

# **WIRB Final Report**

Project Name: **Sands Timber Watershed Project**

Project Number: **8021-012**

Huc # : 10240012 Platte River Watershed

Soil and Water Conservation District: **Taylor**

Planning Period: **July 1, 2009 to June 30, 2012**

Date Report Prepared: **June 26th, 2012**

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## **INTRODUCTION**

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 twenty-three 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 led to the completion of a thorough watershed assessment and treatment plan. Included in the plan were several elements, the first being upland treatment. In 2009 the Taylor SWCD applied for and was granted a \$499,751 Watershed Improvement Review Board grant. This grant has enabled much of the upland treatment practices to be installed plus some shoreline stabilization. Three of the four tributaries feeding the lake now have structures just above shoreline filtering any remaining sediment and nutrients. Environmental benefits achieved through the project include the reduction of nearly 5,000 tons of sediment as well as 6,475 pounds of phosphorus. A rock chute wetland is now being planned for the fourth and final tributary feeding the lake. Installing this practice would solidify what has been a very successful watershed treatment campaign. The following report depicts the practices installed and benefits achieved with the use of Watershed Improvement Review Board funds.

## **FINANCIAL ACCOUNTABILITY**

The primary cost share mechanism used in this grant was the Watershed Improvement Review Board funds contributing \$497,927.59 or 59.5% of the total funds expended. Private landowners contributed \$170,134.61 or 20% of the total funds expended. The Taylor County Conservation Board provided \$77,565.58. In kind contributions totaled \$65,688.53 Total dollars expended equaled \$835,554.42.

**WIRB Funds Expended by Line Item**

<b>Grant Agreement Budget Line Item</b>	<b>Total Funds Approved(\$)</b>	<b>Total Funds Approved-Amended (\$)</b>	<b>Total Funds Expended (\$)</b>	<b>Available Funds (\$)</b>
Grade Stabilization Structures	\$242,625	\$213,107.78	\$211,284.62	\$1,823.16
Terraces	\$206,250	\$169,767.22	\$169,767.22	\$0
Shoreline Rip Rap	\$0	\$66,000	\$65,999.75	\$0.25
1/4 time project coordinator	\$50,876	\$50,876	\$50,876	\$0
Totals	\$499,751	\$499,751	\$497,927.59	\$1,823.41
Difference				\$1,823.41

**Funding Expended by Source**

<b>Funding Source</b>	<b>Cash</b>		<b>In-Kind Contributions</b>		<b>Total</b>	
	<b>Approved Application Budget (\$)</b>	<b>Actual (\$)</b>	<b>Approved Application Budget (\$)</b>	<b>Actual (\$)</b>	<b>Approved Application Budget (\$)</b>	<b>Actual (\$) Expended</b>
WIRB	\$499,751	\$497,927.59			\$499,751	\$497,927.59
REAP	\$0	\$2,700			\$0	\$2,700
EQIP	\$30,550	\$0			\$30,550	\$0
CRP	\$3,240	\$10,780			\$3,240	\$10,780
WSPF	\$464,700	\$0			\$464,700	\$0
USFW	\$0	\$6,500			\$0	\$6,500
Landowner	\$178,235	\$170,134.61			\$178,235	\$170,134.61
Taylor CCB	\$166,000	\$77,565.58		\$17,000	\$166,000	\$94,565.58
SWCD	\$200	\$4,258.11		\$70	\$200	\$4,328.11
NRCS	\$0	\$0		\$41,098.53	\$0	\$41,098.53
IDALS	\$0	\$0		\$480	\$0	\$480
DNR	\$0	\$0		\$7,040	\$0	\$7,040
Totals	\$1,342,676	\$769,865.89		\$65,688.53	\$1,342,676	\$835,554.42

Approved WIRB contribution percentage 36 %  
 Actual WIRB contribution percentage 59.5%

## **ENVIRONMENTAL ACCOUNTABILITY**

### *Project Goals:*

The goal of the Taylor County Conservation Board and the Taylor SWCD is to improve the water quality and recreational opportunities of Sands Timber Lake through a phased approach. The first step was to implement Best Management Practices (BMP's) throughout the watershed at prioritized locations identified as a result of assessment activities. Grade Stabilization structures, wetlands, terraces, waterways, and livestock exclusion practices are all necessary to control sediment loading into Sands Timber. Practices to be installed with WIRB funding were to include 15 grade stabilization structures and 55,000 feet of terrace. The actual number of structures and terrace footage requirements would vary due to price inflation or shifts in priorities. Two large wetlands were to be needed on the two north tributaries of the lake. These wetlands will act as a last protection measure, filtering leftover sediment and nutrients before they can reach the lake. Monitoring results for wetlands constructed above the Lake of 3 Fires and Lake Icaria have proven to be extremely successful, reducing sediment loads by 65% and ammonia nitrogen levels as much as 90%. Design and land rights for the wetlands should have potentially taken several years and the possibility existed that these wetlands may not be constructed within the project timeframe. For this reason funding for these structures were to be sought through future grant opportunities when the projects became "shovel ready". Due to unforeseen circumstances and movement of priority structure locations, the actual number of structures constructed dropped to ten. Lessening the number of structures enabled us to construct one of the wetland structures while bettering our sediment reduction numbers. Actual number of terraces constructed was almost exactly as planned. The second wetland is currently in the design phase. The land affected was sold during the project and it has taken several years for the new landowner to buy into the project. Easements have finally been obtained. The county conservation board is willing to put up \$100,000 dollars of their own money towards construction of the \$150,000 structure. A WSPF grant was submitted requesting the additional dollars needed. The application was denied and it was recommended that we apply for a wirb grant.

The second goal of the Taylor County Conservation board was to enhance the lake by raising the principal spillway nine feet. Raising the lake would decrease the watershed to lake ratio, doubling the surface acres, and creating much more fish habitat. Design and estimates were developed by the NRCS State Engineering Staff. Private landowners around the lake were contacted and were willing to discuss land easements and or purchases necessary to make the expansion a reality. In the end it was decided that easement costs were going to be too expensive.

The final step in the renovation involved plans for the improvement of the fishery by constructing fish habitat in the new lakebed itself. This renovation called for new shoreline to be rip-rapped where wave erosion was expected to be present. Nuisance fish species were also to be eliminated at this time with new fish population establishment to follow. The second year of the project the lake was drained to allow for the construction of a grade stabilization structure on the southwest tributary of the lake. The lake was kept dry another year to allow for the construction of the rock chute wetland on the north arm of the lake. Currently the lake is still dry in hopes of constructing the second wetland this fall. We were able to riprap 1,783 feet of shoreline which addressed some terrible areas of wave erosion. The west shoreline still needs rip rapped but cannot be done unless the lake is full of water. A barge has to be used which will

make this stretch quite expensive. Grants were written to add fish habitat to the lake but all were denied. DNR has no plans at this time of renovating the lake. Fish habitat grants will continue to be submitted by the conservation board to attempt to obtain funding. DNR will kill the nuisance fish species before the conservation board fills the lake again.

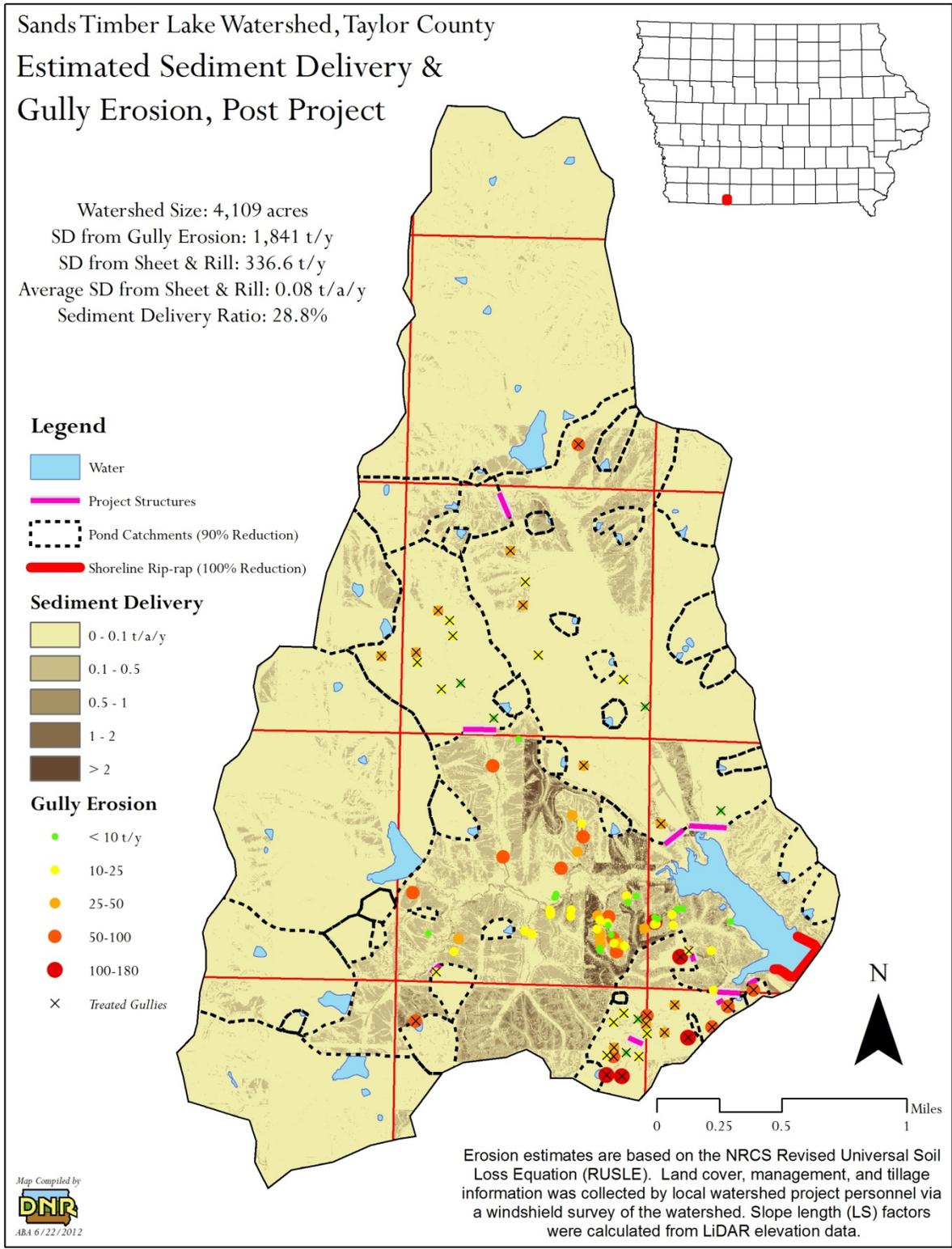
This project received tremendous support from federal, state, and local agencies as well as the public itself. Although funding conditions influenced decisions made regarding phases of the project, it is evident that the watershed treatment funding requested through this grant was imperative for the future protection and enhancement of the lake. The overarching goal of this project was to improve upland conditions so that in-lake conditions were suitable to justify the removal of Sands Timber Lake from the List of Impaired Waters for turbidity. Time will tell if the work completed is enough to achieve this goal.

*Practices Installed/Environmental Benefits:*

The following table quantifies the types and number of practices actually installed and their sediment delivery reduction:

<b>Grant Agreement Conservation Practices &amp; Activities</b>	<b>Unit</b>	<b>Approved Application Goal</b>	<b>Accomplishments</b>	<b>% Completion</b>
Terrace Systems	Feet	55,000	55,350	100%
Grade Stabilization Structures	Num	10	10	100%
Shoreline Rip Rap	Feet	1,350	1,783	100%
CRP	Acres	30	141.3	471%
Pasture Management Activities	Num	6	3	50%
Hayland Planting	Acres	120	30	25%
Timber Stand Improvement	Acres	0	20	
Sediment Delivery Reduction	Tons /Year	974	4,984 =250 dump trucks	511%
Phosphorous Reduction	Lbs/ Year	0	6,475	0%

Although the lake has been drained for most of the project we did experience a few large rains which refilled the lake. A Sechi disc measurement was taken after the largest rain event. The disc could be seen up to a foot and a half deep. This is far better than the best pre project observance of 5 inches. Clearly the practices installed are working.



## **PROGRAM ACCOUNTABILITY**

### *Administration:*

Practices were surveyed and designed according to NRCS specifications by qualified technical staff. Cost share applications were administered by the SWCD who had administered these types of projects on numerous occasions in the past. Maintenance agreements for all practices were recorded at the courthouse.

### *Deviations from original grant:*

Several unforeseen circumstances happened during this project which changed the number of conservation practices planned as well as the amount of funding provided by different sources.

The first unforeseen circumstance involved the property directly west of the lake. This property was owned by Scott Akin who owns Akin building supply. There were originally two grade control structures planned on this property. The structures were designed, drafted, and the bat trees were even removed. A downturn in the economy forced Mr. Akin to sell the property in order to save his business. The county conservation board tried to purchase the property but could not get their financing quick enough. The property was sold to Pat Robinson who disliked the idea of having to clear trees for the two proposed structures. Toward the end of the project Mr. Robinson agreed to let the county install a rock chute wetland on his property line. Engineering is currently underway. This change in total number of structures allowed some money to be used for other practices.

The second unforeseen circumstance involved Charles King, a property owner on the northwest side of the lake. Originally a structure was proposed on his property as well as quite a few terraces. Mr. King fell in a ditch driving cattle and broke his neck. Mr. King passed away and the land was sold to a beginning farmer named Kirk Smith. Kirk could not afford the practices at the time. Kirk did seed down thirty critical acres of cropland to hay. The structure was moved downstream onto county conservation board land. Kirk did sign an easement for the county to back water onto his land as well as install a heavy use crossing for cattle.

The third unforeseen circumstance involved a landowner on the western side of the watershed named Kenton Johnson. At the time this grant was prepared Kenton signed an equip application which called for the construction of several thousand feet of terrace and two grade stabilization structures. We were going to combine wirb funding with the equip money to make the practices cost shared at a rate of 75%. Mr. Johnson's son received a heart transplant during the project which created a huge financial hardship. None the less we were not able to construct the practices we had planned on his property. Maybe in a few years Mr. Johnson will be able to construct the practices with reap funding.

The fourth and probably biggest financial deviation from the original wirb grant involved WSPF funds. The original grant called for WSPF funds to be used in the final year of the project for the construction of the rock chute wetlands. WSPF funds were severely cut by the legislature and no new project applications were approved. Creative engineering lessened the original cost of the wetlands substantially and we were able to install one through the use of wirb funds. The second wetland is planned for this fall. The conservation board has vowed to put up \$100,000 if

we can come up with an additional \$50,000. A WSPF grant was applied for and was denied. A WSRB grant will be applied for requesting the \$50,000 in July of this year.

*Future Watershed Work:*

Future watershed work should involve installing conservation on the uplands whenever and wherever possible. Soaring ag commodity prices could affect future land uses. Many acres of the watershed are currently in the CRP program. If those acres were to come into production they could have a profound effect on the amount of sediment delivered to the lake.

The construction of the final rock chute wetland is vital to the project. This structure will treat the remaining portion of the watershed left untreated. Once constructed all of the water which falls in the entire watershed will be filtered by a grade control structure before entering the lake.

In Lake renovations should continue to be pursued if Sands Timber Lake is to be a high quality fishery.