State of Wisconsin
Department of Natural Resources

dnr.wi.gov

Final Report

Targeted Runoff Management Grant Program and Urban Nonpoint Source and Storm Water Management Grant Program

Form 3400-189 (R 11/05)

Notice: This final report is authorized by ss. 281.65 and 281.66, Wis. Stats., and chs. NR 153 and NR 155, Wis. Adm. Code. Personally identifiable information collected will be used for program administration and may be made available to requesters as required under Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

Instructions: The grant agreement requires grantees to submit a Final Report 60 days after the end date listed in the grant agreement. This Final Report form must be used in conjunction with the "FINAL REPORT INSTRUCTIONS." The instructions detail how to complete and submit the report to DNR.

1. Grant Type

☐ Agricultural - Targeted Runoff Management Grant

☐ Urban - Targeted Runoff Management Grant

☒ Construction - Urban Nonpoint Source & Storm Water Management Grant

☒ Planning - Urban Nonpoint Source & Storm Water Management Grant

2. Grantee & Project Information

Project Name	Grant Number
Beaver Creek Restoration	**USC-M102-41107-04**
Governmental Unit Name	Governmental Unit Type (city, village, town, etc.)
Brown Deer, WI	**Village**
Watershed Name	Watershed Code
Beaver Creek	**M102-050**
DNR Water Management Unit (River System) Name	Water Body Identification Code (WBIC) (if applicable)
Milwaukee River South	**N/A**

303(d) Waterbody? ☒ Yes ☐ No

What pollutant(s) were addressed by the project?

TBD

For **each** project site location provide the following: (attach additional sheets if necessary)

Location:		A	B	C	D	E
Minor Civil Division Name		**Brown Deer**				
PLSS	Town	**8N**				
	Range	**21E**				
	Section	**10**				
	Quarter	**NE**				
	Quarter-Quarter					
Latitude		**87°59'16.6" W**				
Longitude		**43°10'36.8" N**				
Property Owner(s)	Name	**Village of Brown Deer**				
	Mailing address	**4800 W. Green Brook Dr.**				
Site address *(if different than mailing address)*						

Summary of Results

A. Performance Standards and Prohibitions and Other Water Resources Management Priorities

For grants issued in calendar year 2006 or later, complete Tables A and B (following) consistent with the entries on your grant application. For grants issued prior to calendar year 2006, complete Tables A and B, *to the best of your knowledge*, consistent with the entries on your grant application.

Table A. Performance Standards and Prohibitions (per ch. NR 151, Wis. Adm. Code, effective October 1, 2002)

Performance Standard or Prohibition	Units of Measure	Quantity	Measurement Method Used
Sheet, rill and wind erosion	Acres meeting T		
Manure Storage Facilities: New Construction/Alterations	Number of facilities		
	Number of animal units		
Manure Storage Facilities: Closure	Number of facilities		
Manure Storage Facilities: Failing/Leaking Facilities	Number of facilities		
	Number of animal units		
Clean Water Diversions in WQMA	Pollutant load reduction		
	Number of farms with diversions		
	Number animal units		
Nutrient Management on Agricultural Land	Acres planned		
Prohibition: Manure Storage Overflow	Number of facilities		
	Number of animal units		
Prohibition: Unconfined Manure Pile in WQMA	Number of farms		
Prohibition: Direct Runoff From Feedlot/Stored Manure	Pollutant load reduction		
	Number of facilities		
	Number of animal units		
Prohibition: Unlimited Livestock Access	Feet of bank protected		
	Number of farms		
Urban: 20-40% Reduction in Total Suspended Solids (TSS)	Pounds TSS reduced		
	% TSS reduction		

Table B. Other Water Resources Management Priorities

I. Agricultural Areas	Units of Measure	Quantity	Measurement Method Used
Buffers	Feet of bank protected		
	Number of farms		
Streambank	Tons of bank erosion reduced		
	Feet of bank protected		
Other (specify)			
II. Developed Urban Areas	**Units of Measure**	**Quantity**	**Measurement Method Used**
Urban: 20-40% Reduction in TSS	Pounds TSS reduced		
	% TSS reduction		
Infiltration	% Pre-development stay-on volume		
	Cubic feet stay-on volume		
Peak flow discharge	Change in cubic feet per second		
Protective areas	Feet of bank protected		
Fueling & maintenance areas	Oily sheen presence		
Streambank	Tons of bank erosion reduced		
	Feet of bank protected	**700**	**Visual assessment**
Other (specify)			
III. Planning	**Units of Measure**	**Quantity**	**Measurement Method Used**
Quantify how implementation of the planning project decreased storm water impacts on state waters (*i.e.*, storm water plan, I & E plan, *etc.*)	Municipalities planned for	**1**	
	Acres planned for	**2217**	
Document/track progress made in implementing the planning product (*i.e.*, ordinance, utility district evaluation/formation, storm water management plan information & education, *etc.*)	Municipalities planned for		
	Acres planned for		
Other (specify)			

Project Results Narrative

. Project Accomplishments

a.) Post project summary.

The project filled in badly eroded sections of streambank and re-established a natural stone creek bottom as well as re-vegetated the newly-established streambanks. The project has eliminated large amounts of silt that was being washed downstream during heavy storm events.

b.) Project evaluation.

i.) Modeling was not conducted for this reach of stream, as we were not able to quantify the amount of silt runoff. However, the condition of the stream was well documented before the project.

ii.) Pre-project monitoring activities included reviewing historical photographs, site reconnaissance and resident interviews. Post-project monitoring consists of monthly field observations. The inspection process involves walking the length of the project and observing: the quality and quantity of seeded areas and transplant plugs; the stability of manufactured erosion control structures, constructed stone riffles, and creek bed; and signs of potential erosion at specific locations along the banks and toe of slopes based on patterns of pre-construction erosion.

iii.) The project was highly successful in meeting its objectives of reducing silt runoff, re-vegetating the streambanks to hold them in place as well as beautifying through native plants such as wildflowers, and enhancing wildlife habitat, not only in the stream itself, but along the streambanks that were naturalized up to 30' on either side of the stream for the length of the project.

2. Information and education activities.

At this point, the adjacent landowners whose backyards the creek flows through have been educated through letters, personal visits and postings on the streambanks of the necessity to not mow the banks, apply weed killer, pull out plants, etc. However, as the vegetation matures and the disturbed land heals, the site will lend itself to being an example to the general public on proper stewardship of natural streams as well as a destination for school groups to observe wildlife. The site will always be accessible to the public because the stream in within a permanent public drainage easement.

3. Required implementation and enforcement activities.

a.) An erosion control ordinance has been adopted by the Village (Ordinance No. 00-01)

b.) A stormwater management ordinance has been adopted by the Village (Ordinance No. 01-10)

c.) A pollution prevention I & E program has been implemented by the Village (An information kiosk has been installed in the Village Hall front lobby, with handouts available; the DPW has a program to label catch basins in the field; informational articles are periodically included in the Village newsletter).

d.) The Village will adopt a nutrient management plan in the near future. Our DPW superintendent, Larry Neitzel, is currently serving on the WDNR's Standards Oversight Council Turf Nutrient Management Work Team that is reviewing the draft DNR Technical Standard - 1100 Turf Nutrient Management.

e.) The Village will also in the near future formulate and implement a stormwater permit tracking system. At present, the Village has issued very few stormwater permits and has been tracking them informally.

4. Satisfaction of Notice Requirements (if applicable)

If cost sharing for this project was offered under a formal notice to achieve compliance with performance standards or prohibitions, provide information for each notice in the table below.

Notice Information				Notice Satisfaction Information		
				Satisfied?		
Notice Type	Issue Date	From (Name)	To (Name)	Yes	No	Date Letter Sent
				☐	☐	
				☐	☐	
				☐	☐	
				☐	☐	

5. Summary of Project Challenges

The main challenge encountered during this project was during the construction phase. Due to the paucity of such projects in this area, there was a significant learning curve involved for the contractor, inspector and Village staff. Much of the stream bed work, such as placenment of the stone creek bottom, was tedious hand work, and much time was spent placing and replacing individual stones until it looked "just right". Another facet of the project that took a significant amount of education was the proper placement and installation of the engineered stabilization measures (Ajax, Armorflex). However, the manufacrturer's representatives were very helpful and offered on-site visits to explain the proper techniques.

6. Additional Information about the Project (optional)

The project has been an unmitigated success in achieving its stated objectives, and has been accepted by the public at large, adjacent landowners, Village staff and the engineering community as a public improvement that will serve well for many years to come. In fact, the project was nominated for and received a "2006 Engineering Excellence State Finalist Award", presented to the Village in March, 2006 by the American Council of Engineering Companies of Wisconsin. There have also been several positive articles written about the project and its outcome in trade publications.

The Village is excited about the project's outcome, and is looking forward to implementing further projects of this type on other reaches of its 2 main streams tributary to the Milwaukee River, Beaver Creek and Southbranch Creek as opportunities arise. Most of the bottom of those tributaries are concrete-lined, and the lining will be removed in the future as it inevitablely fails. The Village is committed to managing its stormwater system now and in the future with the best practices available to safeguard the waters of the public.

7. Planning Product (UNPS&SW - Planning Projects only)

☐ Check here if a printed copy of the planning product (e.g., plans, ordinances, analyses) was sent to your DNR Regional Nonpoint Source Coordinator.

Name of Document	Date(s) effective	Date Submitted to NPS Coordinator

8. Grantee Certification:

☒ Check here to certify that, to the best of your knowledge, the information contained in this report is correct and true.

Type or print Name and Title of Authorized Representative certifying here.

James Buske, Engineering & GIS Services Manager

Signature of Authorized Representative	Date
	04/20/06