

**Final**

**Natural Resource Restoration Plan  
for the  
Nahant Marsh Superfund Site, Iowa**

**Prepared by**

**U.S. Department of the Interior, Fish and Wildlife Service**

**September 2001**

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**A. Introduction**

The U.S. Department of Interior (DOI), as a natural resource trustee, received natural resource damage settlement money from the responsible parties according to a consent decree and pre-purchaser agreement for the Nahant Marsh Superfund Site. We sought the settlement because contamination at this site had injured trust resources under our authority. We are required to use the settlement money for restoration to compensate the public for the losses. The Comprehensive Environmental Compensation and Liability Act (CERCLA) (Title 42 United States Code Sections 9601 to 9675) and the Natural Resource Damage Assessment and Restoration regulations (Title 43 Code of Federal Regulations Part 11) require that before settlement monies can be used for restoration we must develop and adopt a Restoration Plan, and that in doing so, there must be adequate notice and consideration of all public comment.

In March 2000, the U.S. Fish and Wildlife Service (USFWS) prepared a Draft Restoration Plan (Draft Plan) for the Nahant Marsh Superfund Site. A Notice of Availability for the Draft Plan was published in the *Quad City Times* newspaper. A copy of the Draft Plan was made available for public review during business and evening hours at the Davenport, Iowa Public Library. The Draft Plan comment period was open from April 1 to April 30, 2000. In addition to the public review, USFWS sought advice from and had the Draft Plan reviewed by the Nahant Marsh Conservation Committee, which is hosted by River Action, Inc., Davenport, Iowa. The Nahant Marsh Conservation Committee is composed of area environmental groups and local government officials. There were no comments received on the Draft Plan during the comment period. Therefore, there were no substantive changes made to the Draft Plan and we are issuing this Final Plan for a restoration project at the Nahant Marsh Superfund Site.

## **B. Background**

The Nahant Marsh Superfund Site is located at 4220 Wapello Avenue, City of Davenport, Scott County, Iowa. The Nahant Marsh Superfund Site includes about 115 acres of wetland and adjacent upland cover all of which are part of a 500 acre marsh complex. Between 1969 and 1995, a private gun club used the marsh for a trap and skeet shooting range. An estimated 243 tons of lead shot were deposited in a 70 acre portion of the marsh based on gun club shooting records. As a result of U.S. Environmental Protection Agency (USEPA) directed a remedial investigation, feasibility study and removal action for the Site paid for out of the Superfund account.

The remedial investigation and risk assessments determined that an area of 20 acres in the marsh and 3 acres of soil cover between the marsh and the shooting platforms posed unacceptable risks to human health and the environment. A removal action was designed for these 23 acres. About 60,000 cubic yards of contaminated marsh sediments and surface upland soils were removed and temporarily stored in a 10 acre open field within the property for treatment and disposal. The excavated sediment and soils were treated with a phosphate compound and transported to the Scott County landfill for use as intermediate cover materials. The removal action was completed between February and May 1999 and was coordinated with the USFWS.

The slope of the upland area was re-graded to as close as possible to the original contours and re-seeded with a cover of an annual plant species. The marsh substrate and shoreline contours were shaped to enhance the habitat for wildlife and left as open water areas.

## **C. Natural Resources and Impacts to those Resources**

The area of Nahant Marsh subject to the removal action contained cattails, shoreline plants and open grassy fields. Over the years, many species of migratory birds used Nahant Marsh for nesting, feeding and/or loafing. Injury to the migratory birds resulted from the ingestion of the toxic lead shot that was deposited in the marsh substrate and on the upland soils. Additionally, migratory bird habitat was contaminated with lead residues which resulted in reduction of the food base, cover and nesting areas.

## **D. Natural Resource Damage Settlement**

The gun club elected to abandon the site due to the CERCLA liability and offered the property for sale. The City of Davenport expressed interest in obtaining the property and the buildings for use as an outdoor environmental educational center. The Iowa Natural Heritage Foundation (a non-profit organization that supports land acquisition for conservation through loans) provided a grant to the City for land purchase. Therefore, a pre-purchaser agreement and covenant not sue consent decree were prepared by the USEPA. The fee title for site ownership was transferred from the gun club to the City as a "Brownsfield property". As part

of the pre-purchaser agreement the gun club, new owner and lender agreed to a monetary settlement to reimburse the Superfund account and to settle for natural resource damages. A settlement of \$81,000.00 was designated for the Superfund account and \$5,000.00 was designated for secondary restoration of the site. This settlement was negotiated in cooperation with the USEPA and USFWS during 1999. The parties forwarded the \$5,000.00 to the DOI Natural Resources Damage Assessment and Restoration Fund in 2000.

## **E. Proposed Restoration**

### **1. Goals of the Restoration**

The primary goal for the restoration project is to compensate for natural resources which were lost. The Draft Plan focused on restoring migratory bird habitat since the settlement resulted from injury to migratory birds and their habitats. The term restoration refers to actions taken to rehabilitate, restore, replace and/or acquire the equivalent resources and related services lost to the public. It is our policy to consider restoration projects in the following priority order:

- Rehabilitation or restoration of the natural resources at the same location, if clean-up or remediation was sufficient to prevent future problems;
- Restoration or replacement of natural resources in the vicinity of the loss;
- Acquisition of similar resources in the vicinity of the loss.

A restoration project may consist of a single action or a set of actions which may be undertaken. Two broad categories of restoration action are in-kind and out-of-kind. In-kind means that the project focuses on resources comparable to those that were lost. Out-of-kind means that the project focuses on resources different than those that were lost. Out-of-kind projects are considered if in-kind projects are not feasible. The Trustee ensures that restoration funds will be used to provide the maximum benefit for trust resources and that the project provides benefits to trust resources in perpetuity.

### **2. Alternatives and Specific Projects Considered**

In developing the Draft Plan, the Trustee considered a reasonable number of possible restoration alternatives as prescribed in the DOI Natural Resource Damage Assessment Regulations (Title 43 Code of Federal Regulations Part 11.81). In our initial review for the Draft Plan, we identified the following potential alternatives and projects: no action, two on-site in-kind restoration approaches, an off-site in-kind wetland restoration and acquisition of equivalent resources.

## **2.1 No Action**

Under Alternative A, no action would be taken to restore resources injured due to contamination from the Site.

### Specific Projects

No projects would be conducted under this alternative.

## **2.2 On-Site Rehabilitation - Planting**

During the process of removing lead contaminated sediments and soils from the site approximately 3 acres of seasonally inundated wetland, 10 acres of upland fields and 20 acres of permanently inundated wetland were disturbed. The on-site rehabilitation alternative proposes seeding these areas with native perennial plant species.

### Specific Project

The 3 acres of seasonally inundated wetlands and 10 acres of uplands would be planted with native plant seed mixtures. Wetland plant species would be seeded in the 3 acres of seasonally inundated wetland and prairie plant species would be seeded in the upland fields. The exact seed mixtures are listed in Attachment A. The planting guide map is illustrated in Attachment B.

The 20 acres of permanently inundated wetland would be planted with plugs of young wetland emergent type plants. The plugs are already germinated and typically are more successful than broadcasting seeds on the open water areas.

The Scott County and Clinton County Conservation Boards' prairie restoration program has agreed to do the planting with their grassland planter and monitor the initial growth of the planted areas for no cost.

## **2.3 On-Site Rehabilitation - Planting and Natural Re-Vegetation**

During the process of removing lead contaminated sediments and soils from the site approximately 20 acres of permanently inundated wetland, 3 acres of seasonally inundated wetland and 10 acres of upland fields were disturbed. This on-site rehabilitation alternative proposes planting the meadow and upland soil areas with native perennial species and allowing the inundated wetland area to re-vegetate naturally.

### Specific Project

The 3 acres of seasonally inundated wetlands and 10 acres of uplands would be planted with seed. Wetland species would be seeded in the 3 acres of seasonally inundated wetland and prairie species would be seeded in the upland fields. The exact seed mixtures are listed in Attachment A. The plant map guide is illustrated in Attachment B.

The Scott County and Clinton County Conservation Boards' prairie restoration programs have agreed to do the planting with their grassland planter and monitor the initial growth of the planted areas for no cost.

The 20 acres of permanently inundated wetland would be allowed to re-vegetate naturally. It is expected that natural re-vegetation would occur in the inundated area because the removal action preserved hydrology and an emergent plant species (cattail-*Typha latifolia*) that spread easily currently surrounds the disturbed area.

### **2.4 Off-Site Wetland Restoration**

Under the off-site restoration alternative, lands within the local area of the site would be developed into wetland habitat in order to compensate for the loss at the site. This alternative is often used when residual contamination on-site may still pose a risk or threat to wildlife.

### Specific Projects

No specific projects were identified for this alternative. A public or private landowner participant is needed to voluntarily allow a project on their land to convert existing non-wetland land cover to wetlands for this project. The cost of this conversion would vary depending on if the area was a prior converted wetland or if new construction would be required to restore hydrology to the wetland.

If a voluntary participant was not available or did not wish to enter into a conservation easement, then new land would have to be acquired and managed to protect the newly restored or constructed wetland. The amount of this settlement is likely to be much less than the costs typically associated with land acquisition and new wetland construction.

## **2.5 Acquisition of Equivalent Resources**

Acquisition of equivalent resources entails the purchase and protection in perpetuity of wetland and upland habitats. Potential protection areas include those lands which provide habitat for migratory birds.

### Specific Projects

No specific projects were identified for this alternative. The amount of the settlement is much less than the costs associated with land acquisition. Land value in the Scott County area is between \$2,500.00 and \$3,500.00 per acre.

## **2.6 Alternatives Eliminated from Further Analysis**

Off-site restoration and/or the acquisition of equivalent resources alternatives would compensate for many of the natural resource services lost as a result of contamination on the site. However, the Trustee did not consider these two alternatives as viable options considering the small amount of money involved in the settlement. Off-site restoration and land acquisition are typically the more expensive restoration alternatives. In addition to financial considerations, the Trustee recognizes significant public interest in on-site restoration and re-use of the site as an outdoor education facility.

## **3. Evaluation and Comparison of Projects**

The Trustee is required to evaluate each of the proposed restoration projects based on relevant considerations. We considered technical feasibility, expected costs, defined goals, natural recovery period of the injured resources and the environmental impacts associated with the restoration action. We must also consider our ability to secure or guarantee protection of the restoration site. We are required to assess and disclose the potential beneficial environmental effects and any environmental impacts. The following is our evaluation of alternatives and environmental assessment of the specific projects described above.

### **3.1 Consequences not Further Discussed**

Because all of the specific projects would involve protection of land with little to no ground disturbance activity, effects to historic, cultural and aesthetic resources would not be adverse. The effects would be beneficial due to the protection of the resources from threatening development. No further discussion of this is contained in the Final Restoration Plan.

### **3.2 No Action**

Under the no action alternative, injuries to migratory birds and their habitats would be uncompensated. Given sufficient time, natural processes should enable natural resources and associated services to recover to pre-injury levels. However, the increment of resources and associated services lost to the public in the past and during the recovery period would not be compensated. Further, no benefit would be realized from the settlement with the responsible party and the obligations of the consent decree would not be met.

### **3.3 On-Site Rehabilitation - Planting**

On-site rehabilitation would have a positive effect on the habitat quality and diversity in the marsh. However, planting the permanently inundated wetlands can pose problems. The most successful planting technique for this situation involves the use of plugs (plants that have already been germinated). This procedure costs much more than that of traditional seeding. In addition to the added cost, managing water levels for this type of newly developing plant community in a permanently inundated wetland can be difficult without a water control structure such as is the case at Nahant Marsh. The probability of cattails overtaking and smothering the plugs of another species is unknown and difficult to control. In addition, the Trustee believes that cattail populations will, over time, naturally re-colonize the disturbed area and return it to baseline conditions. The Trustee believes that this alternative does not utilize the restoration funds to provide the maximum benefit for Trust resources. Future marsh enhancement projects involving the use of plugs to promote the establishment of desired species in the wetland are not discouraged.

This project will not adversely affect endangered species, sensitive areas or cultural resources as no land use change and/or construction are proposed. The project is consistent with relevant federal and State laws and policies. The project will result in permanent protection of the restored natural resources.

### **3.4 On-Site Rehabilitation - Planting and Natural Re-vegetation**

The Trustee believes this alternative and project would use the restoration funds to provide the maximum benefit for Trust resources. By focusing the restoration efforts on the areas that can be seeded by traditional methods, the total acreage re-vegetated with native plant species will be maximized.

This project will not adversely affect endangered species, sensitive areas or cultural resources as no land use change and/or construction are proposed. The

project is consistent with relevant federal and State laws and policies. The project will result in permanent protection of the restored natural resources.

#### **4. Preferred Project**

Based on the comparison of the projects, we have selected the on-site rehabilitation by planting and natural re-vegetation as the preferred project. Implementation of the preferred project will help compensate for the injuries sustained at the Nahant Marsh Superfund Site. This project includes the opportunity for migratory bird habitat enhancement by planting highly desirable species for food and cover. This represents our current proposal for action to make the environment and public "whole" from the loss of natural resources and services due to activities and the release of contaminants at the Nahant Marsh Superfund Site.

#### **F. Compliance with the National Environmental Policy Act (NEPA)**

The USFWS final revised procedures for implementing NEPA, published in the *Federal Register* on January 16, 1997, provide a categorical exclusion for natural resource damage assessment restoration plans prepared under CERCLA when only minor or negligible change in the use of the affected areas is planned. Categorical exclusions are classes of actions which do not individually or cumulatively have a significant effect on the human environment.

The project selected above will result in only a negligible change in use of the project area and will not have a significant effect on the human environment. Accordingly, this Restoration Plan qualifies for a categorical exclusion under NEPA.

#### **G. Environmental Action Statement and Approval**

Based on the information developed for the Restoration Plan, implementation of the proposed project will have no adverse effects on the natural environment. All project prescriptions presented in the Restoration Plan will be implemented in accordance with applicable city, state and federal environmental laws.

Approved by

Date \_\_\_\_\_

\_\_\_\_\_  
William F. Hartwig  
Regional Director and Authorized Official  
U.S. Fish and Wildlife Service  
Region 3

## Attachment A

### Species List for Each Planting Mix

The proposed seed provider for this restoration is Ion Exchange, native seed and plant nursery, 1878 Old Mission Drive, Harpers Ferry, IA 52146-7533

#### Grand Meadow Tallgrass Prairie Mix

##### *Grass*

Big Bluestem	Little Bluestem	Sideoats Grama	Canada Wild Rye
Indian Grass			

##### *Forbs*

Angelica	Anise Hyssop	Black-eyed Susan	Blue Vervain
Blue Wild Indigo	Brown-eyed Susan	Butterfly Milkweed	Canada Anemone
Canada Milkvetch	Compass Plant	Cream Gentian	Culver's Root
Cup Plant	Dotted Mint	Evening Primrose	False Aster
False Dragonhead	Fireweed	Flowering Spurge	Foxglove Beardtongue
Golden Alexanders	Grass-leaved Goldenrod	Great Blue Lobelia	Great St John's Wort
Heartleaf Alexanders	Hoary Vervain	Illinois Bundleflower	Ironweed
Leadplant	Midland Shooting Star	Mountain Mint	New England Aster
New Jersey Tea	Ohio Spiderwort	Ox-eye Sunflower	P a l e P u r p l e Coneflower
Partridge Pea	Prairie Cinquefoil	Prairie Coreopsis	Prairie Dock
Prairie Phlox	Prairie Sage	Purple Coneflower	Purple Meadow Rue
Purple Prarie Clover	Rattlesnake Master	Riddell's Goldenrod	Rosinweed
Rough Blazingstar	Roundhead Bushclover	Showy Goldenrod	Showy Tick Trefoil
Stiff Goldenrod	Swamp Milkweed	Sweet Blackeyed Susan	Tall Boneset
Tall Coreopsis	Thimbleweed	Turk's Cap Lily	Upland White Aster
White Prairie Clover	White Wild Indigo	Whorled Milkweed	Wild Bergamot
Wild Geranium	Wild Licorice	Wild Quinine	Wild Rose
Wingstem	Yellow Coneflower		

## **Dry Short Grass Prairie Mix**

### *Grass*

Little Bluestem                      Sideoats Grama

### *Forbs*

Anise Hyssop	Ashy Sunflower	Black-eyed Susan	Brown-eyed Susan
Butterfly Milkweed	Dotted Mint	Flowering Spurge	Goat's Rue
Ground-plum	Heartleaf Alexanders	Hoary Vervain	Lanceleaf Coreopsis
Leadplant	Midland Shooting Star	Ohio Spiderwort	Ox-eye Sunflower
Pale Purple Coneflower	Partridge Pea	Prairie Cinquefoil	Prairie Coreopsis
Prairie Phlox	Prairie Sage	Prime Rose	Purple Prairie Clover
Rattlesnake Master	Rough Blazingstar	Roundhead Bushclover	Royal Catchfly
Showy Goldenrod	Small-flowered Primrose	Stiff Gentian	Stiff Goldenrod
Thimbleweed	Upland White Aster	Western Sunflower	White Prairie Clover
White Wild Indigo	Whorled Milkweed	Wild Bergamot	Wild Lupine
Wild Rose	Yellow Coneflower		

## **Shoreline Wetland Mix**

### *Grass*

Big Bluestem	Dark Green Bulrush	Fowl Manna Grass	Fox Sedge
Hardstem Bulrush	Hop Sedge	Lake Sedge	Prairie Cordgrass
Reed Manna Grass	Retrorsa Sedge	Rice Cut Grass	Soft Rush
Softstem Bulrush	Three-square Rush	Tussock Sedge	Wool Grass

### *Forbs*

None

## **Wet Meadow Mix**

### *Grass*

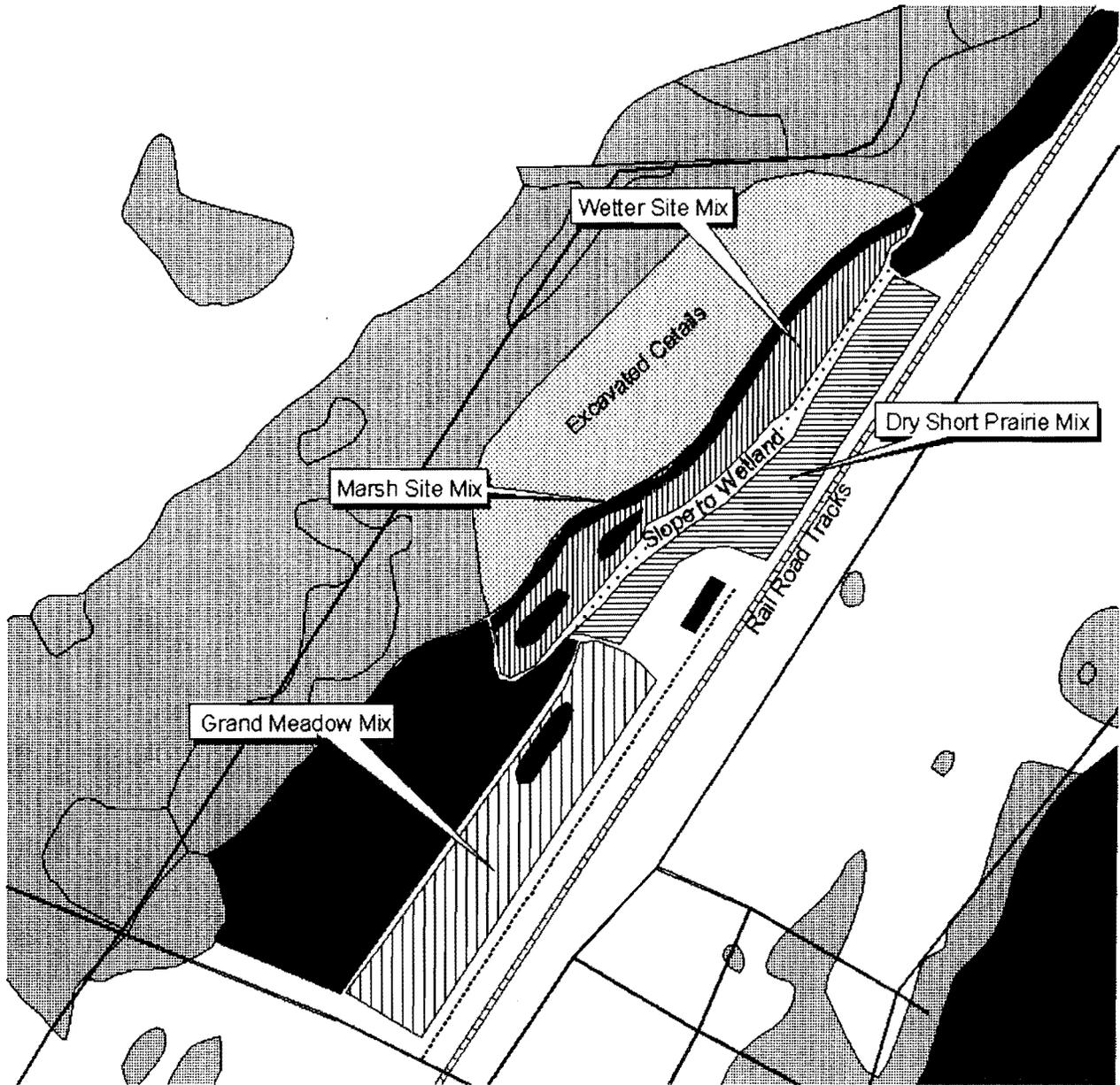
Big Bluestem	Awl-fruited Sedge	Blue Joint Grass	Dark Green Bulrush
Fowl Manna Grass	Fox Sedge	Prairie Cordgrass	Wool Grass

### *Forbs*

Angelica	Blue Flag Iris	Blue Vervain	Boneset
Canada Anemone	Cardinal Flower	Cup Plant	Evening Primrose
False Dragonhead	Golden Alexanders	Grass-leaved Goldenrod	Great Blue Lobelia
Great St John's Wort	Ironweed	Joe Pye Weed	Marsh Blazingstar
Monkey Flower	Mountain Mint	New England Aster	Prairie Blazingstar
Prairie Loosestrife	Purple Meadow Rue	Riddell's Goldenrod	Rose Mallow
Sawtooth Sunflower	Sneezeweed	Swamp Betony	Swamp Milkweed
Sweet Blackeyed Susan	Tall Coreopsis	Turk's Cap Lily	Wild Bergamot
Wild Licorice	Wild Quinine	Wild Rose	Willow Herb

Wingstem

## Appendix B Planting Guide Map



Zones may be slightly altered during planting based on site conditions. All mixes will have some amount of overlap with the adjacent mix to ensure adequate coverage. The area marked "Slope to Wetland" will be included in the Dry Short Prairie zone.