

# **Environmental Assessment of the Crooked Creek Dam Removals in the Mukwonago River System**

**March 2008**

# The Environmental Assessment Process

This document is the Environmental Assessment (EA) for a project that involves the removal of two dams in the headwater areas of the Mukwonago River, in Walworth County, Wisconsin. The dams are located on property owned by The Nature Conservancy. The project is proposed for partial funding by a Wisconsin State Wildlife Grant that is administered by the Wisconsin Department of Natural Resources (WDNR) and funded under the jurisdiction of the US Fish and Wildlife Service (USFWS). This project is also being funded through the USFWS Wisconsin Private Lands Office. Because of the funding sources, the project must comply with the requirements of both the National Environmental Policy Act (NEPA) and the Wisconsin Environmental Policy Act (WEPA) including Chapter NR 150 of the Wisconsin Administrative Code. This EA has been prepared to meet both Federal and State laws that require full public disclosure of projects that may affect the quality of the human environment.

The purpose of an EA is to disclose, explain, and evaluate the environmental effects of a proposed government action and to inform decision-makers and the public. The EA describes and evaluates alternatives to the proposed course of action. The EA is to be circulated for public review and comment to ensure public participation in the process.

## 1. Purpose and Need

### 1.1 Purpose

The overall goal of this project is to protect and improve the fishery, and aquatic and wetland ecosystems of the Mukwonago River at its headwaters at Crooked Creek by permanently eliminating the risk of dam failure and by restoring the head waters of this cold water river. Portions of the Mukwonago River have been designated as an Exceptional Resource Water of the State of Wisconsin, pursuant to Chapter NR 102 of the Wisconsin Administrative Code.

### 1.2 Need

The two dams proposed to be removed were constructed in the early 1950's in support of private fish hatchery operations. Both impoundments are predominantly fed by cold water springs which historically would have fed narrow winding channels supplying cold water directly to the Mukwonago River. The channels most likely would have been surrounded by the same diverse wetland and fen systems that today occur immediately down stream of the impoundments.

#### **Key ecological needs to be addressed:**

- Today, the two impoundments allow water to warm before being discharged into the river system, impacting river water temperatures and viability of temperature sensitive species in the river.
- The dams today hold waters in a controlled state that significantly modifies natural regimes, thereby impacting the health of associated aquatic and wetland systems.
- The berms of the two impoundments are showing signs of compromised structural integrity. This is due, in part, to the presence of mature trees that were planted on the banks. These trees now are reaching the end of their lives and there is significant risk of the trees falling over and pulling berm material with them when they do so. Additionally, the root systems of these trees are likely to have penetrated the berms and impaired the cores of the earthen embankments. Consequently, the materials from which the berms are constructed are saturated, and passing a great deal of water through the structures. Further, beavers in the area frequently obstruct the out flows of the dams, causing the impounded waters to over top the structures (neither dam has an emergency spill way).

- The risk of the dams breaching and being subject to erosion in high rain events is of significant concern. A breach of either dam would risk considerable transport of sediment down stream into one of the highest quality sections of the River, with concomitant damage to some of the highest quality and rare wetland and calcareous fen systems in the state.

### 1.3 **Decisions that Need to be Made**

Upon completion of the public review the Regional Director (Region 3, USFWS) will make a decision on the alternative selected and whether or not a finding of no significant impact (FONSI) can be approved. WDNR must decide whether the EA complies with WEPA. Permits under Chapter 31 of the State Statutes for removal of the structures will still be required.

### 1.4 **Background**

The project will take place in the Mukwonago River Watershed (86.2 square miles) on property owned and managed by The Nature Conservancy (TNC). The Mukwonago River, a head water tributary of the Illinois Fox River, is located in southeastern Wisconsin in Walworth and Waukesha Counties. The project area is located in Sections 3 and 10 of T4N R17E in Walworth County. Springs from cold water sources bubble up out of the ground and supply water to the ponds and the surrounding area. The water flows from each of the two impounded head-water areas to join within about a one-quarter mile to form Crooked Creek<sup>1</sup>, which flows for about a mile before entering Lulu Lake. Due to the fact that these two head water areas are so directly linked to each other and to the entire system, this proposal and project addresses both dams jointly as a single combined hydrologic unit

The dams were constructed sometime in the early 1950's to create pools which would serve as the basis for a private fish hatchery. The property on which the dams are located has remained in various private holdings ever since. In 2000, The Nature Conservancy purchased the property (approximately 200 acres) to be permanently incorporated as part of the larger, already existing Lulu Lake State Natural Area. Neither of the dams is on record in the SHPO database.

The north dam is approximately 740 feet long and impounds about 3 acres. The earthen berm is approximately four feet high (clay base layer with several feet of organic muck on top capped with a few inches of pea size gravel). Estimates indicate that the berm is comprised of roughly 3000 cubic yards of material. There is an out flow structure with removable boards that controls the water level to some degree when unobstructed.

The south dam is approximately 550 feet long and impounds about 10 acres. The berm is approximately six feet high (made entirely of sand). Estimates indicate that the berm is comprised of roughly 2500 cubic yards of material. There is an 18 inch outflow culvert installed that allows water to flow out when unobstructed.

Both berms have between 25 and 35 mature trees along the berm, many of which are dying or mature. Both berms have significant "holes" due to muskrat activity. Neither berm has an emergency spill way. The outlet structures of both dams are regularly plugged due to beaver activity despite efforts to control beaver populations in the area. Water frequently saturates the berms or spills over the top unless there is a high level of maintenance including debris clearing and/or siphoning of water.

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<sup>1</sup> Crooked Creek refers to the section of river from the impoundments discussed in this document, to Lulu Lake. The Mukwonago River is referred to the river from the outlet of Lulu Lake down stream.

During the summer of 2007, TNC has been using siphons pursuant to a WDNR “temporary drawdown permit” to lower water levels in the impoundments to historic levels that minimize the risk of a breach. In cooperation with NRCS Project Design Engineers and WDNR Dam Safety Engineers, we have been working on designing proposed engineering plans for the project to potentially remove the dams. Utilizing alternate funding sources, TNC is planning the removal of the mature trees from the berms to facilitate management of the site.

The area surrounding the ponds is a mix of wetlands and woodlands. A sedge meadow complex occurs both north and south of the project area and flow into the wetland complex that follows Crooked Creek to the east along a complex of degraded woodlands and oak savanna. An upland of oak savanna and oak woodlands border the western edge of the project, with a wetland meadow at the base of the slope. The area where the two dams are located is one of the significant headwater source areas for the Mukwonago River.

- The Mukwonago River has been identified as the most biologically diverse small river system in Wisconsin with 66 species of fish and 15 species of mussels, as well as numerous other species. It features a significant number of rare, threatened and endangered species and ecosystem assemblages as highlighted in section 3.2.2 Listed, Proposed, and Candidate Species.

- The Mukwonago River is ranked as a five star resource with "substantial conservation significance" in the Wisconsin Land Legacy Report.

- The site is one of the last remaining areas in the TNC Prairie-Forest Border Eco-region which features intact lake fish communities within a network of several lakes with surrounding healthy wetland components. *It was identified as part of The Nature Conservancy's Ecoregional Planning process, which is the method by which portfolios of ecologically significant areas are selected and prioritized for conservation action by TNC Ecoregional Planning emphasizes large-scale conservation and concepts such as functional landscapes. Functional landscapes are those conservation areas which seek to conserve the full suite of biological diversity, including species, communities, and ecological processes.*

The combined TNC/DNR Mukwonago River site currently has approximately 1200 acres in the protected ownership of TNC as well as a dedicated State Natural Area (SNA) designated by the State of Wisconsin as Lulu Lake SNA. The WDNR has over 1800 acres of property interlocked with TNC property making the entire protected landscape of Lulu Lake SNA over 3000 acres. The Lulu Lake SNA is unique in that it is comprised of many different natural communities that transition and interlock in an intact and functioning system, a rarity for this part of the state. The intended direct benefits of the proposed dam removals will positively impact many aquatic and wetland systems while also benefiting many of the upland communities that are a part of the combined properties by protecting the transition areas between systems. It will also remove the risk of dam failure and subsequent impact to the aquatic and wetland systems down stream of these structures.

In March 2006 The Nature Conservancy convened a meeting of professional partners to view the two dams at Crooked Creek, and explore various options, risks, and opinions of how to manage the dams, the impoundments and the head water area. Staff from The Nature Conservancy, Natural Resources Conservation Service (NRCS), US Fish and Wildlife Service (USFWS), Wisconsin Department of Natural Resources (WDNR) and Southeastern Wisconsin Regional Planning Commission (SEWRPC) were present during the field visit, and the brainstorming meeting that followed. This meeting and the opinions of the professionals present formed the basis for determining options, and ultimately, in deciding what the best course of action would be. The primary focus for discussion was on maintaining the high

quality ecological integrity of down stream resources by avoiding down stream sedimentation, managing water temperatures, and mitigating risks posed by compromised structural integrity of the berms.

## **2. Alternatives, Including the Proposed Action**

### **2.1 Alternatives not considered for Detailed Analysis**

In addition to the alternatives described in detail, there were several options that were discussed, but were not considered for Detailed Analysis. These alternatives were discounted due to safety concerns, ecological concerns and/or concerns regarding funding availability and are described briefly below.

First, the option of repairing the existing berms and structures was considered. The earthen berms are each unique, but suffer from similar problems. The north dam is comprised of a clay base layer with several feet of organic muck that were scraped from the wetland at the time of construction. Today, the approximately 25 willows planted on the berm for stabilization in the 1950's are reaching the end of their life spans. As they fall they not only create access issues, but also potentially pull large amounts of berm material with them, which, over time, would compromise the structural stability of the berms. TNC considered removing the trees, and adding more material to the berms to restore their stability. Repair of the outflow structures would also be needed, as well as the addition of an emergency spill way at each site. Both outflow structures would need an installation and maintenance of a beaver exclosure structure. TNC eliminated this option as it would not completely eliminate the problems associated with the beavers plugging up the outflow structures, or eliminate the ecological concerns of having the water warmed in the impoundments prior to entering the Mukwonago River System. There was also opinion expressed by several professionals, that the berms were not in a condition that would be suitable for repair (due to too much internal damage already having been caused due to roots and animal activity); to overcome this concern, the berms would need to be fully removed and rebuilt. It was further suggested that repair of the damaged areas without complete replacement of the structures would only be a temporary solution, and not a permanent one, yet still be costly.

A second option considered, but not included for detailed analysis, was the complete removal of the existing berms and rebuilding similar berms with improved control structures in order to result in keeping the ponds. TNC eliminated this option because it would not address the ecological concerns associated with the water being warmed and altered natural flow regimes prior to entering the Mukwonago River System. Further more it would not eliminate the problems associated with the beavers obstructing the outflows. Additionally, it would be exceedingly expensive to remove the berms and rebuild them, and would have increased environmental impacts from both removal and construction. There is no public funding identified that would in anyway provide significant financial or technical services for the rebuilding of such structures. The project would involve additional environmental concerns associated with the construction and stabilization of new berms in addition to the same environmental concerns in the down stream area (sedimentation control during draw down, soil stabilization, erosion control, and invasive species introduction) that the other options pose, but with none of the ecological benefits and needs being met.

### **2.2 Alternatives Carried Forward for Detailed Analysis**

#### **2.2.1 Alternative A (Proposed Action)**

A drawdown of the impoundments to historic water levels (leaving only small pools in the currently impounded areas), followed by the permanent removal of significant portions of the dams and restoration of the headwater wetlands has been identified as the most ecologically sound option for the site. (Based upon the collective professional opinions of staff from TNC, DNR, USFWS, NRCS and others after an on site meeting in March 2006 and subsequent planning meetings in spring 2007.) The work will be conducted according to the specifications in the attached Engineering Plans. The basic steps involved are described below.

- Berm removal of approximately 200 feet of berm on north dam and 300 feet of berm on the south dam; These estimated portions of the dam removed should be sufficient to allow a return to the natural functioning of the residual wetland system and re-created stream system while eliminating the risk of beaver being able to obstruct the out flow.

- Removal of part of each berm will require earth moving and transport of materials, tracked earth moving equipment will be used for the breach, and hauling trucks will have low pressure tires (low psi) to minimize damage to the soils. Old logging roads will provide access to the dams, gravel may be added in areas needing improvement to prevent erosion.

- A minimum estimate of the volume of fill to be removed is 800 cubic yards of material for the north dam and 1200 cubic yards of material for the south dam. There are several logical areas on the property that have been proposed for disposal of berm material. These disposal sites have been verbally supported by appropriate DNR permitting staff.

- Soil stabilization after berm removal and re-channeling through the berm will be implemented to control sediment, erosion and water flow. TNC will take all precautions possible to avoid negative impacts down stream due to sedimentation or erosion, as specified in the engineering plans (Attachment A),. The restoration of the newly exposed soil after drawdown will require re-vegetation and invasive species management.

- The project will be completed by restoration/re-creation of the linked upland-wetland-river system within the current footprint of the impoundments. Invasive species management will be conducted to limit invasive species from moving down stream.

- Timing of the project is dependent on when funding is available. Tree removal will occur first, and may occur in winter or summer depending on when a contract can be implemented. The breach would occur in late summer or when site conditions are suitable for working. If site conditions are too wet, a temporary breach may be necessary in the summer using only small equipment that can access the site and the rest of the breach would be completed the following winter.

### **2.2.2 Alternative B (No Action);**

Leave both berms and structures in place, as is, and continue to try and maintain water levels and water flows. In this situation, a decision to leave the berms in place would be made. The water levels would be controlled by using maintained water pumps and/or seasonal siphons. Beaver control would continue to be contracted out to help mitigate the impacts associated with beavers plugging up the outflows. Beaver control structures could be installed and continue to be maintained. Staff would be needed annually to maintain the outflows and manage the pumps and siphons and beaver. In this manner it would be feasible to keep the water levels from reaching levels that will spill over the berms, barring an unusually high rain event that may cause a potential berm failure with catastrophic down stream effects. However, this alternative does not address the critical issue of the integrity of the berms themselves which have been subject to possible penetration by tree roots, muskrat burrows, and water from past overtopping

events. Furthermore, Option B would result in a significant annual maintenance cost to The Nature Conservancy for which there is no public assistance available.

**2.2.3 Alternative C;**

Alternative C is the same as option “A” but includes the removal of the entirety of both dams. Proposed engineering plans (Attachment A) would be similar, but would apply to a larger length of removal for each berm.

North dam: 740 feet of berm removed, estimated 3000 cubic yards of material  
 South dam: 550 feet of berm removed, estimated 2500 cubic yards of material

This option significantly increases the costs of the project, both in terms of monetary costs associated with earth moving activities and disposal, and in terms of likely environmental risk to the downstream ecosystem from unexpected incidences associated with the more extensive earth moving activities.

At this time, estimates of material that would be generated by complete berm removal indicate that it will be difficult to dispose of this volume of material on site. Approximately one half to 2/3<sup>rd</sup> of the material would need to be removed from the site via the access roads that have poor negotiation for large repeated vehicle traffic. The removal of the material will increase the cost of the project due to transportation expenses. Extensive road access improvement would also be needed for repeated use and for heavy loads. In addition there would be more area to restore to wetlands and the area of more berm removal would need seeding.

2.3 Summary of Alternative Actions Table

**Table 1: Comparison of Alternatives**

Characteristic	1. Proposed Alternative - Draw down both Dams, partially remove berms, Restore Channel, and Restore Wetlands in Former Lakebeds	2. No Action – Keep maintaining existing berms and water levels	3. Draw-down both dams, fully remove berms, Restore channel, and Restore Wetlands in former Lake Beds
Dam (berms)	Partial removal	No removal	Complete Removal
Impoundments	Drained; a smaller pond will remain in the south site and wetland areas established in both basins. Some residual retention of surface water may occur during extreme precipitation events	No change	Same as for Alternative A
River Channel	Enhanced stream habitat in former lakebed and downstream	Would not be restored	Enhance stream habitat in former lakebed and downstream
Funds Available?	Yes	Unknown but unlikely long term	Partial (25-50%)

Wetland/ Env. benefit	Wetland restored; improved water quality downstream and ecological threat abated.	Remain impounded. No improved ecological benefits in lakebed or downstream; continued ecological risk downstream	Wetland restored; improved water quality downstream and ecological threat abated.
Acceptable to Owner	Yes	No	No
Costs	\$125,000	\$15,000 per year indefinitely	\$300,000 (+)

### 3. Affected Environment

#### 3.1 and 3.2 Physical Characteristics and Biological Environment

The Mukwonago River Watershed is a large ecosystem made up of aquatic, wetland and upland habitats that range over 55,000 acres (86.2 square miles). From the headwater area of this proposed project, both impoundments flow down stream about a quarter of a mile and join in the natural, original river channel of Crooked Creek. Crooked Creek flows for about a mile down stream, crossing under Nature Road, into the 86 acre Lulu Lake. Lulu Lake is a glacial lake, with depths over 40 feet, that supports a wide variety of aquatic species. From Lulu Lake the water flows down stream to Eagle Springs Lake, an impounded shallow recreation lake. From Eagle Spring Lake it flows through open river to Lower Phantom Lake and then continues in a southeasterly direction before its confluence with the Fox Fiver which flows into the Illinois River and then the Mississippi River.

The Mukwonago River system includes the Chapter NR 102-designations as Exceptional Resource Water for Lulu Lake, situated immediately upstream of Eagle Spring Lake, the Outstanding Resource Water for the Mukwonago River. The Mukwonago River system, including its Lakes and tributaries, supports a variety of fishes, mussels, and other aquatic organisms, including state-listed threatened and endangered species and species of special concern.

In recognition of the diverse and sensitive nature of the Mukwonago, The Nature Conservancy has focused its river protection efforts on this stream system, including its component lakes and impoundments. This grass-roots protection effort is supported by the Mukwonago River Initiative, a consortium of public and private groups and individuals including Walworth and Waukesha Counties, Waukesha Land Conservancy, Friends of the Mukwonago River, local Lake Management Districts, NRCS, DNR, SEWRPC and local municipalities who have collectively done much to ensure that local decision-makers acknowledge this special status and incorporate due recognition of its unique character in their land use decisions.

Lacustrine surface water systems comprising portions of the Mukwonago River system include Lulu Lake, an 84-acre lake located in the Town of Troy in Walworth County; Eagle Spring Lake, a 311-acre lake located in the Town of Eagle in Waukesha County; and, Lower Phantom Lake, a 433-acre lake located in the Town and Village of Mukwonago in Waukesha County. These Lakes are drainage lakes situated in the middle and lower reaches of the Mukwonago River system, respectively, and, as such, are influenced by, and in turn influence, the aquatic environment of both the upstream and downstream portions of the Mukwonago River. Beulah Lake, a 834-acre drained lake located in the Town of East Troy in Walworth County, and Upper Phantom Lake, a 107-acre drained lake located in the Town of

Mukwonago in Waukesha County, are major lakes tributary to the Mukwonago River system that drain to the River through short segments of stream.

The importance of the lentic ecosystems is reflected in the existence of three Chapter 33, Wisconsin Statutes, and public inland lake protection and rehabilitation districts on or adjacent to the Mukwonago River. The Eagle Spring Lake community is one such community served by a lake management district, while the Phantom Lakes, including both Upper Phantom and Lower Phantom Lakes, are another such community. The Lake Beulah community also has established a public inland lake protection and rehabilitation district serving that water body, whose outlet drains through the Lake Beulah Outlet to the lower middle reaches of the Mukwonago River, between Eagle Spring Lake and Lower Phantom Lake.

In terms of the major lakes that lie astride the Mukwonago River, both Eagle Spring Lake and Lower Phantom Lake are augmented water bodies, whose surface elevations have been increased by impoundments in order to provide for more diverse economic and recreational use of these waters. Initially, these impoundments were working waters, with the water elevation change providing power for mills and other endeavors. More recently, these impoundments maintain water levels for the benefit of the riparian communities who utilize these waters for both active and passive recreational pursuits. A lake management plan has been prepared and adopted by the Eagle Spring Lake Management District,<sup>2</sup> and a lake management plan for the Phantom Lakes is in the final stages of publication.<sup>3</sup>

While these plans provide the lake communities with detailed knowledge concerning the lake systems, data on the River linking these water bodies, while numerous, remain distributed among agencies and data collecting entities. Consequently, a comprehensive river protection planning effort is currently underway by SEWRPC.

### 3.2.1 **Habitat/vegetation**

The Mukwonago River originates in several head water areas in Waukesha and Walworth Counties. Two of the areas that contain a significant proportion of the source waters are the spring fed headwaters west of Lulu Lake, which are located on protected properties in U.S. Public Land Survey Sections 3 and 10 of Town 4 North, Range 17 East on TNC and State of Wisconsin properties in the Lulu Lake SNA.

Several of the large volume spring sources are impounded allowing the cool water to warm before being discharged down stream. Once the water is discharged it flows through a variety of significant habitats including Deep Marsh; Southern Sedge Meadow; Shrub Carr; Calcareous Fen; Southern Tamarack Swamp; and Emergent (shallow) Marsh; In addition, the uplands surrounding the riparian and wetland systems through which the Mukwonago River flows are comprised of high quality woodlands comprised of Southern Oak Forest and Oak Savannah, with scattered Prairie Openings. Vegetation through out the 3000 protected acres of Lulu Lake SNA is of extremely high quality, predominantly native, and highly diverse, as documented in the Regional Natural Areas and Critical Species Habitat Protection and Management Plan for Southeastern Wisconsin, published by SEWRPC in September 1997. The protected properties of the SNA are actively managed to control invasive species and to maintain the quality habitat throughout.

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<sup>2</sup>SEWRPC *Community Assistance Planning Report No. 226, A Lake Management Plan for Eagle Spring Lake, Waukesha County, Wisconsin, October 1997.*

<sup>3</sup>SEWRPC *Community Assistance Planning Report No. 230, A Lake Management Plan for the Phantom Lakes, Waukesha County, Wisconsin, Volume One. Inventory Findings; Volume Two. Alternatives and Recommended Plan, April 2005.*

### 3.2.2 Threatened, Endangered, and Candidate Species.

The Mukwonago River System has been documented to contain numerous species of state listed threatened, endangered or special concern species of plants and animals. The species of concern in the project area are noted below. The surrounding wetlands and uplands, although highly diverse in species composition, and containing rare species, were determined to not be directly affected by the proposed project actions,

#### Threatened or Endangered Species:

Although there are numerous occurrences of rare species in the LuLu Lake State Natural Area and Mukwonago River System, including many listed and special concern plants and animals, the only threatened, endangered or special concern species known to occur in or around the ponds are;

Blandings Turtle	<i>Emydoidea blandingii</i>	State Threatened
Lake Chubsucker	<i>Erimyzon sucetta</i>	State Special Concern

Both the Least Darter (*Etheostoma microperca*), State Special Concern, and the Lake Chubsucker are also known to occur downstream from the outlets of the ponds.

To avoid impacts to the Blanding's Turtle the drawdown will be conducted prior to their hibernation period, and berm removal will occur at a time of year when they are not active. If this is not possible, turtle fencing will be installed prior to their active period to ensure no turtles get into the berm removal area. The Bureau of Endangered Resources concurs that these actions will avoid impacts to Blanding's Turtle.

The drawdown and loss of the south pond will directly impact the Lake Chubsucker a state Special Concern Species. However, the Bureau of Endangered Resources has stated that since this species occurs downstream in Crooked Creek and in Lulu Lake and throughout the Mukwonago River System that the loss of the small population within the south pond is not significant to the overall population in the state and would be acceptable given the benefit to water quality that will positively impact the populations of this species downstream. Since this is a Special Concern Species no incidental take authorization is required.

Impacts to the Least Darter and Lake Chubsucker downstream will be avoided by strict erosion and sediment control during the drawdown and berm construction.

The Mukwonago River System has been documented to host 66 species of fish and 15 species of mussels, those threatened, endangered, and special concern species are noted below. These species occur further downstream, within the Mukwonago River System and will be positively impacted by the project.

#### Fish

Starhead Topminnow	Slender Madtom	Pugnose Shiner
Least Darter	Lake Chubsucker	Banded Killifish
Longear Sunfish	Greater Redhorse	

## Mussels

Villosa iris	Venustaconcha ellipsiformis	Pleurobema sintoxia
Alasmidonta viridis	Alasmidonta viridis	

## Herptiles

Blanding's Turtle

There are no federally listed or candidate species or critical habitats that occur in or adjacent to the project area, or within the Mukwonago River System.

### 3.2.3 Other Wildlife Species

A quantitative field inventory of amphibians, reptiles, birds, and mammals was not conducted as a part of this evaluation. However, prior to the formulation of the watershed-based lake management plans for Eagle Spring Lake and the Phantom Lakes, a field reconnaissance was undertaken by the WDNR during July 1992. Based upon this inventory, a listing of those species which were once present in the drainage area; those species which may still be present under currently prevailing conditions; and those species which may be expected to be lost or gained as a result of urbanization within the area is documented in SEWRPC Community Assistance Planning Reports No. 226, A Lake Management Plan for Eagle Spring Lake, Waukesha County, Wisconsin, and No. 230, A Lake Management Plan for the Phantom Lakes, Waukesha County, Wisconsin, Volume One, Inventory, and Volume Two, Alternatives and Recommended Plan, published in October 1997 and January 2006, respectively.

Given the rural nature of all but the immediate shoreland areas of the Lakes, many animals and numbers of waterfowl commonly inhabit areas of the watershed, especially in the still undeveloped areas of the lake shores and upstream of Eagle Spring Lake. Blanding's turtle, a Wisconsin State threatened species, is resident in Lulu Lake and the proposed project area. Mink, muskrat, beaver, white-tailed deer, red and grey fox, grey and fox squirrel, and cottontail rabbits are mammals reported to frequent the area. Mallards, wood duck, and blue-winged teal are the most numerous waterfowl and are known to nest in the area. Many game birds, songbirds, waders, and raptors also reside or visit the Lake and its environs. Sandhill cranes and loons are notable migratory visitors. In addition, bald eagles, trumpeter swans, osprey, black terns, loggerhead shrikes, peregrine falcons, barn owls, and Cooper's hawks—all threatened or endangered species—have been reported to have been seen in the vicinity of Eagle Spring, Lulu and the Phantom Lakes.

Amphibians and reptiles are vital components of the ecosystem in an environmental unit like the Mukwonago River basin. Examples of amphibians native to the area include frogs, toads, and salamanders. Turtles and snakes are examples of reptiles common. SEWRPC lists 15 amphibian and 17 reptile species normally expected to be present in the Eagle Spring Lake and Phantom Lakes areas under present conditions. Most amphibians and reptiles have definite habitat requirements which are adversely affected by advancing urban development as well as by certain agricultural land management practices. Restoration of the stream and wetland system proposed herein, are important mechanisms in ensuring the continued ecological integrity of these communities in the Basin.

Fish surveys were conducted by the WDNR in the summer of 2007 and found the following fish species to be in the impoundments: Bowfin; Brown Bullhead; Yellow Perch; Lake Chubsucker; Pumpkinseed; Bluegill; Golden shiner; Common Shiner; Flathead Minnow; Central Mudminnow; Yellow bullhead; Green sunfish.

A large number of birds, ranging in size from large game birds to small songbirds, are found in the area. The Lakes and their drainage areas support significant populations of waterfowl, including mallard and teal. Larger numbers move through the drainage area during seasonal migrations when most of the regional species may also be present. More than 190 species of bird have been reported to utilize this watershed and its associated lake and stream systems.

Because of the mixture of lowland and upland woodlots, wetlands, and agricultural lands still present in the area, along with the favorable summer climate, the area supports many other species of birds. Hawks and owls function as major rodent predators within the ecosystem. Swallows, whip-poor-wills, woodpeckers, nuthatches, and flycatchers, as well as several other species, serve as major insect predators. In addition to their ecological roles, birds serve as subjects for bird watchers and photographers.

A variety of mammals, ranging in size from large animals like the northern white-tailed deer to small animals like the pygmy shrew, are found in the Eagle Spring Lake area. A total of 37 mammals have ranges that are known to extend into the area.

### **3.3 Land Use**

The property is currently owned and managed by The Nature Conservancy and is contiguous to the dedicated State Natural Area (SNA) referred to as Lulu Lake SNA with a total combined protected SNA project totaling over 3000 acres. The property is protected in perpetuity under the guidelines of the SNA program and approved management plans. The State Natural Areas Program has approved this proposed project and it is consistent with restoration efforts identified in the Lulu Lake Management Plan. The Nature Conservancy property at large is open to the public for recreational activities including hiking, bird watching, cross county skiing, and deer hunting. Fishing is allowed on navigable waters of the Mukwonago River and in the lakes (Lulu Lake, the upperstream-most lake, is located about 1 mile down stream from the impoundments). The impoundments themselves are not open to the public for fishing, and thus the public will not lose any fishing access opportunities as a result of this project.

### **3.4 Cultural/Paleontological Resources**

There are no noted or known cultural or paleontological resources that will be affected or altered by the undertaking of any of the alternatives considered in the detailed analysis.

### **3.5 Local Socio-economic Conditions;**

The impoundments and berms are entirely owned by The Nature Conservancy. During periods of time when the north impoundment's water level is at its highest, a small area of the impoundment is on private property. The private land owner who will be impacted has been informed of the possibility of dam removal.

The two impoundments are not open to the public for fishing, so the removal of the ponds will not impact this as an available recreation activity. The property is open to the public for other recreational activities, and the people of the local community that hike and hunt deer on the property are used to seeing the two ponds. Some of these individuals may be disappointed to see the impoundments drawn down due to aesthetically enjoying the ponds rather than the resulting naturalized stream corridor and wetlands. Some may also be disappointed as the berm is frequently used as a hiking path which will no longer be available after the restoration. However, they are not visible from public roads and thus there will not be aesthetic impacts to the majority of the surrounding landowners and visitors.

The impoundments as they exist do not, nor will after any alteration, have any impact economically on the local community.

## 4. Environmental Consequences

### 4.1 Alternative A (Proposed Action)

A drawdown of the impoundments to historic water levels (leaving only small pools in the currently impounded areas), followed by the permanent removal of significant portions of the dams and restoration of the headwater wetlands has been identified as the most ecologically sound option for the site. (Based upon the collective professional opinions of staff from TNC, DNR, USFWS, NRCS and others after an on site meeting in March 2006 and subsequent planning meetings in spring 2007.) The basic actions involved are described in section 2.2.

#### 4.1.1 Habitat Impacts

- Down stream waters will be permanently protected from the current risk of being subject to sediment pulse in the event of a breach of either dam.
- Water that is being supplied to the Mukwonago River is expected to be restored to a, historical temperature providing benefits for temperature sensitive species in the river.
- Wetland restoration will result in additional habitat for wetland species.
- All wetland and upland habitat restorations alternatives will employ the use of genetically compatible, native Wisconsin plant species characteristic of the Mukwonago River System. The Nature Conservancy has compiled detailed species lists for the surrounding area and is working to develop appropriate high quality planting lists that will be compatible with the system at large. The seeding may be done with adaptive management techniques and conducted over several years.
- There will be a loss of lake habitat and pond conditions.

#### 4.1.2 Biological Impacts

- Direct positive impacts are expected for temperature sensitive fish species that exist in the Mukwonago River, including starhead topminnow, slender madtom, pugnose shiner, least darter, lake chubsucker, and banded killifish.
- Potential for invasive species to colonize new lakebed and berm areas. Invasive species will be monitored and controlled to the extent possible.
- Pond species will be displaced to adjacent impoundments downstream and riverine species will move upstream into the new stream habitat.
- Reduced risk to species downstream as a result of sedimentation from berm failure.
- The fish species that will be lost in the pond habitat are all fishes with healthy populations elsewhere through out the Mukwonago River system and will not result in an overall loss of diversity to the system.

#### 4.1.3 Listed, Proposed, and Candidate Species

See section 3.2.2 above.

#### 4.1.4 Cultural/Paleontological Resources

See section 3.4 above.

#### 4.1.5 Environmental Justice

This alternative will not have a negative impact on the human environment. Nor will the alternative have a negative impact on a minority population or ethnic group. Nor will the alternative negatively impact the economically disadvantaged because there are no human inhabitants on the land for the proposed project.

#### **4.1.6 Cumulative Impacts**

This alternative would result in the restoration/re-creation of historic habitat and habitat opportunities. The restored habitat would be stable except under extreme climatic conditions when there might be a possibility of ponding behind the remnants of the berm(s). There will be a permanent loss of the ponds. The risk of a breach and subsequent sedimentation down stream will be permanently mitigated.

#### **4.2 Alternative B (No Action)**

This action would leave the berms unaltered, and both impoundments in place. Management actions are described in section 2.2.

##### **4.2.1 Habitat Impacts**

Option B would mitigate some of the risk associated with construction actions resulting from breaching the dams and potential down stream sedimentation event, but most likely would not withstand an unusually high rain event, and therefore cause an uncontrolled breach. Option B also would offer no relief to the ongoing warming of the spring waters within the impoundments prior to discharge down stream. Notwithstanding, maintenance of the lentic environment upstream of the dams would continue to provide open water area for migratory and resident waterfowl and other wildlife, until such a time as the berms failed.

##### **4.2.2 Biological Impacts**

Option B would maintain the additional open water habitat of the impounded areas upstream of the berms. Based upon a 2007 WDNR fisheries survey, the areas upstream of the berms provide habitat for warm water fishes common within the Mukwonago River basin. Under this alternative there is a significant risk to species currently down stream of the impoundments from a failure of one or both of the berms. Many species sensitive to siltation live in the river down stream and could be permanently negatively impacted by a large pulse of silt.

##### **4.2.3 Listed, Proposed, and Candidate Species**

See section 3.2.2 above.

##### **4.2.4 Cultural/Paleontological Resources**

See section 3.4 above.

##### **4.2.5 Environmental Justice**

In the event of an unusually high rain event (100 year or 500 year flood) it is possible that a catastrophic dam failure could cause flooding down stream to roads potentially threatening life and property.

##### **4.2.6 Cumulative Impacts**

The high probability of failure of the berm (s) leads to heightened risk to down stream species habitat. The continuation of artificial conditions upstream of the berms continues to have a potentially

negative impact on of the down stream reaches of the Mukwonago River system. Warming of the ground water flows into the impoundments incrementally increases down stream water temperatures. Ongoing site maintenance costs are incurred. Because of the likelihood of eventual berm failure, the risk to down stream ecosystems is high, leading to loss of ecosystem values if berm failure(s) occurs. Option B would further result in the need for intensive monitoring and maintenance of dams and outflow structures and the continued down stream ecological threat.

### 4.3 **Alternative C**

Actions would be equal to Alternative A, but with complete removal of the berms. The basic actions involved are described in section 2.2.

#### 4.3.1 **Habitat Impacts**

- Down stream waters will be permanently protected from the current risk of being subject to a sediment pulse in the event of a breach of either dam.

- Water that is being supplied to the Mukwonago River will likely be restored to historical temperature providing benefits for temperature sensitive species in the river.

- Wetland restoration will result in additional habitat for wetland species.

- All wetland and upland habitat restorations alternatives will employ the use of genetically compatible, native Wisconsin plant species characteristic of the Mukwonago River System.

- There will be a loss of lake habitat and pond conditions.

#### 4.3.2 **Biological Impacts**

- Likely direct positive effects for temperature sensitive fish species that exist in the Mukwonago River, including starhead topminnow, slender madtom, pugnose shiner, least darter, lake chubsucker, and banded killifish.

- Potential for invasive species to colonize new lakebed and berm areas. Invasive species will be monitored and controlled to the extent possible.

- Pond species will be displaced downstream to adjacent impoundments and riverine species will move upstream into the new stream habitat.

- Reduced risk to species downstream as a result of sedimentation from berm failure.

#### 4.3.3 **Listed, Proposed, and Candidate Species**

See section 3.2.2 above.

#### 4.3.4 **Cultural/Paleontological Resources**

Option C would cost significantly more to undertake, and would likely result in a large financial burden to The Nature Conservancy, and will result in requesting a greater amount of public assistance funding that could be otherwise spent on other projects. See also general statement in section 3.4 above

#### 4.3.5 **Environmental Justice**

This alternative will not have a negative impact on the human environment. Nor will the alternative have a negative impact on a minority population or ethnic group. Nor will the alternative

negatively impact the economically disadvantaged as there are no inhabitants living in the area of the proposed project.

#### 4.3.6 Cumulative Impacts

Complete removal of the berms leads to the restoration/re-creation of historic habitat and habitat opportunities both upstream and downstream of the project site. The site is stable, minimizing risk of downstream impacts, even under extreme events. However, this alternative is costly with limited additional benefit beyond that incurred as a result of implementation of Alternative A. Consequently, the additional costs do not appear to be warranted, given the limited additional benefits to be achieved in terms of stability of the restored/re-created systems.

#### 4.4 Summary of Environmental Consequences by Alternative (Table)

Characteristic	1. Proposed Alternative - Draw down both ponds, partially remove berms, restore stream channels, and restore wetlands in the former lake beds and berm areas	2. No Action – Maintain berms and water levels	3. Draw down both ponds, fully remove berms, restore stream channels, and restore wetlands in the former lake beds and berm areas.
Habitat Impact	Restoration/re-creation of lotic habitat and associated wetland and floodland habitat; incomplete removal of berm may lead to periodic ponding during extreme events; loss of pond habitat; lower downstream water temperatures	Artificial lentic habitat maintained; risk from possible failure remains	Restoration/re-creation of lotic habitat and associated wetland and floodland habitat; natural flow conditions restored; loss of pond habitat; lower downstream water temperatures
Biological Impact	Restoration of historic habitat conditions provides extended habitat for cold water riverine species and wetland species; periodic, artificial ponding under extreme events may temporarily disrupt this habitat	Artificial ponds maintained, providing habitat for warm water species and other lake-dwelling and lake-related species not naturally present in this area	Restoration of historic habitat conditions provides extended habitat for cold water riverine species and wetland species
Listed Species Impact	Range of riverine species extended; floodland/wetland flora has enhanced range; periodic, artificial ponding under extreme events may temporarily disrupt this habitat	Riverine and wetland species continue to be excluded from their historic range; downstream species risk inundation upon failure of the berm(s)	Range of riverine species extended; floodland/wetland flora has enhanced range
Cultural Resource Impact	None known	None known	None known
Environmental Justice Impact	None known	None known	None known

Cumulative Impact	Restoration/re-creation of historic habitat and habitat opportunities; loss of pond habitat; site is stable except under extreme conditions where there is a slight risk of ponding	High risk of failure of the berm(s) leads to heightened risk to down stream critical species habitat; artificial conditions are preserved upstream of the berms	Restoration/re-creation of historic habitat and habitat opportunities; loss of pond habitat; site is stable
Financial Impact	This alternative has a slight risk under extreme conditions, but provides essentially similar benefits to those of Alternative C but at lower cost	Ongoing site maintenance costs are incurred; risk to down stream ecosystems is high in event of berm failure (substantial amounts of public and private \$ has gone into protecting these down stream resources)	Costly with limited additional benefit beyond that incurred as a result of implementation of Alternative A

## 5.0 List of Preparers

Name	Affiliation	Contributions
Hannah Spaul	TNC	Overall Document Preparation
Caroline Clarin	NRCS	Project Engineer design
Lisie Kitchel	WDNR/BER	Environmental Review Specialist
Dr. Jeffrey A. Thornton PH	SEWRPC	Aquatic Ecosystems/ Habitat impacts
Dr Donald M. Reed	SEWRPC	Wetland and aquatic ecosystems/ Habitat impact
Dr Thomas M. Slawski	SEWRPC	Fish/aquatic ecosystems
James Pardee	WDNR/ISS	Environmental Analysis and Review Specialist
Nick Miller	TNC	Science Consultation

## 6.0 Consultation and Coordination with the Public and Others

March 2006: The Nature Conservancy convened a meeting of professional partners to view the two dams at Crooked Creek, and explore various options, risks, and opinions of how to manage the dams, the impoundments and the head water area. Staff from the Nature Conservancy, NRCS, USFWS, DNR and Southeast WI Regional Planning Commission (SEWRPC) were all present at the field visit, and the brainstorming meeting that followed. This meeting and the opinions of the professionals present were the basis for determining options, and ultimately, what the best course of action would be. The primary focus for discussion was on maintaining the high quality ecological integrity of down stream resources by avoiding down stream sedimentation, managing water temperatures, and mitigating risk posed by compromised structural integrity of the berms.

Direct coordination with the DNR SNA land managers and staff has been continuous since the beginning.

March 2007: Conversations with Area DNR Dam Safety Engineer resulted in approval for a permit for “Temporary Partial Drawdown” to mitigate risk of catastrophic dam failure

June 2007: TNC convened a meeting of above partners again, including DNR Dam Safety Engineers and DNR Wetland Permitting staff to discuss engineering options for disabling the dam structures. From this meeting it was confirmed that Alternative A was the most sound option both ecologically and practically. The DNR also conducted Fish surveys in the ponds and immediately down stream to determine fish species composition. These results confirmed that disabling of the dam structures is an ecologically sound option.

July 2007: DNR Dam Safety Engineer approved plan for a “Temporary Partial Drawdown” to be maintained until a more permanent plan is determined, and also to extend the drawdown levels to historic levels.

August 2007: Consultation with DNR Bureau of Endangered Resources to evaluate Threatened & Endangered species and species of Special Concern for the project. Species concerns were addressed individually, and recommendations were made and incorporated into the Environmental Assessment.

Ongoing: The project discussions from beginning to current have involved comments and involvement from the WDNR State Natural Areas Program (SNA) and other DNR staff.

## **7.0 Public Comment on EA and Response**

Twenty-five responses were received during the public comment period; 22 were in support of the proposed project, 2 were in opposition to the proposed project, and one requested an electronic copy of the EA.

Twenty-four responses were received via e-mail. They included 22 comments in support, one in opposition to the project pending clarification of some questions, and the EA request. A single letter was received in opposition to the project.

All e-mail comments received were responded to via e-mail. Comments of support were thanked and their comments noted. The e-mail comment in opposition was thanked and responded to with answers to his questions, no further correspondence was received from him. The request for an electronic copy of the EA was sent. The letter of opposition was responded to by a letter from the DNR which clarified some of the statements in the EA and addressed their points of concern.

A copy of the text of the e-mails (and their attachments) and a copy of the letter and the response to it are included in Appendix C.

## **8.0 References Cited**

SEWRPC Community Assistance Planning Report No. 226, *A Lake Management Plan for Eagle Spring Lake, Waukesha County, Wisconsin*, October 1997.

SEWRPC Community Assistance Planning Report No. 230, *A Lake Management Plan for the Phantom Lakes, Waukesha County, Wisconsin*, Volume One. *Inventory Findings*; Volume Two. *Alternatives and Recommended Plan*, April 2005.

*Wisconsin Land Legacy Report 2006; page 193*

*Prairie Forest Border Ecoregional Plan; The Nature Conservancy*

*Lulu Lake State Natural Areas Plan; The Nature Conservancy; Approved by WDNR 2001*

## **9. Attachments**

- Attachment A - Proposed Engineering Plans for Alternative A
- Attachment B - Project site map (Crooked Creek Ponds and Dams)
- Attachment C - Comments and Responses during Public Comment Period

## **Attachment A - Proposed Engineering plans for Alternative A**

### North Embankment—Phase I

#### ***Embankment Details:***

Top of Embankment El = 828.5 ft  
Max Pool Area = 5.4 ac  
Pool Elevation at Open Inlet of Structure = 827.0 ft  
Pool Area at 827.0 ft = 3.6 ac  
Max Pool Elevation for Initial Breach = 824.5 ft  
Pool Area at 824.5 ft = 1 ac

#### ***Drawdown:***

The contractor is responsible for drawing down the pool area from 827.0 ft to 824.5 ft using one or two trash pump(s). Assuming (based on observation throughout the summer) a base flow of .3 cfs, it will take 5-6 days at a rate of 1 cfs (450gal/min) to draw the pool down to 824.5 ft which is .5 ft below the bottom of the planned breach.

#### ***Erosion and Sediment Control During Dewatering:***

The contractor is responsible for using a float or installing a sump at the intake hose of the pump to prevent sediment from being sucked off the bottom of the pool area. The outlet hose will be connected to a dewatering bag (must comply with 40 CFR 122.26) with a minimum capacity of 2250 gal/min. The sediment contained in the dewatering bag will be disposed of in the spoil location shown on page 5 of the construction plan.

#### ***Erosion and Sediment Control During Excavation:***

The contractor will install silt fence at the downstream toe of the embankment in the location shown on page 5 of the plan and at the bottom of the slope in the spoil disposal areas in the location shown on page 5 prior to starting excavation. After the breach is complete long term erosion control blanket (North American Green C125BN or equivalent) will be installed through the length of the breach and on the side slopes as shown on pages 6,7,8 of the plan. Fiber filtration tubes (Terra-Tube or equivalent) will be installed on the upstream and downstream end of the breach as shown on pages 6,7,9 of the plan to trap sediment from the base flow until the remaining portion of the dam is removed and the historical channel is restored. The filtration tubes shall be disposed of offsite by the contractor.

### South Embankment—Phase I

#### ***Embankment Details:***

Top of Embankment El = 832.0 ft  
Max Pool Area = 16 ac  
Pool Elevation at Siphon Limit = 828.0 ft  
Pool Area at 828.0 ft = 7.9 ac  
Max Pool Elevation During Initial Breach = 825.0 ft  
Pool Area at 825.0 ft = 4 ac

#### ***Drawdown:***

The contractor is responsible for drawing down the pool area from 828.0 ft to 825.0 ft using one or more trash pump(s). Assuming (based on observation throughout the summer) a base flow of .3 cfs, it will take 10-12 days at a rate of 1 cfs (450gal/min) to draw the pool down to 825.0 ft which is .5 ft below the bottom of the planned breach.

(Attachment A continued)

***Erosion and Sediment Control During Dewatering:***

The contractor is responsible for using a float or installing a sump at the intake hose of the pump to prevent sediment from being sucked off the bottom of the pool area. The outlet hose will be connected to a dewatering bag (must comply with 40 CFR 122.26) with a minimum capacity of 2250 gal/min. The sediment contained in the dewatering bag will be disposed of in the spoil location shown on page 10 of the construction plan.

***Erosion and Sediment Control During Excavation:***

The contractor will install silt fence at the downstream toe of the embankment in the location shown on page 10 of the plan and at the bottom of the slope in the spoil disposal areas in the location shown on page 10 of the plan prior to starting excavation. After the breach is complete long term erosion control blanket (North American Green C125BN or equivalent) will be installed through the length of the breach and on the side slopes as shown on page 8,11,12, of the plan. Fiber filtration tubes (Terra-Tube or equivalent) will be installed on the upstream and downstream end of the breach as shown on page 9,11,12 of the plan to trap sediment from the base flow until the remaining portion of the dam is removed and the historical channel is restored. The filtration tubes shall be disposed of offsite by the contractor.

North Embankment—Phase II

***Embankment Details:***

Bottom of Breach Phase I El = 825.0 ft  
Pool Elevation Top of Filtration Tube = 825.8 ft  
Pool Area at 825.8 ft = 1.3 ac  
Max Pool Elevation During Dam Removal = 822.5 ft  
Pool Area at 822.0 ft = .5 ac (or less)

***Drawdown:***

The contractor is responsible for drawing down the pool area from 825.8 ft to 822.5 ft using one or two trash pump(s). Assuming (based on observation throughout the summer) a base flow of .3 cfs, it will take 2-3 days at a rate of 1 cfs (450gal/min) to draw the pool down to 822.5 ft which is .5 ft below the bottom of the planned channel excavation.

***Erosion and Sediment Control During Dewatering:***

The contractor is responsible for using a float or installing a sump at the intake hose of the pump to prevent sediment from being sucked off the bottom of the pool area. The outlet hose will be connected to a dewatering bag (must comply with 40 CFR 122.26) with a minimum capacity of 2250 gal/min. The sediment contained in the dewatering bag will be disposed of in the spoil location shown on page 5 of the construction plan.

***Erosion and Sediment Control During Excavation:***

The contractor will install silt fence at the downstream toe of the embankment in the location shown on page 5 of the plan prior to starting excavation.

***Excavation:***

Material will be removed from the existing embankment in the location shown on page 5 of the plan. Excavated material will be placed in the location shown on page 5 of the plan. Material will be removed to an elevation of 824 except for the channel restoration location.

(Attachment A continued)

North Embankment—Phase II (cont)

***Channel Details:***

Bottom of Excavated Channel = 822.5 ft  
Width of Excavated Channel = 4 ft  
Depth of Excavated Channel = 1.5 ft  
Width of Rock Lined Channel = 3 ft  
Depth of Rock Lining = .5 ft  
Bottom of Rock Lined Channel = 823.0 ft  
Depth of Rock lined Channel = 1.0 ft

***Channel Restoration/Stabilization:***

The channel restoration will occur in the location shown on page 5 of the plan. The contractor will excavate a channel with a bottom width of 5 ft, a depth of 1.5 ft, and 2:1 side slopes as shown on page 13 of the plan. The channel will be lined with 6 inches of 3 inch clean stone over Class I non-woven geotextile. The length of the channel restoration will be approximately 50 ft or through the entire footprint of the dam. The lined channel will be 4 ft wide and 1.0 ft deep.

South Embankment—Phase II

***Embankment Details:***

Bottom of Breach Phase I El = 825.5 ft  
Pool Elevation Top of Filtration Tube = 826.3 ft  
Pool Area at 826.3 ft = 5 ac  
Max Pool Elevation During Dam Removal = 823.0 ft  
Pool Area at 823.0 ft = 3 ac (or less)

***Drawdown:***

The contractor is responsible for drawing down the pool area from 826.3 ft to 823.0 ft using one or two trash pump(s). Assuming (based on observation throughout the summer) a base flow of .3 cfs, it will take 5-6 days at a rate of 1 cfs (450gal/min) to draw the pool down to 823.0 ft which is .5 ft below the bottom of the planned channel excavation.

***Erosion and Sediment Control During Dewatering:***

The contractor is responsible for using a float or installing a sump at the intake hose of the pump to prevent sediment from being sucked off the bottom of the pool area. The outlet hose will be connected to a dewatering bag (must comply with 40 CFR 122.26) with a minimum capacity of 2250 gal/min. The sediment contained in the dewatering bag will be disposed of in the spoil location shown on page 10 of the construction plan.

***Erosion and Sediment Control During Excavation:***

The contractor will install silt fence at the downstream toe of the embankment in the location shown on page 10 of the plan prior to starting excavation.

***Excavation:***

Material will be removed from the existing embankment in the location shown on page 10 of the plan. Excavated material will be placed in the location shown on page 10 of the plan. Material will be removed to an elevation of 824.5 ft except for the channel restoration location.

*(Attachment A continued)*

South Embankment—Phase II (cont)

***Channel Details:***

Bottom of Excavated Channel = 823.0 ft

Width of Excavated Channel = 4 ft

Depth of Excavated Channel = 1.5 ft

Width of Rock Lined Channel = 3 ft

Depth of Rock Lining = .5 ft

Bottom of Rock Lined Channel = 823.5 ft

Depth of Rock lined Channel = 1.0 ft

***Channel Restoration/Stabilization:***

The channel restoration will occur in the location shown on page 10 of the plan. The contractor will excavate a channel with a bottom width of 5 ft, a depth of 1.5 ft, and 2:1 side slopes as shown on page 13 of the plan. The channel will be lined with 6 inches of 3 inch clean stone over Class I non-woven geotextile. The length of the channel restoration will be approximately 50 ft or through the entire footprint of the dam. The lined channel will be 4 ft wide and 1.0 ft deep.

***Blandings Turtle Avoidance Requirements:***

If construction/excavation occurs prior to May 25<sup>th</sup> or after September 15<sup>th</sup>, no avoidance measures are needed. If construction occurs between May 25<sup>th</sup> and September 15<sup>th</sup>, turtle fence (modified silt fence) will be installed to keep turtles out of the project area, in the location shown on page 16 of the plan. The area will be inspected prior to construction activities and any turtles observed prior to or during construction will be moved to suitable aquatic habitat downstream of the project area.

**CONSTRUCTION PLAN**  
**WETLAND RESERVE PROGRAM RESTORATION**

PRACTICE FISH PASSAGE (399)  
 LANDOWNER The Nature Conservancy  
 ADDRESS N3957 Pickerel Jay Road, East Troy, WI 53120  
 LANDOWNER PHONE NO. 262/642-7276 COUNTY WALWORTH  
 TOWNSHIP TROY T. 4 N. R. 7 E. Sec. 3, 10  
 FIELD OFFICE Elkhorn Service Center TELEPHONE NO. 262-723-3216  
Caroline Clavin 920-723 1520

**DIGGERS HOTLINE**

Call 3 Work Days  
 Before You Dig!

Toll Free  
 1-800-242-8511

Milw. Area  
 1-414-259-1131

TDD  
 1-800-542-2289



LOCATION MAP

**NOTICE TO CONTRACTORS REGARDING UTILITIES**

No representation is made by the USDA Natural Resources Conservation Service as to the existence or nonexistence of underground hazards. Prior to the start of construction the owners of utilities must be notified of the pending construction. You will be liable for damages resulting from construction activities. (Call Diggers Hotline)

**CONSTRUCTION DRAWINGS AND SPECIFICATIONS ACCEPTANCE**

I/we have reviewed and do accept the attached plans. I/we agree to have this project constructed in accordance with these plans and specifications and to notify all affected utility companies.

Signed: _____	Date: _____
Designed by: <u>Caroline Clavin</u>	Date: <u>8/21/2007</u>
Checked by: <u>Caroline Clavin</u>	Date: <u>8/29/2007</u>
Approved by: <u>Caroline Clavin</u>	Date: <u>8/29/2007</u>
Approved by: _____	Date: _____
USFWS: _____	Date: _____
Job Approval Class <u>I</u>	

Sheet: 1 of 16



**CONSTRUCTION PLAN**

**WETLAND RESERVE PROGRAM RESTORATION**

PRACTICE FISH PASSAGE (388)  
 LANDOWNER The Nature Conservancy  
 ADDRESS N8857 Pickeral Jay Road, East Troy, WI 53120  
 LANDOWNER PHONE NO. 282/642-7278 COUNTY WALWORTH  
 TOWNSHIP TROY T. 4 N. R. 17 E. Sec. 3,10  
 FIELD OFFICE Elkhorn Service Center TELEPHONE NO. 282-723-3216  
Caroline Clark 920-723-1820

**DIGGERS HOTLINE**

Call 3 Work Days  
Before You Dig!

Toll Free  
1-800-242-8511

Midw. Area  
1-414-258-1181

TDD  
1-800-542-2289



LOCATION MAP

**NOTICE TO CONTRACTORS REGARDING UTILITIES**

No representation is made by the USDA Natural Resources Conservation Service as to the existence or nonexistence of underground hazards. Prior to the start of construction the owners of utilities must be notified of the pending construction. You will be liable for damages resulting from construction activities. (Call Diggers Hotline)

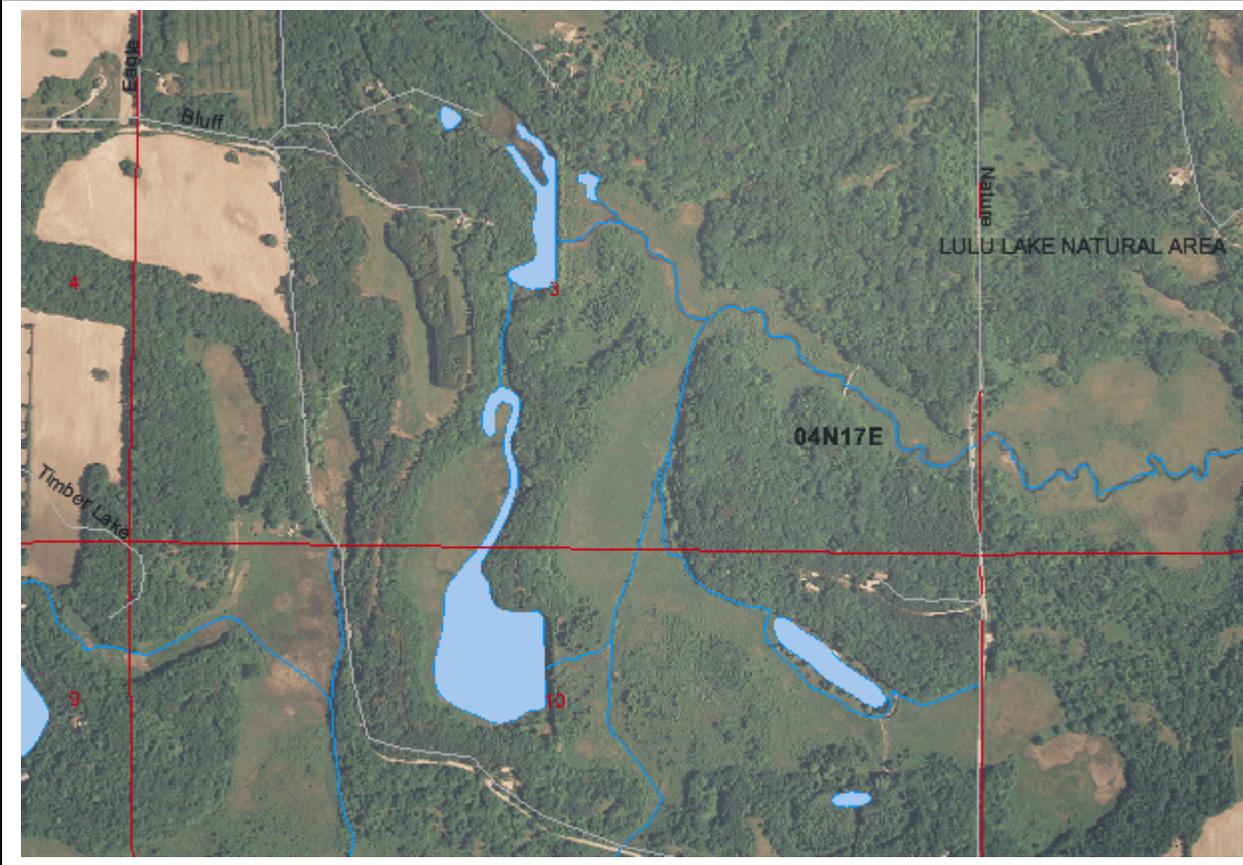
**CONSTRUCTION DRAWINGS AND SPECIFICATIONS ACCEPTANCE**

I/we have reviewed and do accept the attached plans. I/we agree to have this project constructed in accordance with these plans and specifications and to notify all affected utility companies.

Signed: _____	Date: _____
Designed by: _____	Date: _____
Checked by: _____	Date: _____
Approved by: _____	Date: _____
Approved by: _____	Date: _____
USFWS: _____	Date: _____
Job Approval Class _____	

Sheet \_\_\_\_\_ of \_\_\_\_\_

**Appendix B - Site Map (Crooked Creek Ponds and Dams)**



Crooked Creek Ponds and Dams

## Appendix C - Comments and Responses during Public Comment Period

The following is text from e-mails received during the public comment period, followed by letters referenced as attachments in the e-mails, and a copy of a letter received and its response. See Section 7.0 Public Comment on EA and Response for a summary and discussion of the comments.

-----  
From: Eric Howe [wibirder@att.net]  
Sent: Monday, March 17, 2008 12:38 AM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek Preserve Dam Removal - Support of Alternative A

Hello,

I strongly support the removal of the manmade berms at the Crooked Creek Preserve in Walworth County, specifically, and Alternative A as detailed in the Environmental Analysis document. For the past 11 years, I have volunteered within the Lulu Lake SNA and have seen the multitude of exceptional diverse plant communities/species that exist here in the watershed and how truly fortunate we are in southeast Wisconsin to have such a natural area in our community.

After reviewing the listed alternatives, I feel Alternative A would be the most cost efficient and sound mean to begin the process of restoration of the wetlands to a historic function. Restoring the natural flow of cool spring fed water, which this property contributes a significant amount of to the river, will benefit temperature sensitive fish species downstream towards Lulu Lake and will allow for unimpeded fish passage. Cool water flow is definitely important in years of drought or warmer than average temperatures. I am against Alternative B, which does nothing to positively address the long term health of a diverse river system and which also would require the landowner indefinite annual costs that would ultimately cost greater than Alternative A or C in the long run.

The controlled lowering of the high water to a historic water level and removal of the berms in a responsible method (as detailed in the above mentioned document) will prevent the real threat of an unthinkable breach of one of both of the berms. I've seen first hand how the water levels are currently flowing over the berms, several inches deep for stretches of 20 to 30 feet or more during high water such as this past winter. I hope that these saturated soils do NOT give way before action can be taken, as such an event would significantly effect adjacent areas containing high quality fen that is so unique along the stream and river.

As an avid bird watcher (both recreational and also as a volunteer conducting bird surveys), I see the restoration of the wetlands as added breeding habitat for the Sedge Wren, a species of high conservation priority in Wisconsin. Swamp Sparrows, which are present in small numbers west and northwest of the southern impoundment, would also benefit with increased breeding habitat size through restoration. Other priority species in the state, such as Common Yellowthroat and American Woodcock (to name a few) would benefit too from the removal of the berms.

We have a great opportunity ahead of us to ensure that this portion of the watershed remains viable and wonderfully diverse for future generations to enjoy.

Sincerely,

Eric Howe  
N9564 Nature Road

Eagle, WI 53119

---

From: PaulK [ptkinzer@yahoo.com]  
Sent: Sunday, March 16, 2008 8:27 PM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek Dam removals

Hi,

As a long time volunteer for The Nature Conservancy in the Lulu Lake preserve, I am pleased to hear about the proposal for removing the dams in the Crooked creek preserve upstream. I fully support Alternative A in the Environmental Assessment. I look forward to progress on this issue; thank you for all the DNR does to help restore our natural lands.

Paul Kinzer  
29405 Manor Drive  
Waterford, Wi 53185

"In wilderness is the preservation of the world" - Thoreau

---

From: William Holton [WHolton@wi.rr.com]  
Sent: Saturday, March 15, 2008 11:20 PM  
To: Kitchel, Lisie - DNR  
Subject: Crooked creek dam removal EA public input

Lisie Kitchel.

I would like to express support of "Alteranate A" of the Environmental Assessment for the management of the crooked creek preserve in Walworth county. Although I'm not an hydrologist, from the explanations and discriptions given it seems like a great compromise between results and costs. As a sometime volunteer at the LuLu lake nature conservancy site I'm facinated by the restoration of a natural landscape. Thanks for considering removal of the dams especially because I respect that there are many competing projects.

William Holton  
wholton@wi.rr.com  
6613 W. LeRoy Ave.  
Greenfield, Wi 53220  
414-543-6318

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From: Nancy Gloe [cnsgloe@yahoo.com]  
Sent: Saturday, March 15, 2008 11:01 PM  
To: Kitchel, Lisie - DNR  
Cc: pmorton@tnc.org; Ezra Meyer; Pamela Meyer  
Subject: Friends of Mukwonago River Comments-Crooked Creek Dam Removal

Attachments: 2973604353-crookedcreek edit.doc

{NOTE - Please see attached letter at end of Appendix C}

Hi Lisie,

Hope you are well.

Attached please find our comments on the proposed dam removal project on the Nature Conservancy's Crooked Creek Preserve property in Walworth County.

I'm having computer problems and, unfortunately, I couldn't put this electronic letter on our organization's letterhead. I will follow-up with a hard copy. This will be on letterhead and it can go into the official file.

Thanks.

Nancy Gloe  
President  
Friends of the Mukwonago River

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From: miriam bugnacki [smbugz@sbcglobal.net]  
Sent: Saturday, March 15, 2008 5:09 PM  
To: Kitchel, Lisie - DNR  
Subject: Environmental Assessment plans for Crooked Creek

Dear Ms Kitchel;

After reading the plans for dealing with the old dams on Crooked Creek I would like to offer my opinion on the best way to go. I feel that alternative A is the best option. It is the least expensive alternative, other than doing nothing, and it makes the most sense to do a drawdown of the impoundments along with partial removal of berms. This would also remove the risk of dam failure.

Sincerely,  
Miriam Bugnacki  
smbugz@sbcglobal.net

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From: Beverly Iverson [beviverson@att.net]  
Sent: Saturday, March 15, 2008 1:10 PM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek Dam Removal

Dear Ms. Kitchel,

I am a citizen of Racine county and a member of The Nature Conservancy

and The Sierra Club. Over the years I have visited The Lulu Lake Natural Area in Walworth County many times to join scheduled hikes and work parties. I know that this area is an absolute jewel rich in diverse natural communities. For the health of the natural systems, I am glad to hear that you are considering dam removal in The Crooked Creek Preserve. From an ecological standpoint the best choice is Alternative A.

This is the proposal I would like to see supported.

Thank you.

Beverly Iverson  
1022 Indiana St.  
Racine, Wi. 53405

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From: Eagle Spring Lake Mgmt. Dist [eagleslmd@yahoo.com]  
Sent: Friday, March 14, 2008 1:41 PM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek EA

Attachments: 3014626435-3-14-08 Kitchel - Crooked Creek Dam Removal.doc  
{NOTE - Please see attached letter at end of Appendix C}

Attn: Lisie Kitchel  
From: Tom Day - ESLMD  
RE: Crooked Creek Dam Removal – Environmental Assessment  
Date: Friday, March 14, 2008 1:36 PM

Dear Lisie,

Please find attached a letter in regards to the Draft Environmental Assessment, for the removal of two dams on Crooked Creek, located in the Town of Troy, Walworth County, Wisconsin.

Sincerely,

Thomas A. Day  
Chairperson  
Eagle Spring Lake Management District

Gina Krause  
Bookkeeper/Administrative Assistant  
Eagle Spring Lake Mgmt. District  
(262) 594-3583

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From: steve brasch [sbrasch@centurytel.net]  
Sent: Thursday, March 13, 2008 7:40 PM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek Dam removal

Ms. Kitchel:

Please consider Alternate "A" for habitat restoration and dam removal at Crooked Creek Preserve in the Upper Mukwonago River watershed. I am a regular volunteer at Crooked and Lulu Lake. I feel strongly about restoring this watershed to presettlement conditions. It is a real jewel for SE Wisconsin.

thanks

Steve Brasch  
Moraine Hills Dr  
Town of Ottawa

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From: Jacki Lewis [jackilewis@centurytel.net]  
Sent: Thursday, March 13, 2008 1:41 PM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek Dam Removals

Ms Kitchel,

Please include the following in the public comments regarding the proposed dam removal on Crooked Creek in the Mukwonago River system.

We strongly support the proposed "preferred alternative" of permanent drawdown of the two impoundments and partial berm removal. It would be nice to have complete removal of the berms and restoration, but we understand that costs may be an issue, and would find the compromise acceptable. We strongly oppose preventing the Nature Conservancy from doing this project.

The entire Mukwonago River system is a rare treasure that significantly enhances this part of Wisconsin, and is one of the few resources of its kind in the Midwest. This change will improve the water quality and wildlife habitat, and the positive effects will also spread to other areas of the river system as downstream water can become cooler and the wildlife that will thrive in the improved habitat can spread to the wider river system.

Jacki Lewis & Dick Adduci  
Town of Eagle  
--  
JackiLewis@centurytel.net

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From: don snyder [chucksnyder@msn.com]  
Sent: Thursday, March 13, 2008 11:40 AM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek Dam Removals in the Mukwonago River System

I am writing to support the planned removal of the dams on The Nature Conservancy's property at Crooked Creek. I would generally support any efforts to remove artificially created conditions and restoration of the environment to historic condition. The restoration here is especially important in view of the catastrophic effects to the down stream environment in the event of an accidental breach of either of the dams.

Donald Snyder  
W174 N9382 Joper Rd.  
Menomonee Falls, WI 53051  
262-255-5284

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From: Kevin Reardon [Kevin@shakespearewealthmanagement.com]  
Sent: Wednesday, March 12, 2008 10:38 AM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek, support Alternative A.

I support 'Alternative A' dam removals at Crooked Creek. Feel free to contact me to discuss.

Kevin M. Reardon, CFP®

Shakespeare Wealth Management, Inc.

150 N. Sunnyslope Road, Suite 320

Brookfield, WI 53005

Phone: 262-814-1600

Fax: 262-814-0600

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From: Bautz, Richard [RBautz@waukeshacounty.gov]  
Sent: Wednesday, March 12, 2008 10:30 AM  
To: Kitchel, Lisie - DNR  
Subject: TNC Crooked Creek Preserve- support of dam removal.

I would like to support the decision for choosing, 'Alternative A' for dam removal at the Crooked Creek Preserve (Lulu Lake State Natural Area / Walworth County).

Thanks,

Richard Bautz.

Retzer Nature Center

Waukesha, WI 53188

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From: stan rosenstiel [mrstanmr@yahoo.com]  
Sent: Wednesday, March 12, 2008 9:38 AM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek

I am contacting you in regards to the Crooked Creek Preserve. I am in favor of Alternative "A" for dam removal in this area. I have been told that "Alternative A" would meet the goal to restore the historic water levels of these wetlands, thereby providing cooler water conditions that will benefit downstream aquatic species such as fish and mussels. "Alternative A" would also eliminate the risk of a catastrophic dam breach. "Alternative C" is similar to "Alternative A", however, "Alternative C" would involve the total removal of berms. "Alternative C" would be nearly 2.5 times the cost of "Alternative A" and would not achieve significantly better results from an ecological standpoint.

Thank you for your time.

Stan Rosenstiel  
7843 32nd Avenue  
Kenosha 53142

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From: Harlowbiel@aol.com  
Sent: Wednesday, March 12, 2008 7:30 AM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek Preserve

I support Alternative A.

Harlow Bielefeldt  
Waukesha County  
Brookfield, WI

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From: Paul and Margaret Jones [paul163@centurytel.net]  
Sent: Wednesday, March 12, 2008 7:06 AM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek dam removal

I support Alternative A, modified dam removal, for Crooked Creek to restore the wetlands to their historic levels and provide improved habitat.

Margaret Jones  
East Troy

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From: Jerry Ziegler [gziegler@milwpc.com]  
Sent: Tuesday, March 11, 2008 11:56 AM

To: Kitchel, Lisie - DNR  
Subject: Crooked Creek berm removals

Hello,

I am The Nature Conservancy's new land steward for the Mukwonago River Watershed. Although I won't begin working officially in this capacity until March 24, I felt it essential that I comment in this capacity before your March 17 deadline for comment. Although I am new to this position, I have been working at the Crooked Creek Preserve as a volunteer since its acquisition in 2000 and have organized and directed work at the preserve in the years since.

I am heartily in favor of Alternative A, the partial removal of the existing berms, as the most practical choice both from an environmental and cost standpoint. The consequences of not doing anything or selecting Alternative B carry with them the potential for long-term damage to the rare downstream environment.

On a number of occasions in the past several years during rainy periods I have been alarmed at how high the water levels have reached, especially on the northernmost of the berms. On some occasions water stood several inches deep over 20- to 30-foot stretches of the north berm and reached more than halfway across the top of the berm. As I walked through the collected water on top of the berms my feet penetrated two to three inches further into the softened material.

It seemed evident at that time that an extended period of rain or a heavy rainfall could easily cause a ponding effect atop the berms that would then start to drain over the berm and begin carving action through the berm.

And as the report notes, many of the trees atop the berm are reaching the end of their lifespans and pose a threat if they topple.

Because of this and because of the positive environmental impact of a gradual drawdown and restoration and improvement of the historical cold water environment downstream I am firmly in favor of Alternative A.

Jerry Ziegler

Mukwonago River Land Steward (March 24)

The Nature Conservancy

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From: John Harbeck [john\_harbeck@yahoo.com]  
Sent: Monday, March 10, 2008 12:09 PM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek dam removals

Dear Ms. Kitchel,

Reading the document regarding the proposals for dam removal, it seems that alternative A is much to be preferred. Alternative B would please nobody except, apparently, the few fishermen that want to use the impoundments (and maybe the beavers). Alternative C would provide few or no additional ecological

benefits and cost a lot more. As a volunteer land steward for TNC at the Lulu Lake and Crooked Creek sites, I would very much like to see the berms (safely) breached so that the watershed can return to something like its presettlement condition.

Seeing how little remains of presettlement Wisconsin, and how much development pressure awaits the remaining bits, I believe that we should do everything we can to protect and enhance what we have.

Sincerely,  
John Harbeck  
Cedarburg, WI

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From: Mariette Nowak [mmnowak@wi.rr.com]  
Sent: Thursday, February 28, 2008 8:21 PM  
To: Kitchel, Lisie - DNR  
Subject: Public Comment on Crooked Creek Dam Removals in Mukwonago River Area

Dear Ms. Kitchel:

I have read the Environmental Assessment of the Crooked Creek dam removals and fully support Alternative A -the permanent drawdown of the two impoundments and partial removal of the berms , followed by restoration of the sites.

This is the best alternative ecologically and financially.

I live within a few miles of the site and have hiked the area. Please include this statement in the public record.

I appreciate the opportunity to comment on this matter.

Sincerely,

Mariette Nowak  
N9053 Swift Lake Dr  
East Troy, WI. 53120

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From: Chris Mann [leontopithicus@yahoo.com]  
Sent: Wednesday, February 27, 2008 9:56 PM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek Dam removals in the Mukwonago River system

Hi Lisie,

I am a long time TNC volunteer in the Lulu Lake area and I enthusiastically support alternative A. I see it as getting the most "bang for the buck" ecologically and monetarily speaking. Actually the berms have very nice native plant component on them with lots of wood betony and golden alexanders. These have been nice seed nurseries for establishment of these spp. in other areas of the preserve. We will transplant these plants from the areas that will be destroyed but i would think it only necessary to take out as much

earthen dam as is needed in order to accomplish the ecological goals of the project. And use the 200ft and 300ft numbers as a guide posts to go by as the earth removal progresses rather than inflexible "set in stone" numbers that must be followed to the letter.

Sincerely,  
chris mann

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From: Art\_Kitchen@fws.gov  
Sent: Friday, February 22, 2008 2:55 PM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek dam removal proposal

I tried to pull up the EA from the DNR website without success. Do you have an electronic copy you could forward to me? Thanks!

Art Kitchen  
Wildlife Biologist  
Wisconsin Private Lands Office  
4511 Helgesen Drive  
Madison, WI 53718  
(608) 221-1206 x 13 (office)  
(608) 444-1140 (cell)  
(608) 221-1357 (fax)  
e-mail: art\_kitchen@fws.gov

{NOTE - Electronic copy forwarded as requested.}

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From: Joy Zedler [jbzedler@wisc.edu]  
Sent: Thursday, February 21, 2008 2:22 PM  
To: Kitchel, Lisie - DNR  
Subject: EA FoNSI on Crooked Creek Dam Removal

Attachments: TNCeaSupport.doc

{NOTE - Please see attached letters at end of Attachment C}

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From: Nicolette Anastas-Carbo [nikkeanast@sbcglobal.net]  
Sent: Sunday, February 17, 2008 3:38 PM  
To: Kitchel, Lisie - DNR  
Subject: Crooked Creek/dam drawdown

Dear Ms. Kitchel:

This proposal is of special interest to me as I am the owner of a seasonal cottage on Swift Lake in the Town of Troy, not too far from the Nature Conservancy's Property. Although our primary residence is in Milwaukee, my partner, Leo Jung and I spend as much time as possible at the cottage, from April thru

November. What we treasure most about the area is its "wildness" and the abundance and variety of plant and animal life. Visitors to our place always comment on how they feel as if they are "up north", rather than 40 minutes from Milwaukee. After reviewing the three proposed options we would like to agree that the partial drawdown as recommended by the DNR would seem to be the most appropriate; however, we would first like to take this opportunity to discuss a concern we have regarding the water level of Swift Lake, as we feel there is a very remote possibility that the two issues might somehow be interrelated. We are hoping you might shed some light on what might have accounted for the rather dramatic increase in the water level of Swift Lake which occurred beginning last year, and we are wondering if the restoration of adjacent wetlands might have the potential to further impact our lake level. I believe Swift Lake is classified as a "drainage lake"; however, oldtimers insist that it is "spring fed". Since my purchase of the property in 1999, the lake level fluctuations have not been all that significant. There were a few years when total precipitation was considerably below average and the lake levels receded accordingly. Last year; however, was a notable exception. I do not believe we had above average precipitation in 2006-2007, yet our lake level rose to a very high level....over a foot higher than usual during the course of a few months. In general, those of us who have property on the lake are delighted that the water level has risen; however, some property located at the lowest elevations has already been impacted negatively.

We would appreciate any insight you might have to share with us as to why the level of Swift Lake has recently risen so dramatically and we are, of course, wondering if the proposed dam drawdown might in any way have the potential of further impacting our lake. Thank you very much.

Best regards,

Nicolette Anastas  
nikkeanast@sbcglobal.net

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From: Koehler [jkoehler1@wi.rr.com]  
Sent: Sunday, February 17, 2008 1:38 PM  
To: Kitchel, Lisie - DNR  
Subject: FW: Crooked Creek Dams

They had your e-mail address wrong in the article.

-----Original Message-----

From: Koehler [mailto:jkoehler1@wi.rr.com]  
Sent: Sunday, February 17, 2008 1:30 PM  
To: lisa.kitchel@wisconsin.gov  
Subject: Crooked Creek Dams

I saw an article in the Milwaukee Journal Sentinel about removing the Crooked Creek Dams. I totally support this idea. Dams in general, are not good for the environment. After reading the book, Deep Water: The Epic Struggle over Dams, Displaced People, and the Environment, I support removing all dams. Thought I'd just toss my two cents your way.

Thanks

Brenda Koehler  
3417 Harmony Lane

South Milwaukee, WI  
414-571-0795

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From: Robert Socher [robertsocher@sbcglobal.net]  
Sent: Saturday, February 16, 2008 1:29 PM  
To: Kitchel, Lisie - DNR  
Cc: Tim Carpenter  
Subject: Crooked Creek

Dear Ms. Kitchel

I tried to review the recommendation to eliminate the two holding ponds by removing the earthen berms returning the system into a wetland. I could not find in the report nor within the DNRs website, where these two dams are located, what is surrounding these ponds and if they are returned to wetlands, what change that will have on those systems ? I fished LuLu Lake when I was a child some 60+ years ago. It was a system to behold, with very little access from boaters and recreation seekers, just fisherman and a few weekend trailer campers. I'm glad the DNR took control of this system keeping it as a natural water way. I don't see the advantage to the removal of these dams, the only water effected is between the dams and LuLu lake. LuLu lake is deep enough to offset the water temperature being discharged from the dams. But I would also like to know how that is being done,,, opening gate, overflow, and if the DNR controls the runoff ? The paragraph referencing the dams hold water allowing it to warm before being discharged into the river,,, makes it sound like you are referring to a power plants discharge. This discharge again is what, overflow, opening gate, not a major release of hot water going through the entire river system as it reads in the article. Is there a map available on-line that shows where the rain compiles, how it make it way into the ponds and how much discharge are you talking about. Normal runoff from rain raising in the ponds to overflow, or what ? I vote NO until these questions are addressed for me to change my vote. Thanks you for taking the time to read.

Regards,  
Robert A. Socher

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From: Kitchel, Lisie - DNR  
Sent: Tuesday, February 19, 2008 11:36 AM  
To: Robert Socher  
Subject: RE: Crooked Creek

Thank-you for taking the time to respond to the proposed dam removals. I am glad you are familiar with Lulu Lake and appreciate its value, it is a special place. I will try to answer your questions in this reply, but feel free to reply by e-mail or give me a call if you have additional questions.

With regard to the location of the ponds, they are approximately a mile immediately west of Lulu Lake, one half mile west of the Nature Road crossing of Crooked Creek. There is a map at the end of the EA, but it may not put the ponds into the landscape very well. I have attached another map with Lulu Lake, Nature Road, and CTH J to provide some perspective. One map is a topographic map (showing the land

features) and the other is an aerial photograph (which is easier to distinguish the ponds). There are a cluster of 7 ponds in the wetland complex west of the Nature Road crossing of Crooked Creek.

The topographic map shows that the ponds are within a wetland complex that is surrounded by a hill bluff to the west and south. The entire wetland complex extends from the base of this hill/bluff to the east all the way to Lulu Lake. There are 3 small ponds, two of which are near the 2 ponds proposed for dam removal, and one is to the south and east of the 2 ponds. These are natural ponds formed by the pooling of springs, this is likely what the 2 dammed ponds were like before the berms were built. In the aerial photograph the 2 ponds and their berms are obvious by the straight line (berms) which form the eastern boundary of the ponds. There is another larger pond slightly south and east of the 2 ponds and one that is much closer to Nature Road, they are on private property and not part of this project. If you have trouble opening the attachments or would like a paper copy of these maps please provide me your address and I will gladly mail you a copy.

The dam removals are proposed for a number of reasons. We want to remove the manmade impoundments and allow the wetland complex to restore to its natural condition, one benefit of removing the ponds is that the water temperatures will no longer be warmed, and the water temperatures in the wetlands will be back to groundwater temperatures which is beneficial to the native vegetation. The goal is to allow the wetlands to restore in as natural a condition as possible.

A second benefit in the dam removals is that the existing berms are not in good condition. The berm were not built with adequate outlets, beavers are continually compromising the outlets, both beavers and muskrats are destroying the berms, and trees planted on the berms are getting big enough that the root mass is a significant portion of the berm and should they get blown over would cause a breach in the dam which would then result in a uncontrolled discharge of sediment and water to the surrounding wetland. If we breach the dams in a controlled manner we can prevent the catastrophe of the berms giving way and keep a big slug of dirt and trees from pouring into the wetland.

With regard to the restoration that will occur from the dam removals. There are two primary benefits, the groundwater temperature of the area of the ponds and Crooked Creek will be restored and the habitat will be changed back to a contiguous natural wetland rather than impounded by manmade berms. The source of water for these ponds is spring fed, and since the ponds are shallow they are very susceptible to warming. The water comes out of the ground at cool temperatures, then is warmed and eventually ends up in Crooked Creek, which flows into Lulu Lake. I agree with your conclusion that Lulu Lake is deep enough to offset the temperature differences from the water entering from Crooked Creek. And I agree that the water difference is not as 'significant' as something like a warmwater discharge from a power plant. However, the goal is to restore the water temperature to natural conditions, and reduce any unnatural increase in temperature. We are not as concerned about the temperatures in Lulu Lake as we are the wetland complex upstream.

We are looking at restoring the whole wetland complex so that it is once again a mix of open wetland communities and wooded wetlands. If the water is not pooled and discharged from a point discharge it will naturally upwell from the ground and spread out and flow in a sheet like fashion downslope. The existing channels from Crooked Creek are formed from the outlets of the ponds. With the outlets removed, the spring will discharge to the surface and will either spread out or form a lattice of small channels that ultimately will flow to Crooked Creek. This hydrologic pattern is natural and will allow native wetland vegetation to grow. The change in temperature will be locally apparent in the wetland complex and to the receiving waters of Lulu Lake, which contributes water downstream. The removal of these dams will not directly affect the temperature of the entire Mukwonago system downstream of Lulu Lake, but will contribute to improving the overall water quality of the Mukwonago "system" and that is why TNC wanted to emphasize this as an improvement to the entire aquatic system.

With regard to the berms and their outlets. The berms were built in the 1950's and were constructed only to dam up the water. They were not designed to allow the ponds to be drained or the pond levels manipulated, they were designed with only an overflow structure at the top of the berms. The outlets are minimally functional at best, and often compromised by beavers damming them up. The discharge for the ponds is through the existing outlet structures, or when they are plugged up by beavers the water overbanks the berms, which is less than desirable since the berms are not in good shape and overtopping them is stressing their stability. The ponds will be drained by siphoning out the water, which is then allowed to discharge to the wetlands. The siphons are high maintenance since they need to be checked frequently to ensure they are still functioning and to keep the beavers from interfering with them. However, the siphons are beneficial since they allow a more natural drawdown and discharge than would pumping.

Although rainfall contributes to the amount of water in the ponds, the primary source of water in the ponds is from springs. However, if the outlets are compromised by the beavers, or the outlets cannot keep up with the amount of rain, then rainfall contributes to the berms being overtopped and less stable. Once the ponds are removed there will no longer be the catchment basins for the rainfall and the wetland complex will be able to respond to rain events naturally.

I hope I have answered your questions, feel free to contact me if something is not clear or you have additional questions.

Once again, thank-you for providing comments, any and all comments are appreciated.

Lisie Kitchel  
WDNR/BER  
101 S. Webster St.  
Madison, WI 53707  
(608) 266-5248  
[Lisie.Kitchel@wisconsin.gov](mailto:Lisie.Kitchel@wisconsin.gov)

{END OF E-MAIL TEXT}

# Friends of the Mukwonago River

March 14, 2008

Ms. Lisie Kitchel  
WI-Dept. of Natural Resources  
101 S. Webster St.  
Madison, WI 53707

The Mukwonago River watershed is home to over 50 species of fish including the threatened Longear Sunfish (*Lepomis megalotis*), several species of rare freshwater mussels, an incredible diversity of wetlands, and some of the highest water quality in Southeastern Wisconsin. The mission of the Friends of the Mukwonago River is to protect the Mukwonago River and its associated watershed ecosystems by way of education, advocacy, and promotion of sound land use throughout the watershed.

RE: Crooked Creek Dam Removal on Mukwonago River System

Dear Ms. Kitchel,

I am writing this letter to comment on the above-mention project. The Friends of the Mukwonago River, Inc. is in full support of the “preferred alternative” listed in the environmental assessment document. Specifically, the preferred alternative includes the permanent drawdown of two ponds and partial berm removal. The reclaimed area, once the ponds are removed, would subsequently undergo wetland and stream bank restoration.

As mentioned in the EA this alternative will restore the stream to a more natural state. The EA outlines many benefits to the immediate area and areas downstream that this alternative will provide. The EA also does a good job of documenting the outstanding quality of the Mukwonago River and the stream’s importance to the area and the State of Wisconsin. I will not reiterate these points here.

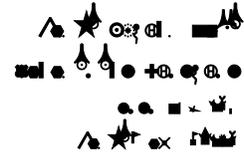
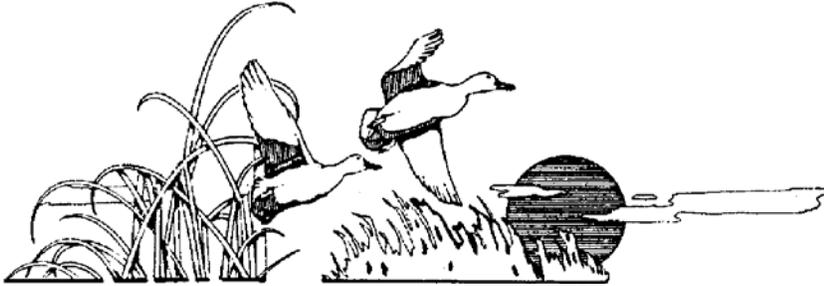
As you know, the conversion of this area to a “fish farm” altered the natural state of the river. This portion of the headwaters of the river was an area where cold groundwater recharged the headwaters of a free flowing stream. Natural unaltered streams tend to be of higher quality, biologically speaking, and they tend to foster significantly greater diversity. When possible streams should be left, or restored, to their natural state. Also, it is important that this project be done so that a berm failure (which is bound to happen at some point) does not significantly damage the river in the future. A berm failure could dump immeasurable amounts of silt into the river system.

In summary the Friends of the Mukwonago River agree that the proposed project will have no significant adverse environmental impacts. It will, in fact, have an overwhelmingly positive environmental impact on this area and areas downstream. Further, this alternative will reap as many benefits as complete berm removal, and it will do so in the most cost effective manner.

Thank you for your consideration. If you have any questions please contact me at (262) 782-8876 or [cns gloe@yahoo.com](mailto:cns gloe@yahoo.com).

Sincerely,

Nancy Gloe, President  
Friends of the Mukwonago River, Inc.



March 14, 2008

Wisconsin Department of Natural Resources  
Lisie Kitchel  
101 South Webster Street  
Madison, WI 53707-7921

Dear Lisie,

I have read the Environmental Assessment of the Crooked Creek Dam Removals in the Mukwonago River System and also am very familiar with the project area going back to the 1960's.

I support the preferred alternative which is to permanently drawdown the two impoundments and partial berm removal with wetland and headwater restoration.

Among other things, this alternative would lessen a major flood event, if for example, the berms were to fail. The berms "compromised" conditions have been accurately referenced.

Sincerely,

Thomas A. Day  
Chairperson  
Eagle Spring Lake Management District  
(262) 594-3231

TAD/gtk

Lisie Kitchel  
Wisconsin Department of Natural Resources  
101 South Webster Street, Madison, WI 53707  
(608)266-5248 Lisie.Kitchel@wisconsin.gov

Written comments concerning the draft EA due 4:30 p.m. on March 17, 2008.

21 February 2008

To whom it may concern:

This letter is in strong support of the Wisconsin Department of Natural Resources Environmental Assessment (EA) finding of no significant--no EIS is required for the removal of two dams on Crooked Creek, located in the Town of Troy, Walworth County, Wisconsin. Both dams are owned by The Nature Conservancy.

I have viewed this project in person, and I have evaluated the benefits of dam removal.

The "No Action" alternative is unacceptable, because the ponds behind the dams have multiple negative impacts on the immediate ecosystem and the downstream watershed.

The pond ecosystem displaces valuable sedge meadow and fen species (both plants and animals). It is a common type of wetland that has in recent years been expanding. According to the Fish and Wildlife service, over 700,000 of acres of ponds were restored or created in six recent years, while other wetland types declined in area.

The water impounds and warms before being discharged into the river, where sensitive species are negatively affected.

The preferred alternative (permanent drawdown of two impoundments and partial berm removal followed by wetland and headwater restoration) will have a many positive effects on the river ecosystem (and those who value natural ecosystems).

The water level will drop to leave only small ponds.

Cold groundwater will discharge and no longer be impounded or warmed artificially.

Historical cold springs will be revealed for all to see and appreciate. This rare type of ecosystem will self restore in part, due to the constant flux of groundwater. I have watched this process on other lands.

Valuable sedge meadow and fen vegetation will be restorable. Rare plant species will eventually be able to be re-established. This process will be do-able over several years time. I coached a student group who provide many detailed recommendations on how best to proceed.

The second alternative with complete removal of the berms would be preferable, but much more costly.

I agree that the proposed project would not result in significant adverse environmental effects, and that an Environmental Impact Statement should not be required for this action.

Respectfully submitted,



Joy B. Zedler  
Wetland and Restoration Ecologist  
Aldo Leopold Chair of Restoration Ecology, UW-Madison



53 WEST JACKSON BOULEVARD  
SUITE 516  
CHICAGO, IL. 60604-3432  
312-697-1286  
312-697-1296 FAX  
nsf@nationalstrategy.com  
www.nationalstrategy.com

March 5, 2008

Lisie Kitchel  
Wisconsin Department of Natural Resources  
101 S. Webster St.  
Madison, WI 53707-7921

via certified mail

RE: Environmental Assessment of the Crooked Creek Dam Removals in the Mukwango River System (February 2008)

Dear Ms. Kitchel:

I enclose a copy of the Public Comment in opposition to the above referenced project filed by respondents Gordon Segal and Richard E. Friedman.

I assume that you will forward copies of this to The Nature Conservancy and the appropriate manager of the DNR Lulu Lake State Natural Area.

Sincerely,

Richard E. Friedman

**BOARD OF DIRECTORS**  
RICHARD E. FRIEDMAN, CHAIR/PRESIDENT  
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**Public Comment to "Environmental Assessment of the Crooked Creek Dam Removals in the Mukwonago River System" (February, 2008) by**

**Gordon Segal and Richard E. Friedman**

The respondents are: Gordon Segal, owner of private property located adjacent to the subject project, and Richard E. Friedman, owner of private property located adjacent to the subject project.

Secs. 3.2.2 and 3.2.3. Affected species. Plant and animal species "were determined not to be directly affected by the proposed project actions".

The land and plant and animal species have adapted to changed circumstances (the prior owner, Mr. Russel, constructed the dams and berms in the early 1950's). For the past 50 years, the adjacent private property land owners have scrupulously avoided intrusion on the area to enable the process of adaptation to continue unabated. This includes strong and successful resistance to the draft Master Plan of the 1980's which would have created a magnet for intense recreational use of the area which would have destroyed the delicate environmental balance. The proposed action constitutes a second wave trauma to the land and animal and plant species of greater consequence than the building of the dams and berms in the early 1950's. This adaptive area provides textbook data for continuing investigation of how land, and animal and plant species adapt to traumatic change. At a minimum there should be a study of this adaptive change to enable researchers to learn from this 50-year experience. When the dams are breached as proposed, this valuable data will be lost.

Within the past 50 years the land has adapted and plants and animals have found habitats in this new environment. For example, migratory birds use the area to be affected as nesting places. The Nature Conservancy (INC) rationale is that, although there will be disturbance, the species are found to the east of the area. This constitutes a genocidal approach to nature conservancy.

Sec.3.3 Land Use. This project is adjacent to the Lulu Lake State Natural Area (SNA). The proposed action will directly affect the SNA. The EA suggest that the State Natural Area Program has approved the project as being consistent with restoration efforts. We disagree. The INC assertion and contention is not supported by State Natural Area documentation as an addendum to the EA as required by regulation. The INC, presumably with DNR approval, asserts that the project will not degrade fishing access opportunities. This rationale is inverted. The real concern is to limit recreational use, rather than increase recreational use because recreational use will stress the SNA.

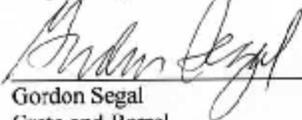
The project is intended to prevent water from being warmed in the impoundments before being discharged downstream (Sec 3.2.1, Para. 2). Based on conversations with INC proponents, this is intended to enlarge the population of trout and sport fish. This will result in significantly increased recreational fishing adjacent to the SNA and stress its fragile environment.

The unstated sub-text consequence of the project, either intentional or unintentional, is that the proposal will increase recreational use of the SNA which was contested in the initial Area Master Plan of the 1980's and subsequently withdrawn for this reason. This project and its potential for recreational use would re-open an issue which was thoroughly reviewed and rejected at the time.

Sec. 4.1.2 Habitat Impacts. The proposal acknowledges that "Potential for invasive species to colonize the new lakebed. Invasive species will be monitored and controlled to the extent possible". This is an environmental crapshoot. There are numerous examples of how well intentioned environmental tampering has resulted in adverse consequences (kudzu, purple loosestrife, garlic mustard, and the invasion of russian thistle immediately after a controlled burn). Based on contemporary experience in the immediate area, intrusive species have gained a foothold, are expanding, and have not been controlled by either TNC or DNR.

Sec. 4.1.5 Environmental Justice. Aesthetics are of significant concern. The present condition of the area from an aesthetic perspective is outstanding and unique. The proposed action will degrade the esthetics to be replaced by an ordinary vista.

Respectfully submitted,



Gordon Segal  
Crate and Barrel  
1250 Techny Road  
Northbrook, Illinois 60062  
Phone: 847-239-6200  
Email: gsegal@crateandbarrel.com



Richard E. Friedman  
National Strategy Forum  
53 W. Jackson Blvd., Suite 516  
Chicago, IL 60604  
Phone: 312-697-1286  
Email: rfriedman@nationalstrategy.com



**State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES**

Jim Doyle, Governor  
Matthew J. Frank, Secretary

101 S. Webster St.  
Box 7921  
Madison, Wisconsin 53707-7921  
Telephone 608-266-2621  
FAX 608-267-3579  
TTY 608-267-6897

March 18, 2008

Richard E. Friedman  
National Strategy Forum  
53 W. Jackson BLVD., Suite 516  
Chicago, IL 60604

Gordon Segal  
Crate and Barrel  
1250 Techny Road  
Northbrook, Illinois 60062

Subject: Environmental Assessment for Crooked Creek Dam Removals in Mukwonago River System

Dear Mr. Friedman and Mr. Segal,

Thank-you for taking the time to review the Crooked Creek Dam Removal Environmental Assessment and providing comments on the proposed project. As requested in your letter, I forwarded a copy of your letter to Pat Morton, TNC Mukwonago Project Director, and Paul Sandgren, DNR Property Manager for Lulu Lake State Natural Area. The following is in response to the comments you provided in your letter.

Secs. 3.2.2 and 3.2.3. Affected species.

Please note, your quote from section 3.2.2 is out of context. The quoted sentence refers not to plant and animal species, as you state, but to "the surrounding wetlands and uplands".

We appreciate your concern about changes to the environment. As indicated in your letter, "the land has adapted and plants and animals have found habitats in its new environment". The land and species will continue to adapt and find habitats in the newly restored environment as well. The dams are manmade structures that altered the site from its natural hydrologic state, thus changing the plants and animals that originally were found in the cold headwaters of this free flowing wetland stream complex. The dams continue to maintain this artificial hydrologic condition. The purpose of the proposed project is to restore the site to its original hydrology and subsequently provide habitat suitable for the plants and animals that naturally occurred there before the dams were built. Although the proposed project may not appear to be conserving nature, since the site will be altered from its present condition and the species that occur there now will change, the dam removals would be conserving nature ecologically since restoring the site to its original natural state will bring back the original plant and animal diversity of the site.

Failure of the berms is expected due to their deteriorated condition. The existing pond habitats behind the dams will be lost either in this proposal's planned and controlled manner, or in an unplanned and uncontrolled manner due to berm failure. Such an uncontrolled failure will result in erosion and downstream siltation impacts to Crooked Creek, the SNA and Lulu Lake. These impacts will be avoided by the proposed project. The ponds will cease to exist whether or not this proposed project is completed.

### Sec.3.3 Land Use.

A few points of clarification. The project area is contained within the boundaries of the Lulu Lake State Natural Area (SNA) and is not "adjacent" to it. The project will affect the SNA as described in the EA, which is consistent with the Management Plan of the Property. The EA does not "suggest that the State Natural Area Program has approved the project", rather the EA states so unequivocally. There is no regulatory requirement that any particular documentation be included with the EA.

To clarify your fishing access concern, the two ponds are not open to the public for fishing. Therefore there would be no change in recreational use of the ponds for fishing, since there is none now and certainly would be none with their removal.

The restoration of aquatic environments to colder water temperatures are often associated with trout and trout stream restorations. However, Crooked Creek is not a trout stream, nor is it likely to become a trout fishery if the wetland is restored, due to limited habitat. No trout were recorded in fish surveys conducted in 2007 within Crooked Creek, nor are they likely to establish a population that would support a fishery. The sport fish which were noted in the survey of Crooked Creek were attributed to originating from Lulu Lake. Loss of the pond habitat and restoration of the wetland habitat would not promote a sport fishery within Crooked Creek. The species that would benefit the most from the project would be the headwater fish species that would benefit from the change in water temperatures and change in habitat. This would provide greater diversity of fish species within the system.

The purpose of this project is to remove the artificial dams and ponds and restore the area to a spring-fed wetland. The berms are commonly used now for hiking and bird watching due to their easy access. Loss of continuity of the berms (from the breaches) would likely contribute to decreased hiking since it would be harder to hike up and down the breaks in the berms. The existing berms provide a dry continuous walking path that would be replaced by alternating wet and dry habitats which is not preferred for hiking or other activities. The restoration of the site to wetlands would provide conditions less accessible for hiking, bird watching, and skiing and therefore recreational use of the area would presumably decline rather than increase.

### Sec 4.1.2 Habitat Impacts.

Invasives are a serious concern to both the DNR and TNC, especially in sensitive fen and spring areas. In recent years we have learned a lot about what to do and what not to do with regard to restoring wetlands from formerly impounded areas and in preventing invasives from getting established. As stated in the EA "TNC has compiled detailed species lists for the surrounding area and is working to develop appropriate high quality planting lists that will be compatible with the system at large". The best way to prevent invasives from establishing in recently disturbed habitats is to get native species

planted and keep a vigilant eye out for newly invading species. When caught at an initial stage, invasive species can be readily removed and eradicated. This will require close monitoring of the restoration area until the native plants are well established. Uncontrolled berm failure will result in a much greater threat from invasives because no specific program or funding will be in place to deal with such an event, and because erosion scarring will result in a much larger disturbed area.

Sec 4.1.5 Environmental Justice.

Aesthetic issues were adequately dealt with in section 3.5 of the EA. Again, the berms are not in good condition, and the ponds will be lost when the berms fail. The project proposes to breach the berms in a controlled manner, which will result in considerably less environmental impact, including aesthetic impacts from erosion scarring and downstream siltation.

Please give me a call at (608) 266-5248 if you have any questions.

Sincerely,



Helen Elise Kitchel  
Wisconsin DNR  
Bureau of Endangered Resources  
101 S. Webster St.  
Madison, WI 53707-7921

cc: Pat Morton, TNC/Mukwonago Project, N8957 Pickerel Jay Road, East Troy, WI 53120  
Paul Sandgren, DNR/SER, S91 W39091 Highway 59, Eagle WI 53119  
Fabian Romero, FWS/Federal Aid, 1 Federal Dr., Fort Snelling, MN 55111  
Jim Pardee, DNR/Environmental Analysis and Review, GEF II  
Thomas Meyer, DNR/BER, State Natural Area Program, GEF II  
Tara Bergeson, DNR/BER, Wildlife Action Plan Grant Program, GEF II

## News Release

For Release: February 14, 2008

Contact(s): Lisie Kitchel, DNR, 608-266-5248; Fabian Romero, U.S. Fish and Wildlife Service, 612-713-5145

### **Public comments sought on Crooked Creek Dam Removals in the Mukwonago River System: Environmental Assessment available for review**

The Wisconsin Department of Natural Resources is seeking public comment on an Environmental Assessment (EA) for the removal of two dams on Crooked Creek, located in the Town of Troy, Walworth County, Wisconsin.

Federal funds are being sought for partial payment of the costs associated with this project. In such cases, an Environmental Assessment is required by the National Environmental Policy Act (NEPA). Two action alternatives are evaluated in the EA, along with the “No Action” alternative required under NEPA.

The preferred alternative includes the permanent drawdown of two impoundments and partial berm removal followed by wetland and headwater restoration. This alternative is preferred because it will restore the river system’s ecology in a safe and efficient way while minimizing negative impacts downstream. Currently, the dams hold water, allowing it to warm before being discharged into the river system impacting river water temperatures and temperature-sensitive river organisms

The impoundments will be drawn to historic water levels leaving only small pools in the currently impounded area. The dams will then be breached by earth moving equipment.

A second alternative being considered is to drawdown two impoundments and complete removal of the berms followed by wetland and headwater restoration.

Under the “No Action” alternative, no changes would be made to the dams or the impoundments.

The project is proposed by the Wisconsin Department of Natural Resources on behalf of The Nature Conservancy for partial funding through the State Wildlife Grants program, administered by the U.S. Fish and Wildlife Service. Projects funded by the Fish and Wildlife Service are required to comply with the National Environmental Policy Act and other associated federal requirements, including the Historic Preservation Act and the Endangered Species Act.

The proposed project is not expected to result in significant adverse environmental effects, and the Department has made a preliminary determination that an Environmental Impact Statement will not be required for this action.

The EA is available for public review on the Web at: <http://dnr.wi.gov/org/es/science/eis/eis.htm>

Printed copies of the draft EA are also available from:

Lisie Kitchel

Wisconsin Department of Natural Resources  
101 South Webster Street  
Madison, WI 53707-7921  
**phone:** 608-266-5248  
**e-mail:** [Lisie.Kitchel@wisconsin.gov](mailto:Lisie.Kitchel@wisconsin.gov)

and from

The Nature Conservancy  
Mukwonago River Project office  
Pat Morton – Mukwonago Project Director  
N8957 Pickerel Jay Road  
East Troy, Wisconsin 53120  
**phone:** 262-642-7276

Written comments on the draft EA are welcome and must be submitted to Lisie Kitchel no later than 4:30 p.m. on March 17, 2008.

The mission of the U.S. Fish and Wildlife Service is working with others to conserve, protect and enhance fish, wildlife, plants and their habitats for the continuing benefit of the American people. We are both a leader and trusted partner in fish and wildlife conservation, known for our scientific excellence, stewardship of lands and natural resources, dedicated professionals and commitment to public service. For more information on our work and the people who make it happen, visit [www.fws.gov](http://www.fws.gov).

-FWS-

DECISION (This decision is not final until certified by the appropriate authority)

In accordance with s. 1.11, Stats., and Ch. NR 150, Adm. Code, the Department is authorized and required to determine whether it has complied with s.1.11, Stats., and Ch. NR 150, Wis. Adm. Code.

Complete either A or B below:

A.EIS Process Not Required



The attached analysis of the expected impacts of this proposal is of sufficient scope and detail to conclude that this is not a major action which would significantly affect the quality of the human environment. In my opinion, therefore, an environmental impact statement is not required prior to final action by the Department.

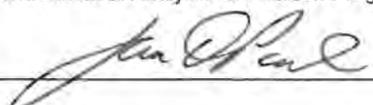
B.Major Action Requiring the Full EIS Process



The proposal is of such magnitude and complexity with such considerable and important impacts on the quality of the human environment that it constitutes a major action significantly affecting the quality of the human environment.

Signature of Evaluator 	Date Signed 03/28/2008
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Number of responses to news release or other notice: 25

Certified to be in compliance with WEPA Environmental Analysis and Liaison Program Staff 	Date Signed 03/28/2008
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NOTICE OF APPEAL RIGHTS

If you believe you have a right to challenge this decision made by the Department, you should know that Wisconsin statutes, administrative codes and case law establish time periods and requirements for reviewing Department decisions.

To seek judicial review of the Department's decision, ss. 227.52 and 227.53, Stats., establish criteria for filing a petition for judicial review. Such a petition shall be filed with the appropriate circuit court and shall be served on the Department. The petition shall name the Department of Natural Resources as the respondent.