

# FFY2008 Project Summaries



## Compilation of Results

Section 319(h) subgrant projects funded under the FFY2008 grant cycle are still in the engineering and design phase and have yet to report substantial progress. However, projects funded under the FFY2008 grant cycle have successfully achieved the following thus far:

- Prepared and distributed bid documents/awards for five projects.
- Conducted six public meetings.
- Drafted Environmental Covenant language for two projects.
- Restored 4,537 linear feet of natural stream channel design.
- Restored 7,537 linear feet of floodplain.
- Developed five farm conservation plans.
- Developed 10 whole-farm management plans.
- Constructed 475 linear feet of two-stage channel.
- Completed and submitted Quality Assurance Program Plans for three projects.
- Reclaimed 14 acres of toxic mine spoils.
- Installed 1,552 linear feet of limestone channel.
- Established five project-specific websites.

- Estimated reduction in nonpoint source pollutant loadings as follows:
  - Nitrogen—139,303 pounds/year
  - Phosphorus—69,682 pounds/year
  - Sediment—69,517 tons/year
  - Acid (from abandoned mine drainage)—1,174,269 pounds/year



## FFY08 Section 319(h) Nonpoint Source Project Summary

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**Project Number** #08(h) EPA-06

**Project Completion** June 2011

**SubGrantee** **Bainbridge Township Trustees**  
17826 Chillicothe Road  
Chagrin Falls, OH 44023

**Project Contact:** **Jeff Markley**  
Bainbridge Twp. Trustees  
17826 Chillicothe Road  
Chagrin Falls, OH 44023

**Grant Amount:** **\$294,900**

**Local Match:** \$196,600

**Project Title:** **Kenston Lake Dam Modification & Stream Restoration**

**Project Location:** Geauga County

**Watershed:** Chagrin River

**Project Summary:** \$294,900 in federal Section 319(h) Clean Water Act grant funding is awarded to the Bainbridge Township Trustees to modify the Kenston Lake Dam and to restore approximately 1,200 linear feet of the associated stream channel. The 6.7 acre Kenston Lake is located on an unnamed tributary that joins Linton Creek, which in turn joins the Aurora Branch of the Chagrin River.

The existing dam is currently used as a roadway serving several of the homes in the adjacent sub-division. Therefore, complete dam removal is not feasible. The grant sponsors will breach the dam using directional boring, drain the existing dam pool and stabilizing the remaining dam embankment. Modification of the dam is consistent with recommended implementation projects included in the state endorsed Chagrin River Watershed Action Plan.

The riparian corridor along the project site will be protected by a 75-foot riparian setback, resulting in a minimum of 150 feet of unimpacted stream corridor.

### **Project Deliverables:**

- Complete a pre-implementation sediment assessment to determine appropriate disposal.
- Modify existing dam, including draining the existing dam pool, breaching the dam via directional boring, and stabilizing the remaining dam embankment.
- Restore 1,200 linear feet of stream using natural channel design.
- Restore 4 acres of riparian area with native trees and shrubs.
- Implement a 75-foot riparian set-back on either side of the restored project site.

- Conduct a project-specific public education and outreach program.

**Environmental Results:** Successful completion of this project is expected to reduce downstream thermal impacts on Linton Creek, thereby protecting coldwater aquatic habitat life uses that are currently in attainment.

**Progress to Date:**

- Completed sediment survey.
- Modified Kinston Lake outlet structure.
- Lowered lake water level approximately 10 feet; 150 pounds of fish were removed during the lowering process.
- Prepared and distributed bid documents. Due to Ohio EPA 319 Program's request to complete a hydrogeologic assessment, the bid process documents were rescinded. The Township is currently in process of preparing documents to advertise for the completion of the study.
- Hydrogeologic study complete.
- Culvert has been installed effectively removing the dam and dewatering the lake.
- Restored 1,200 linear feet of stream using natural channel design.
- Awarded bids for dam modification and stream restoration design and construction.
- Conducted four public meetings and two field days.
- Developed six fact sheets.

**NPS Load Reductions Resulting from Project**

Pollutant	Estimated Loading Reduction
Nitrogen	510 pounds/year
Phosphorus	255 pounds/year
Sediments	255 tons/year







## FFY08 Section 319(h) Nonpoint Source Project Summary

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**Project Number** #08(h) EPA-11

**Project Completion** June 2011

**SubGrantee** **Cuyahoga County SWCD**  
6100 W. Canal Road  
Valley View, OH 44125

**Project Contact:** **Claire Posius**  
Cuyahoga County SWCD  
6100 W. Canal Road  
Valley View, OH 44125

**Grant Amount:** \$235,428

**Local Match:** \$156,952

**Project Title:** **East Branch Euclid Creek Dam Removal & Stream Restoration**

**Project Location:** Cuyahoga  
**Watershed:** Euclid Creek

**Project Summary:** \$235,428 in federal Section 319(h) Clean Water Act grant funding is awarded to the Cuyahoga County SWCD to remove a 10-foot high dam built in the 1960's in what is now the Cleveland Metroparks Euclid Creek Reservation. Removing this dam will allow for the natural restoration this segment of Euclid Creek. The project will eliminate the current impoundment and restore natural stream habitat conditions as well as eliminating a barrier to fish passage and improving dissolved oxygen conditions in the Creek. Removal of the dam should restore this segment of Euclid Creek to full attainment of its Warmwater habitat designated aquatic life use. Following successful completion of the project the area will be protected with a permanent conservation easement.

The project is being implemented consistent with recommendations that are included in the state endorsed Euclid Creek watershed action plan.

### **Project Deliverables:**

- Remove the existing 10-foot high, 50-foot wide dam, excluding the footer; install bridge protection.
- Restore 600 linear feet of stream, including four (4) grade control structures.
- Restore 1 acre of riparian area with native trees and shrubs;
- Acquire 5 acres of permanent conservation easement;
- Conduct a project-specific public education and outreach program.

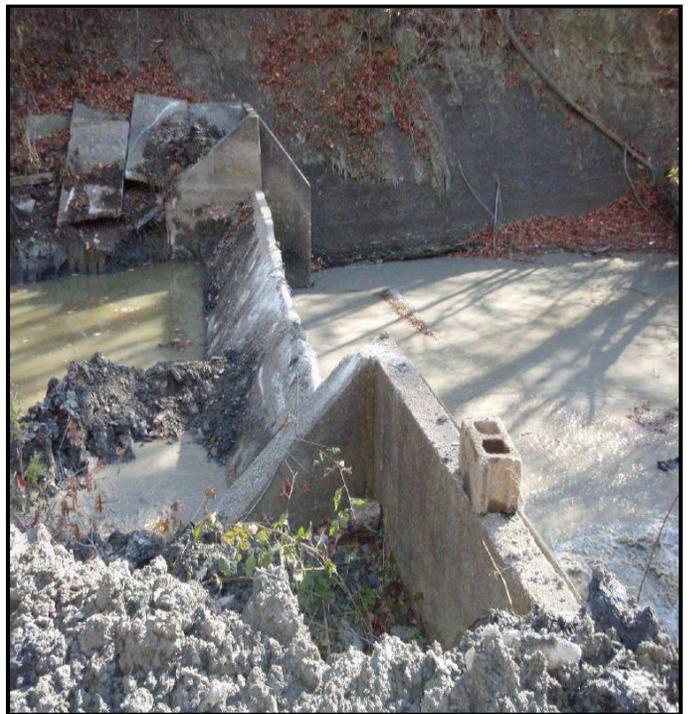
**Environmental Results:** Successful completion of this project is expected to result in full attainment of Warmwater habitat aquatic life uses at the project site. Implementation will also allow fish passage to an additional 14,000 linear feet of stream that is currently in attainment, but inaccessible.

**Progress to Date:**

- Completed project design report.
- Issued Request for Proposals (RFP) for design and engineering services.
- Conducted one general public meeting about the project.
- Developed and printed seven newsletters and one press release.
- Submitted nationwide permit application to the U.S. Army Corps of Engineers.
- Conducted four project partner committee meetings.
- Conducted baseline monitoring.
- Received U.S. Army Corps Nationwide permit.
- Completed Indiana Bat Maternity Roosting Tree Survey and Site Assessment Report.
- Drafted Environmental Covenant language. Awaiting response from Ohio EPA-Division of Environmental & Financial Assistance (DEFA). Project delayed from autumn 2009 to winter 2010; awaiting WRRSP Environmental Covenant Agreement. Covenant executed and recorded with Cuyahoga County Auditor on April 22, 2010.
- Project set to go to bid in July 2010 and construction contract should be awarded August/September 2010. Construction commenced October 2010.
- Restored 704 linear feet of stream, including 9 grade structures.
- Removed one dam and 704 linear feet of natural flow was restored in Euclid Creek.
- Acquired 3.214 acres of conservation easements.
- Riparian plantings will occur in Spring of 2011.

**NPS Load Reductions Resulting from Project**

<b>Pollutant</b>	<b>Estimated Loading Reduction</b>
Nitrogen	178.5 pounds/year
Phosphorus	89.3 pounds/year
Sediments	89.3 tons/year





## FFY08 Section 319(h) Nonpoint Source Project Summary

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<b>Project Number</b>	<b>#08(h) EPA-12</b>
<b>Project Completion</b>	<b>Grant withdrawn at Sponsor's Request</b>
<b>SubGrantee</b>	<b>Lake County Storm Water Management Dept.</b> 125 East Erie Street Painesville, OH 44077
<b>Project Contact:</b>	<b>Tim Miller, Director</b> Lake County Storm Water Management Dept. 125 East Erie Street Painesville, OH 44077
<b>Grant Amount:</b>	<b>\$253,625</b>
<b>Local Match:</b>	<b>\$177,450</b>
<b>Project Title:</b>	<b>Willoughby Hills Chagrin River Tributary Restoration</b>
<b>Project Location:</b>	Lake County
<b>Watershed:</b>	Chagrin River

**Project Summary:** \$ 253,625 in federal Section 319(h) Clean Water Act grant funding is awarded to the Lake County Storm Water Management Department to restore approximately 1,400 linear feet of an unnamed tributary to the Chagrin River. With the exception of the proposed project site, the main channel of the unnamed tributary is essentially undisturbed, running in a wooded corridor/valley. The restoration segment has been extensively modified, dating back to the 1940s including an on-line pond, two culvert crossings, and removal of riparian vegetation. Severe storms and flooding in 2006 further damaged the riparian corridor. This project will restore the affected stream segment to a fully natural stream. Upon completion of the restoration work, the project site will be protected with a conservation easement.

Implementing this project is consistent with recommendations contained in the state endorsed Chagrin River watershed action plan.

### **Project Deliverables:**

- Conduct pre- and post-implementation biological and habitat assessments;
- Restore 1,400 linear feet of stream using natural channel design;
- Acquire 2.41 acres of permanent conservation easement;
- Conduct a project-specific public education and outreach program.

**Environmental Results:** Successful completion of this project will provide a suburban demonstration site for natural channel restoration, as an alternative to traditional storm water control practices. Implementation of the project is also expected to contribute to continued full

attainment with Warmwater habitat aquatic life uses in the downstream area of the Chagrin River.

**NPS Load Reductions Resulting from Project**

<b>Pollutant</b>	<b>Estimated Loading Reduction</b>
Nitrogen	100 pounds/year
Phosphorus	50 pounds/year
Sediments	50 tons/year



## FFY08 Section 319(h) Nonpoint Source Project Summary

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**Project Number** #08(h) EPA-15  
**Project Completion** December 2011

**SubGrantee** Rural Action, Inc.  
P.O. Box 157  
Trimble, OH 45732

**Project Contact:** Amber Leasure-Earnhardt  
Rural Action, Inc.  
P.O. Box 157  
Trimble, OH 45732

**Grant Amount:** \$225,398  
**Local Match:** \$280,080

**Project Title:** West Branch Sunday Creek Headwaters Restoration  
**Project Location:** Perry County  
**Watershed:** Sunday Creek

**Project Summary:** \$225,398 in federal Section 319(h) Clean Water Act grant funding is awarded to Rural Action, Inc. to address three known sources and one suspected source of abandoned mine drainage (AMD) to Pine Run, a 1.5 mile tributary to the West Branch of Sunday Creek in Perry County. The project is part of ongoing acid mine drainage (AMD) remediation efforts in Sunday Creek. This project will capture existing AMD at priority sites identified in the Sunday Creek Abandoned Mine Drainage Abatement and Treatment (AMDAT) Plan. The project will also prevent future discharges by reclaiming an existing gob pile adjacent to Sunday Creek and a subsidence hole that currently captures uncontaminated water from a nearby tributary.

According to the Sunday Creek Total Maximum Daily Load (TMDL) study that was approved by U.S. EPA in 2006, acid mine drainage is a high magnitude cause of non-attainment of designated aquatic life uses in the project area. Completion of this project as well as others that have been underway in the watershed will reduce current sources of acidity and prevent future sources to the point where the headwaters of Sunday Creek should be approaching restoration to attainment with Warmwater habitat aquatic life uses.

### Project Deliverables:

- Conduct pre- and post-implementation water chemistry monitoring at four sites.
- Cover 1.28 acres of toxic mine spoils;
- Treat abandoned mine drainage by installing 270 linear feet of limestone channels, two limestone leach beds and two settling ponds.
- Eliminate one stream capture to prevent clean water from entering abandoned mines.

- Conduct a project-specific public education and outreach program.

**Environmental Results:** Successful completion of this project is expected to reduce current acidity sources, and prevent future sources, to the point where the West Branch Sunday Creek headwaters are approaching attainment with Warmwater habitat aquatic life uses.

**Project Results to Date:**

- Completed and submitted a Quality Assurance Project Plan.
- Installed four monitoring wells and conducted multiple soil tests at project site.
- Conducted pre-construction water quality sampling.
- Prepared and distributed two newsletters.
- Conducted the watershed day camp which had an attendance of 50 area youths.
- Executed construction contract.
- Commenced construction May, 2010. Construction of phase one of the project (four stream captures and covering toxic mine spoil) is on target to be completed by the end of August.
- Installed 1,524 linear feet of limestone channels and 406 feet of grasslined channels.
- Eliminated four stream captures.
- Reclaimed a 1.28 acre of gob pile, exposed mine spoil.
- Conducted one community meeting and one workshop.
- Phase II (limestone leach beds/settling ponds) will be put in place summer 2011.

**NPS Load Reductions Resulting from Project**

Pollutant	Estimated Loading Reduction
Treat Acid Water	797,200 pounds/year

Pictures of WBHW Phase I during and after construction (July- September 2010)



**Figure 1: During Construction-  
Mine Seal at Channel #2**



**Figure 2: During Construction-Coal  
Refuse Removal Along West Branch  
Sunday Creek**



**Figure 3: Post Construction Limestone  
Channel**



**Figure 4: Post Construction Limestone  
Channel**



**Figure 5: Post Construction –Site of Gob  
Pile, newly reclaimed.**



**Figure 6: Post Construction-WBHW 17  
(Discharge) that will be treated in Phase 2  
Summer 2011**



## FFY08 Section 319(h) Nonpoint Source Project Summary

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**Project Number** #08(h) EPA-16  
**Project Completion** June 2011

**SubGrantee** **Five River Metroparks**  
1375 E. Siebenthaler Avenue  
Dayton, OH 45414

**Project Contact:** **Joseph Zimmerman**  
Five Rivers Metroparks  
1375 E. Siebenthaler Avenue  
Dayton, OH 45414

**Grant Amount:** \$499,980  
**Local Match:** \$333,320

**Project Title:** **Restoration of the Stillwater River in Englewood Park, Phase 3**

**Project Location:** Montgomery County  
**Watershed:** Stillwater River

**Project Summary:** \$499,890 in federal Section 319(h) Clean Water Act grant funding is awarded to Five Rivers Metroparks to complete the final phase of three total phases in modifying an 8 foot high lowhead impounding dam and adjacent wetland areas along the Stillwater River. The existing dam is a 150-foot wide arch dam that was constructed during the 1920's for flood control purposes. The first two phases of this project will remove the majority of the dam and will be completed under Section 319(h) grants awarded during 2006. Phase 3 of this project will reuse sediments removed from the dam pool to restore approximately 7,000 linear feet of streambank and enhancement of adjacent wetlands.

The project is located near the outlet of the 673 square mile Stillwater watershed in southwest Ohio and will restore at least one mile of the Stillwater to attainment of its Exceptional Warmwater Habitat designated aquatic life use. The project is consistent with recommendation included in the Stillwater Total Maximum Daily Load (TMDL) study that was completed by Ohio EPA and approved by U.S. EPA in 2004. The project site is located in a public park and will be protected permanently upon successful completion of this project.

### **Project Deliverables:**

- Complete modification of existing dam and re-using sediments in lower dam pool for streambank restoration and wetlands enhancement.
- Restore 7,000 linear feet of stream using natural channel design, including restoration of the floodplain and installation of 5 grade control structures.
- Restore 2 acres of riparian area with native trees and shrubs.

- Conduct a project-specific public education and outreach program.

**Environmental Results:** Successful completion of this project will restore at least 1 mile of currently non-attaining exceptional Warmwater habitat aquatic life uses.

**NPS Load Reductions Resulting from Project**

<b>Pollutant</b>	<b>Estimated Loading Reduction</b>
Nitrogen	135,000 pounds/year
Phosphorus	67,500 pounds/year
Sediments	67,500 tons/year



## FFY08 Section 319(h) Nonpoint Source Project Summary

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**Project Number** #08(h) EPA-17  
**Project Completion** June 2011

**SubGrantee** Rural Action, Inc.  
P.O. Box 55  
Mineral City, OH 44656

**Project Contact:** Maureen Wise  
Rural Action, Inc.  
P.O. Box 55  
Mineral City, OH 44656

**Grant Amount:** \$159,572  
**Local Match:** \$133,000

**Project Title:** Huff Run Restoration, Thomas Project

**Project Location:** Carroll and Tuscarawas Counties  
**Watershed:** Huff Run

**Project Summary:** \$159,572 in federal Section 319(h) Clean Water Act grant funding is awarded to Rural Action to address abandoned mine drainage (AMD) from the Thomas Reclamation site. Successful completion of this project will result in the elimination of six existing acidic impoundments, coal spoil, two AMD discharges and several acid seeps. The Thomas site is near the Linden Bio-remediation Project that was completed in 2003 as part of ongoing efforts to address abandoned mine land issues affecting the Huff Run watershed.

Reclamation at the Thomas site will reduce acid mine drainage loadings to the recently completed Linden treatment system and maximize the life and effectiveness of that project site. In addition six surface impoundments will be dewatered and treated resulting in the prevention of additional AMD that currently exists due to filtration of water into a nearby abandoned underground mine complex. This project is part of more than a decade of AMD remediation efforts in Huff Run and is consistent with recommendations that are included in the state endorsed Huff Run Watershed Action Plan.

### Project Deliverables:

- Conduct pre- and post-implementation water chemistry monitoring at nine sites.
- Reclaim 16 acres of toxic mine spoils.
- Treat abandoned mine drainage by installing 66 linear feet of limestone channels and a settling pond.
- Conduct a project-specific public education and outreach program.

**Environmental Results:** Successful completion of this project is expected to reduce current acidity and prevent future sources. Ohio EPA biological sampling results show an improvement in IBI scores from 1997 to 2005 in the Huff Run segment affected by the project site. Currently the Warmwater habitat aquatic life use attainment for this area is partial. Continued reductions in acid loadings to the stream will eventually lead to full attainment.

**Progress to Date:**

- Completed and submitted a Quality Assurance Project Plan.
- Established project-specific website: [www.huffrun.org](http://www.huffrun.org).
- Conducted four public tours.
- Developed one project display.
- Developed and distributed four project newsletters.
- Conducted pre-construction monitoring.
- Developed project plans and design documents.
- Commenced construction July, 2009.
- Installed 1,552 linear feet of limestone channel.
- Installed two settling ponds.
- Reclaimed 14 acres of toxic mine spoils.

**NPS Load Reductions Resulting from Project**

Pollutant	Estimated Loading Reduction
Treat Acid Water	12,549 pounds/year





## FFY08 Section 319(h) Nonpoint Source Project Summary

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<b>Project Number</b>	<b>#08(h) EPA-18</b>
<b>Project Completion</b>	April 2011
<b>SubGrantee</b>	<b>Columbus Recreation &amp; Parks Department</b> 200 Greenlawn Avenue Columbus, OH 43223
<b>Project Contact:</b>	<b>Brad Westall</b> Columbus Recreation & Parks Department 200 Greenlawn Avenue Columbus, OH 43223
<b>Grant Amount:</b>	<b>\$200,000</b>
<b>Local Match:</b>	\$133,333
<b>Project Title:</b>	<b>Clover Groff Stream Restoration, Franks Park to Roberts Rd.</b>
<b>Project Location:</b>	Franklin County
<b>Watershed:</b>	Big Darby Creek

**Project Summary:** \$200,000 in federal Section 319(h) Clean Water Act grant funding is awarded to the Columbus Recreation and Parks Department to restore a 11,125 linear foot segment of Clover Groff Run and reconnect 1 acre of wetlands with the stream. The project site is located near Latham Park, where an additional 1,875 linear feet of stream will be restored under a previous Section 319(h) grant awarded in 2007. Upon successful completion of this project the restored site will be permanently protected as part of a local park.

Clover Groff Run is an 8 mile long channelized tributary to Big Darby Creek. Currently, the project site is in non-attainment with modified Warmwater habitat aquatic life uses due to an entrenched channel and rapid urbanization in the area. The restoration of Clover Groff Run is consistent with recommendations in the Big Darby Creek Total Maximum Daily Load Study that was completed by Ohio EPA and approved by U.S. EPA in 2006.

### **Project Deliverables:**

- Reconnect 1 acre of wetlands to the stream.
- Restore 11,125 linear feet of stream using natural channel design, and including restoration of the floodplain, installation of riffles and pools, and a meandering morphology.
- Restore riparian area with 2,749 native trees and shrubs.

- Conduct a project-specific public education and outreach program.

**Environmental Results:** Successful completion of this project and restoration at the Latham Park site (funded during the FFY2007 grant cycle) is expected to restore the project segments of Clover Groff Run stream corridor to attainment with Warmwater aquatic life uses.

**Project Results to date:**

- Issued Request for proposals (RFP) for planning and design services.
- Executed design and construction contracts. Commenced construction July 2009.
- Planted 1,300 native trees and shrubs in riparian areas.
- Restored 5,537 linear feet of stream using natural channel design.
- Restored 8,137 linear feet of floodplain.
- Installed three project specific signs.

**NPS Load Reductions Resulting from Project**

Pollutant	Estimated Loading Reduction
Nitrogen	143.78 pounds/year
Phosphorus	72 pounds/year
Sediments	72 tons/year





Clover Groff Ditch as an incised channel with no floodplain and drainage leading directly into water system.



Construction of lowered floodplain with an average width of one hundred feet.



Construction of lowered floodplain with an average width of one hundred feet.



Construction of meandering stream channel with riffle/pool/run character.



Completed stream channel and floodplain seeded with native prairie and wildflower mix.



Completed stream channel and floodplain.



Completed stream channel and floodplain with incorporated wetlands.



Completed stream channel and floodplain with native shrubs and trees planted.



Completed stream channel and floodplain.



Completed stream channel and floodplain with emergent native wildflowers.



## FFY08 Section 319(h) Nonpoint Source Project Summary

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<b>Project Number</b>	<b>#08(h) EPA-19</b>
<b>Project Completion</b>	June 2011
<b>SubGrantee</b>	<b>The Nature Conservancy, Ohio Chapter</b> 6375 Riverside Drive, Suite 50 Dublin, OH 43017
<b>Project Contact:</b>	<b>Anthony Sasson</b> The Nature Conservancy, Ohio Chapter 6375 Riverside Drive, Suite 50 Dublin, OH 43017
<b>Grant Amount:</b>	<b>\$464,259</b>
<b>Local Match:</b>	<b>\$309,506</b>
<b>Project Title:</b>	<b>Big Darby Creek Headwaters Stream &amp; Wetland Restoration</b>
<b>Project Location:</b>	Logan County
<b>Watershed:</b>	Big Darby Creek

**Project Summary:** \$464,259 in federal Section 319(h) Clean Water Act grant funding is awarded to the Ohio Chapter of the Nature Conservancy to complete Phase 2 of the Big Darby Creek headwaters stream and wetland restoration project. Specifically, this project will restore 2,600 linear feet of the Big Darby Creek and adjacent floodplains. In addition, the project will increase the size of existing wetlands from 0.27 acres to 1.7 acres. Restoration features will include additional meanders, riffle/pool complexes and other habitat features will be added to this previously channelized section of the Big Darby Creek.

The project site is located just upstream from the Fifth Third Bank Trust property, where an additional 2,200 linear feet of stream and 3.7 acres of wetlands will be restored under a previous Section 319(h) grant awarded during 2007. Successful completion of this project will enhance restoration work that is currently underway by the Nature Conservancy within the Big Darby headwaters. The project site will be protected in perpetuity by the Nature Conservancy as part of a Darby Headwaters Preserve.

This project is consistent with the recommendations included in the Big Darby Creel Total Maximum Daily Load (TMDL) study that was completed by Ohio EPA and approved by U.S. EPA in 2006.

### **Project Deliverables:**

- Complete biological (ICI, IBI) monitoring at one site and habitat (QHEI, HHEI and VIBI) assessments at a total of five sites within the project area.
- Restore 1.7 acres of wetlands, including wetland plantings and reconnection with the stream.

- Restore 3,622 linear feet of stream using natural channel design, and including installation of 36 in-stream habitat structures, riffles and pools, and a meandering morphology; and shrubs in the riparian zone.
- Restore the riparian area with 14,466 native trees and shrubs.
- Conduct a project-specific public education and outreach program.

**Environmental Results:** Successful completion of this project is expected to restore an impaired segment of Big Darby Creek to attainment with coldwater habitat aquatic life uses.

**Progress to Date:**

- Completed and submitted a Quality Assurance Project Plan.
- Completed pre-construction monitoring.
- Executed design and construction contract.
- Completed site survey and field assessment work.
- Completed and submitted all environmental permitting documents required for the project.
- Completed final design. Construction has commenced.
- Developed one press release.
- Installed one project information sign.
- Developed one newsletter, and conducted five tours.
- Created project-specific website.
- Restored 2,000 linear feet of floodplain.
- Restored 2,000 linear feet of stream and installed 20 in-stream structures.
- Restored 0.85 acres of wetlands, including wetland plantings and reconnection with the stream,

**NPS Load Reductions Resulting from Project**

Pollutant	Estimated Loading Reduction
Nitrogen	285 pounds/year
Phosphorus	142 pounds/year
Sediments	142 tons/year



**These severely eroding stream banks and adjacent riparian areas will be restored in the headwaters of Big Darby as a result of this project.**



Figure 10 October 13, 2010 Showe tract (08(h)EPA-19), lower portion, after floodplain and channel construction completion; before final riffle work and riparian vegetation planting. Note: Water in channel is only from groundwater discharge to new channel.



Figure 11 November 18, 2010 Showe tract (08(h)EPA-19), looking downstream along floodplain excavation, just below Columbia gas pipeline crossing.



## FFY08 Section 319(h) Nonpoint Source Project Summary

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**Project Number** #08(h) EPA-22  
**Project Completion** April 2011

**SubGrantee** **Greene County Sanitary Engineering Department**  
667 Dayton-Xenia Road  
Xenia, OH 45385

**Project Contact:** **Ron Volkerding**  
Greene County Sanitary Engineering Department  
667 Dayton-Xenia Road  
Xenia, OH 45385

**Grant Amount:** **\$382,700**  
**Local Match:** \$256,840

**Project Title:** **North Fork Massies Creek Stream Restoration**  
**Project Location:** Greene  
**Watershed:** Massies Creek

**Project Summary:** \$382,700 in federal Section 319(h) Clean Water Act grant funding is awarded to the Green County Sanitary Engineering Department to restore an unnamed tributary to Massies Creek and a stream segment on the North Fork of Massies Creek. Both stream segments are channelized headwater streams with low sinuosity, sparse riparian cover, and embedded substrates due to sediment run-off from adjacent agricultural land. The project is being implemented consistent with Little Miami River Total Maximum Daily Load (TMDL) study that was completed by Ohio EPA and approved by U.S. EPA in 2002. These recommendations specifically identify the need to restore habitat throughout the watershed.

This project is part of an ongoing stream and restoration project in the immediate area. An additional 2.1 acres of wetlands, 4,000 linear feet of stream, and 12 acres of riparian area will be restored in the North Fork Massies Creek watershed using Section 319(h) grant funds awarded during 2007. All project sites will be protected with permanent conservation easements.

### **Project Deliverables:**

- Restore 6,928 linear feet of stream using natural channel design.
- Restore 21 acres of riparian area with invasive species control and native trees and shrubs.
- Acquire approximately 25 acres of permanent conservation easements.
- Conduct a project-specific public education and outreach program.

**Environmental Results:** Current attainment with Warmwater aquatic life uses is threatened at the proposed project sites. Successful completion of this project will improve habitat where major threats to attainment should be eliminated, thereby insuring continued attainment in the immediate area.

**Progress to Date:**

- Initiated stream and site assessments.
- Completed survey work on Wildman Project Site property.
- Drafted conservation easement language.
- Easement acquisition is complete except for recording of easement with Greene County recorder.
- Completed project planning and design contracts. Construction commenced Fall 2010. Construction is anticipated to be substantially complete by Spring 2011.
- Developed one newsletter.
- Developed project website. For more information please visit: [http://www.co.greene.oh.us/saneng/SE\\_WRRSP.htm](http://www.co.greene.oh.us/saneng/SE_WRRSP.htm)
- Displayed project poster at county fair.
- Restored 5,205 linear feet of stream using natural channel design.
- Restored 15.9 acres of riparian area with invasive species control and planting 296 native trees and shrubs.
- Acquired 25.6 acres of permanent conservation easements.
- Installed in-stream structures, including riffles, cross vanes and rootwads.
- Completed 3,500 linear feet of bank repairs and bank restoration.

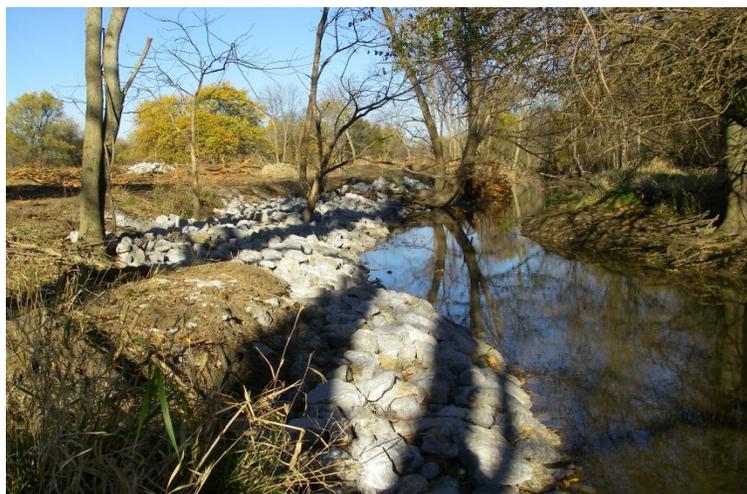
**NPS Load Reductions Resulting from Project**

Pollutant	Estimated Loading Reduction
Nitrogen	925 pounds/year
Phosphorus	478 pounds/year
Sediments	412 tons/year



PRE-CONSTRUCTION (April 2009)

DURING CONSTRUCTION (November 2010)



*Before and after, top to bottom: (1) pre-construction view of false banks created by cattle accessing stream, resulting in an over-widened channel; (2) view of false bank repair in progress; (3) pre-construction view of stream channel that is over-wide due to past channelization, dredging and relocation; (4) view of partially completed constructed point bar which will serve to narrow the channel; (5) pre-construction view of vertical and eroding stream bank; (6) view of stream bank restoration in progress.*



## FFY08 Section 319(h) Nonpoint Source Project Summary

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**Project Number** #08(h) EPA-26  
**Project Completion** April 2011

**SubGrantee** The River Institute  
P.O. Box 91298  
Columbus, OH 43209

**Project Contact:** Dan Binder, Executive Director  
The River Institute  
P.O. Box 91298  
Columbus, OH 43209

**Grant Amount:** \$207,723  
**Local Match:** \$139,135

**Project Title:** Merritt Ditch Stream Restoration

**Project Location:** Defiance County  
**Watershed:** Maumee River

**Project Summary:** \$207,723 in federal Section 319(h) Clean Water Act grant funding is awarded to The River Institute to restore a 2,750 linear foot segment of Merritt Ditch, a previously maintained agricultural ditch using natural channel design methods. Merritt Ditch is a tributary to Mill Creek, a direct tributary to the Middle Fork of Gordon Creek within the Maumee River Basin. The entire watershed of Merritt Ditch is 0.61 square miles comprised of mostly agricultural land use with some light industrial and residential uses. Within the project area, Merritt Ditch was channelized and modified in the 1970's to improve artificial subsurface drainage from cropped fields. It was last maintained in the 1990's.

The Merritt Ditch Stream Restoration Project will convert 2,750 linear feet of agricultural drainage ditch to a functioning meandering channel of 4,125 linear feet and will eliminate negative attributes and impairments associated with hydro-modification for 15% of the overall stream length. Design elements include the construction of stable channel/floodplain morphology, enhanced riparian vegetation and filter strips designed to trap soil movement from nearby fields. The design will also incorporate riffle features in order to improve oxygen saturation in the water column as well as to aid volatilization of nitrogen and ammonia.

Following successful restoration of Merritt Ditch, the project site will be protected in perpetuity under a conservation easement and existing buffer/filter strips will be moved beyond the floodplain limit and re-incorporated back in the agricultural programs for both private landowner parcels.

### Project Deliverables:

- Restore 2,750 linear feet of agricultural drainage ditch into more than 4,100 linear feet of fully functioning natural stream channel.
- Restore riparian area by recontouring and planting with native shrubs and plants.
- Permanently protecting the project site by acquiring conservation easement on the 2.5 acre area of restoration.
- Conduct a project-specific public education and outreach program including using the restoration site as a demonstration project for northwest Ohio that merges drainage water conveyance with water quality improvement. A minimum of two field days will be conducted following completion of the restoration and a project-specific brochure and/or pamphlet will be developed for use by the Defiance County Soil & Water Conservation District. The River Institute will also maintain a project-specific website and will document the success of the project in two newsletter or publication articles.

**Environmental Results:** Successful completion of this project is expected to restore 15% of Merritt Ditch to attainment with Warmwater aquatic life uses and improve QHEI scores to 60 or better.

### Progress to Date:

- Completed project site survey and field assessment work.
- Final design will begin Spring 2010.
- Subcontract agreement has been prepared and is awaiting final direction from City of Hicksville regarding plans for their industrial park and future road alignment.

### NPS Load Reductions Resulting from Project

Pollutant	Estimated Loading Reduction
Nitrogen	584 pounds/year
Phosphorus	292 pounds/year
Sediments	292 tons/year



## FFY08 Section 319(h) Nonpoint Source Project Summary

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**Project Number** #08(h) EPA-29

**Project Completion** April 2012

**SubGrantee** Village of Chagrin Falls  
21 West Washington Street  
Chagrin Falls, OH 44022

**Project Contact:** Mayor Thomas Brick  
Village of Chagrin Falls  
21 West Washington Street  
Chagrin Falls, OH 44022

**Grant Amount:** \$400,800

**Local Match:** \$267,200

**Project Title:** IVEX of Ohio, Lower Lake Dam Modification & Stream Restoration

**Project Location:** Cuyahoga County  
**Watershed:** Chagrin River

**Project Summary:** \$400,800 in federal Section 319(h) Clean Water Act grant funding is awarded to the Village of Chagrin Falls to lower a 23.1 foot earthen dam at a former industrial facility. The project site is approximately ½ mile upstream of the Village of Chagrin Falls, on the main stem of the Chagrin River. Lowering the dam will occur in two phases and allow the restoration of approximately 2,200 linear feet of the Chagrin River that is currently impaired. Completion of this project is consistent with recommended implementation projects included in the state endorsed Chagrin River Watershed Action Plan and in the Total Maximum Daily Load (TMDL) study that was completed by Ohio EPA and approved by U.S. EPA.

The project is part of an ongoing stream and riparian restoration project in the immediate area. Another dam upstream of the current project site was breached during a storm in 1994. The resulting exposed stream channel was restored and became part of the 100 acre Whitesburg Preserve. The current project site will be protected with a permanent conservation easement and will also be added to the preserve.

### Project Deliverables:

- Modify existing dam by lowering the spillway by 10.4 feet.
- Restore 2,200 linear feet of stream using natural channel design.
- Restore 10 acres of riparian area with native trees and shrubs.
- Acquire 10 acres of permanent conservation easements.
- Conduct a project-specific public education and outreach program.

**Environmental Results:** Successful completion of this project will restore natural morphology to a segment of stream previously impounded by two (2) earthen dams and will contribute to continued attainment of Warmwater aquatic life uses in the area.

**Progress to Date:**

- Completed restoration design documents. Submitted permitting documents to all appropriate regulatory agencies. Currently addressing comments from the Corps, Ohio EPA and ODNR.
- Received final permit for dam modification and stream restoration.
- Conducted three (3) field days and three (3) public meetings.
- Drafted easement language.
- Completed appraisal reports.
- Received bids for first phase of dam modification. Anticipate contract will be awarded in January 2011.
- Bid package for remainder of dam modification and stream restoration is being drafted for advertisement in early February 2011.

**NPS Load Reductions Resulting from Project**

<b>Pollutant</b>	<b>Estimated Loading Reduction</b>
Nitrogen	935 pounds/year
Phosphorus	468 pounds/year
Sediments	468 tons/year



## FFY08 Section 319(h) Nonpoint Source Project Summary

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**Project Number** #08(h) EPA-30  
**Project Completion** June 30, 2009

**SubGrantee** **Ohio State University Research Foundation**  
1960 Kenny Road  
Columbus, OH 43017

**Project Contact:** **Joe Bonnell**  
Ohio State University Extension  
1960 Kenny Road  
Columbus, OH 43210

**Grant Amount:** \$54,720  
**Local Match:** \$40,944

**Project Title:** **FFY08 National NPS Monitoring Conference**

**Project Location:** Franklin County  
**Watershed:** Not Applicable

**Project Summary:** \$54,720 in federal Section 319(h) Clean Water Act grant funding is awarded to the Ohio State University Research Foundation to coordinate and serve as co-sponsors of the FFY08 National Nonpoint Source Monitoring Workshop to be conducted in Columbus, Ohio during September 2008. The goal of the workshop is to convene land managers and water quality specialists from around the country to share information concerning effective best management practices, innovative project effectiveness, restoration monitoring techniques, and appropriate methods for statistically analyzing watershed data. The workshop will demonstrate successful Section 319(h) sub-grant funded National Monitoring Program projects as well as other innovative nonpoint source management projects and monitoring practices from throughout Ohio and the United States. Ohio State University Extension staff will provide critical conference coordination activities including agenda planning and speaker arrangements, facility coordination, registration services and others.

The grant agreement was modified in August, 2009 to add new deliverables to conduct a pilot project using the social indicators evaluation framework. The project will involve three (3) communities in three (3) different watersheds. In Watershed A, no new signage will be erected. In Watershed B, signage indicating the boundary of the local watershed will be erected. In Watershed C, signage will be erected indicating watershed boundaries and a web-site address for more information. Surveys will be conducted in the three (3) watershed of a sample of watershed residents to measure levels of awareness and water quality conservation practices related to each watershed prior to erecting roadside signage. After about 1 year, a follow-up survey will be conducted in each watershed to measure changes in levels of awareness and behaviors. Visitation of the web-site created for each watershed will also be measured.

Interviews will be conducted in each watershed to gather qualitative data for evaluating impacts. A final report will be completed and submitted to Ohio EPA.

**Project Deliverables:** Successful completion of this project will require Ohio State to complete the following:

- Create and maintain a NPS Monitoring Workshop website throughout the grant period.
- Establish and facilitate a conference steering committee responsible for reviewing paper proposals, selecting workshop speakers and coordinating speaker travel and lodging.
- Arrange and coordinate all activities with conference facility staff including audio-visual equipment needs, meeting room rental and all other activities associated with conducting a national technical workshop, including receiving and processing registrations from participants.
- Develop and distribute a workshop agenda.
- Plan, organize and conduct two field tours of area NPS project and/or monitoring project sites. Develop field tours using at least two different tour themes and arrange tour transportation for all workshop participants.
- Organize and coordinate vendor and participant display activities to coincide with the workshop.
- Design, layout, print and distribute a workshop manual for each participant, including conference agenda and information received from speakers, sponsors and other participants.
- Prepare and conduct a workshop evaluation with results to be tallied and submitted as part of the subgrant close-out process.
- Install 40 watershed signs.
- Develop and distribute 2500 surveys.
- Complete final report on pilot project.

**Project Results to Date:**

- Created and maintained a NPS monitoring workshop website.
- Conducted FFY08 National Nonpoint Source Monitoring workshop.
- Conducted two field tours of area NPS project and/or monitoring project sites.
- Developed one display
- Developed a workshop manual for participants.
- Prepared and conducted workshop evaluation.
- Working to identify watershed and communities where signs can be erected.
- Signs will be installed around Mr. Orab in Brown County. Anticipate having signs installed by December 2010.
- Obtained mailing list for Mt. Orab residents to use for mailing surveys.



## FFY08 Section 319(h) Nonpoint Source Project Summary

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<b>Project Number</b>	<b>#08(h) EPA-31</b>
<b>Project Completion</b>	<b>Grant Closed October 24, 2008</b>
<b>SubGrantee</b>	<b>Ohio State University Research Foundation</b> 1960 Kenny Road Columbus, OH 43017
<b>Project Contact:</b>	<b>Charles Goebel</b> Ohio State University Extension 1960 Kenny Road Columbus, OH 43210
<b>Grant Amount:</b>	<b>\$66,960</b>
<b>Total Federal Expended:</b>	<b>\$ 6,122</b>
<b>Project Title:</b>	<b>FFY08 Development of an Evaluation Tool for Modified Agricultural Channels in Ohio</b>
<b>Project Location:</b>	Franklin County
<b>Watershed:</b>	Not Applicable—Statewide

**Project Summary:** \$66,690 in federal Section 319(h) Clean Water Act grant funding is awarded to the Ohio State University Research Foundation to coordinate the development of an evaluation tool for monitoring modified agricultural channels in Ohio including 2-stage channel conversions and overwide channels. Dr. Charles Goebel, working in collaboration with Stream Ecologist Dr. Lance Williams at the University of Texas at Tyler will convene an advisory group to identify agency stream restoration assessment needs. Ohio State University will employ a doctoral student to collect and analyze data from existing 2-stage and overwide ditch restoration projects within Ohio. The project will result in a formal report identifying methods and procedures for assessing these types of restoration practices as well as a presentation by Dr. Goebel and his team at venues such as the FFY08 Nation NPS Monitoring Conference to be conducted in Columbus, Ohio. The project relates to work that OSU is completing under contract with ODNR's Division of wildlife to prepare a predictive model for determining restoration potential of small waterbodies such as agricultural channels.

**Project Results:** At the request of the grant sponsor this grant was closed 10/24/08 with the work incomplete. Due to personnel changes at Ohio State, the project was determined to be no longer feasible. Grant funds were reprogrammed for a local stream restoration project by another sponsor.

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## FFY08 Section 319(h) Nonpoint Source Project Summary

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**Project Number** #08(h) EPA-32  
**Project Completion** Grant Closed February 28, 2011

**SubGrantee** The Ohio State University  
1960 Kenny Road  
Columbus, Ohio 43210-1063

**Project Contact:** Jon Witter  
The Ohio State University  
1960 Kenny Road  
Columbus, Ohio 43210-1063

**Grant Amount:** \$50,000  
**Local Match:** \$33,333

**Project Title:** Ohio EPA/Ohio State University Collaboration to Enhance Ohio EPA's Modeling Capability

**Project Location:** Statewide

**Project Summary:** \$50,000 in federal section 319(h) Clean Water Act grant funding is awarded to the Ohio State University to model in-stream nutrient processes in agricultural watersheds and help provide a foundation for science-based information and training that will inform and enhance Ohio EPA's modeling and assessment capabilities.

Working in collaboration with Ohio EPA's Modeling and Assessment Section, OSU will evaluate the nutrient removal rates (Total Phosphorus, Nitrate + Nitrite, NH<sub>3</sub>-N, Chloride, Total Kjeldahl Nitrogen, Soluble Reactive Phosphorus and Suspended Solids) of several ditch sites with data sets collected previously by OSU. These sites include constructed two-stage channels and a traditionally designed trapezoidal channel. Analysis of the water quality data for each of the project sites will be completed. All modeling techniques and tools used and equations developed as a result of this analysis will be summarized and provided to Ohio EPA for future use in a final report.

### **Final Project Results:**

- Presented two workshops to Ohio EPA staff.
- Reanalyzed 3 of the 6 sites to determine if pollutant decay rates can be determined from the existing datasets.
- Developed a spreadsheet tool to quantify nitrate assimilation within ditches and streams which may be adapted for other water quality constituents.
- Completed an analysis of the water quality data for six project sites.
- Completed final project report.



## FFY08 Section 319(h) Nonpoint Source Project Summary

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<b>Project Number</b>	<b>#08(h) EPA-33</b>
<b>Project Completion</b>	November 2012
<b>SubGrantee</b>	<b>Holmes Soil &amp; Water Conservation District</b> 62 West Clinton Street Millersburg, OH 44654
<b>Project Contact:</b>	<b>Michelle Wood</b> Holmes SWCD 62 West Clinton Street Millersburg, OH 44654
<b>Amount Requested:</b>	<b>\$114,963</b>
<b>Local Match:</b>	<b>\$ 99,981</b>
<b>Project Title:</b>	<b>Paint Creek Watershed Cover Crop Program</b>
<b>Project Location:</b>	Holmes County—Multiple Townships
<b>Watershed:</b>	Paint Creek—tributary to Killbuck Creek

**Project Summary:** \$114,963 in federal section 319(h) Clean Water Act grant funding is requested to establish and implement a cover crop program within the Paint Creek subwatershed of Killbuck Creek in north-central Ohio. In January 2011 Ohio EPA approved a workplan revision that expanded the grant area from the Paint Creek subwatershed to the entire Killbuck watershed in Holmes County. Cover cropping is a priority of the Holmes SWCD due to the increasing amounts of sediment loadings being observed. SWCD staff has been observing increased soil erosion during winter months from corn silage and soybean fields. The goal of this project is to engage 12 farm operators in the watershed to participate and plant croplands with cover crops. Preliminary goals are to plant cover crops for a 2-growing season period on 4,665 acres. In addition to the cover crop cost-share activities, the project will result in the development of 12 farm management plans to incorporate cover crops into existing management systems, conduct soil tests on 240 sites and evaluate impacts of the program on water quality within the watershed.

The Paint Creek Watershed Cover Crop Program will be accompanied by an aggressive education and outreach program that will include community wide media efforts including news releases for 8 weeks to 6 different media outlets. Additionally, an informational meeting for area agricultural producers will be conducted by Fair Farms in the project area.

The project site is within areas that will be addressed by the Mohican River TMDL which is currently being prepared. The project site is not included in an endorsed watershed action plan.

**Project Deliverables:**

- Planting of cover crops using cost-share funding on 4,665 acres/year for a two year period. A total of 10-12 producers participate resulting in a two year total of 4,665 acres of corn silage and soybean fields planted in cover crops following the growing season.
- Conduct soil testing on 240 sites within the project area.
- Completion of 10-12 farm management plans incorporating cover crop planting as a practice for reducing sediment and nutrient loadings within the Paint Creek subwatershed.
- Monitoring and evaluation activities associated with measuring water quality improvements within the watershed resulting from the cover crop program.
- Project specific education and outreach activities including weekly news releases for eight weeks, a producers information meeting to demonstrate benefits of the practices using 10-12 test plots at Fair Farms within the watershed.

**Project Results to Date:**

- Developed six farm conservation plans.
- Developed and published 7 press releases.
- Conducted 1 public meeting.
- Planted 665 acres of cover crops.
- Conducted soil testing on 55 sites.

**Environmental Results:** Successful completion of this project will result in the planting of 4,665 acres of cover crops within the Killbuck watershed. Additionally, the project will result in the pollutant load reductions listed below.

**NPS Load Reductions Resulting from Project**

Pollutant	Estimated Loading Reduction
Nitrogen	3,600 pounds/year
Phosphorus	1,800 pounds/year
Sediments	1,040 tons/year



Rye growing in soybeans prior to harvest.



Oats seeded aerially at 80lbs/acre on standing soybeans.



## FFY08 Section 319(h) Nonpoint Source Project Summary

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**Project Number** #08(h) EPA-34  
**Project Completion** December 31, 2011

**SubGrantee** **City of Oxford**  
101 East High Street  
Oxford, OH 45056-1991

**Project Contact:** **David Treleaven**  
City of Oxford  
101 East High Street  
Oxford, OH 45056-1991

**Amount Requested:** \$24,150  
**Local Match:** \$16,100

**Project Title:** **Four Mile Creek Low Level Dam Removal**

**Project Location:** Butler County-Oxford

**Watershed:** Four Mile Creek

**Project Summary:** \$24,150 in federal section 319(h) Clean Water Act grant funding is requested by the city of Oxford to remove the low level dam located in the Four Mile Creek, approximately one-third of a mile downstream from the Bonham Road bridge. The dam is constructed of reinforced concrete and is six-feet high and 75 feet wide. The dam was constructed in the 1950's to improve recreational opportunities within the city of Oxford. Removal of the dam is proposed for low water periods during 2010 with demolition activity to take approximately one week. Removal of the dam shall eliminate the current impounded area and restore approximately 160 linear feet of natural stream habitat and flow conditions.

The proposed project will be accompanied by project-specific educational and outreach activities including the preparation and distribution of project specific articles for publication in local news outlets. The project site is not within are

**Project Deliverables:**

- Removal of a 6-foot high by 75-feet wide lowhead dam in Four Mile Creek within the city of Oxford.
- Restoration of approximately 160 linear feet of natural stream habitat and flow conditions.

- Project specific education and outreach activities include the preparation and distribution of project-specific articles for publication by local news outlets.

**Project Results to Date:**

- Initiated construction and design documents.
- Currently preparing dam removal and bank restoration specifications for Request for Proposals, which is anticipated to be issued August 2010.
- Currently preparing permit applications for the various federal, state and county permits needed for the dam’s removal.
- Contracted with hydrological consultant for a HEC-RAS study of the potential impact to the creek resulting from the dam’s removal. Received results of study in January 2011 and indicated no appreciable increase in maximum flow flood water elevation due to the removal of the low head dam.

**Environmental Results:** Successful completion of this project will result in the removal of one lowhead dam and the restoration of 160 linear feet of natural stream habitat and flow conditions. Additionally, successful completion of the project will result in the pollutant load reductions listed below.

**NPS Load Reductions Resulting from Project**

Pollutant	Estimated Loading Reduction
Nitrogen	15 pounds/year
Phosphorus	8 pounds/year
Sediments	8 tons/year



## FFY08 Section 319(h) Nonpoint Source Project Summary

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**Project Number** #08(h) EPA-35

**Project Completion** December 31, 2011

**SubGrantee** Franklin Soil & Water Conservation District

1328 Dublin Road, Suite 101

Columbus, OH 43215

**Project Contact:** Kyle Wilson

Franklin Soil & Water Conservation District

1328 Dublin Road, Suite 101

Columbus, OH 43215

**Grant Amount:** \$194,324

**Local Match:** \$132,456

**Project Title:** Waterman Farm Agricultural BMP Demonstration Project (Phase 1)

**Project Location:** Franklin County

**Watershed:** Olentangy River

**Project Summary:** \$194,324 in federal section 319(h) Clean Water Act grant funding is awarded to the Franklin Soil and Water Conservation District to improve the water quality of an unnamed tributary to the Olentangy River by implementing an array of agricultural best management practices at the Ohio State University's Waterman Farm. The project will also serve as a multi-dimensional demonstration and education site for a variety of audiences including college students, farm operators, and environmental and conservation professionals, among others. The project will provide on the ground examples of how to improve the sustainability of production, reduce maintenance costs, assure compliance with state and federal regulations and improve water resources both on the farm and downstream.

The project site is located on the main campus of the Ohio State University in Columbus Ohio and is home to education and research projects in an extensive list of agriculture disciplines. The site currently exhibits physical and operational characteristics that are detrimental to the water quality of the unnamed tributary that runs through the farm. Resource concerns include unrestricted access of livestock to the stream, channels that have been deepened and straightened for drainage purposes, lack of vegetated buffers and a lack of an established conservation and manure management plan.

### Project Deliverables:

- Develop whole farm management plan;
- Construct 1,000 linear feet of two-stage channel;
- Install anaerobic biodigester;

- Plant 2 acres of trees, shrubs and/or live stakes in riparian areas;
- Install rainwater harvesting/reuse systems;
- Install 6,500 linear feet of exclusion fencing;
- Install 6 alternative water supply systems;
- Install 4 livestock crossings;
- Conduct project specific public education and outreach activities including but not limited to workshops, bus tours, website, educational signs, brochure and project display.

**Project Results to Date:**

- Constructed 475 linear feet of two-stage channel;
- Developed whole farm management plans on 20 acres;
- Conducted 2 project specific workshops and 1 tour.
- Developed 1 display and 1 newsletter.
- Completed survey and design for livestock exclusion fence and crossings. Remaining 2-stage channel design is in progress. Installation is scheduled to occur March-May 2011.

**Environmental Results:** This project will successfully protect approximately 6,500 linear feet of stream in which livestock currently have unrestricted access to the water, restore an existing agricultural ditch to 1,000 linear feet of 2 stage channel and improve awareness of effective farm management practices. The project also will result nonpoint source pollutant loadings to the Olentangy River in the amounts listed below:

**NPS Load Reductions Resulting from Project**

Pollutant	Estimated Loading Reduction
Nitrogen	122 pounds/year
Phosphorus	60 pounds/year
Sediments	21 tons/year

