Conservation & You

A publication of the
Southeast Pennsylvania
Association of Conservation Districts

Bucks
Chester
Delaware
Montgomery

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Milkweeds for Monarchs

The Chester County Conservation District is promoting Milkweeds for Monarchs program to educate K-12 students participating in our annual Envirothon scheduled May 5, and 6, 2015. Each student will receive from the District a package containing the plant description, its relationship to the Monarch butterfly, seeds, and planting instructions for the Common Milkweed (Asclepias syriaca). This is but a small start in one county, but it got me thinking as to if and how this important effort could be expanded across the State? What better way to broadcast, educate and inform than with an article of the same in Conservation and You.

The Monarch butterfly is coming under increasing threat for many reasons, including the decline of resting areas the butterflies use. Commonly called “way stations”, these resting areas are critical to the Monarch on their long migratory journey across the United States. The monarch butterfly population is in danger because they cannot survive without milkweed. The caterpillars eat the plants and the butterflies lay their eggs on the milkweed leaves and stalk. Scientists estimate that 33 million monarchs remain, - more than a 90 percent drop across North America.

So, we call upon each and every reader to create a milkweed garden, planting the native milkweed species, and for the southeast region of Pennsylvania (northeast US) that native perennial species would be Asclepias syriaca. The plants require well drained dry soils of poor quality, with a pH 5.8 to 7.2 and full sun. Plant the seeds by sowing them on the ground, do not cover, but keep the seeds moist during germination which is 21 to 28 days. Space them about 36” (1 yard) apart and during June, July, and August, the plant will grow about 40 inches in height with beautiful pink flowers. The butterflies will find them along the way. The best way to know you have caterpillars is to look for chewed leaves and frass (brownish looking little deposits on the leaf surface). The pupae stage is a beautiful emerald casing with gold dots along the upper edge. It is tempting to bring them indoors to watch the transformation, but please, let it remain on the plant outdoors. They will do much better in the natural environment.

Seeds can be purchased from any outlet that can provide the correct species for the region. Buy them today and start your garden this year after the temperature reaches and maintains at least 68˚F. Do your part to help this beautiful butterfly make its way to Mexico each year.

Our goal is to engage as many students, Chester County residents, and conservation organizations as possible to replant old fields, and create new gardens of milkweeds for Monarchs to feed upon during their amazing migration. We encourage you to do the same in your county. Perhaps we can see amazing fields of milkweeds flowering, just as we marvel at those beautiful fields of sunflowers laid out in late summer, Milkweeds for Monarch – spread the word, join the efforts, plant a seed – plant a lot of seeds.

Thanks to the USDA NRCS flier, The Butterfly Effect: Conservation Help Rare Butterfly by Elisa O ‘Halloran www.nrcs.usda.gov for the technical information. You can also learn more by contacting the North American Pollinator Protection Campaign www.nappc.org or, The Xerces Society www.xerces.org

Submitted by Chotty Sprenkly,
Chester CCD

Volume Control BMPs for Infiltrationally Challenged Sites

Many sites in Montgomery County are having issues meeting the requirements of 102.8 due to poor soil infiltration rates. But, since many of the streams in our county are already impaired for volume, meeting the minimum volume reduction is necessary to obtain a General NPDES Permit. The MCCD recommends considering the possible Best Management Practices (BMPs) outlined in this article to help applicants meet volume reduction requirements.

The first BMP that should be considered is limiting or reducing impervious areas as per 102.8(b)(4). Sometimes it is the best (if not only) way to meet the volume requirements. Every complete General NPDES Permit application in Montgomery County has a statement in the PCSM Narrative similar to; “The plans and the details minimize impervious area by…” Having less impervious area means you will need less volume credits to meet the regulations.

Next in consideration, plant more trees. Six (6)cf of volume credit are awarded for a deciduous tree and ten (10)cf of volume credit for an evergreen. While a few trees won’t get you far, a few hundred trees might make the difference. You will need to supply the worksheet from Chapter 8 and show the trees on the PCSM plan in order to take this credit. Tree plantings also help with Worksheet 10 requirements for nitrates.

Porous pavement or pervious pavers are also good volume control BMPs. If you have any ability to infiltrate, you can multiply the storage area and the infiltration rate to calculate a volume that will be removed in 72 hours. If you do not have any infiltration, you may be able to take a CN value reduction per guidance provided by the Philadelphia Water Department. Basically, the credit goes from a worksheet 5 credit to a worksheet 4 credit. Either way, make sure you record it correctly on the NOI, section D.3 and D.4. Do not double the credit by taking it on both Worksheet 4 and Worksheet 5.

One of the most widely proposed BMPs for volume reduction credits, is the Rain Garden. The PCSM BMP Manual states that volume credits for rain gardens may be calculated including the surface storage area of the garden (page 58). This Is acceptable if you have an infiltration rate that is greater than 0. Otherwise, you are not proposing a rain garden, you are proposing a created wetland. The volume credits for a constructed wetland are considerably less than a rain garden, and must be accompanied by an evapotranspiration calculation. Keep in mind that utilizing an underdrain will void the surface volume credits because the storm water is not being removed from the runoff, it is merely being filtered. This will still count as a water quality BMP, but limits volume reduction credits. In order to get volume and water quality credit from a rain garden in soils without infiltration, you should provide a sand / soil / compost layer at least 18” deep. From that area you can take soil void credits as outlined in the PCSM BMP Manual. Below this layer you may provide an underdrain so your rain garden has a way to dewater. If you specify plantings that will have root structures long enough to get below the soil layer, you can use a stone bed and take up to 40% void space as a volume credit from that area. The planting schedule has to be on the PCSM plans and should include plants, trees, and shrubs as opposed to just a seed mix.

When using this option, you should consider the transpiration rates of the plants you are proposing to determine the time that it will take to dewater your rain garden. Please keep in mind that scientific justification will be required when transpiration is proposed as the sole volume control.

A green roof, or vegetated roof, is a volume reduction BMP that is adaptable to achieve differing environmental benefits. In the case of NPDES permitting, it is normally rain runoff mitigation that is going to be examined. In order to calculate volume reduction credits from a vegetated roof, the rate and quantity of water released from a given

design storm may be predicted based on knowledge of key physical properties, including:

- Maximum media water retention
- Field Capacity
- Plant cover type
- Saturated hydraulic conductivity
- Non-capillary porosity

Another volume control BMP is a wet pond / retention basin. Per the BMP Manual, this BMP has a low volume reduction. Keep in mind that the difference between the "predicted water level and the lowest outlet elevation" does not extend to the bottom of the basin, it is only to the water surface elevation, which will be minimal below the orifice without any infiltration. On a hot summer day, you can expect one half (½) inch of evaporation over the surface of the basin. The maximum credit taken for this BMP should not be calculated for a period of longer than three (3) days. It should then be divided by two (2) because there is little to no evaporation in the winter.

Alone, none of the BMPs listed above will likely meet all of your volume requirement needs. They are just "tools in the toolbox". The use of multiple volume controls spread out across the site as suggested by the BMP Manual is the most effective means to obtain compliance with the 102.8 regulations.

Infiltration in Montgomery County has been and continues to be a challenge. As designers, it falls on you to come up with the best combination of BMPs that will meet the requirements of the NPDES Permit and allow your clients' projects to move forward.

Submitted by Jeffrey McKenna, Montgomery CCD

The common problems with designs and inspections when using Silt Fence

Silt fence is one of the oldest and most commonly used BMPs proposed and utilized on construction sites. However, similarly common misuses of silt fence are the main causes of E&S violations on construction sites, and inadequate comments during an E&S plan review.

Here are a few common silt fence problems reviewers see on E & S plans,

1. Silt fence cannot be used in multiple rows to cut down on the maximum slope lengths.
2. The use of silt fence should only be utilized as a secondary E & S control such as around stockpiles or a single lot development. Per the E & S manual, "Super Silt fence may be used to control runoff from small disturbed areas where the maximum slope lengths to reinforced silt fence cannot be met and sufficient room for construction of sediment traps or basins does not exist".
3. Silt fence cannot be proposed in areas of concentrated flow. Silt fence is designed to control runoff from small disturbed areas, when it is in the form of sheet flow.
4. Ensure the silt fence ends point sufficiently upslope to create adequate pooling of runoff for the settling of sediment and to prevent end-around flows. It is noted that silt fence does not filter runoff, it relies on the pooling of runoff to enable settling of the suspended sediment.
5. Silt fence installation should be at existing level grade. Maximum deviation from level grade should be 1%, and not extend for more than 25 ft.
6. Soil types and location is an important aspect to consider when designing projects using silt fence. Per the E & S manual, "Silt fence should not be used in areas where rock or rocky soils prevent the full and uniform anchoring of the fence. Forested areas are not recommended unless tree roots can be severed during excavation of the anchor trench. Silt fence should not be installed on uncompact fills or in extremely loose soils since this will likely result in undermining of the silt fence."

Common problems E & S inspectors see in the field,

1. All silt fence should be properly entrenched with a compacted backfilled trench. The size of your silt fence depends on how deep your silt fence needs to be entrenched. One of the most common problems seen in the field is undermining of the silt fence, which is rarely repaired or found during self-inspections. Follow the construction detail provided on the approved E & S plan.
2. Tie-backs not installed on reinforced silt fence (30 inch silt fence). The common problem with the tie backs is they extend into the construction area. If this is the case, an alternative is 18 inch compost sock.
3. Undermined or overtopped silt fence must be replaced with a rock filter outlet or reinstalled correctly as rock filters are an inefficient sediment controls.
4. A #7 gauge tension wire should be installed on super silt fence. Refer to construction detail on approved E & S plan for proper installation.

Submitted by Dan Oskiera, Montgomery CCD

Act 537, Demolition permits, NPDES and Earth Disturbance

Sometimes steps are overlooked that need to be taken before commencing earth disturbance. This article focuses on common errors in Act 537, demolition permitting and their relation to NPDES and earth disturbance.

Act 537 deals with sewage facilities planning modules that are to be submitted to DEP for capacity approval. Before earth disturbance may begin on an NPDES permitted construction site Act 537 planning module approval must be in place. This is also required for sites that are not subject to an NPDES permit. Sites that commence earth disturbance without approval may be subject to an NOV from DEP's clean water program.

Demolition taking place without a permit is also problematic. Issues arise when demolition becomes disturbance. Generally, if a site proposes demolition down to the slab earth disturbance may not occur. However, when you factor in the removal of the slab it becomes earth disturbance. To further compound this issue; sites that begin earth disturbance without an NPDES permit may be subject to enforcement action.

Referring to the approved E&S plan should tell you when demolition can occur; usually following a pre-construction meeting with your local Conservation District. Even if you have received your NPDES permit starting demolition work without notifying the District is a violation. For demolition work, air quality permits may need to be obtained from the DEP in addition to NPDES approvals.

Another issue may arise as most building/code inspectors who issue these permits may be unaware that a site is in the process of obtaining an NPDES permit. The District copies municipalities on all correspondence during this process, and when the permit is issued.

Before a job begins make sure all of your approvals are in place. If you are unsure of anything be sure to contact your local Conservation District or DEP's regional office.

Submitted by Kevin Boyle, Delaware CCD

Changes at Bucks County Conservation District

It was 1985 when Lisa (Dziuban) Ishimuro first moved to Plumsteadville, Bucks County. After she moved in, Lisa noticed the (then) Bucks County Soil Conservation Service (BCSCS), she walked in and asked if there was any opportunity for her to either volunteer or work for the BCSCS. She was taken on first as a volunteer, then hired part time, and eventually, Lisa transitioned into one of the three full time County positions at the BCSCS.

Thirty years later, we celebrate Lisa Dziuban's retirement from public service with the (now) Bucks County Conservation District (BCCD). Over that time, Lisa was lucky enough to have found that her interest turned to passion and her passion into a career in environmental protection. She served faithfully in the County that she had made her home, and earned the respect of those she encountered in the field each day.

Lisa worked for BCCD during years of extensive development and population growth. She witnessed so much change within the County that she came to fully realize the importance of the role Conservation Districts play in preventing pollution before it has an opportunity to impair the natural resources we all rely on. During her last days on the job, Lisa spent time reminiscing about how her early experiences taught her the importance of being able to be able to provide clear, concise, and prompt direction to the regulated community.

Those of us in the public sector know that to serve others is a choice that entails some personal sacrifice. However, we also know that there is great personal reward for serving faithfully and to the best of our ability. It gives me great pleasure to have watched someone serve their community for the length of a career. It also brings me joy to know that Lisa's service is now rewarded in what we all hope will be a long and joyful retirement.

Submitted by Gretchen Schatschneider, Bucks CCD

New Resource Conservationist at Montgomery County Conservation District

Cody Schmoyer is the new Resource Conservationist at Montgomery County Conservation District. Prior to joining the team, he worked as a geologist 1 for Earth Engineering Incorporated. He holds a B.S. in Environmental Science and a minor in Anthropology from Elizabethtown College. He enjoys bowling, running, trout fishing, and hanging out with friends.

Soil Lifts Stabilize Pine Run Streambank and Protect Private Road in Northampton Twp, Bucks County

The Bucks County Conservation District (BCCD), in collaboration with Pennsylvania Department of Environmental Protection's Southeast Regional Office (PADEP SERO), recently completed a streambank stabilization project that for Ed and Esther Frame was a long time coming. Over the past six years, the Frames had been requesting assistance for the repair of a section of streambank along the Pine Run in Northampton Township that was severely eroded, contributing sediment pollution to the stream and threatening the integrity of both a utility line and the private road they share with five neighbors. A number of options had been explored, but many were cost-prohibitive and/or did not focus on the immediate area of concern, and funding was elusive.

When BCCD first visited the site in late Spring 2013 the immediate water quality and public safety concerns were obvious: approximately 125 feet of the streambank was severely eroded, creating a 10 foot vertical bank that came within 30 feet of the private road (Photo 1). After a series of meetings between State Senator Tomlinson's staff, Northampton Township Bucks County Joint Municipal Authority (whose easement runs along the stream), PADEP SERO and BCCD Board of Directors and staff, an agreement was reached between PADEP and Northampton Township Bucks County Joint Municipal Authority to provide funding to BCCD to complete the project. The BCCD Board then accepted the funds and the responsibility to complete the project.

Once funding was in place, BCCD issued a request for proposals for design-build services to repair the streambank. RiverLogic Solutions, LLC was selected in January 2014, and by April had surveyed the channel and prepared final designs. Construction easements and permits were secured, and the work began on Monday, July 28th and was completed on Tuesday, August 5th. This timeframe was targeted to complete the work on the channel during low-flow conditions, to minimize additional sediment transport downstream during construction.

RiverLogic Solutions first set to work installing erosion and sediment controls: a construction en-

PHOTO 1: *View of severely eroded bank prior to pre-bid meeting. (credit Rich Krasselt, BCCD)*

PHOTO 2: *Dale Bentz of RiverLogic Solutions seeds the lowest soil lifts before fabric is staked in place.*

PHOTO 3: *Stabilized bank 2 days following completion of construction.*

trance and silt fence for where soil and rock would be imported and stockpiled and a pump and coffer dam to divert the stream around the work area. They then excavated a large gravel point bar along the left bank to restore the channel to its former location, and re-graded and seeded the left bank to reconnect the stream to its floodplain in this area. RiverLogic then excavated along the base of the right (eroded) bank and placed large rock to create a 'rock toe' for the proposed new bank. The rock toe will keep the soil lifts out of the normal water flow and protect from shear stress along the base of the bank that could undermine the newly restored bank during high flow events.

Soil was then imported to build up the banks behind the soil lifts to create a more gradual slope. Wooden forms were then placed on top of the rock toe, coir (i.e., coconut fiber) fabric was rolled out along the form, and soil was placed inside to create the fabric-encapsulated soil lifts, which initially resembled three large steps (Photo 2). Before the team wrapped and secured the fabric with wooden stakes they seeded each of the three lifts with a riparian restoration mix from Ernst Seed Company. After the fabric was staked in place, an excavator was used to press down on the edge of each lift to give each a more natural, rounded look (Photo 3). Finally, RiverLogic closed out the heavy construction phase of this project by seeding and mulching other disturbed areas on the site with a lawn restoration seed mix and removing the remaining erosion and sediment controls. The final step of this first phase of the project was the installation of native shrub tublings and native wildflower plugs to encourage more rapid establishment of vegetation in the soils lifts on September 26, 2014 (Photo 4). As the fabric biodegrades, the plants will take over the work of stabilizing the soil lifts, their deep roots holding the soil in place to protect the new bank.

Now that the immediate area of concern has been addressed, BCCD plans to return to this site in Fall 2015 to expand the riparian buffer with a variety of young native saplings and additional native shrubs. The addition of woody native plants along the stream corridor will help protect the ecology of the Pine Run by stabilizing the streambank upstream and downstream of the project area, shading and cooling the water so it can hold more oxygen for aquatic life, filtering pollutants, and providing food for wildlife.

Submitted by Meghan Rogalus, Bucks CCD

PHOTO 4: *Subcontractor Applied Ecological Services install shrub tublings and perennial plugs.*

PHOTO 5: *A celebration of the completed project with the Frames. Pictured from left to right: Esther Frame, Cosmo Servidio (PADEP), Ed Frame, Domenic Rocco (PADEP), Gretchen Schatschneider (BCCD), Jennifer Fields (PADEP), and Abdel Nassani (PADEP).*

The Conservation Districts in Southeastern PA offer advertising space in this newsletter, CONSERVATION & YOU, distributed to some 2000 developers, engineers,architects, municipalities, and other related businesses in the region. Please contact the conservation district in your county with comments and suggestions.

Two size ads are offered: Business card size (2" x 3.5") $75/issue, Quarter Page (3.5 x 4.5" - vertical) $125/issue. A 10% discount is offered for inserting an ad in two or more issues. Ad deadline for the Fall 2015 issue is September 15, 2015. Send your check payable to the Delaware County Conservation District and camera-ready copy to Ed Magargee, Delaware County Conservation District, Rose Tree Park - Hunt Club, 1521 N. Providence Road, Media, PA 19063;
Phone (610) 892-9484. Email: MagargeeE@co.delaware.pa.us

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