connecticut College Arboretum Phase One Report to the Harriet Chappell Moore Foundation. Connecticut College Arboretum Publication. New London, CT. 100 p.

CHRISTOPHER R. MANGELS

26 North Drive
New Fairfield, Connecticut 06812
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Professional Experience

2002 to present *Photogrammetrist*
Golden Aerial Surveys, Newtown, Connecticut

Produce highly detailed, large-scale topographic maps and digital terrain models from aerial photography using computer-aided photogrammetric instruments and specialized software.

1985 to present *Botanical and ecological Consultant*
East Islip, New York and New Fairfield, Connecticut

Diverse body of work focusing on plant surveys, biological inventory, and vegetation mapping. Scope of work includes wetland analysis; review of permit applications and impact statements; rare species status and other technical reports; and preparation of detailed proposals and summary reports, including affidavits. Work performed both independently and with other investigators for a wide range of clientele including federal, state, and local agencies, civic groups, land trusts, and environmental firms in southern New England and New York (full list available upon request).

1995 to 1997 *Horticulturist*
Walsh Landscape Design, Bethel, Connecticut

Assisted in creation and maintenance of residential and commercial landscape plantings, employing a variety of equipment and skills such as planting and plant selection, tree pruning, fertilizer application, and diagnosis of insect and disease problems.

1991 *Botanist*
The Nature Conservancy, Cold Spring Harbor, New York

Collected field data on ecology of Federal Threatened List species *Amaranthus pumilus* and produced draft summary status report for U.S. Fish and Wildlife Service. Monitored populations of listed species in state and county park systems throughout Nassau and Suffolk counties; updated and refined existing species data and maps.

1986 to 1987 *Data Transcriber/Assistant Botanist*
The Nature Conservancy, Cold Spring Harbor, New York

Processed information on rare plant and animal species and natural communities for a statewide conservation database. Conducted searches for rare species and documented examples of significant natural communities. Surveyed and evaluated ecological significance of nature preserves and proposed acquisition lands; assisted in the preparation of site management plans.

Education

State University of New York at Stony Brook, Stony Brook, New York
Bachelor of Science, Biology, 1992.

Collected and analyzed field data from experimental plots as participant in two Ecology and Evolution Department faculty research projects, 1989-1990.

Western Connecticut State University, Danbury, Connecticut
Seven graduate courses in ecology and computer science, 1994 to 1999.

University of Connecticut, Storrs, Connecticut
Graduate courses in geographic information systems and conservation biology, fall, 1997.

Humboldt Field Research Institute, Steuben, Maine
One-week course in wetland identification and delineation (Ralph Tiner, instructor), August 1997.

New York Botanical Garden, Bronx, New York
Nine courses in plant systematics and morphology, 1985 to 1990. Assistant instructor of a two-week field botany course at The Leelanau School, Glen Arbor, Michigan, July 1987.

Affiliations

New England Plant Conservation Program (NEPCoP)
Connecticut Task Force member, 1999 to present.

Long Island Botanical Society
Vice President, 1991-1993. Member of the Long Island Flora publication committee, 1989 to present.

Brooklyn Botanic Garden
Contributor, New York Metropolitan Flora Project, 1993 to present.

Great South Bay Audubon Society
Member, Board of Directors and Conservation Committee, 1988-1992.

New York Flora Association
Torrey Botanical Society
New England Botanical Club
Connecticut Botanical Society
New Fairfield Land Trust
Connecticut Invasive Plant Working Group

References

Furnished upon request.