Sediment & Nutrient Reduction and Habitat Restoration

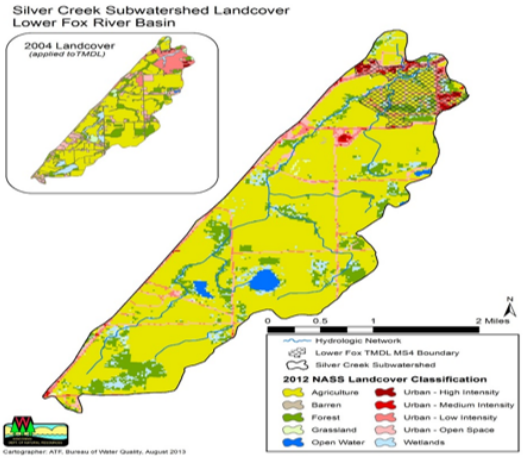
USEPA-Great Lakes Restoration Initiative Project

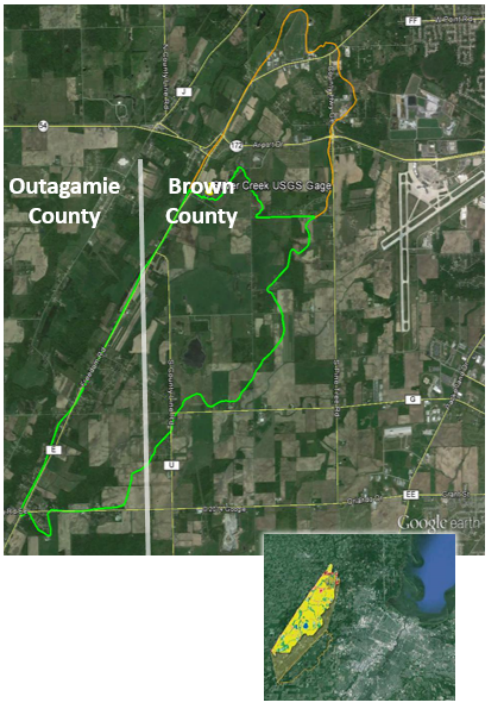
Grant Number: GLRI 00E01450

Semi Annual Report #3

April 2016 - September 2016

October 28, 2016





Watershed Area	4799.8 acres (7.50 mi2)	
MS4	346 acres (7.2% of watershed)	
Land cover 2012 Cropland Data Layer USDA NRCS	Agricultural	**2296.4 acres (47.8%)**
	Forest	585.1 acres (12.2%)
	Grassland	12.3 acres (0.3%)
	Pasture	1065 acres (22.2%)
	Urban	503.9 acres (10.5%)
	Water	64.5 acres (1.3%)
	Wetlands	272.6 acres (5.7%)
Stream Length	**14.93 miles**	
TMDL Phosphorus Baseline Load	**3391 lbs**. (0.71 lbs. per acre)	

http://www.newwater.us/projects/silver-creek-project/

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Grant Number: # 00E01450
Project Title: Silver Creek Sediment & Nutrient Reduction and Habitat Restoration

Budget & Project Periods: $421,481, Year 2, 1st half (plus $62,891 "carry over")
Reporting Period Covered: April 1, 2016 to September 30, 2016
Principal Investigator: Jeff Smudde, NEW Water (GBMSD) Watershed Programs Manager
Project Goals:

Reduce agricultural nonpoint runoff by installing permanent conservation measures
Restore biological habitat of Silver Creek
Achieve sediment and nutrient goals consistent with state water quality standards

- ✓ Total Phosphorus (P): 0.075 mg/L for tributary streams
- ✓ Total Suspended Solids (TSS): TMDL target of 18 mg/L

Project Summary

The Silver Creek sub-watershed has been selected by NEW Water, the brand of the Green Bay Metropolitan Sewerage District (GBMSD), for a five-year demonstration area to evaluate an Adaptive Management (AM) Strategy consistent with Wisconsin Administrative Code NR 217.18, that allows point sources such as NEW Water to pursue alternative permit compliance options for reducing total phosphorus (P) and total suspended solids (TSS) agricultural run-off into waterways. Accomplishments to date include: field and stream surveying, inventory of stream bank erosion and in-stream sediment deposition, baseline soil sampling, ongoing water quality monitoring and analyses, landowner contacts, field walks, Cost Share Agreement signings, Best Management Practice (BMP) installations, modeling, and GIS compilation. Private Agronomists and staffs from the Natural Resource Conservation Service (NRCS) and Brown and Outagamie Counties continue working with landowners and growers throughout this 4,800-acre subwatershed. The Oneida Nation (Oneida Tribe of Indians of Wisconsin) is a large landowner in the subwatershed owning 68% of the cropped fields. Implementation of conservation measures and BMPs is under way that will aid in attempts to achieve 0.075 mg/liter total P levels in Silver Creek.

Silver Creek, which is about 15 miles in length, is located in the Duck Creek Watershed of the Lower Fox River Basin in northeast Wisconsin. This Basin is a Great Lakes Restoration Initiative (GLRI) Priority Watershed and has been deemed an Area of Concern (AOC) by the International Joint Commission due to the persistence of pollutants and the degradation of habitat. Because of these pollution concerns, the Lower Fox River has an EPA approved Total Maximum Daily Load (TMDL) Plan which requires reduction of P and TSS in the Fox River to comply with State water quality criteria. To aid in meeting the Fox River TMDL, the goal for Duck Creek (one of 16 watersheds in the Lower Fox River) is a 76% reduction of Total P from agricultural sources. NEW Water is piloting AM using conservation measures and BMPs on agricultural properties surrounding Silver Creek to see if this is a feasible compliance option for reducing P and TSS in a subwatershed that feeds into Duck Creek.

The results of this five-year AM pilot project will be utilized to create a framework to address water quality improvements for other sub-watershed projects within the Lower Fox River basin, and potentially similar projects at a full watershed scale throughout the Great Lakes.

1. GLRI funded nutrient and sediment reduction projects (summer 2016)

Table 1 Field Acreages with Implemented BMPs

Unique ID# (201000)	Acres	Structural BMPs	NRCS Code	CSA
41	1.00	CAP (#2)	342	SC002
658	0.41	CAP (#3)	342	SC002
126	0.64	CAP	342	SC002
342	0.18	CAP	342	SC002
48	1.50	Filter strip (#1)	393	SC002
127	1.30	CAP (#2)	342	SC002
669	1.52	CAP (#2-5)	342	SC003
670	0.72	CAP (#1-4)	342	SC003
9	0.31	Filter strip	393	SC003
674	0.40	CAP (#1)	342	SC004
675	0.40	CAP (#2)	342	SC004
198	0.64	Grassed waterway	412	SC004
661	0.31	Vegetated treatment	635	SC005
662	0.26	Heavy use area	561	SC005
664	24.00	N. WASCB	638	SC005
660	23.50	M. WASCB	638	SC005
659	25.50	S. WASCB	638	SC005
234	3.36	Waste facility closure	360	SC005
195	0.62	Grassed waterway	412	SC005
163,668,175	3.32	Grassed waterway	412	SC005
45	0.70	Filter strip (#1)	393	SC006
46	0.56	Filter strip (#3)	393	SC006
Total Structural*	**91.15**			

Location	Acres	Non-Structural BMPs	NRCS Code	CSA
VH03	7.50	Cover crop	340	SCNS1001
CJ1	8.00	Cover crop	340	SCNS1002
CJ3	10.00	Cover crop	340	SCNS1002
D12	24.61	Cover crop	340	SCNS1003
D16	36.83	Cover crop	340	SCNS1003
KJ1	26.90	Cover crop	340	SCNS1004
KJ2	44.29	Cover crop	340	SCNS1004
KJ3	31.33	Cover crop	340	SCNS1004
VGA1	29.84	Cover crop	340	SCNS1005
VGA2	8.00	Cover crop	340	SCNS1005
VGA3	9.07	Cover crop	340	SCNS1005
A10	5.00	Cover crop	340	SCNS1006
A12	5.00	Cover crop	340	SCNS1006
Total Non-structural*	**246.37**			

*See pages 6-8 for descriptions of structural and non-structural practices
CAP: critical area planting
WASCB: water and sediment control basin

WORK PLAN ACCOMPLISHMENTS FOR THIS REPORTING PERIOD:

Overviews and details of each of these work plan tasks are provided in previous Semi-Annual Reports.

Quality Documentation

All required project quality documentation has been completed and approved by US EPA

Plan Title	Approval Date
Quality Management Plan	February 2016
Managed Grazing – Paired Field Monitoring (UWGB)	May 2016
Vegetated Water Treatment System (UWGB)	January 2016
Project Quality Assurance Plan (Soil and Water Quality Sampling)	June 2016

A. Partner Involvement and Committees

Extensive partner involvement occurred during the reporting period and additional details are provided in the following sections. A stakeholder meeting had been scheduled for spring 2016, but because of so many critical planning needs prior to field planting, the meeting was postponed and will be held in December 2016.

B. Landowner Contacts and Communication

Agronomists, NEW Water, NRCS and county staffs have been making frequent contacts with landowners and growers this summer. Based on previously agreed upon conservation plans and enhanced nutrient management plans, over a dozen participants signed NEW Water Cost Share Agreements (CSAs) for a variety of BMPs. Table 1 gives a good overview of the BMPs installed or soon to be installed during the 2016 field season. Furthermore, even without cost sharing, many willing landowners are voluntarily paying for and restoring their properties because of the extensive education efforts by Silver Creek Project Partners to inform everyone about the importance of clean water and increased native habitats.

Cost Share Agreements

There are two types of NEW Water CSAs used at Silver Creek: Structural and Non-Structural.

1. A Structural CSA is used for “hard” practices implemented and maintained according to NRCS standards and specifications. Structural CSAs are permanently installed and are recorded on property deeds with reference to Conservation Plans housed in and verified by the County Land and Water Conservation Departments. A schematic of a typical 10-page NEW Water Structural CSA is shown in Figure 1. The blank page is where the BMP spreadsheet is inserted (see Figure 2) that shows estimated costs and cost share amounts. After BMP construction, the final quantities and cost shares are calculated in the spreadsheet and it is inserted into CSA document. The final document is then recorded on the property deed.

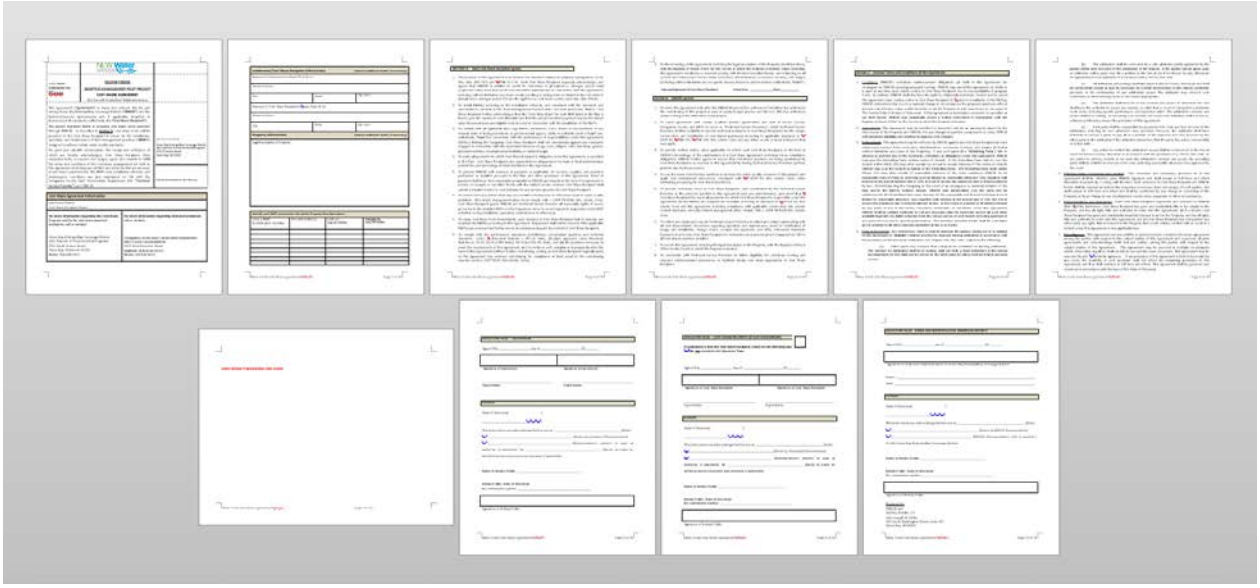


Figure 1 Schematic of a Structural CSA

Section D BMP Plan: Practices, Costs, Installation, and Approvals

Silver Creek Cost Share Agreement SC0003

The parties agree to the practices, specification, eligible costs, cost share amounts, and installation schedule set forth below.

Name of Person Preparing Technical Design: Nikki Truyman Representing: Outagamie County LWCD

Name of Cost Share Recipient:

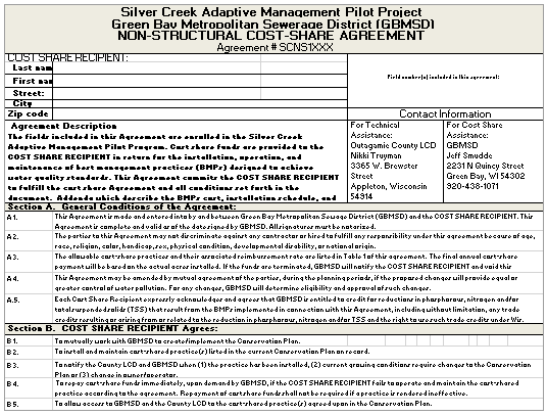
Note: the final cost share amounts may be more or less based on the actual cost of the BMP(s) installed

Note: if NRCS cost share is greater than initial cost, GBMSD cost share estimate = $0

Unique ID (shown on map)	NRCS Code	Best Management Practice, field # name, cons. plan	Estimated Quantity	Units	Install Date	Initial Cost ($) Estimate	NRCS Cost Share Estimate ($)	GBMSD Cost Share Estimate ($)	FINAL QUANTITY	TOTAL Final Cost ($)	NRCS Final Cost Share ($)	GBMSD Final Cost Share ($)	Source of Funds	GBMSD Final Approval (date)
201000669	342	CAP (CP - 2-5)	1660	ft	Fall 16	$5,730.00	$1,088.39	$4,641.61				$0.00		
n/a	484	mulching	1660	ft	Fall 16	$3,320.00	$1,747.20	$1,572.80				$0.00		
201000670	342	CAP (CP - 1-4)	780	ft	Fall 16	$2,690.00	$507.90	$2,182.10				$0.00		
n/a	484	mulching	780	ft	Fall 16	$1,560.00	$815.36	$744.64				$0.00		
201000009	393	filter strip	300	ft	Fall 16	$150.00	$132.70	$17.30				$0.00		
					TOTAL	$13,450.00	$4,291.55	$9,158.45		$0.00	$0.00	$0.00		
		Estimated NRCS Cost Share	$ 4,291.55								FINAL NRCS Cost Share		$0.00	
		Estimated GBMSD Cost Share	$ 9,158.45								FINAL GBMSD Cost Share		$0.00	

Figure 2 BMP Table

2. Non-Structural CSAs are "soft" practices that may change from year to year and include management practices such as crop residue tillage, cover crops, and interseeding. See Figure 3 for a schematic of a Non-Structural CSA.



Silver Creek Adaptive Management Pilot Project
Green Bay Metropolitan Sewerage District (GBMSD)
NON-STRUCTURAL COST-SHARE AGREEMENT
Agreement # SCNS1XXX

COST SHARE RECIPIENT:
Last name:
First name:
Street:
City
Zip code

Field number(s) included in this agreement:

Contact Information

For Technical Assistance:	For Cost Share Assistance:
Outagamie County LCD Nikki Truyman 3365 W. Brewster Street Appleton, Wisconsin 54914	GBMSD Jeff Smudde 2231 N Quincy Street Green Bay, WI 54302 920-438-1071

Agreement Description
The fields included in this Agreement are enrolled in the Silver Creek Adaptive Management Pilot Program. Cost share funds are provided to the COST SHARE RECIPIENT in return for the installation, operation, and maintenance of best management practices (BMPs) designed to achieve water quality standards. This Agreement commits the COST SHARE RECIPIENT to fulfill the cost share Agreement and all conditions set forth in the document. Addenda which describe the BMPs' cost, installation schedule, and

Section A. General Conditions of the Agreement:

A1. This Agreement is made and entered into by and between Green Bay Metropolitan Sewerage District (GBMSD) and the COST SHARE RECIPIENT. This Agreement is complete and valid as of the date signed by GBMSD. All signatures must be notarized.

A2. The parties to this Agreement may not discriminate against any contractor hired to fulfill any responsibility under this agreement because of age, race, religion, color, handicap, sex, physical condition, developmental disability, or national origin.

A3. The allowable cost share practices and their associated reimbursement rate are listed in Table 1 of this agreement. The final annual cost share payment will be based on the actual acres installed. If the funds are terminated, GBMSD will notify the COST SHARE RECIPIENT and void this

A4. This Agreement may be amended by mutual agreement of the parties, during the planning periods, if the proposed changes will provide equal or greater control of water pollution. For any changes, GBMSD will determine eligibility and approval of such changes.

A5. Each Cost Share Recipient expressly acknowledges and agrees that GBMSD is entitled to credit for reductions in phosphorous, nitrogen and/or total suspended solids (TSS) that result from the BMPs implemented in connection with this Agreement, including without limitation, any trade credits resulting or arising from or related to the reduction in phosphorous, nitrogen and/or TSS and the right to use such trade credits under Wis.

Section B. COST SHARE RECIPIENT Agrees:

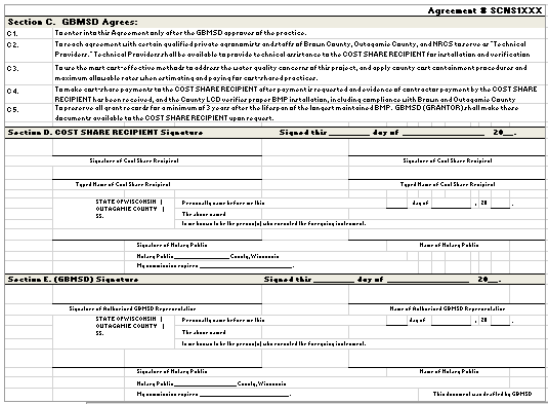
B1. To mutually work with GBMSD to create/implement the Conservation Plan.

B2. To install and maintain cost-shared practice(s) listed in the current Conservation Plan on record.

B3. To notify the County LCD and GBMSD when (1) the practice has been installed, (2) current grazing conditions require changes to the Conservation Plan or (3) changes in ownership occur.

B4. To repay cost share funds immediately, upon demand by GBMSD, if the COST SHARE RECIPIENT fails to operate and maintain the cost-shared practice according to the agreement. Repayment of cost share funds shall not be required if a practice is rendered ineffective.

B5. To allow access to GBMSD and the County LCD to the cost-shared practice(s) agreed upon in the Conservation Plan.



Agreement # SCNS1XXX

Section C. GBMSD Agrees:

C1. To enter into this Agreement only after the GBMSD approves of the practice.

C2. To reach agreement with certain qualified private agronomists and staffs of Brown County, Outagamie County, and NRCS to serve as "Technical Providers". Technical Providers shall be available to provide technical assistance to the COST SHARE RECIPIENT for installation and certification.

C3. To use the most cost-effective methods to address the water quality concerns of this project, and apply county cost containment procedures and maximum allowable rates when estimating and paying for cost-shared practices.

C4. To make cost-share payments to the COST SHARE RECIPIENT after payment is requested and evidence of contractor payment by the COST SHARE RECIPIENT has been received, and the County LCD verifies proper BMP installation, including compliance with Brown and Outagamie County

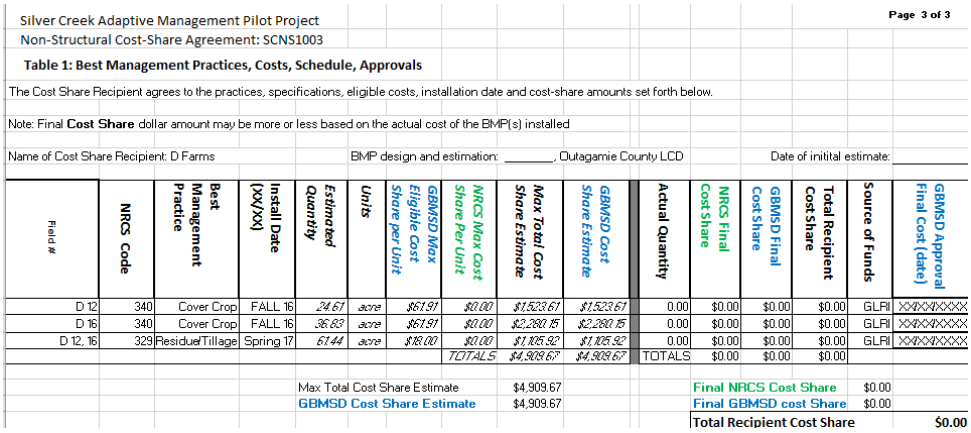
C5. To preserve all grant records for a minimum of 3 years after the life span of the last maintained BMP. GBMSD (GRANTOR) shall make these documents available to the COST SHARE RECIPIENT upon request.

Section D. COST SHARE RECIPIENT Signature **Signed this _____ day of _____ 20__.**

Signature of Cost Share Recipient
Typed Name of Cost Share Recipient
STATE OF WISCONSIN | OUTAGAMIE COUNTY | ss.
Personally came before me this ____ day of _____, 20__,
The above named
to me known to be the person(s) who executed the foregoing instrument.
Signature of Notary Public
Name of Notary Public
Notary Public, _____ County, Wisconsin
My commission expires _____.

Section E. (GBMSD) Signature **Signed this _____ day of _____ 20__.**

Signature of Authorized GBMSD Representative
Name of Authorized GBMSD Representative
STATE OF WISCONSIN | OUTAGAMIE COUNTY | ss.
Personally came before me this ____ day of _____, 20__,
The above named
to me known to be the person(s) who executed the foregoing instrument.
Signature of Notary Public
Name of Notary Public
Notary Public, _____ County, Wisconsin
My commission expires _____.
This document was drafted by GBMSD



Silver Creek Adaptive Management Pilot Project
Page 3 of 3
Non-Structural Cost-Share Agreement: SCNS1003

Table 1: Best Management Practices, Costs, Schedule, Approvals

The Cost Share Recipient agrees to the practices, specifications, eligible costs, installation date and cost-share amounts set forth below.

Note: Final **Cost Share** dollar amount may be more or less based on the actual cost of the BMP(s) installed

Name of Cost Share Recipient: D Farms BMP design and estimation: _____, Outagamie County LCD Date of initital estimate: _____

Field #	NRCS Code	Best Management Practice	Install Date (XX/XX)	Estimated Quantity	Units	Eligible Cost Share per Unit	GBMSD Max Share Per Unit	NRCS Max Cost Share Estimate	Max Total Cost Share Estimate	GBMSD Cost Share Estimate	Actual Quantity	NRCS Final Cost Share	GBMSD Final Cost Share	Total Recipient Cost Share	Source of Funds	GBMSD Approval Final Cost (date)
D 12	340	Cover Crop	FALL 16	24.61	acre	$61.91	$0.00	$1,523.67	$1,523.67	0.00	$0.00	$0.00	$0.00	GLRI	XX/XX/XXXX
D 16	340	Cover Crop	FALL 16	36.83	acre	$61.91	$0.00	$2,280.15	$2,280.15	0.00	$0.00	$0.00	$0.00	GLRI	XX/XX/XXXX
D 12, 16	329	Residue/Tillage	Spring 17	61.44	acre	$18.00	$0.00	$1,105.92	$1,105.92	0.00	$0.00	$0.00	$0.00	GLRI	XX/XX/XXXX
							TOTALS	$4,909.67	$4,909.67	TOTALS	$0.00	$0.00	$0.00		

Max Total Cost Share Estimate	$4,909.67	Final NRCS Cost Share	$0.00
GBMSD Cost Share Estimate	$4,909.67	Final GBMSD cost Share	$0.00
		Total Recipient Cost Share	$0.00

Figure 3 Schematic of a Non-Structural CSA

C. Water Quality Monitoring

For the period of April 1, 2016 to September 30, 2016, NEW Water collected 121 water samples and US Geologic Survey and University of Wisconsin Green Bay (UWGB) collected 38 (grab and event) water samples for a total of 159. The NEW Water Laboratory analyzed a total of 477 samples. Semi-Annual Report #4 will present a graph and analyses of the 2016 data.

D. Geographic Information System (GIS)

The GIS continues to be used as a repository for field observations and BMP installation data. Discussions are underway for expanded use of the GIS for data queries and specific mapping outputs. Initially, BMPs and other property information as identified in the Conservation Plans were added to the GIS as features (points, polygons, lines) and layers. In late winter 2015 and early spring 2016, meetings held by Agronomists and County and Federal agricultural staffs with landowners and growers resulted in significant signups with NRCS GLRI Environmental Quality Incentives (EQIP) and NEW Water's GLRI cost share funding opportunities.

In the summer of 2016 dozens of these BMPs are being installed and at the same time the GIS database is being refined and updated to reflect actual practices installed. Each feature is given a Unique Identification Number to aid in tracking and data query. Figure 4 shows a screenshot of the GIS.

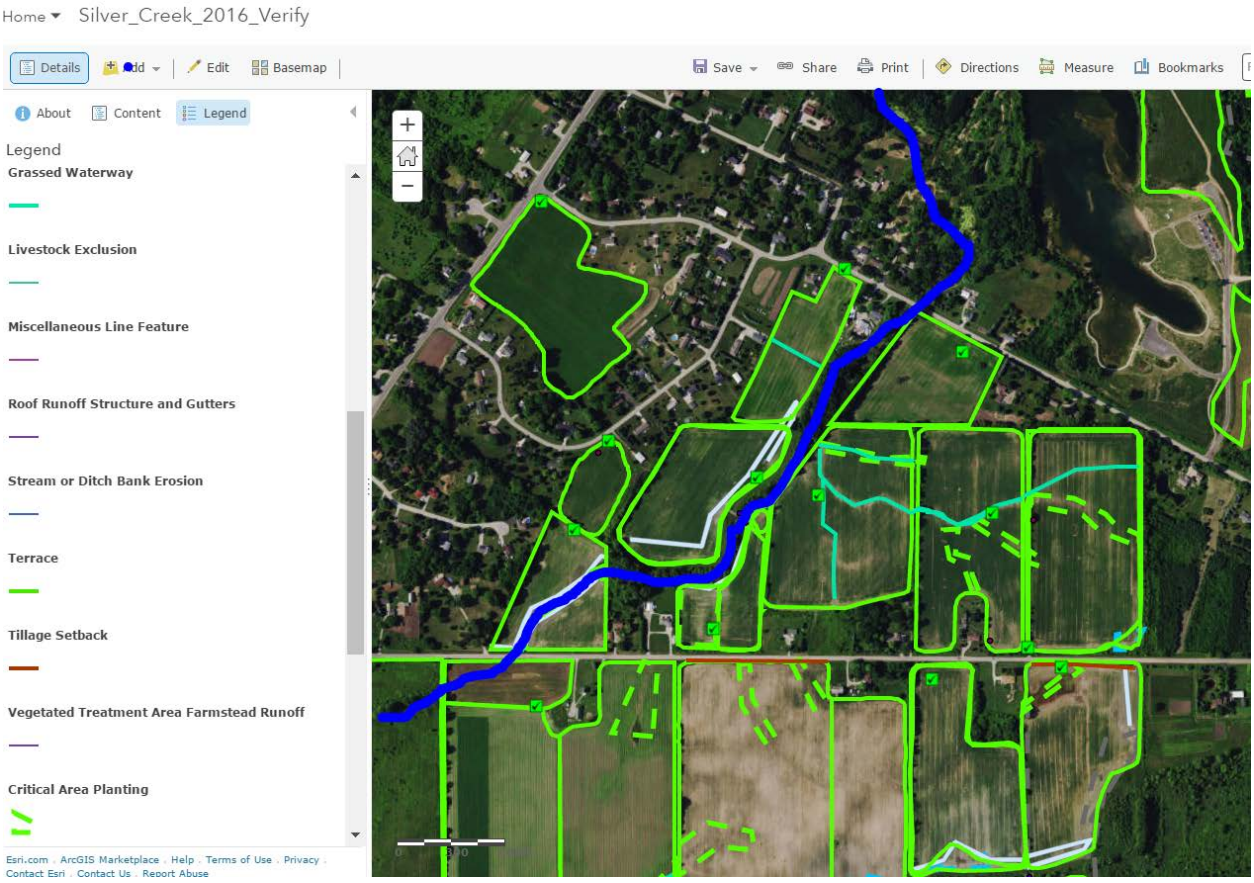


Figure 4 Screenshot of the Silver Creek GIS

A verification application (V-app) has been developed and is currently in use that allows Agronomists and County Technicians to field-update features and inspection data using iPads or mobile phones. The V-app includes many point, line, and polygon features that will be verified in the field. Among other things, the V-app is used to confirm that the BMP, 1) is functioning as intended, 2) needs corrective action or additional BMP, and 3) has a seed cover >80%. The V-app is filled out any time an inspection occurs and also allows photos to be uploaded.

For example, the V-app for WASCBs (see discussion on Page 11 and Figure 6) has the following input:

<table>
<tr><td colspan="2">Inspection status? pre, active, complete, maintenance</td><td rowspan="2">Seeding established?
overall ground cover (drop down menu)
single open area (drop down menu)</td></tr>
<tr><td>Outlet pipe diameter</td><td>Outlet material type</td></tr>
<tr><td>Functioning as intended?</td><td colspan="2">BMP includes all designed practices?
if no, which are missing</td></tr>
<tr><td>Corrective action needed?</td><td>Additional BMP needed?</td><td>Confirm GIS location</td></tr>
</table>

E. SWAT Model and SNAP Plus

The SWAT model was updated for baseline conditions and calibrated based on current Silver Creek flow and water quality sampling. The model was also updated to include a proposed condition model that includes potential conservation opportunities identified in the Conservation and Enhanced Nutrient Management Plans. CH2M HILL, NEW Water's consultant for the project developed a draft memorandum describing the baseline and proposed condition models.

The SnapPlus models and summary spreadsheets for each field for the ***planned*** 2016 crop year were updated. In addition, updating of the ***actual*** conditions for each field for 2016 crop year has been initiated.

F. Installation of Conservation Measures

This task is the most prominent work effort during this reporting period with the installation of dozens of BMPs by landowners and growers and the Oneida tribe (see Table 1 for specific fields and acreages). Upon agreement by the landowner and /or grower of the estimates and costs in the CSA, construction plans are drawn up, bids are announced, and the BMP is installed. After field verification of the BMP installation, the actual construction specs and QA/QC of the installation are documented in the red-lined construction plan.

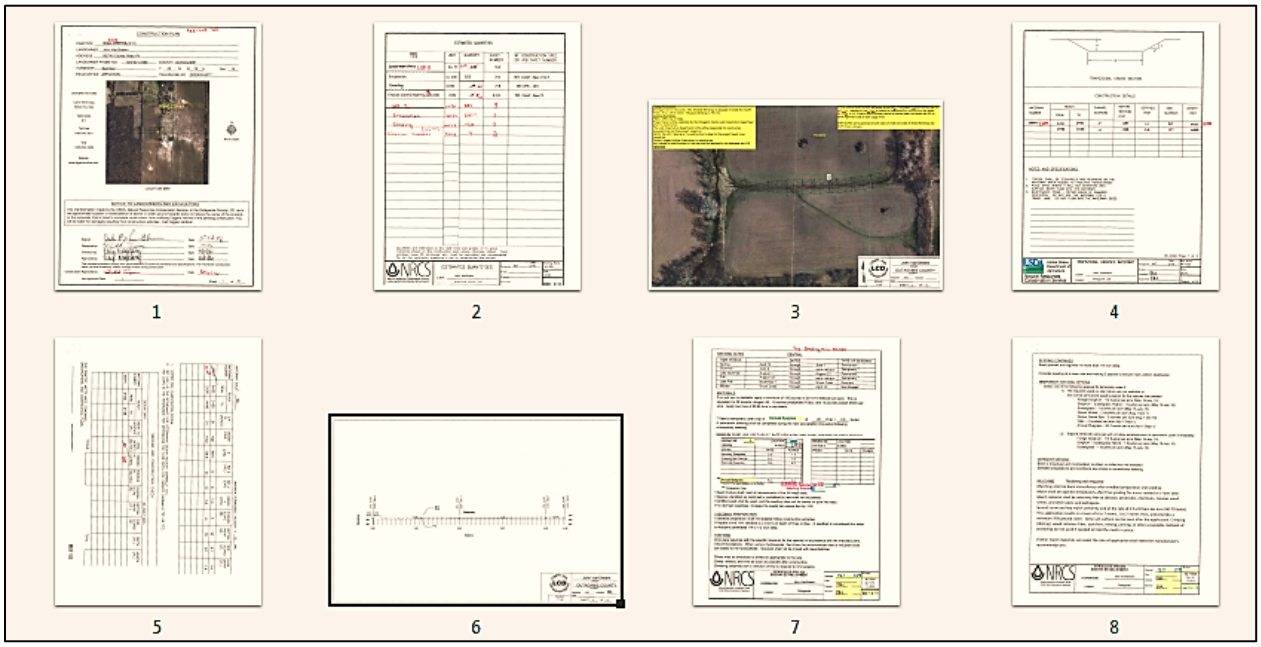


Figure 5 Schematic of a "Red-Lined" Construction Plan

Figure 5 is a schematic of a plan for a Critical Area Planting. It is called 'red-lined' because the estimates, units, and quantities have been updated to show the actual or ***as-built*** construction features. Through an agreement between NEW Water and Outagamie County, the cost share recipients are being reimbursed by the County in a very timely manner. At prescribed intervals, the County submits to NEW Water detailed project/CSA invoices for reimbursement from NEW Water who has funding for Silver Creek BMPs from several sources including the GLRI grant.

Water and Sediment Control Basins (Field # ONF42)

Figure 6 shows the general layout of a complex of three Water and Sediment Control Basins (WASCB). A WASCB (NRSC code 638) is an earth embankment or a combination ridge and channel constructed across the slope of minor watercourses to form a sediment trap and water detention basin with a stable outlet. The purpose is to reduce watercourse and gully erosion, trap sediment, and reduce and manage both onsite and downstream runoff. The field where this WASCB complex was installed is 190 acres in size and drains and captures 73 acres of farmed land.

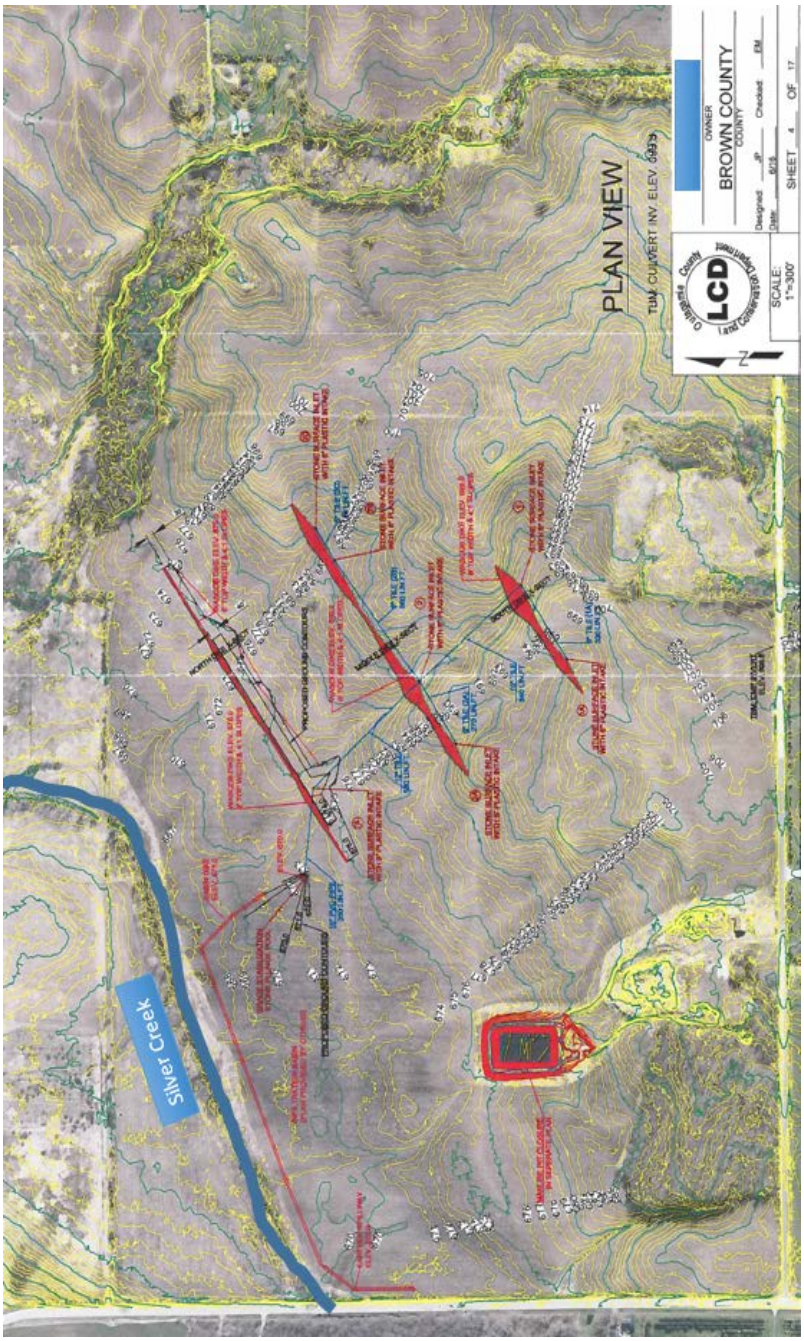


Figure 6 WASCB Construction Plan

Grassed Waterway (Field # UM-North)

These three photographs taken from a drone show the construction of a three-pronged grassed waterway (NRCS code 412) on two 15+ acre fields. Grassed waterways significantly reduce gully erosion and are intended to slow runoff and convey water to a stable outlet at a non-erosive velocity.

The photo above left, shows the fields mowed in preparation for grading and the laying of mulch. The photo above right, shows the fields two weeks later on August 31, 2016. The newly seeded areas and erosion control blankets are quite obvious.

The photo to the right, taken on October 4, 2016, clearly shows the lush green grasses on the side slopes and bottoms of the three waterways. The brown colored fields are soybeans that are ready for harvest. Note: Refer to Figure 4 to see these fields as displayed in GIS format.

G. Biological Assessment

Biological assessment sampling and assessment is continuing on an annual basis. Jim Snitgen, Oneida Tribe, collected a sample in June 2016 at the same location as the previous two years and completed a qualitative assessment. The samples are currently undergoing a quantitative analysis (identification of aquatic macroinvertebrates) by scientists at the Lake Superior Research Institute at University of Wisconsin: Superior; final results are expected soon. The results will be organized by Jim Snitgen and reported to CH2M HILL, within the next few weeks.

H. Managed Grazing – Paired Field Monitoring

This task in the Silver Creek Work Plan utilizes a paired watershed design whereby both the control catchment (conventional farming) and the transition (to managed grazing) catchment will be monitored for phosphorus and sediment impacts to runoff. The Managed Grazing QAPP was approved by US EPA in May 2016 and a Professional Services Agreement (PSA) with UWGB was signed in May 2016. Shortly thereafter, researchers from the University of Wisconsin Green Bay Department of Natural and Applied Sciences (UWGB) installed two paired edge-of-field (EOF) monitoring stations. Remote access via cell phone modems and the internet is now operational as of June 2016. The two farm field catchments are directly adjacent to each other (South and North sites), and the monitoring stations are configured to collect continuous discharge and turbidity data, as well as automated event samples from their respective catchments. The catchments are contained within a single field where corn was growing and harvested as silage prior to September 21, 2016. So far, rainfall has been lower than normal, so no runoff events of monitoring significance were recorded. However, runoff was sufficient to collect a water sample from the South EOF site during a small runoff event on June 10, which was analyzed to help characterize runoff water quality. Preliminary results: total phosphorus (TP) concentration was very high (6.8 mg/L) and total suspended solids (TSS) was 3,950 mg/L.

A cost share agreement was signed by the Oneida Tribe and NEW Water in August 2016 and it establishes use of funding from both NRCS EQIP and the NEW Water GLRI grant. The CSA covers considerable parts of the project including fencing, water lines, and a concrete pad (aka Heavy Use Area [NRCS code 561] and Vegetated Treatment [code 635]) for heifers to be kept on during winter and wet weather. The BMPs were constructed in summer and fall 2016 through the coordination of NEW Water, NRCS, Outagamie County, Oneida Tribe (the landowner) and the operator.

I. Vegetated Water Treatment Systems (Sub-Award)

This work effort is a research project being conducted by UWGB with construction and field participation by the Oneida Tribe. Goal 1, Approach 1 of this effort is to document plant uptake of soil phosphorus from an 8-acre warm-season grass planting (four different native grasses and legume mixtures) established in 2012. Goal 1, Approach 2 is to identify the P content of grass-based BMPs (a variety of existing grass filter strips of varying ages) throughout the Silver Creek sub-watershed. Goal 2 is to evaluate the effectiveness of a BMP described as a *Sediment Basin with Warm-Season Grass Filter Strip (SBGF).*

Goal 1, Approach 1 Progress: In 2015 and 2016 two harvests were collected in each of the grass fields (July, and late August/early September). 1x1 meter quadrats were randomly placed and biomass was harvested, dried and analyzed for tissue phosphorus (P) content. All 2015 biomass samples have been processed.

Samples from summer and fall 2016 have been collected, and to date approximately 120 of 288 collected samples have been fully processed. 62% of the 2015 Tissue P processing is completed.

Projected work for the next reporting period: Processing of the 2016 tissue P samples will begin after completion of the biomass processing.

Goal 1, Approach 2 Progress: Six non-contiguous existing filter strip locations were chosen using ArcMap™. Forty soil samples were collected for analyses for bulk density, bray phosphorus and soil organic matter. Soils in the filter strips consists of silt loams, and silty clay loams. In August 2016, eighty above-ground biomass samples were collected from random 1x1 meter quadrats.

Projected work for the next reporting period: Bray P, organic matter and bulk density analysis are estimated to be completed by January 2017. Above ground biomass samples are currently being air dried at 65°C. Processing of plant tissue P samples is estimated to be completed by January 2017.

Goal 2 Progress: The location of the SBGF is shown in Figure 7, and construction is expected to begin in spring 2017. Discussion and planning for SBGF sampling strategies is underway by UWGB researchers and will begin following construction.

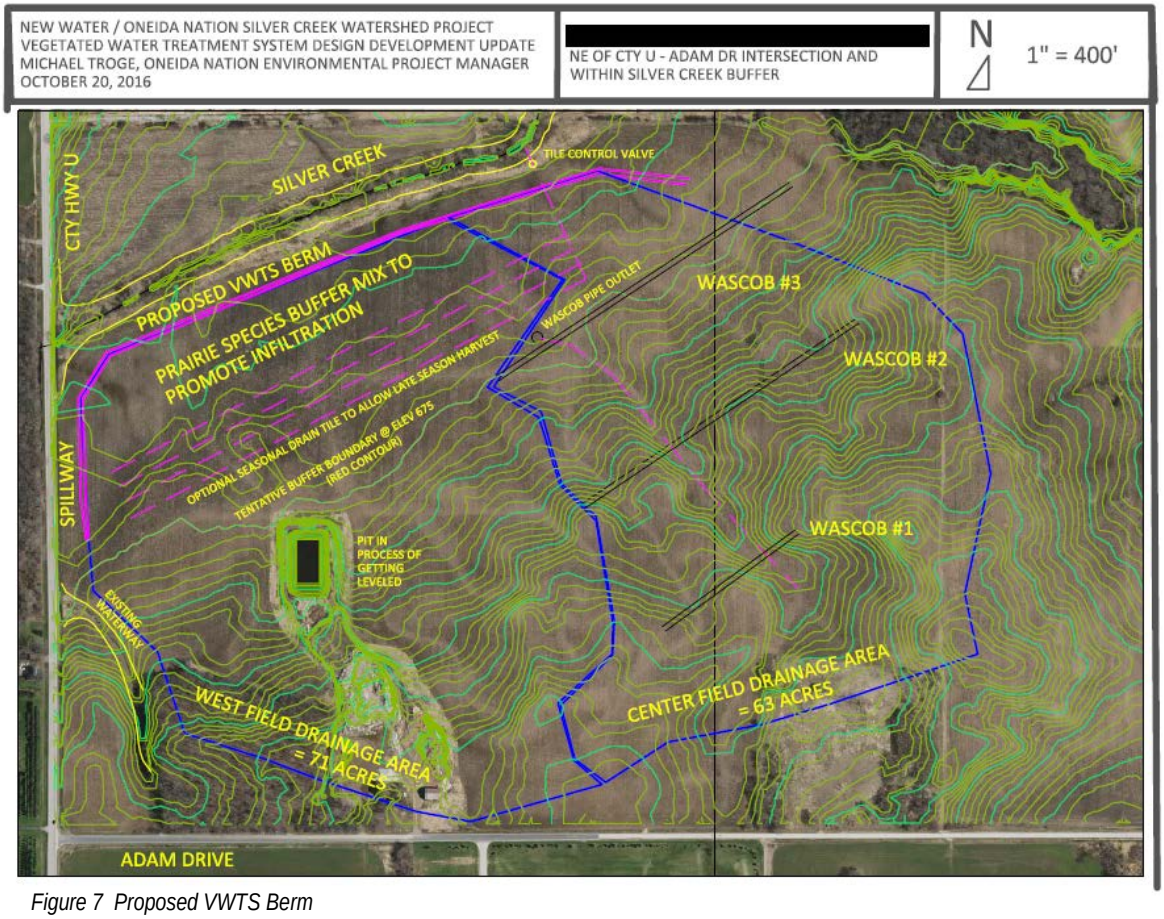


Figure 7 Proposed VWTS Berm

J. Wetland Treatment System

The wetlands locations have been identified and efforts to obtain construction bids and appropriate state and federal permits are underway. Proximity to the Green Bay airport necessitates thorough evaluation of flora species and construction specifics to minimize drawing large flocks of waterfowl that could impact air traffic. NEW Water, the Oneida Tribe, the US Fish and Wildlife Service (USFWS), Ducks Unlimited, and the Nature Conservancy are collaborating with local airport officials and the Federal Aviation Administration to design and approve suitable site plans.

In November, an extensive dormant seeding project will be completed on three former agricultural fields owned by the Oneida Tribe. This 36-acre area in the headwaters of the sub-watershed borders both sides of Silver Creek and consists of wet-mesic soils. A mix of grass and forb seeds have been ordered from an upper Midwest nursery and will be no-till drill seeded. Funding and seeding is a collaborative effort between NEW Water, USFWS, and the Oneida Tribe.

K. Brown County (Sub-Award)

Brown County staff continues to provide assistance with field walks to identify conservation opportunities as well as to provide input into design and use of the V-app. Brown County participates in planning and coordination meetings with NEW Water, Outagamie County, NRCS and the Oneida Tribe about ways to improve and enhance installation of conservation practices. As the need arises, Brown County staff responds to requests from collaborating agencies for landowner information on any and all issues dealing with the Silver Creek Project.

L. Education/Outreach

NEW Water continues to use a wide variety of outreach tools including PowerPoint presentations, a website, factsheets, Twitter feeds, Facebook posts and newspaper and magazine articles. Table 3 is a list of venues where the Silver Creek Project was presented during this reporting period. Several other outreach and educational efforts are described on the following pages.

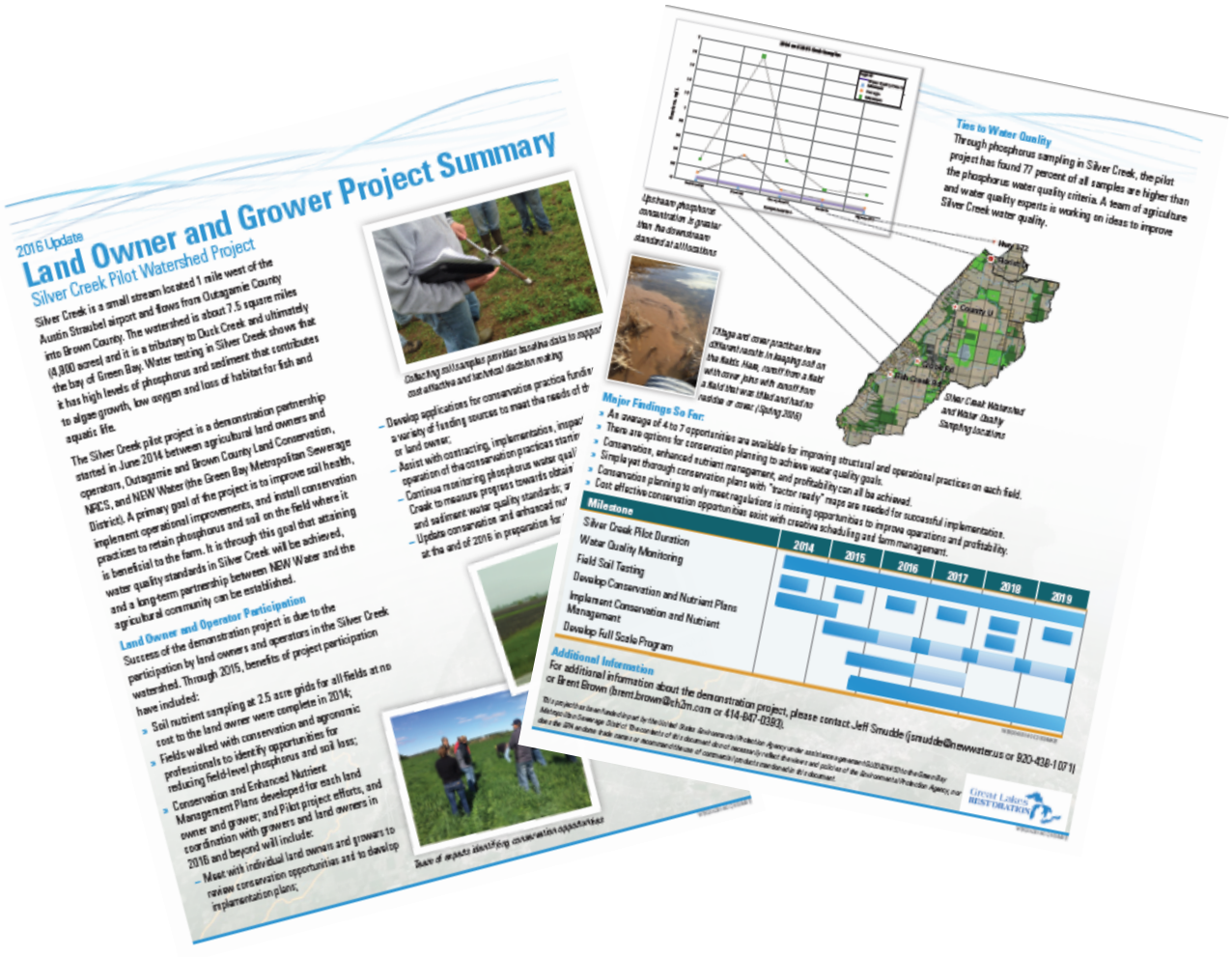
Date, 2016	Organization
April 5	NWTC Professionals Dinner (students meeting with professionals in the field) Green Bay,
April 5	TEPM (Tribal Environmental Policy Management) conference in Chicago, IL
April 14	Green Bay Optimist Club
April 19	Green Bay Conservation Partners Roundtable – UWGB
April 21	JOSHUA social justice water quality meeting
April 25	US Senator Tammy Baldwin staff
April 27	Lower Fox River Watershed Monitoring Program Annual Watershed Symposium, UWGB
April 28	Clean Rivers Clean Lakes conference in Milwaukee
May 4	Brown County Conservation Alliance
May 10	Wisconsin Academy of Sciences
May 18	Central States Water Environment Association Annual Conference – Madison, WI
May 19	UWGB Learning in Retirement
June 3	NEW Water Customers
June 6	Former GBMSD (NEW Water) leaders
June 7, 9	IAGLR (International Assn Great Lakes Researchers) Annual Conference – Guelph, Ontario Two presentations: water quality monitoring Rivers and Green Bay, and Silver Creek Project

Date, 2016	Organization
June 14	Professional dairy producers of Wisconsin (Discover Water 2016 tour Day)
June 15, 16	NEW Water employee briefings
June 15	The Nature Conservancy state conference
June 20	American Water Works Conference, Chicago IL
July 25	STEM Superheroes summer camp
August 12	Lake Michigan Stakeholders, Manitowoc, WI
September 9	Quarterly Customer Meeting
September 20	UWGB Lifelong Learning Institute
September 21	NWTC Educational Field day
September 29	NEW Water Commission Meeting

Table 2 Silver Creek Presentations

2016 Fact Sheet

A new two-page fact sheet was published and posted on the Silver Creek Website http://www.newwater.us/media/159881/Silver-Creek-Fact-Sheet-5-2016.pdf The Fact Sheet is handed out during presentations about Silver Creek and during meetings with landowners and growers.



Silver Creek CREW

The second Silver Creek CREW (Committed to Restoring and Enhancing our Waters) day was held on May 13, 2016. 40 student from Bayport and Oneida High Schools, spent the day with bugs, sondes, and drones – with fun, hands-on activities in the field to learn about watershed cleanup efforts on Silver Creek. The educational day featured three environmental programs: water quality monitoring, invertebrate communities, and a field and drone exploration station.

Learning in Retirement (LIR) May 19, 2016

NEW Water completed another semester with UW-Green Bay's LIR program with 30 retirees attending the "Can We Save Lake Michigan from Green Bay" class. Among many things, students learned about Adaptive Management and the Silver Creek Project. The photo to the right, shows Bill Hafs, NEW Water's Director of Environmental Programs talking to LIR students about Silver Creek.

FVTC Educational Field Day: Grazing Overview

On September 21, Jeff Smudde, NEW Water Watershed Program Manager; Adam Abel, NRCS Grazing Specialist; and Rick Adamski, Instructor at Fox Valley Technical College, described the benefits of grazing to students from FVTC. One hundred acres of this property (see buildings in upper left of photo) will be converted to grazing as part of the Silver Creek. Project. During inclement weather, a new concrete pad and vegetative treatment area will provide temporary shelter for heifers.

Silver Creek Logo

A new Logo was recently designed by NEW Water for Silver Creek. It will be used in future correspondence and signage at the project.

2. Work Projected for Next Reporting Period:

Next steps during October 2016 through March 2017:

- Complete any remaining construction or planting projects before the field season ends
- Continue water quality sampling at the five select locations until it freezes
- Evaluate 2016 water quality sampling information to evaluate watershed and BMP performance
- December 6 Landowner/grower meeting and project updates
- December 20 stakeholder/partners meeting and project updates
- Record on Deeds any fully completed CSAs
- Develop cost share/invoice maintenance spreadsheet
- Meet with growers and land owners to schedule and secure cost shares for structural and operational conservation practices for 2017 implementation
- Finalize updates to SnapPlus models for 2016 crop year *actual* conditions.
- Finalize SWAT model and documentation of baseline and proposed conditions.
- Update SnapPlus models and Conservation and Enhanced Nutrient Management Plans for 2017 crop year *planned* conditions
- Refine GIS database for organizing and reporting field and cost share information

- Identify funding and cost share opportunities for NRCS cost shares, and develop cost share agreements to support Spring 2017 implementation
- Meet with stakeholders to evaluate potential watershed areas for full-scale adaptive management
- Coordinate with stakeholders for use of Outagamie County interseeder and manure injector technology for field day demonstrations
- Complete biological monitoring assessment evaluation
- Continued UWGB research work on vegetated water treatment systems and paired field monitoring (grazing transition)
- Continue to complete BMP inspections and update project database and GIS with inspection data and photos
- Continue to promote the Silver Creek project through presentations to professional organizations

3. Object Class Category Changes:

Post Award Monitoring Desk Review

On May 4, 2016, NEW Water received the Final Desk Review Report of NEW Water's GLRI grant from US EPA Project Officer, Krista Galvin. The review was conducted on March 24, 2015 with subsequent correspondence to address various items identified during the review. One of the major items discussed was amending the Grant Budget to include in-kind contribution from the Oneida Tribe. On July 8, 2016, NEW Water received an ***Assistance Amendment*** to realign the project budget to reflect actual work plan expenditures. Table 4 is a comparison of previous and current allowable project costs.

US EPA Project Officer update

On September 9, 2016, Krista Galvin announced a new US EPA Project Officer was named to the Silver Creek Project. Her name is Victoria Raymond, email: Raymond.Victoria@epa.gov, and phone number 312-886-7981. Welcome aboard Victoria! Krista Galvin, the previous GLRI officer, has left the US EPA GLNPO office.

Table 3 Budget Summary Page (with amended totals)

	Previous Approved Allowable	Federal $	Non-Federal Match and/or In-kind	Current Total approved allowable Budget Period Cost
1. Personnel	489,551	100,800	385,551	486,351
2. Fringe Benefits	241,730	10,0800	231,330	241,410
3. Travel	0	0	0	0
4. Equipment	0	0	0	0
5. Supplies	0	2,500		2,500
6. Contractual	805,052	805,372		805,372
7. Construction	0			0
8. Other	910,417	767,917	300,000	1,067,917
9. Total Direct Charges	2,443,550	1,686,669	916,881	2,603,550
10. Indirect cost % base	0	0		0
11. Total share	Recipient 31% Federal 69%			2,603,550 Recipient 35%

	Previous Approved Allowable	Federal $	Non-Federal Match and/or In-kind	Current Total approved allowable Budget Period Cost
				Federal 65%
12. Total Approved Assistance Amount	1,686,669			1,686,669
13. Program Income	0			0
14. Total Awarded to Date*	714,089*			714,089*

**year 1: $292,608 year 2: $421,481*

4. Problems Encountered

- Some anticipated activities did not occur as planned during the 2016 field season due to staffing shortages and weather
- Coordination among various local, state, and federal agencies takes finesse and diplomacy
- See also Item J regarding wetland projects

5. Spending

A. Percent of budgeted amount "spent" April-September, Year 2, 2016:

~72% ~$349,000/484,372 (= yr 2 $421,481+carryover_yr1 $62,891)

April 1-September 30, 2016	Activity	Semi Rpt #3
Personnel	Grant Specialist	$ 10,865
Fringe Benefits	Grant Specialist	$ 1,207
Supplies	Drone	$ 2,341
Contractual	CH2M Hill	$ 146,597
Other	Cost Sharing/BMPs/misc*	*$ ~123,000*
	Grazing(Mar-Aug 2016)	$ 32,344
	UWGB (Sub) VWTS	$ 32,612
		$ ~349,000

*Struc+NonStruc CSAs and misc estimated (not yet invoiced):

B. Percent of budgeted amount "spent" for the 5-year project

33% ($564,134/$1,686,669) $1,686,669 Total approved assistance amount
$564,134 = $441,134 (Drawdowns) + ~$123,000 (cost sharing/BMPs)

C. NEW Water and Oneida In-kind Hours/Dollars

NEW Water	Year 1 Actual Match	Semi #3 4/1/16 – 9/30/16 Hours	Semi #3 4/1/16 – 9/30/16 Match $	Year 2 Actual Match	Proposed match (2/5 of 5-yr budget)
Watershed Programs Manager	$ 43,586	573	$21,774		$63,248
Director of Environmental Programs	$ 28,608	207.5	$9,960		$50,700
Water Resources Specialist	$ 11,928	206.5	$5,782		$ 7,260
Lab Analyst	$ 12,222	357.5	$7,508		$21,668
Communication & Education	$ 7,336	145	$4,060		$ 11,344
Fringe (60%)	$ 62,208		$29,450		$92,532
Total New Water Hours	3,013	1490			
Total NEW Water personnel match $	$103,680		$49,084		$154,220
Total NEW Water personnel & Fringe & match	$165,888		$78,534		
Oneida In-kind $	$ 43,085		$24,370		$64,000

6. Funding Rate

Percentage of Grant Spent	% Federal	% Non Federal	Footnotes: DrawDown# $/* * = $1,686,669 total award	Footnotes NEW Water Match+Fringe+Oneida in-kind/** ** = $916,881 (non-federal total)
Mar 2015 – Sep 2015	12.36 1)	11.87 2)	1) DD1 $208,467/*	2)54,762+$32,857+$21,181=$108,800/** Correction after 7/2016 Assistance Amendment
Oct 2015 – Mar 2016	1.6 3)	10.93 4)	3) DD2&3 $27,217/*	4) $48,918+$29,351+$21,904=$100,173/** Correction after 7/2016 Assistance Amendment
Apr 2016 – Sept 2016	12.18 5)	11.22 6)	5) DD4&5 $205,450/*	6)$78,534+$24,370/**

7. Changes

Is there a change in principal investigator? No

8. Length of project

Will the project take longer than the approved project period? No

9. Drawdowns

Table 4 Drawdown Requests

Request #	Date	Amount
1	10/13/2015	$ 208,467
2	05/17/2016	$ 21,250
3	06/27/2016	$ 5,967
4	07/01/2016	$ 56,484
5	10/07/2016	$ 148,966
Total to Date (as of October 7, 2016)		$441,134.00