

Application Summary Awarded Project – 2008

8004-001 Summit Lake Watershed

The Summit Lake Watershed Improvement Project is a watershed-based sediment control project designed to greatly reduce to nearly eliminate sedimentation of an existing lake that is being renovated for use as a water source in southern Iowa. Summit Lake is owned by the City of Creston and was once a water source lake until around 1984. The watershed improvements will include lakeshore stabilization and erosion control practices as a precursor for related improvements to the lake and overall 4,900 acre watershed. Best practices included in this phase are the implementation of riprap, a rain garden, grade stabilization structures, grassed waterways, terraces, basins, water use and access ordinances, education and outreach, water monitoring, and other stream bank improvements. These improvements, along with leveraged work to be done by strategic partners, will enable the lake to be used for local and regional water supplies by sustaining the lake or many years to come. Without the lake rehabilitation, the lake will likely be filled with sedimentation to the point that it will have no recreational value. Key partners are the City of Creston, IDNR, Southern Iowa Rural Water Association, Union County, the Union County NRCS office, Southwestern Community College, and the Summit Lake Association, which is a non-profit group of landowners working to protect the lake. The project will address WIRB targets: a) streambank stabilization, b) livestock runoff, b) livestock runoff, c) agricultural runoff and drainage, d) stormwater runoff, and e) a section of inadequately sewered community.

8005-002 Silver Lake

Silver Lake is located in an 18,053 acre watershed. The watershed is intensively farmed with almost all of the wetlands being previously drained or degraded over the last 50 years. Silver Lake is listed on the State of Iowa's impaired water bodies list due to sediment and high nutrient level. Silver Lake is also known to be in the bottom 25 percentile of Iowa's lakes due Secchi disk readings and Chlorophyll a level.

Farming in the watershed is the principle concern and cause for many of the problems occurring in Silver Lake currently with 78% of the watershed being intensively farmed. There are two major drainage ditches that have been used to drain the major wetlands and sloughs that, at one time, filtered the water and slowed it down before it reached Silver Lake. With these two major drainage ditches, water is able to reach the lake much faster and unfiltered than it once did historically. The loss of 255 restorable wetland basins to row crop production has caused serious problems in Silver Lake. These wetland basins once slowed and filtered water as it moved through the watershed. With their loss over the last 50 years that traditional drainage no longer occurs.

We propose to create a Wetland Reserve Program incentive project to make WRP a more attractive option to landowners within the watershed. The incentive will be based on the

amount of sediment delivery reduction to the lake, therefore paying a greater payment for a greater benefit to the lake. The expected result of this project is the restoration of over 250 acres of wetland basins with an associated 650 acres of upland buffers. The benefit for these wetlands and buffers would be reduced sediment, reduced nutrients, and slowed waters to the lake.

8006 003 East Okoboji Lake

East Okoboji Beach was platted on April 20, 1961 and includes over 90.4 acres with 489 lots. The East Okoboji Beach Project includes a complete storm water discharge system, which includes low impact development and reconstruction of the roadways in East Okoboji Beach.

The East Okoboji Beach Project is an enormous project that is the first Dickinson County project to retrofit LID practices, lake-friendly storm-water drainage systems and roadway reconstruction throughout an existing sub-division. This cooperative project between DNR, Dickinson County, and EOB landowners includes engineering retention ponds, rain gardens, bio-swales and other LID practices to reduce nutrient and sediment pollutants flowing directly into the East Okoboji.

The nature of the problem stems back to that original plat where small lots were platted and developed without planning for storm water discharge. There was no consideration of the effects of filling in and developing over the many wetland areas existing in EOB. The scope of the problem covers the entire 90.4 acres in East Okoboji Beach, the DNR owned land and the farmed land to the east. The nature of the problem stems from storm water runoff flowing throughout the watershed and into East Okoboji Beach where it flows down self-made paths and then into East Lake Okoboji. That storm water runoff dumps nutrient and sediment pollutions directly into East Lake Okoboji.

The expected result of this project is a new roadway and drainage system constructed with engineering that is intended to protect East Lake Okoboji and the land and homes in East Okoboji Beach. The benefit will be that improvement in the waters and the reduction of the siltation in the East Lake Okoboji.

8008 004 Rathbun Lake

The Rathbun Land and Water Alliance and partners have undertaken a highly effective approach to water quality protection through the Rathbun Lake Special Project. This approach is achieving a significant reduction in the sediment and phosphorus that impair water quality in Rathbun Lake and its tributaries as a result of the targeted application of best management practices (BMPs) for priority land in the watershed. This project application proposes to assist landowners to apply BMPs that will reduce sediment and phosphorus delivery from priority land in one targeted sub-watershed as part of the Rathbun Lake Special Project. Features of this project are: (1) use of geographic

information system (GIS) analysis to identify priority land that requires BMPs; (2) assistance for landowners to apply BMPs on 1,450 acres that will reduce that annual delivery of sediment by 2,160 tons of phosphorus by 8,210 pounds; (3) evaluation of the benefits from BMP application using GIS analysis and water quality monitoring; and (4) watershed outreach activities that encourage landowners to apply BMPs for priority land to protect water quality.

8009 009 Storm Lake Watershed

Storm Lake, the state's fourth largest natural lake, has been the centerpiece of significant economic development, including a resort, water park, and state marina. While that have been considerable improvements to the lake's water quality through a major on-going restoration program and watershed project, the Little Storm Lake area still needs to be addressed. Little Storm Lake is a 190 acre area on the northwest side of Storm Lake. The water level in both areas is based on the dam height located on the southeast corner of Storm Lake. Approximately 70% of the water from the watershed flows through Little Storm Lake. Little Storm Lake originally had the ability to remove much of the sediment and nutrients from incoming waters. However, due to degradation, proper wetland function has been compromised. Under normal hydrologic conditions Little Storm Lake has the potential to function as a sediment trap for Storm Lake, but this capacity is overwhelmed during high flows. Little Storm Lake is at or near its sediment trapping capacity, which results in higher sediment transport into Storm Lake. Resuspension of sediments due to wind and other in-lake dynamics, such as rough fish, further exacerbate the total turbidity from suspended sediment and results in movement of sediment from Little Storm Lake into Storm Lake.

This project includes a fish barrier and water retention structure between Little Storm Lake and Storm Lake and the construction of a pumping station and associated equipment. The project involves periodic dewatering of Little Storm Lake during years of favorable climatological conditions to consolidate the sediments and revegetate the area. Construction of the fish barrier would aid restoration efforts by preventing rough fish from destroying the vegetation and would decrease recruitment of rough fish by limiting their spawning area. In the future, if the diminished trapping capacity of Little Storm still results in sediment moving into Storm Lake, a dredging project would be initiated to deepen Little Storm Lake.

8010-006 Camp Creek

The Polk County Conservation Board is applying for \$329,226 to build 7 water and sediment basins and subsequently dredge the Thomas Mitchell Pond located in the Camp Creek Watershed. By building the water and sediment basins prior to dredging the pond, the life of the pond will be exponentially extended. After completion of the dredging, natural vegetation and wildlife will be restored in and around the pond. Thomas Mitchell

Pond, located in the southeast corner of Polk County, was selected as it is located in one of the fastest growing parts of the Greater Des Moines Metropolitan area.

8011 007 Ludlow Creek

This project is located in the Ludlow Creek Watershed, a 9,827 acre sub-watershed of the Yellow River. Ludlow Creek is extremely fragile and unique because it is a karst watershed, containing an estimated 1,188 sinkholes and depressions. Ludlow Creek may arguably contain more sinkholes per acre than any other watershed in Iowa. Water sampling data shows sediment delivery and *E. coli* as being water quality impairments in Ludlow Creek. The goals of this project are to: 1) reduce sediment delivery by 40%; 2) reduce animal waste run-off which may include *E. coli* and nutrients by 40%; and 3) reduce the water quality impact that sinkholes have on this watershed. The following Best Management Practices (BMPs) will be implemented to target Ludlow Creek's water quality impairments: no-till, terraces, grade stabilization structures, manure systems, streambank stabilization, pasture management, and both sinkhole and stream buffers. Our goal is to implement a combination of approximately 62 BMPs in the Ludlow Creek Watershed. These landowners will receive 75% cost-share for each one of these practices. If we receive funding from this grant, we will reach this 75% cost-share allocation by leveraging WHIP or EQIP funds when available, for most of these practices. This application has been reviewed and approved by the Allamakee County Soil and Water Conservation District commissioners.

8012 008 Lake Morris

Lake Morris is the larger of two lakes which serve as the municipal water supply for the City of Chariton, Iowa. As a site for fishing and boating, it also serves as a significant recreational resource for area residents. Its ability to sustain these uses has been significantly impaired by long-term and ongoing accumulation of sediment and sediment-borne nutrients from both public and private land within the watershed. This accumulation has resulted in reduced water depth, reduced water-holding capacity, reduced quality of the fishery, increased water turbidity, increased growth of undesirable algae, and increased cost of treating the water for municipal uses. Water quality projects undertaken in the past, notably the Lucas Lakes Project of the 1990s, made important progress in reducing sedimentation from privately-owned land higher in the watershed, but paid little attention to land owned by the City of Chariton immediately surrounding the lakes. A recent reassessment of gully erosion within the watershed shows serious, ongoing erosion on that City-owned land. This project proposes a two-part approach to improving the water quality in Lake Morris. First, we propose that a complement of five SolarBee water circulation devices be installed in Lake Morris to provide near-term and continuing improvements in water quality, by inhibiting cyanobacterial growth and thereby removing the need for treatment of the lakes with copper sulfate. Second, we propose the installation of erosion-control structures on primarily City-owned land surrounding the lake, to provide a major reduction in ongoing sedimentation.

8013 009 Muchakinock Creek Watershed

The Muchakinock Creek Watershed Project began in February of 2005 to treat upland soil erosion in the creek that has lead to a 303(d) impairment. The Mahaska SWCD is currently administering this cost-share program to promote terraces, basins, and grade stabilization structures. The District is seeking funding from WIRB to treat specific abandoned mine lands in the Muchakinock Creek Watershed. These areas contribute sediment to the creek at levels second only to agricultural lands as well as acid mine drainage from open pits mines that have been left to decay across the county. The WIRB funding would be used to compliment Federal Abandoned Mine Land (AML) funding in the reclamation of these areas.

8018 11 Walnut Creek

In 2004 Walnut Creek was placed on the 303d list of impaired water bodies for lack of aquatic life with biological causes. Sediment from farmland as well as the stream banks was listed as the most likely stressor. In response to this listing a preliminary watershed assessment was completed by the six counties which have land in the Walnut Creek watershed. Walnut Creek flows through portions of Shelby, Pottawattamie, Montgomery, Mills, Page, and Fremont Counties before reaching its confluence with the West Nishnabotna River. The preliminary study assessed resource concerns and evaluated anticipated landowner participation levels for the six Huc12 sub-watersheds which divide the Walnut Creek basin. These preliminary assessments revealed a priority sub-watershed which lies between US Hwy 6 and Hwy 34. A development grant was then funded by the Division of Soil Conservation to conduct a detailed assessment of this area. The detailed assessment involved an assessment of the uplands as well as the stream itself. A better understanding of the resource concerns was gained through the assessment, allowing for a comprehensive watershed plan to be developed. A variety of best management practices will be necessary for our project to be a success, many of which will be funded by other sources besides the WIRB. This grant is the first request for funding submitted by the East Pottawattamie and Montgomery SWCDs. This grant will serve as the first critical step in building what is destined to be a true watershed success story.

8019 11 Staff Creek and Beaver Creek

Staff and Beaver Creeks are two tributaries of the Upper Iowa River (UIR). Additional acres that drain directly into the UIR bring the size of the project area to 41,328 acres. The goal of the project is to reduce sediment loading and excess nutrients from reaching the streams which ultimately reach the UIR.

Staff/Beaver Water Quality Project initially received funding as part of the FY 2005 WSPF/319 grant application cycle. Tremendous progress has been accomplished

towards the original goals of the project. Due to the large number of Best Management Practices (BMPs) installed and the continued high interest for those practices, more work remains to be done. The heavy rains received in 2008 caused severe erosion and has dramatically increased interest in conservation practices. A thorough watershed assessment was completed in the fall of 2008. Data from this assessment indicates additional work is needed. The initial grant funding will be exhausted within fiscal year 2009. Therefore, the Howard Soil and Water Conservation District is seeking three years of funding.

The District believes interest in the water quality project is at an all time high and that with an additional three years of funding, even more progress can be achieved in reducing sediment delivery and excess nutrients to these priority streams.

8021 012 Sands Timber

Sands Timber Lake is a 60 acre man made impoundment near Blockton, Iowa. The lake is the centerpiece of a 235 acre park, which is owned and managed by the Taylor County Conservation Board. The park is equipped with modern campsites, hiking trails, picnic areas, and a playground. Bordering the western shoreline of the lake is a beautiful hardwood timber which inspired the parks name.

Sands Timber Lake has a 4,100 acre drainage area comprised of timber, grassland, and row crop. The lake is fed by four large classic gullies which branch off into many smaller gullies dissecting the drainage area. Since construction in 1993, Sands Timber Lake has been an extremely poor fishery. In 2006 Sands Timber Lake was added to the EPA's 303d list of impaired water bodies. Turbid water was identified as the primary stressor. In 2007 a bathometric map was made which depicts lake-bottom contours and elevations which, when compared to the original survey of the area, revealed an alarming amount of siltation. What was once a 23 foot deep lake in 1994 has now been reduced to a mere fourteen feet. In addition to depth being lost, the lake's surface has been reduced by nearly ten acres, destroying vital fish habitats.

Local interest in preserving and enhancing the lake has led to the completion of a thorough watershed assessment and treatment plan. Included in the plan are several elements, the first being upland treatment. Locals are insistent that if conservation is not implemented in the watershed the lake will continue to degrade and park usage will continue to decline.

8023 13 DMACC Lake Watershed

The DMACC Lake Watershed Improvement project will focus on water quality and quantity as well as channel and lake restoration. Roadway, parking lot, and roof drainage from the west and northwest portions of the campus add significant amounts of pollutants and silt to the lake. Severe channel erosion exists along the northern creek channel with

exposed cut banks ranging from 2 to 10 feet in height devoid of vegetation. Heavy lake sedimentation and algae blooms are a result of accumulated sediment being conveyed to the lake. Most sections of the north channel have grades of between 0.59% and 1%. This channel receives large scouring flow velocities. There are no natural riffle or pool systems. There are five areas where these riffle and pool systems may need to be created in order to slow overall channel velocities. This will create a series of rock riffles and still pool that will mimic the conditions that natural channels tend to create, protecting the channel from undercutting.

Multiple practices will need to be implemented to address the pollutant, silt, and channel erosion. Improvements will be specifically tailored to address problems observed within the north channel, on-site drainage from the west and northwest, as well as off-site drainage to the north of the campus and east of Ankeny Boulevard (Highway 69). The result will be improved quality and quantity of site drainage and a channel with a more natural appearance and reduced scour velocities. Sections of the north channel will require grading to establish slopes that can support deep rooted vegetation and to improve maintenance access. Areas with eroded banks will require slope pull back and may also require toe armor protection to stabilize. A constructed wetland will collect and treat runoff from the west on site parking lot, before being discharged into the Lake.

This project will create educational opportunities to both students and the general public as well as interested parties outside of the local area for how an existing system can be retro fitted for improved watershed quality.

8024 014 Duck Creek Watershed

River Action is requesting funds for a project that offers design, technical and financial assistance to residential and commercial landowners and municipalities for the installation of buffers along Duck Creek and its tributaries. The buffers will improve water quality, reduce erosion on stream banks and provide habitat for wildlife. The projects will be planned and implemented through public meetings and educational workshops. This method of community involvement will increase awareness and education concerning the impairments in Duck Creek in Davenport and Bettendorf in Scott County, Iowa and promote personal responsibility and stewardship of watersheds.

8025 15 Remsen Source Water Protection Project

The City of Remsen is proactively addressing an increase of nitrates in their public water supply before it becomes a financial catastrophe for them. An intensive assessment was conducted by the Iowa DNR Source Water Protection program as one of four pilot projects in the state. This assessment far surpassed standard desktop assessments and gathered monitoring information in-the-field led by a local watershed group. This was incorporated into a computer modeling program to help the local watershed group discuss alternatives. This comprehensive approach clearly identified the source of nitrate

infiltration as a cropland area adjacent to the City well field. Many options were evaluated but only one option provided an economical, viable and secure answer to the water supply needs of Remsen for generations to come. The watershed planning group chose to seek the purchase of this critical area of cropland and convert it to a deep rooted mixture of native grasses. This WIRB funding is intended to be used to acquire a small area totaling 21.1 acres. It represents about 22% of the total local project effort. This will be added to the existing City well field of 40.2 acres and another piece of adjacent property, 35.34 acres, that the City recently acquired as part of an overall aggressive program to protect the community water supply. The City has a signed purchase agreement for 14.4 acres of the 21.1 and a strong verbal commitment to obtain the remaining 5.7 acres. This project has been very active for almost two years and is ready to implement immediately upon funding notification. The establishment of native grasses, funded by the local chapter of Pheasants Forever, will take approximately the next three years of operation & maintenance.

8027 16 Competine Creek

Competine Creek is an 8,653 acre subwatershed of Whitebreast Creek which drains directly to Lake Red Rock. The Marion Soil and Water Conservation District has prioritized water quality protection efforts within Competine Creek subwatershed because: 1) this watershed has been identified as a significant contributor of sediment, nutrients, and bacteria to Competine Creek and Lake Red Rock; 2) the watershed provides unique outreach opportunities due to its unique rural and urban interface; and 3) by using a targeted approach to address water quality, the likelihood of successfully demonstrating water quality improvements is high due to its manageable size. The specific goals of this proposal to WIRB (Phase I) are to: 1) reduce sediment and nutrient delivery by 1787 tons and 2144 lbs by installing conservation practices on high priority agricultural land; and 2) install urban conservation practices that reduce the volume of peak flow, improve streambank stability, and promote infiltration of stormwater runoff before it enters Competine Creek. The Marion SWCD has assembled a unique group of partners and secured funding from multiple sources to implement this project.