



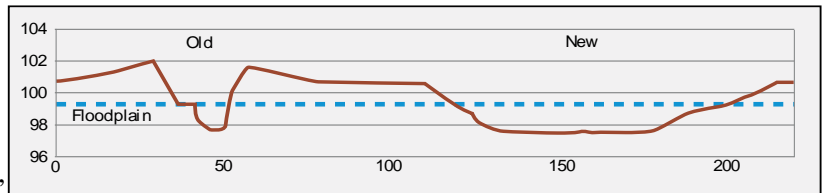
Innovative Stream Restoration Project

A Rockford Homes development in Hilliard gained valuable building acreage by partnering with the Ohio Department of Natural Resources (ODNR) in an innovative stream restoration project. Hampton Reserve abuts the floodplain of Clover Groff Run, a narrow, deeply incised, low flow, low gradient, agricultural drainage ditch. Because of the flat topography (a gradient of only 0.06 %), Clover Groff had an extensive 100-year floodplain.

Clover Groff is also considered impaired by the Ohio EPA because of hydro-modification beginning in the 19th century. What was originally an elm/ash linear wetland (a swamp with flow) became an entrenched ditch and valuable farmland. While improving drainage, Clover Groff provided poor habitat and little ecological function. Because it is a headwater stream in the Big Darby watershed, restoration of the ecological functioning of this tributary was of considerable importance to the health of the watershed.

Dan Mecklenburg of ODNR has been working with the Ohio State University on headwater stream restoration through self-forming channel design. In addition to drainage, higher quality habitat is formed and services such as flow rate moderation, sediment trapping, and pollution assimilation are provided. By lowering the floodplain and creating a wide, flat trapezoidal channel, Mecklenburg is giving Clover Groff the ability to form the classic meandering channels of low gradient headwater streams with self maintenance processes that provide habitat, substrate quality, pool depth, and diverse cover.

There are also economic benefits to implementing this new stream restoration approach. The self-forming or “over-wide”



channel design costs about \$43 per linear foot compared to designing and restoring a stream from the substrate up at \$200 to \$600 per linear foot. Don Wick of Rockford homes was able to use the excess soil from construction of the channel and the lowering of the flood plain to increase the number of home sites. The lots around the wetland stream, which also meets requirements for open space, are expected to sell at a premium.

Additional collaboration is allowing the monitoring, analyzing, and protection of this innovative stream restoration project. Rockford Homes has placed a conservation easement on this site that is held by Franklin Soil and Water. The easement will assure permanent protection of the land as well as making it available to researchers to record its evolution into a fully functioning headwater stream. For more information on conservation easements or stream restoration, call Kyle Wilson, Franklin Soil and Water (614) 486-9613.

Information for this article was drawn from “Helping urbanizing communities” in ODNR Division of Soil and Water Annual Report, January 2007; “Low gradient headwater channel form and function,” Dan Mecklenburg, ODNR, Division of Soil and Water, 2005; and from Kyle Wilson, Franklin Soil and Water; and Dan Ketzner, OSU.

Rain Garden Technical Workshops Offered

The Central Ohio Rain Garden Initiative (CORGI) will be hosting two days of workshops on rain gardens and green infrastructure techniques for stormwater quantity and quality management on October 21 and 22. Workshops and technical training will be presented by the renowned landscape architect Rusty Schmidt with the Washington County Soil and

Water Conservation District of Minnesota, URS Environmental Engineer David Dods, and URS Green Initiatives Practice Leader Kari Mackenbach.

Learn how to design, construct, and maintain rain gardens to help address storm water quality and quantity.

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Urban Stormwater Retrofit in Gahanna

The City of Gahanna will soon be constructing one of the largest stormwater infiltration systems in the county. The intent of this project is to retrofit an existing stormwater basin to provide water quality benefits in addition to the flood storage capacity the basin currently provides. Past design of stormwater facilities focused on decreasing the impact of large, flooding storm events by the short term storage of those flood waters. Smaller storm events would simply flow through the system. Now, our understanding (and regulatory requirements) of stormwater also includes the idea of water quality, not just quantity. Most waterborne pollutants are transported by the “first flush”; the low intensity/high frequency storm events that wash the impervious surfaces in the urban environment. Runoff from urban surfaces contains sediments, heavy metals, bacteria, and nutrients, and is often heated above lethal temperatures or contains little dissolved oxygen for aquatic organisms.

Contemporary designs of most stormwater basins emulate natural processes to achieve water quality. Water quality basins designed to meet current regulations must contain a wet component within the basin to provide for the sequestering and settlement of sediment,

and treat dissolved pollutants through the assimilative properties of plants and soil. In the urban setting, a wet condition poses a long term problem for the management of these facilities. Standing water and the potential for mosquitoes create a real or perceived health and safety issue, and nuisance vegetation is an ongoing maintenance expense.

The Gahanna basin project will provide stormwater runoff water quality through infiltration; the best, most efficient mechanism and closest to natural processes for achieving water quality while maintaining a dry surface area that local residents can continue to use as open space. Similar to leach field technology, the infiltration system will be composed of multiple subsurface drain pipes that collect the first flush stormwater volume underground and infiltrate this volume into the lower soil layers. This deep infiltration provides the annual base flows to our creeks and rivers and recharges local aquifers.

The project will capture almost 20% of the water quality volume generated by low intensity (3/4”) storm events within a 100 acre urban drainage area that currently provides no water quality or attenuation of lesser storm events. The system will infiltrate close to 40% of the water quality volume over a 40 hour period. New development would be required to meet 100% of this water quality volume capture and treatment





that is almost always accomplished through the creation of large wet detention ponds. While this may seem a low percent, keep in mind that the system will be capturing and treating the first flush for all storm events, regardless of size, because it is designed to function first before overflowing into the storage portion of the basin.

Continued efforts of stormwater retrofitting in the contributing drainage area can result in further improvements in water quality and stormwater attenuation. The upstream additions of residential rainwater harvesting, rain gardens, downspout disconnects, rain barrels, and various other infiltration practices implemented by homeowners and the city could reduce the effects dramatically and ultimately result in a self-contained, zero impact, sustainable stormwater infrastructure within an urban watershed.

As a demonstration project, the Gahanna detention basin retrofit will provide a low cost mechanism for increasing water quality within an urban watershed, benefit local stormwater infrastructure and maintenance programs by reducing management costs and complaint driven action items, and continue to provide open space suitable for recreational activities.

If you would like to learn more about this project please contact David Reutter at Franklin Soil and Water.



-  Underdrain system
-  Pervious concrete
-  Conservation easement boundary
-  Impervious concrete channel

Code and Ordinance Worksheet

Many townships, counties, and municipalities have begun to update their codes and ordinances to bring them more in line with state and federal mandates for storm water management and to support environmentally sensitive development. The Center for Watershed Protection (CWP) has developed some models that counties and municipalities can use to guide them during this process.

But what if you aren't sure if your codes need updating? How do you find out? Where do you start?

The Center for Watershed Protection has a worksheet to use that allows an in-depth review of the standards that determine how development occurs in your community. It will guide you through a systematic comparison of your local regulations against the model development principles. A series of questions match each of the model principles, then points are assigned based on how well your ordinances and codes align with the CWP site planning standards.

The worksheet will guide you through the first two steps of local site planning. First, you will determine exactly what the regulations are in your community and then you'll compare them to the Model Development Principles. This will help you identify which development rules are potential candidates for change. Your score will provide a general indication of your community's ability to support environmentally sensitive development. Are your codes and ordinances generally pretty good or are there specific areas that need improvement? This desktop analysis will simplify your implementation of better site development by assessing your current development rules and identifying impediments to innovative site design. To download a copy of this **Code and Ordinance Worksheet** visit the CWP web site at: www.cwp.org/Resource_Library/Watershed_Management/desktop.htm.

Franklin Soil and Water Annual Banquet

Please join us on the evening of October 23rd for our Annual Banquet at the Confluence Park Restaurant in Columbus. Our theme this year is "Conserving for the Future" featuring creative solutions for a cleaner environment.

The election of two new Franklin Soil and Water Board Supervisors will be held at the same time. Nominees include Robert Kyle, Suzan Jervey, and Dan Binder. Mr. Kyle is retired and currently serves on the board of the Sierra Club and Friends of Big Walnut and Tributaries watershed group. Ms. Jervey has recently retired from MetroParks and has worked with Miami Soil and Water as well as ODNR, with 34 years of experience in public education and outreach. Mr. Binder is currently a Board Supervisor. He also serves as President of Friends of Big Walnut Creek and Tributaries and is the executive director of the River Institute. All residents or landowners in Franklin County are eligible to vote. Visit our web site for more information at www.franklinswcd.org.

Rain Garden Technical Workshops (continued from page 1)

These workshops are designed for engineers, landscape architects and designers, ecologists, local governments, consultants, and anyone who wants to learn how to build successful rain gardens. The workshops provide a range of training opportunities.

Attend all three workshops or choose from the individual workshops to fit your needs. The workshops include *Introduction to Green Infrastructure* and hands-on participation in the installation of a rain garden on the 21st. On the 22nd, attend the more technical *Advanced Infiltration Practices*.

The workshops will be held at the Ohio Department of Transportation, located at 1980 West Broad Street in Columbus. Seating is limited so please register by October 17, 2008. Continuing education credits are available. For more information on registering for the workshops and to download an agenda, visit www.franklinswcd.org or call Stephanie Potestivo at (614) 486-9613.

CORGI was launched by Franklin Soil and Water Conservation District in 2008 to promote rain gardens and other green infrastructure in our region. The Initiative is a collaboration among local governments, environmental and neighborhood groups, engineers, landscape professionals and other interested citizens.





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BMP Review: Trained and Qualified Inspectors

Not all Best Management Practices (BMPs) involve silt fence, straw wattles, or stone. Some of the most effective BMPs are knowledge, experience, and training. It is very important to have a qualified person on-site to inspect and evaluate the installation and long term effectiveness of the erosion and sediment control structures that have been put in place. In fact, NPDES regulations require that a qualified inspector check all BMPs at least once a week and within 24 hours of any rainfall over one-half inch. But how do you know if your inspector is qualified?

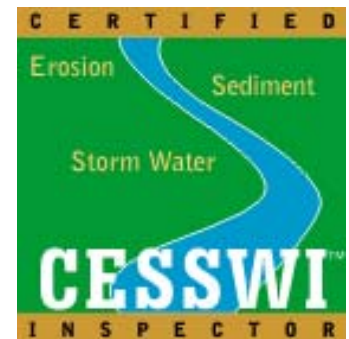
A new industry inspector certification program has been developed by EnviroCert International, Inc. (formerly CPESC, Inc.) in conjunction with an international oversight committee and storm water management professionals. This program is the Certified Erosion, Sediment and Storm Water Inspector™ Certification Program or CESSWI™. This program is available to all qualified technicians and inspectors who wish to demonstrate their proficiency in construction and post-construction inspection skills.

To qualify as a certified inspector, an individual must demonstrate proficiency in communication, documentation, site safety, plan management, and inspector responsibilities,

and also understand the minimum requirements for the Federal NPDES storm water permit program. Candidates for the program must have at least three years of directly related work experience, a high school diploma, and work references.

Detailed information about program requirements and procedures can be found at the CESSWI™ program web site: www.cesswi.org. An application can also be downloaded. Following an application review and approval, candidates must complete a written examination to demonstrate their knowledge of the basic inspection skills for erosion, sediment, and storm water related construction projects.

An exam review class and the exam are scheduled for December 5th and 12th in Columbus. Visit the CESSWI™ website calendar for details on prerequisites. You can download a registration form or register online at www.franklinswcd.org.



Creating Conservation Solutions For Over 60 Years