FINAL PROJECT REPORT
CLEAR CREEK WIRB PROJECT
5021-008

Financial Accountability

Watershed Improvement Funds (WIRB)

Grant Agreement Budget Line Item	Total Funds Approved ($)	Total Funds Expended ($)	Available Funds ($)
Engineering-Design	70000	70000	0.00
Property Acquisition	80000	80000	0.00
Archeological Study	2086	2086	0.00
Geotechnical Evaluation	3700	3700	0.00
Easement Acquisition	4776	4776	0.00
Lagoon-Controlled Discharge	81382	81382	0.00
Septic Collection System	255856	255856	0.00
Contractual-(COG)	2200	2200	0.00
Totals	500000	500000	0.00

Explain significant differences between the approved application budget and actual amounts expended of Watershed Improvement Funds and any unspent balance.

- Engineering increased from $35,000 to $70,000 for increase engineering costs.
- Property Acquisition increase from $40,000 to $80,000 due to increase land costs.
- Archaeology decrease from $6,500 to $2,086 due to lower costs for the study.
- Geotechnical decrease from $5,000 to $3700 due to lower evaluation costs.
- Easement acquisition reduced from $10,000 to $4,776 due to lower easement acquition costs.
- Lagoon decreased from $122,606 to $81,382 to move funds to Engineering and Property acquisition.
- Septic Collection system decreased from $278,695 to $255,856.

The item funds reduced from the original budget were transferred to the Engineering and Property Acquition items. Additional funds were needed because these items were completed before construction started and costs were higher than preliminary estimates. The other pre-construction items were all completed under budget. The additional funds need for the Lagoon and Septic Collection system were provided by Poweshiek Rural Water Association and the USDA-Rural Development loan. The project is completed. The final $50,000 of this project will be expended following approval of the final funding request.

Total Project Funding Summary

Funding Source	Cash		In-Kind Contributions		Total	
	Approved Application Budget ($)	Actual ($)	Approved Application Budget ($)	Actual ($)	Approved Application Budget ($)	Actual ($)
WIRB	500,000	500,000	0	0	500,000	500,000
USDA-RD	268,000	450,000	0	0	268,000	450,000
CDB Grant	241,000	200,000	0	0	241,000	200,000
PRWA	0	30,707.27	0	0	0	30,707.27
Totals	1,009,400	1,180,707.27	0	0	1,009,400	1,180,707.27

Watershed Improvement Fund contribution: Approved application budget: 49.5 %
Actual: 42.3 %

The project cost was $171,307.27 (15%) over the original cost estimate. The higher cost was due to 3 reasons. First, the planned lagoon location had to be move and was acquired at a cost of $80,000 compared to $40,000 planned. Second, the Engineering costs of $70,000 (compared to $35,000 planned) were higher due to a change in the Lagoon site and location. The third reason for the overrun was due to higher construction costs due to the changes in location and the need for a pump station. The Community Block grant was also reduced by $41,000 due to program cuts, and the USDA Loan had to be increased by $182,000. Poweshiek Rural Water Association also contributed $30,707.27 to make up the remaining difference.

Environmental Accountability

The Water Quality monitoring program was established with testing back to 2003. The bench mark samples were used from the 2004 and 2005 test year. These results and the most recent tests from October 2008 are shown in the table below.

Test Site*	Test Date	TDS (Total Dissolved Solids)	Chloride (mg/L)	E.Coli Bacteria CFU/100L	Total Phosphorus Mg/L
CC-00B	5/14/2005 7/16/2005	500 mg/L 5/14/2005	80 mg/L 7/16/2005	3000 CFU 7/16/2005	.35 mg/L 7/16/2005
CC-0BN	9/27/2004	No test	100 mg/L	350 CFU	.70 mg/L.
CC-1	5/14/2005 7/16/2005	700 mg/L 5/14/2005	90 mg/L 7/16/2005	500 CFU 7/16/2005	.20 mg/L 7/16/2005
CC-1	7/12/2008	No test	31 mg/L	52000 CFU	.14 mg/L
CC-00B	10/11/2008	No test	33 mg/L	240 CFU	0.20 mg/L
CC-00BN	10/11/2008	No test	33 mg/L	280 CFU	0.20 mg/L
CC-1	10/11/2008	No test	40 mg/L	1100 CFU	0.10 mg/L

*Test Site locations: SEE EXHIBIT #2 FOR LOCATION.
CC00B – North junction box at Q Ave.
CC00BN – North tile line coming from Conroy into junction box CC0B.
CC-1 – Culver inlet into Clear Creek at R Ave.

Based on current requirements, no water quality based limits for ammonia and bacteria are imposed on control discharge lagoons. The IDNR bacteria standard for this stream segment is 2880 CFU/L. The 2005 sample exceeds that level and the 2008 steam test greatly exceeds this level. However, the controlled discharge lagoon facility needs to meet water quality based limits for Total Dissolved Solids/Chloride. The site specific standard for TDS is 1000 mg/L. Exceeding this level causes a negative impact to the receiving stream. At that point, sources of TDS would require discharges to demonstrate no toxicity to receiving streams. Chloride can cause toxicity to aquatic life. Based on dilution in Clear Creek, if the effluent chloride level is above 880 mg/L the acute WET test is required and if the effluent chloride level is above 280 mg/L the chronic WET test is required.

The lagoons on this project have not discharged treated effluent as of this date. A spring discharge date is planned. The effect will be analyzed at the discharge point and at the WQ test site CC00B. The design and function of the lagoon predicts the discharge levels

of TDS and Chlorides to be below the required standard. The bacteria levels should be reduced to an acceptable level also.

According to "TDS/Chloride Study – Impact of Point Source Outfalls on Receiving Streams" a cooperative study in 2005 by Lynette Seigley of Iowa DNR, 17 communities with Controlled Discharge Lagoons had the discharge sampled during the Spring and Fall release events. The Spring test results averaged 143 mg/l TDS and 21 mg/l Chlorides. The Fall test results averaged 1045 mg/l TDS and 264 mg/l Chlorides. All Chloride tests are under the minimum standard of 280 mg/l. The Spring TDS results were under the 1000 mg/l standard, however the Fall tests exceed the standard. The sample did indicate that 5 of the sites with high TDS in the fall were statistically very high. This would indicate that the system may have had other problems.

In summary, the research data would indicate that the Conroy lagoon most likely will be within the required standard for TDS/Chlorides during the spring and Chlorides in the fall. (See http://wqm.igsb.uiowa.edu/PPpresentations).

The fall TDS delivery data has greater than 50% probability of being within that standard requirement. Future testing when the Lagoons begin their discharge cycles should provide the needed data for evaluating the effectiveness of the treatment system.

This project had 3 phases that were all completed. They included:

- Formation of the a Sewer District – completed by development and approval of County Ordinance #30 by the Iowa County Board of Supervisors on 8/1/2006. Five public meetings and 3 feature stories and news releases were carried locally in the Williamsburg Journal Tribune paper.

- Land and Easement acquisition for the lagoons and collection system. Eight acres were acquired for the lagoon construction. Easements were acquired for installation of the collection system and 83 service hookups.

- Installation of the Collection system, construction of the Lagoons and Service hook ups to go on line. Two lagoons were completed by 11/24/2008. Lagoon 1, 2.08 ac. holds 1.51 million gallons and 121 days of storage and Lagoon 2, 1.2 acres holds 1.24 million gallons and 60 days of storage. The collection system has 1180 feet of 6 inch and 8 inch sewer main and 6823 feet of 4 inch service line. It hooked up 83 houses and went on line on 12/5/2008. The old septic tanks were disconnected and plugged according to requirements. See Exhibit 1 and 2 for location.

- The system has approximately 181 days of storage. Controlled discharge will be 2 to 3 times per year depending on the rainfall conditions. Controlled discharge will occur through a water control valve through an 8 inch pie onto a rock check strip located in an adjacent grassed waterway bordering the lagoons. The Discharge period will be approximately 72 hours at a rate of 1.93 cubic feet per second (52,083 gallons/hr.) See Exhibit #2 for site location

Practices and Activities

Practice or Activity	Unit	Approved Application Goal	Accomplishments	Percent Completion
County Sewer Ordinance	No.	1	1	100
Land Acquisition	Ac.	8	8	100
Easement Acquist.	No.	83	83	100
Sewer Collection System	Ft.	11,800	11,800	100
Service Hook Up Collection System	No. Ft.	83 6225	83 6823	100
Lagoon	No.	2	2	100

See Exhibit 1, for Lagoon photos and details.
See Exhibit 2 for project location.

Program Accountability

Resource Problem

The town of Conroy is an unincorporated and un-sewered community of 268 in Iowa County. In January 10, 2005 the Iowa County Board of Health received violation notice for discharge of wastewater into the Clear Creek Watershed from IDNR. DNR water samples, taken September 27, 2004, from tile lines below Conroy indicated the presence of human sewage from sampled tile lines. Tests also indicated the presence of high levels of TDS and Chlorides.

These results and the publicity caused a highly charged atmosphere concerning these issues. Five local meetings were held with Conroy community leaders, the Iowa County Board of Supervisors, IDNR and Poweshiek Rural Water Association. The project developed after the following events were initiated.

- Public meetings were initiated by the Board of Supervisors and County Ordinance #30 Conroy Sewer Service was developed and approved 8/1/2006. This accomplishment required the support of all the partners over the course nearly a year.
- The Iowa County SWCD board was approached by project partners: Iowa County, Poweshiek Rural Water Association, Council of Governments, and IDNR as a potential sponsor of a WIRB grant application to share in project cost share. This met two of the requirements for the WIRB program, the application and the administration. The SWCD made the commitment in support of the overall goals for the Clear Creek Watershed project plan and ongoing Clear Creek Watershed Protection Fund project. The application was approved on 3/3/2006.
- Poweshiek Rural Water Association agreed at the beginning of the planning process to commit to ownership, operation and maintenance of a sewer collection system and lagoons.

- Iowa County SWCD developed a sub-recipient agreement with Poweshiek Rural Water to serve as contract and project design/construction agent. This agreement was developed with assistance from the Iowa Department of Land Stewardship and specified the required contracting procedures and project administration.
- Clear Creek Watershed Project committed to continued monitoring through use of IOWATER volunteers in cooperation with IDNR and the Iowa SWCD. Future testing will continue as part of the over all monitoring of the Clear Creek Watershed Protection Project.

The project set the following goals to treat the water quality resource concerns.

- Provide residents of Conroy and the surrounding area with environmentally sound, affordable treatment of waste water.
- Improve the water quality of the Clear Creek Watershed by eliminating the discharge of waste water from septic systems.
- Improve the water quality of the Clear Creek Watershed by treating collected waste water prior to discharge into the watershed.

Summary

The Collection system and controlled discharge lagoons represent a cost-effective affordable method of protecting the watershed. This project reduces construction costs for small towns and encourages innovative collective and treatment systems. The relationship between the applicant/administration (SWCD) and the cooperator (PRWA) represents a successful relationship developed through effective communication and mutual support. The result being a project completed on schedule, treating the point source pollutants and watershed at an affordable cost to the residents of Conroy.

This was a successful project; it completed the project goals and also treated a component resource concern identified by IDNR on 303d impaired waters listing and by the Clear Creek Watershed plan. Lessons and recommendations from this project include the following comments:

- It is nearly a requirement to have an existing watershed organization and general plan to be able to build into the partnerships needed to do a project such as this. This includes both the administrative and political partnerships.
- The SWCD needs to identify a partner with an existing set of contracting skills and commitment to project operation and maintenance in order to have a successful project. In this case it was Poweshiek Rural Water Association.
- This was a good fit for WIRB money since it worked to solve a specific problem in a sub-watershed as part of the larger watershed project activities. In return, a project like this will in the long run treat the section of impaired waters but will also aid in supporting the remaining ongoing watershed project activities.

EXHIBIT 1

Lagoon 1 – 2.08 ac. 2.51 million gal. 121 days storage
Lagoon 2 – 1.0 ac. 1.24 million gal. 60 days storage. Total Storage 181 days.

Lagoon #2 and Controlled Discharge Outlet intake.

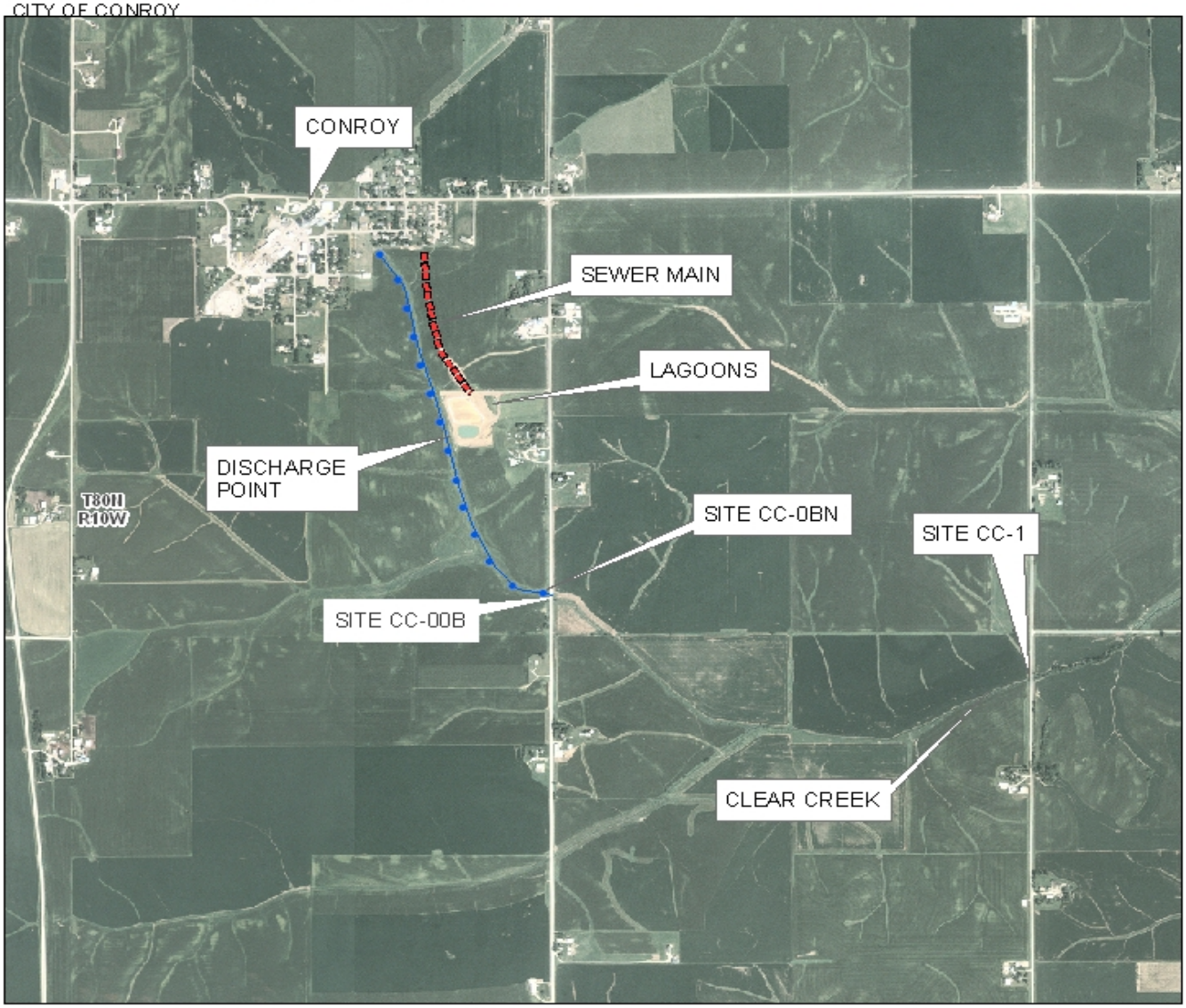
EXHIBIT 2

Project Map

Date: 2/18/2009

District: IOWA SOIL & WATER CONSERVATION DISTRICT

Legal Description: CLEAR CREEK WIRB PROJECT
CITY OF CONROY



Legend

- WATER WAY
- SEWER MAIN
- Iowa Co - Townships

1,000 0 1,000 2,000 3,000 4,000 Feet

N