# Stormwater Management at Your Property



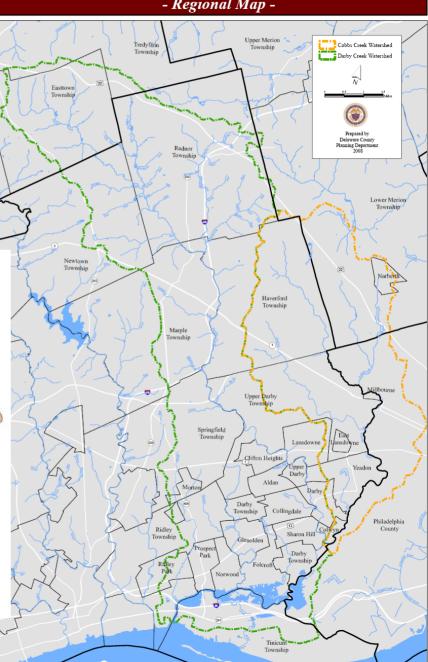


"Your yard is starting to mess with my livingroom."

# What is your watershed address?

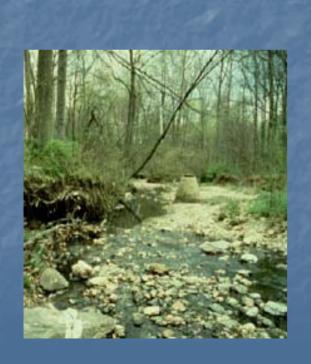


### Darby-Cobbs Watershed - Regional Map -





## The Current Scene

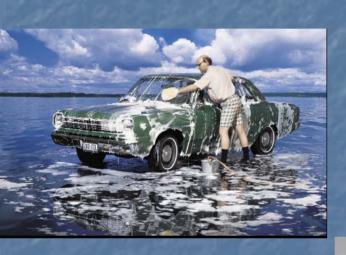


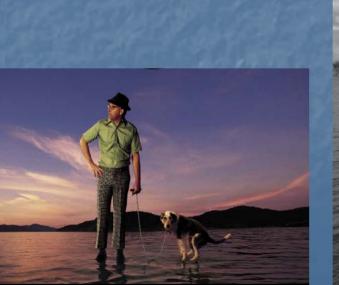






# Your actions on land (in and around your property) have a DIRECT effect on the health of your local waterways











## The American Ideal?



## Simple steps by homeowners CAN improve water quality

- Re-establish and improve riparian buffers
- Stop all dumping in stormsewers only rainwater in the stormdrains
- Encourage homeowners to do small things around there homes to reduce stormwater runoff, including:
  - -Rainbarrels
  - -Raingardens
  - Reducing fertilizer and pesticide use



## Lawn Care

Modern lawn care practices use too much fertilizer and too many toxic chemicals. Much of these work their way into our waterways through stormwater runoff, negatively affecting water quality, and aquatic organisms.

- Mow High requires less water, shades out weeds.
- Leave the grass clippings on the lawn, they will breakdown and fertilize lawn.
- Test your soil before you apply fertilizer.
- Use organic fertilizers and only what you need.
- Water longer and less often. First thing in the morning is best.
- Aerate early in spring and the fall. Reduces compaction, allows more air flow around roots and better water penetration.
- Do NOT put your leaves in a stream!!!

http://www.aasl.psu.edu

☐ Tall Fescue

Phone: (814) 863-0841 Fax: (814) 863-4540

	Grower Name (Please Print):				Send copy to:					
'	Business Name:				Business Name:					
↑ SERIAL NO. ↑ (From front of bag)					Street or R.D. No.:					
Please record here				County	City, State, Zip:					
				Ŀ	Telephone no.:	Fax no.:	Email:			

University Park, PA 16802

USE THIS FORM FOR TURF, HOME GARDEN, N WOODLOT, CHRISTMAS TREES AN		
NOTE: PAYMENT OF \$9.00 MUST BE SUBMITTED WITH YOUR SE Enclose check made payable to Penn State University for \$9.00 plu	OIL SAMPLE FOR THE STANDARD FERTILITY ANAL	
Optional Field name (10 digits or less):	The standard fertility report includes results for pH, acidity, Mehlich calcium, and magnesium and lime and fertilizer recommendations. The is based on crop response.  Optional Tests: Optional tests available for an additional fee are hit tests do not include an interpretation or recommendation. If you woul tests histed, check the test requested and submit check or money order wite	nitrogen recomme sted below. Most of d like any of the o
↓ SECTION 1↓  CROP INFORMATION  See back of this sheet for crop codes  (This section must be completed)	Organic Matter* Soluble Salts: Nitrate Nitrogen* Total Nitrogen (Combustion)* Annuonium Nitrogen* Total Carbon (wN)*	\$5.00 \$5.00 \$10.00 . \$7.00
Crop Code Crop Name:	Total Carbon (WOY)*   Total Carbon (WON N)*   Particle Size Analysis*   Total Sorbead Part for Forest Solis.   Total Sorbead Mealis*   Mercury*   Selentum*	\$15.00 \$15.00 \$9.00 \$55.00 \$25.00
$\downarrow$ SECTION 2 $\downarrow$ IF TURF IS CODED ABOVE, COMPLETE THIS SECTION	Arsenic *  Molybdenum*  Asrenic, Selenium, Molybdenum*	635.00
Predominant Grass Species (check only one): (If you do not know your grass species, leave this section blank)  Annual Bluegrass	Lead PCBs*	
☐ Bentgrass ☐ Bermuda Grass	*Result only. No interpretation or recommendation provided.	
☐ Fine Fescues ☐ Kentucky Bluegrass ☐ Perennial Rvegrass	Enclose check made payable to Penn State University for too requested.	CROP CODE

http://www.extension.psu.edu/ Soil Testing Information

## Standard Individual Soil Test Kit \$9.00

#### CODE GUIDE FOR TURF, HOME GARDEN, NONCOMMERCIAL FRUIT, FLOWER, WOODLOT, CHRISTMAS TREES AND LANDSCAPE PLANTS

Code Block on Opposite Side of This Page

	TURF	Ho	me Garden, Non Commercial Fruits & Flowers
CROP CODE	CROP NAME	CROP CODE	CROP NAME
2101	Home Lawn-to plant	5010	Mixed Vegetables
2001	Home Lawn-maintain	5150	Strawberries
102	Park Area-to plant	3505	Blueberries
002	Park Area-maintain	5100	Brambles (blackberry, raspberry)
103	Cemetery-to plant	3500	Grapes-Unspecified
003	Cemetery-maintain	3504	Grapes-American
104	Athletic Field-to plant	3506	Grapes-French
004	Athletic Field-maintain	5300	Apples, mixed fruit, nuts
105	Play Area-to plant	5350	Almond,apricot,nectarine,peach,phun
005	Play Area-maintain	5400	Cherry, pear
106	School Lawn-to plant	5450	Flower bed
006	School Lawn-maintain	5500	Roses-to plant
107	Golf Green-to plant	5510	Roses-maintain
007	Golf Green-maintain	5550	Gladiohus
108	Golf Tee-to plant	5999	Other
800	Golf Tee-maintain		WOODLOT
109	Golf Fairway-to plant	CROP	CROP NAME
009	Golf Fairway-maintain	CODE	
110	Golf Rough-to plant	7010	Conifers-to plant
010	Golf Rough-maintain	7020	Conifers-maintain
111	Roadside Area-to plant	7030	Hardwoods-to plant
112	Sod Production-to plant	7040	Hardwood-maintain
113	Industrial Lawn-to plant	7050	Mixed species-to plant
013	Industrial Lawn-maintain	7060	Mixed species-maintain
		RISTMAS TR	
roup on t			l or Group 2 below. Select Crop Code from Whether Trees are to be Planted (to Plant) or
	GROUP 1		GROUP 2
Trees	Adapted to Acid (pH 5.5) Soils	Trees	Adapted to Slightly Acid (pH 6.0) Soils
CROP		CROP	

CODE

Seed bed

Field-to plant Field-maintenance

Spruce, Blue Colorado

Spruce, Colorado

Spruce, Engleman

Spruce, Serbian

6930

6940 6945

Fir, Concolor

Pine, Austrian

Spruce, Black Hills

Fir, White

CODE

Seed bed

Field-to plant Field-maintain

Spruce, Norway

Spruce, White

6910

6920 6925

Fir Balsam

Fir, Fraser

Pine, Red

Pine, Scotch

Pine, White

(Tr	Landscape Plants ees, Shrubs, Ground Co	vers)
	nd Cover for Which you Wi	
under one of the Three C	Groups Below. Select Crop Co	ode from Group on the
	re to be Planted (to Plant) or	
(Maintenance)		,
GROUP1 1	GROUP 2	GROUP 3
Trees Adapted to Acid	Trees Adapted to Slightly	Trees Adapted to Neutral
(pH5.5) Soils	Acid (pH 6.5) Soils	(pH 7.0) Soils
CROP	CROP	CROP
CODE	CODE	CODE
6100 To Plant	6300 To Plant	6500 To Plant
6200 Maintenance	6400 Maintenance	6600 Maintenance
Andromeda	Arbovitae	Abelia
Azalea	Ash, European Mtn.	Ajuga
Bayberry	Ash	Bugleweed
Beech	Barberry	Cranberry, bush
Birch .	Boxwood	Dogwood
Bittersweet	Cherry, Flowering	Cherry, Comelian
Dogwood, Kousa	Cinquefoil, Bush	Firethorn
Hemlock	Clematis	Hollygrape, Oregon
Holly, American	Cotoneaster	Honeylocust
Holly, Japanese Hydrangea, Blue	Crabapple, Flowering Dogwood, Flowering	Ivy, Boston
Inkberry, Holly	Euonymus	Ivy, English Lilac
Juneberry	Fir. Douglas	Mockorange
Juniper	Forsythia	Olive, Russian
Leucothoe	Ginkgo	Pyracantha
Larch .	Hawthorn	Tall Hedge
Laurel, Mountain	Hydrangea	Viburuum, Cranberry bush
Maple, Japanese	Linden, European	Walnut, Black
Maple, Red	Maple, Norway	Willow, Pussy
Oak	Maple, Sugar	Wisteria
Pachysandra	Myrtle	
Pieris, Japanese	Oak, Scarlet	
Pine .	Pear, Bradford	
Redbud, Easter	Periwinkle	
Rhododendron	Pine, Austrian	
Serviceberry	Phum, Flowering Potentilla	
Spruce, Norway	Potentilia	
	Spirea	
	Spruce, Blue Colorado	
	Spruce, Bittle Colorado Spruce, Serbian	
	Sweet Gum	
	Sycamore (Planetree)	I

Sycamore (Plan Vibumum Yew (Taxus)



Agricultural Analytical Services Laboratory The Pennsylvania State University University Park PA 16802

SOIL TE	ST REPORT FO	OR:		ADDITIONAL COPY TO:				
H	HN JONES JRMONY LANE JITHVILLE PA I			SAM COOK GREEN LAWN ENTERPRISE 111 HILLTOP LANE SMITHVILLE PA 11111				
DATE	LAB#	SERIAL #	COUNTY	ACRES FIELD ID SOIL				
02/20/2001	S00-00003	0044599						

SOIL NUTRIENT	LEVELS		Below Optimum	Optimum	Above Optimum
Soil pH	61			-	
Phosphorus	22	PP CO			
Potanium	50	P⊋en.			

RECOMMENDATIONS FOR: Maintain Home Lawn	Annual Bluegrass
Limentone Needn:	

Limestone: 20 lb/1000 square feet

Apply the quantity of limestone recommended above to your soil in a single application. See back of form for maximum recommended application rate.

#### Fertilizer Needs:

Fertilizer*	Rate: Ib per 1000 equar	re feet**
245-10 18-66 13-13-13 10-10-10 10-64 10-5-5 9-4-4 8-4-4	4.0 5.5 7.5 10.0 10.0 11.0 12.5	For a simple fertilizer program that will provide adquate quantities of mitrogen, phosphate and potash to turf based on your soil test results, apply one of the fertilizers listed on the left at the rates specified three times throng the growing season for a three-year period. Apply once in mid-spring (May), once in late summer (September), and once in the
7-5-5	14.0	late fall (November) each year. If you can not find any of the fertilizers listed below, select a fertilizer with an analysis close to one of those listed.

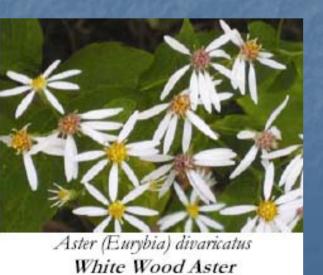
<sup>\*</sup>Select only one

<sup>\*\*</sup>Apply three times during the growing season.

Nutrient Need: (Ib/1000 aq ft):												
2.5 P,O,	к,о	4 N	34	met by		the fertiliz	needs for optimum turf growth are listed to the left. These needs will be tilizer materials listed in the above table three times per year for a					
LABOR	LABORATORY RESULTS: Optional Tests:											
ΉgΗ	²2 lb/A	Exchangeable Cations (meq/100g) <sup>3</sup> Acidity   <sup>3</sup> K   <sup>3</sup> Mg   <sup>3</sup> Cs   <sup>4</sup>					% Satu K	ration of t	be CEC	Organic Matter %	Soluble salts mmbos/cm	
6.1												
Test Met	Test Methods: '1:1 soil:water.pH, 'Mehlich 3 Extractant, 'SMP Buffer.pH, 'Summation of Cations											

## Go Native!!

- Consider replacing some lawn area with native flowers, shrubs and trees.
  - Drought tolerant, adapted to this area, climate and conditions. Therefore, require less watering, fertilizers and pesticides
  - Provide better habitat and serve as a food source (berries and seeds) for insects, birds and other wildlife.
- Local Sources: Redbud Native Plant Nursery, Middletown PA;
   Yellow Springs Farm, Chester Springs, PA
- http://www.dcnr.state.pa.us/forestry/wildplant/native.aspx



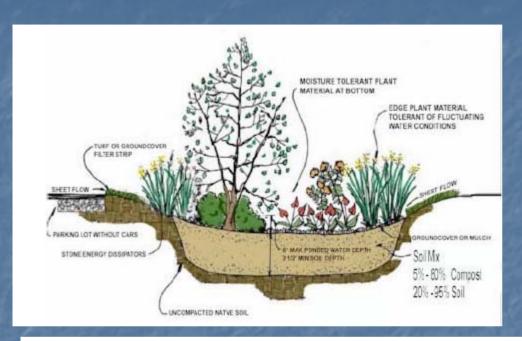


Monarda didyma **Bee Balm** 

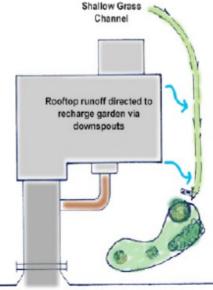


Rudbeckia hirta Black Eyed Susan

### Capture that water before it becomes runoff!







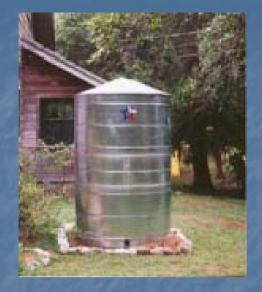
#### Rain Gardens



http://www.water.rutgers.edu/Fact\_Sheets/fs513.pdf

http://www.npsnj.org/rain\_garden\_home.htm

### Rain Barrels = FREE WATER for your garden!







If rainbarrel has an open top, make sure there is a fine mesh screening covering the opening to prevent mosquitoes.

Sources for Rainbarrels

Midwest Sales: http://www.midwestinternetsales.com/rainbarrels.htm

Spruce Creek

http://www.sprucecreekrainsaver.com/

Or

If you are handy, you can make your own!

## Build your paved surfaces smarter – Let the water through!

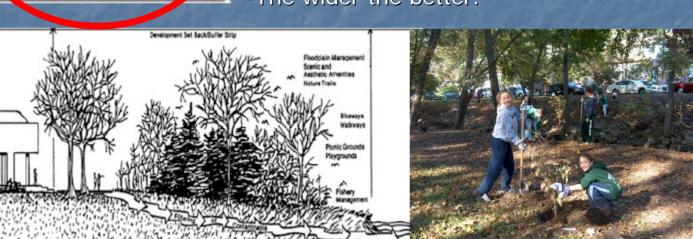




## Let nature do the work of stabilizing your streambanks and filtering pollutants!



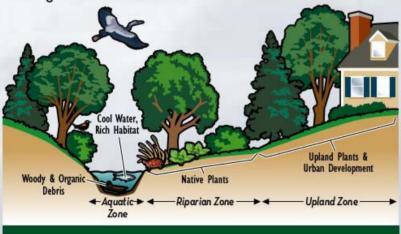
- Buffers stabilize streambanks and filter overland runoff of pollutants. They also shade a stream allowing cold water fish species to thrive.
- Can start with a no-mow zone (be careful to manage for invasives)
- Use Native shrubs and trees
- The wider the better.



## Healthy Versus Unhealthy Stream Habitat

#### A Healthy Riparian (Stream) Habitat

- Good shade, cool water
- Abundant woody and organic debris in stream
- Abundant vegetation and roots to protect and stabilize banks
- Gravelly, narrow, deep channel
- Good fish and wildlife habitat
- Good water quality
- High forage production
- High water table and increased storage capacity
- High late summer stream flows



An Unhealthy Riparian (Stream) Habitat Little shade, warm water Lack of woody and organic debris in stream Little vegetation and roots to protect and stabilize banks Silty, wide, shallow channel Poor fish and wildlife habitat Poor water quality Low forage production Low water table and decreased storage capacity Reduced late summer stream flows Warm, Silty Water → ← Riparian → ← Aquatic Zone-Upland Zone

Philadelphia Water Department

