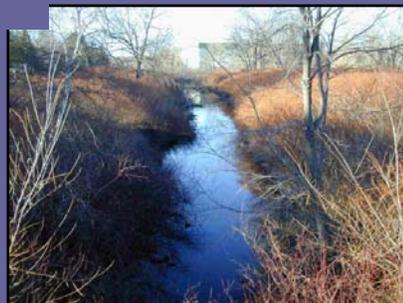


Contract No. DACW33-96-D-0005  
Delivery Order No. 39

January 6, 2003

## ***FINAL REPORT***

# **Blackstone River Feasibility Study Addendum to Task A: Ponds**



Submitted to:  
**Department of the Army,  
U.S. Army Corps of Engineers  
North Atlantic Division,  
New England District**

Prepared by:  
**EPSILON ASSOCIATES, INC.**

Prepared for:  
**BATTELLE DUXBURY OPERATIONS**

**BLACKSTONE RIVER FEASIBILITY STUDY  
FINAL REPORT**

**ADDENDUM TO TASK A: PONDS**

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# **TASK A ADDENDUM - PONDS**

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# **BLACKSTONE RIVER FEASIBILITY STUDY**

## **TASK A FINAL REPORT (ADDENDUM)**

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This addendum to the Task A Report provides the results for ponds. Ponds were included as part of Task A, however, the field component for ponds was completed separately.

### **1.0 Introduction and Purpose**

The US Army Corps of Engineers, New England District (USACE/NAE) is conducting a multi-year feasibility study to identify watershed restoration opportunities in the Blackstone River Basin in Massachusetts. The goals of this study are to identify environmental restoration needs and opportunities in the basin, develop plans and cost estimates for restoration projects, assess benefits and costs of alternative restoration plans, select a recommended watershed restoration plan, and prepare appropriate NEPA documentation.

Epsilon Associates, Inc. has been subcontracted by Battelle to perform Task A as identified in the Scope of Work (SOW) for the Blackstone River Feasibility Study (USACE/NAE July 20, 1999). As defined by USACE/NAE, Task A includes a comprehensive inventory of wetlands, riparian areas, streams, and ponds to identify and assess restoration opportunities within the Blackstone River Basin.

### **2.0 Study Area**

The Task A study area includes 18 municipalities that make up the central and southern portion of the Blackstone River Basin located in Massachusetts. For the purpose of this evaluation, the Task A study area is assumed to include all or a portion of the following municipalities: Attleboro, Bellingham, Blackstone, Douglas, Franklin, Hopedale, Hopkinton, Mendon, Milford, Millville, North Attleboro, Northbridge, Oxford, Plainville, Upton, Uxbridge, Webster, and Wrentham.

The northern portion of the Blackstone River basin was excluded from Task A because the University of Massachusetts is conducting an investigation in this area to identify similar wetland restoration opportunities. As a result the following 12 municipalities have been excluded from Task A: Auburn, Boylston, Grafton, Holden, Leicester, Millbury, Paxton, Shrewsbury, Sutton, Westborough, West Boylston, and Worcester.

### **3.0 Site Selection Criteria**

The SOW for Task A identifies five resource types that have been targeted for potential restoration opportunities in the Blackstone River Basin. These resource

areas are described in the Task A Final Report. The SOW has identified specific site selection criteria for ponds are described below.

Ponds: Ponds greater than 1 acre in size (as discussed with USACE/NAE) within the study area that would benefit from habitat enhancement, invasive species control, and eutrophication reduction through the use of dredging will be identified and documented.

#### **4.0 Project Methodology**

The project methodology is described in the Task A Final Report.

#### **5.0 Discussion and Results**

Field work for the ponds portion of Task A was conducted in October 2000. While the other resource areas for Task A were investigated in the fall/winter of 1999, the field investigation for ponds was postponed because indicators of impairment could be best observed during the growing season. In addition, the field work for ponds was similar to that for impoundments and it was practical to complete the field work for these two areas at the same time.

The field team relied on *The Inventory of Lakes, Ponds, and Reservoirs of Massachusetts – Worcester County* (TILPRM-WC) to confirm if a particular water body was a natural pond or an impoundment. The inventory showed that there are relatively few natural ponds in the Blackstone Watershed.

The field team gained access to five pond sites. Information collected on these sites is summarized in the final site list provided in Attachment B. Locations of these sites are identified on a USGS Map provided in Attachment C. Photographs of each site are included in Attachment D. Indicators of impairments at the visited sites were limited to aquatic invasive species and stormwater runoff. Two of the sites visited showed little restoration opportunity.

In addition to those listed in Attachment B, eleven other ponds were identified during using TILPRM-WC. Permission to access these sites was attempted during site visits. When permission could not be obtained during the site visit, future attempts were abandoned. These sites are listed in Attachment E and mapped in Attachment F. Because these ponds were generally remote, the likelihood for these sites to provide a restoration opportunity did not appear to be high.

As determined for the other resource areas, the project team elected to modify the ranking system upon reviewing the initial site scores. The original ranking system was developed to consider all potential scores that could theoretically be attained. For example, it included the highest degree of impairment for a pond site; such a site would have scored high for coverage of exotic plants, species of exotic plants,

eutrophication, erosion and sedimentation, shoreline development, wetland fill, outfalls, illegal dumping, hazardous waste site, and nonpoint source pollution. It also included the lowest score for these categories. Because the sites identified in the field exhibited only one or a few of these impairments, the original ranking system ranked all sites as “low,” even though indicators of impairment were conspicuous. As a result, the field data was diluted by the theoretical restoration sites, which are rare even in the most comprehensive of studies. The solution to this problem was to rank each site against each other, thereby comparing indicators of impairments and potential benefits among the sites actually observed in the field. The modified scoring and ranking system scales are provided in Attachment G. A copy of the blank field form used during site investigations is provided as Attachment H and the forms completed for ponds visited are provided as Attachment I.

**Table A-1a**  
**Blackstone Feasibility Study**  
**Task A Addendum - Ponds**  
**Final Site List**

Site #	Site Name	Town	Subbasin Name & GIS #	Name of Adjacent Resource	Size in acres (Rank)	Owner Type	Impact Type	Fix Type	Rare Species Habitat	Invasive Species	100-Year Flood-plain	Adjacent Land Uses	Degree of Disturbance	Benefits	Connect to Other Habitats	Difficulty of Restoration	Existing Conditions		Proposed Conditions			Comments
																	Impairment Rank (score)	Benefits Rank (score)	Impacts Rank (score)	Cost Rank (score)	Final Rank of Restoration Opportunity (score)	
P-1	Baker Pond	Upton	Miscoe Warren / 080	Warren Brook	1 (L)	Private	minimal road runoff	none recommended	No	No	Yes	mixed upland	Low	Water quality	Yes	N.A.	12 (L)	2 (L)	0 (L)	1 (L)	N.A.	No direct impacts observed
P-2	Arcade Pond	Northbridge	Blackstone Northbridge/ 045	Mumford River	7 (L)	Private and Public	erosion and stormwater	revegetate, treat stormwater	No	Yes	No	dense residential, industrial	High	Water quality	No	Moderately Difficult	19 (H)	7 (H)	1 (M)	2 (M)	9 (M)	High Impairments, Medium Final Restoration
P-3	Nipmuck Pond	Mendon	Rock Meadow/ 117	Rock Meadow	85 (H)	Private	stormwater	stormwater management	No	No	No	dense and moderate residential, mixed forest	Medium	Water quality	Yes	Difficult	19 (H)	3(L)	0 (L)	2 (M)	9 (M)	High Impairments, Medium Final Restoration
P-4	Northbridge St. Pond	Mendon	Rock Meadow/ 117	Rock Meadow	6 (L)	Private	stormwater	none recommended	No	No	No	mixed upland, moderate residential	Medium	Recreation	Yes	N.A.	16 (M)	1 (L)	1 (M)	3 (H)	N.A.	No direct impacts observed
P-5	Pout Pond	Uxbridge	Lower West / 103	West River	9 (L)	Public	remove invasives	treat invasives	Yes	Yes	No	mixed upland, light residential	Low	Recreation	Yes	Less Difficult	14 (L)	8 (H)	0 (L)	1 (L)	10 (H)	Low impairments, High Restoration



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Attleboro

Franklin

Marlboro

Milford

Uxbridge

Webster

Worcester South

Worcester North