



Pike County
Conservation District

Introduction to Wetlands, Watercourses and Permitting

Ellen Enslin, CPESC
Program Manager



Pike County Conservation District

What we do

- Pike County Conservation District (PCCD) is committed to the long-term protection and sustainable use of Pike County's natural resources.
- We accomplish this through partnership, education, technical assistance, planning, enforcement, and leadership.
- Learn more about us and our upcoming events at pikeconservation.org



Today's Goals



- Three Components of a Wetland
- Examples of Wetlands in Region
- Wetland Benefits
- Watercourses
- Permitting





Pike County
Conservation District

Legal Definition of a Wetland

State and Federal Agencies define a wetland as:

“Areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions, including swamps, marshes, bogs, and similar areas.”



Three Components of a Wetland



Wetland Hydrology

- presence of water for extended periods of time at or near the surface.

Hydrophytic Vegetation

- Plants adapted to life in wet environments.

Hydric Soils

- soils that show characteristics of being periodically saturated with water.



Wetland Hydrology



Hydrology & landscape position determine a wetland's:

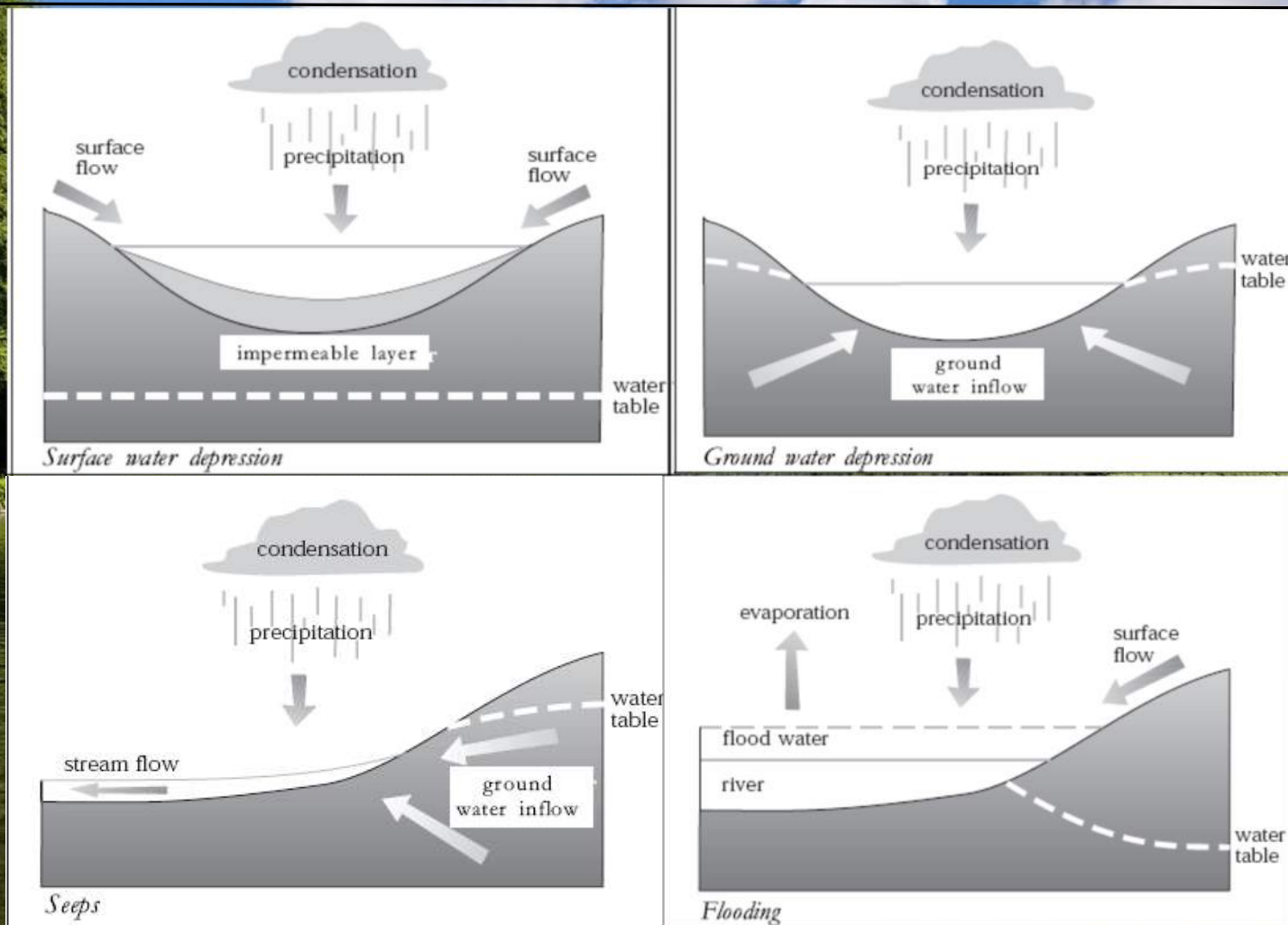
- Water depth
- Flow patterns
- Duration and frequency of flooding (saturation)

Variability in Hydrology determines the type of wetland

Amount of water and the rate at which it moves through the wetland influence:

- Habitat Conditions (Types of Soil and Vegetation)
- Cycling & availability of nutrients (wetland productivity)

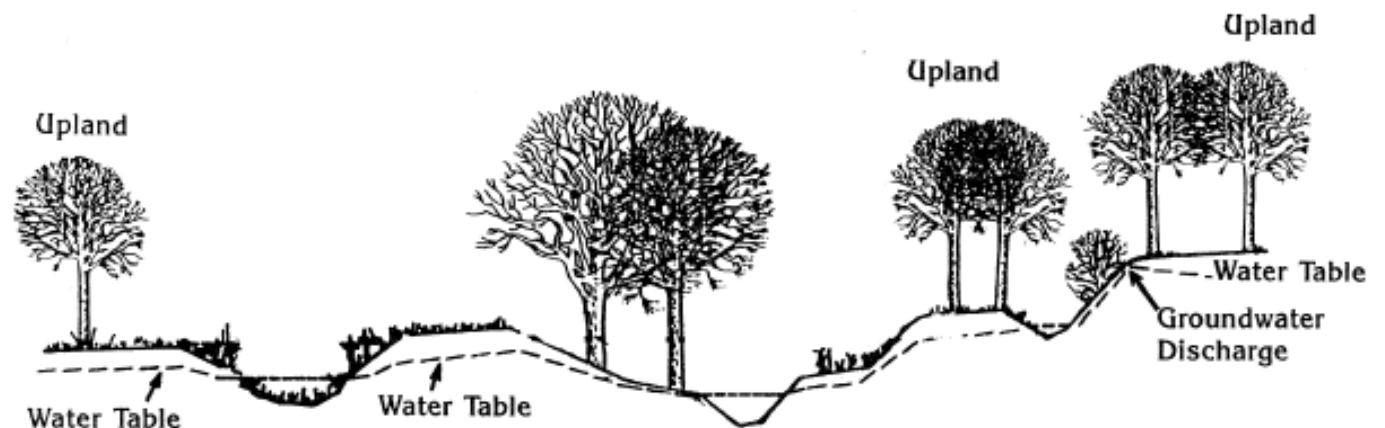
Source of Water



Wetlands on the Landscape



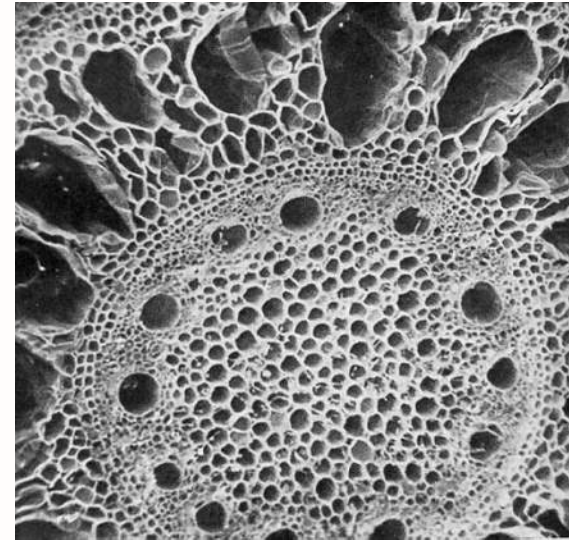
Schematic Diagram Showing Wetlands and Uplands on the Landscape



Schematic diagram showing wetlands, and uplands on the landscape. Note differences in wetlands due to hydrology and topographic position.

Hydrophytic Vegetation

- Plants adapted to withstand:
 - Periodic or permanent inundation
 - Fluctuating water levels
 - Little available oxygen
- Pneumatophores and Aerenchyma





Pike County
Conservation District

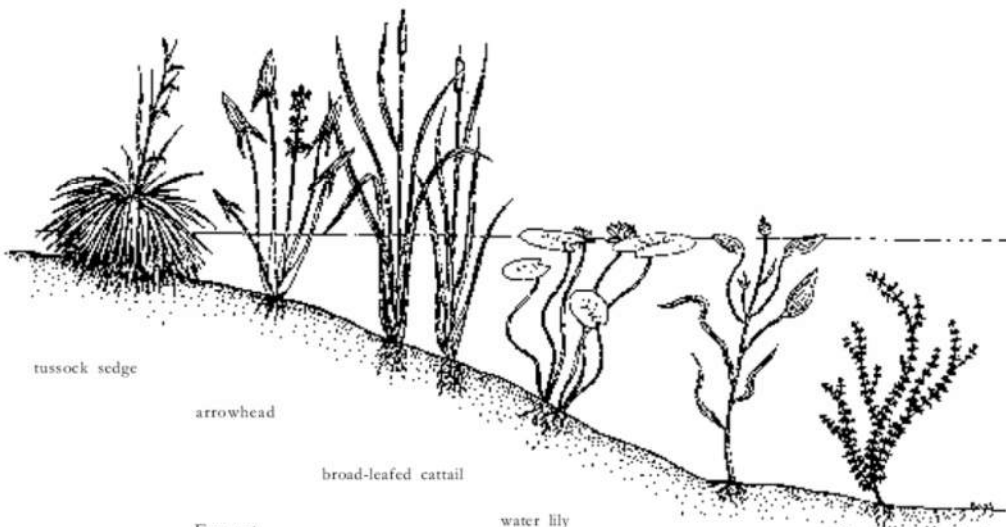
Wetland Vegetation



common reed

dark green
bulrush

Emergent



tussock sedge

arrowhead

broad-leaved cattail

Emergent

water lily

pond weed

coontails

Floating

Submergent



Pike County
Conservation District

Wetland Vegetation

OBL

Obligate Wetland-Skunk Cabbage

Occurs almost always (estimated probability > 99%) under natural conditions in wetlands.

FACW

Facultative Wetland-High Bush Blueberry

Usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands

FAC

Facultative-Red Maple

Equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).

FACU

Facultative Upland-White Ash

Usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).

UPL

Obligate Upland-Chestnut Oak

Occur in wetlands in another region but occur almost always (estimated probability >99%) under natural conditions in non-wetlands in this region.



Pike County
Conservation District

Hydric Soils

Develop under low oxygen (anaerobic) conditions created by permanent or periodic inundation

Soil Composition

Organic Soils

- Inundated for long periods of time
- Contain partially decayed plant and animal matter
- Thick black or dark brown layer at surface
- Peat, Muck or Mucky Peat

Mineral Soils

- periodic inundation
- composed of sand, silt and clay



Pike County
Conservation District

Hydric Soils

Saturation

- Soil covered with water for extended periods of time.
- A layer of decomposing organic matter accumulates on the surface

Reduction

- Lack of oxygen causes soil microbes to reduce iron compounds instead of oxygen.

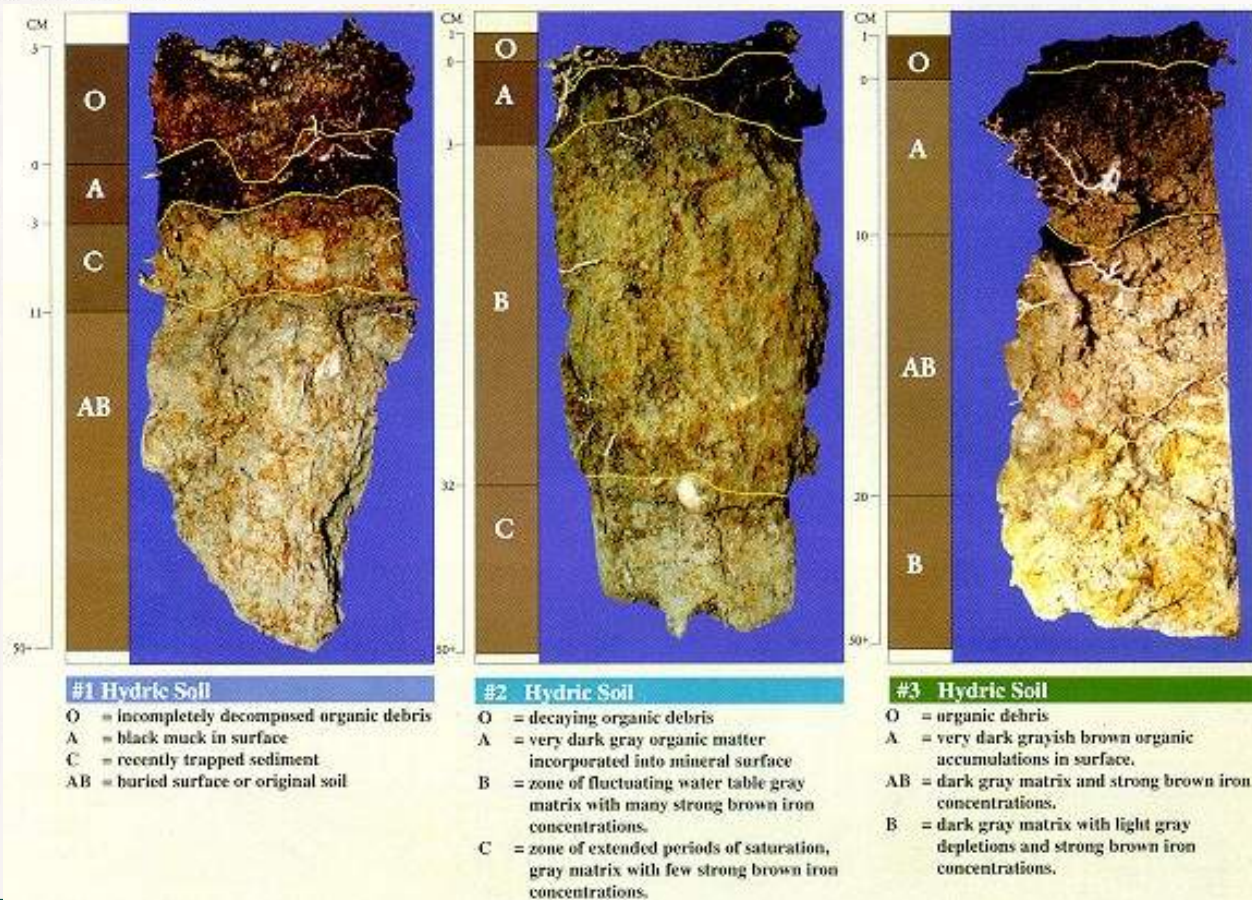
Redoximorphic features

- Reduced iron mobilizes and is carried throughout soil layers.
- When iron is reduced and there is a lack of oxygen, the soil appears gray. The iron will concentrate in aerobic zones near roots (seen as red mottles).



Pike County
Conservation District

Hydric Soils





Pike County
Conservation District



Organic soils are characterized by very dark color and either fibrous or gelatinous structure.

Howard C. Smith

Hydric Soils



Dull gray general soil background, or matrix color, and bright red-orange iron concentrations, or mottles, indicate a fluctuating water table.

Corps of Engineers

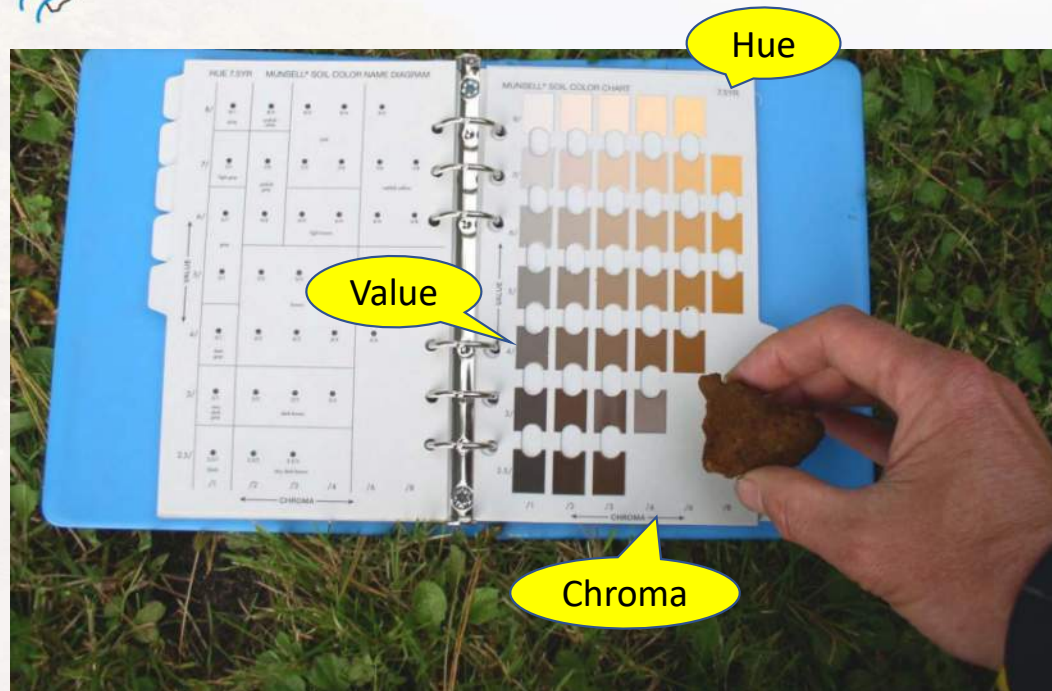


Figure 24. This soil has a depleted matrix with redox concentrations in a low-chroma matrix.



Pike County
Conservation District

Hydric Soils



To Record Soil Color:

- Hue
- Value
- Chroma

Munsell Soil Color:
7.5 YR 3/4



Three Components of a Wetland



Wetland Hydrology

- presence of water for extended periods of time at or near the surface.

Hydrophytic Vegetation

- Plants adapted to life in wet environments.

Hydric Soils

- soils that show characteristics of being periodically saturated with water.



Pike County
Conservation District

Benefits of Wetlands

Flood Protection

Store water and slowly release over time

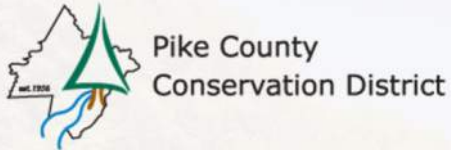
Groundwater Recharge

Contributes to base flow in streams during dry periods

Water Filtration

Water moves around plants, allowing suspended sediment to drop out of water

Wildlife Habitat and Economic Value



Threats to Wetlands

Pennsylvania lost an estimated 56% of its wetlands from 1780 to the mid-1980s.

Threats:

Agriculture

Draining & Filling wetlands for Land Development

Pollutant release and groundwater withdrawals from development

Pond and Lake Formation

Invasive Species









Construction on Wetland Edge



Pike County
Conservation District

Wetlands and Permits

Wetlands are protected by federal, state and local laws.

Activities including filling, dredging or draining wetlands, construction of bridges, walkways, docks, paths, roads or levees across wetlands and alteration of wetland areas along streams, lakes or ponds may all require state and/or federal permits.

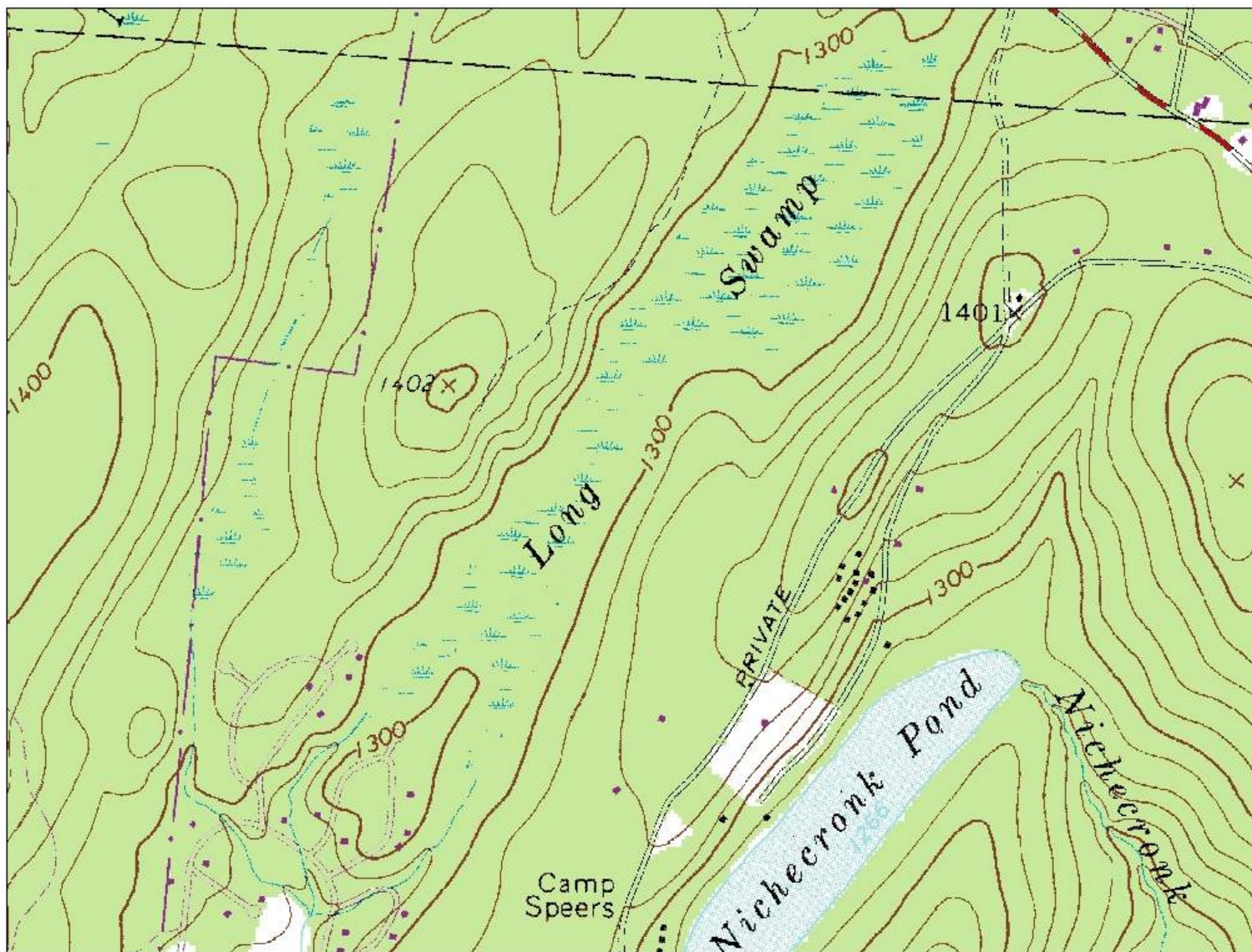
Seek professional advice before you start!



Pike County
Conservation District

Identifying Wetlands on Your Property

- Learn vegetation & animals that reside in wetlands.
- Mapping
 - National Wetland Inventory (>1-3 acre)
 - County Soil Survey/websoilsurvey website
 - Hydric Soils
 - Poorly drained or very poorly drained



69.60 acre
Freshwater
Forested/Shrub Wetland
PFO4/SS4E



Examples of Wetlands within Region

















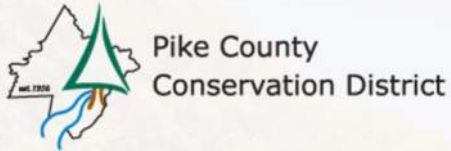












Watercourses and Floodways

Watercourse

Channel or conveyance of surface water having defined bed and banks, whether natural or artificial

Floodway

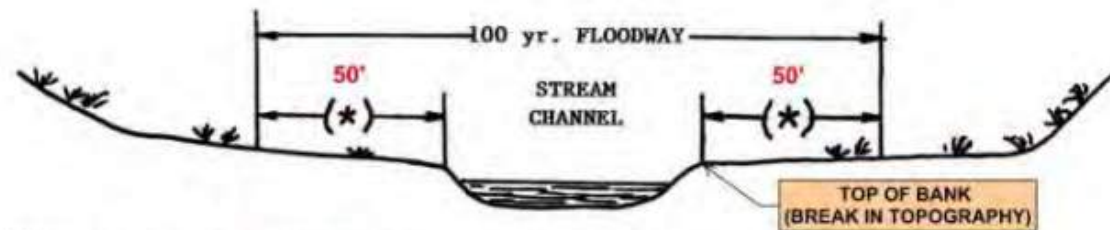
The channel of the watercourse and portions of the adjoining floodplains which are reasonably required to carry and discharge the 100-year frequency flood. Unless otherwise specified, the boundary of the floodway is as indicated on maps and flood insurance studies provided by FEMA. In an area where no FEMA maps or studies have defined the boundary of the 100-year frequency floodway, it is assumed, absent evidence to the contrary, that the floodway extends from the stream to 50 feet from the top of the bank of the stream.





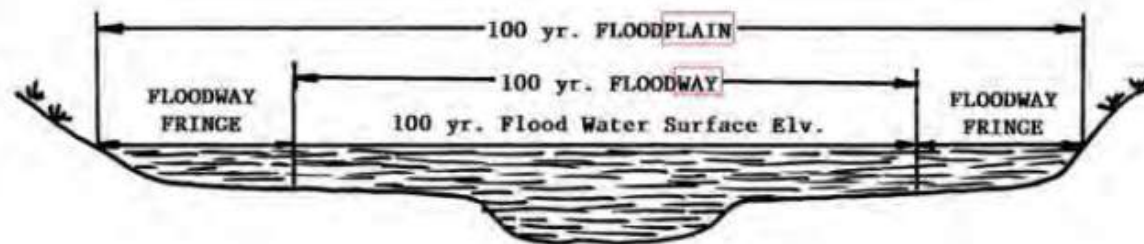
Pike County
Conservation District

Floodway/Floodplain



(*) = DISTANCE FROM TOP OF BANK TO LIMIT OF FLOODWAY AS DETERMINED BY FEMA FLOOD INSURANCE STUDY. IF NO FEMA STUDY HAS BEEN COMPLETED, THIS DISTANCE WILL BE 50 FEET. **

** acceptable "evidence to contrary" 50-foot assumed floodway is typically hydrologic modeling or channel morphological studies, even for small headwater intermittent or ephemeral streams





Pike County
Conservation District

Chapter 105-Dam Safety and Waterways Management

Purpose: Conserve & protect water quality, natural state and functions of watercourses

Regulates dams and other water obstructions and encroachments in, along or across, or projecting into a watercourse, floodway, or body of water, whether temporary or permanent

The PA Code (Chapter 105) can be accessed online at www.pacode.com



Pike County
Conservation District

Dams, Water Obstructions & Encroachments

Regulated Via:

- Waivers
- General Permits
- Individual Permits
 - Joint Permit Application
 - Dam Permit Application
- Emergency Permits



Pike County
Conservation District

General Permit List

GENERAL PERMIT

TITLE

- | | |
|-----|---|
| 1 | FISH HABITAT ENHANCEMENT STRUCTURES |
| 2 | SMALL DOCKS & BOAT LAUNCHING RAMPS |
| 3 * | BANK REHABILITATION, BANK PROTECTION & GRAVEL BAR REMOVAL |
| 4 | INTAKE AND OUTFALL STRUCTURES |
| 5 * | UTILITY LINE STREAM CROSSINGS |
| 6 | AGRICULTURAL CROSSINGS AND RAMPS |
| 7 * | MINOR ROAD CROSSINGS |
| 8 * | TEMPORARY ROAD CROSSINGS |
| 9 | AGRICULTURAL ACTIVITIES |
| 10 | ABANDONED MINE RECLAMATION |
| 11 | MAINTENANCE, TESTING, REPAIR, REHABILITATION, OR REPLACEMENT
OF WATER OBSTRUCTIONS AND ENCROACHMENTS |
| 15 | PRIVATE RESIDENTIAL CONSTRUCTION IN WETLANDS |

* most commonly used



Pike County
Conservation District

General Permit Overview

- General Permits have been issued already.
- Applicant must register the use of the GP.
- Each permit contains an explanation where the GP does not apply.
- Permittee is responsible for following all conditions.
- An erosion and sediment control plan must be developed, and it must be deemed adequate by the Conservation District prior to construction.
- Construction activities in stocked trout streams from March 1 through June 15 and in wild trout streams from October 1 through December 31 are specifically restricted, unless approval is obtained from the PA Fish and Boat Commission.
- Typically, can obtain federal authorization as well with GP.



Pike County
Conservation District

Agency Coordination/PNDI

- DCNR Plants and General PNDI information
- PFBC Fish, reptiles, amphibians, aquatic organisms
- PGC Birds and mammals
- USFWS Federal Endangered Species Act

Pennsylvania Conservation Explorer

Conservation Planning and PNDI Environmental Review





Pike County
Conservation District

Chapter 105 ePermitting

dep.pa.gov/Business/Water/Waterways/Chapter-105-ePermitting/Pages/default.aspx

Department of Environmental Protection

About DEP Residents **Businesses** Public Participation

Report an Emergency BWEW Home Streams and Wetlands Dam Safety Flood Protection Chapter 105 e-permitting PA Clean Water Academy

DEP > Businesses > Water > Waterways Engineering and Wetlands > Chapter 105 ePermitting

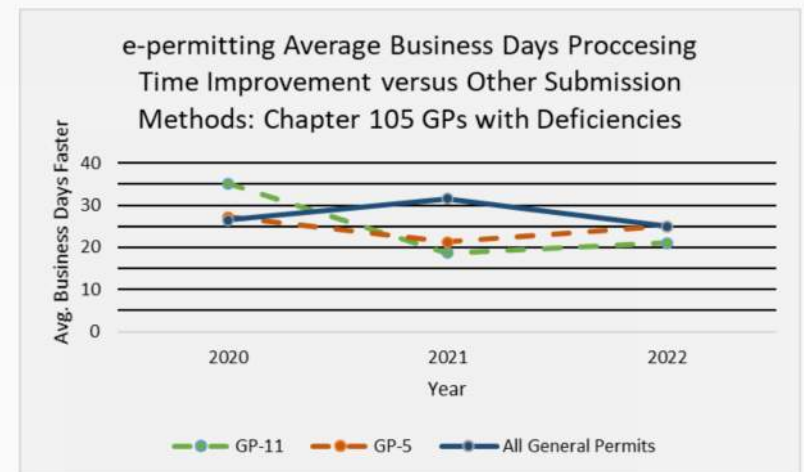
e-permitting for Chapter 105 General Permits

The Department of Environmental Protection (DEP) is promoting the use of e-permitting for Chapter 105 Wetland and Waterway Obstruction and Encroachment General Permits (GPs) to make application submittal and review more efficient and enable faster responses to applicants.

DEP began accepting Chapter 105 registrations/applications for General Permits for various types of water obstruction and encroachments through the e-permitting system in October 2018. The DEP is beginning to transition away from paper to online electronic permit applications through e-permitting.

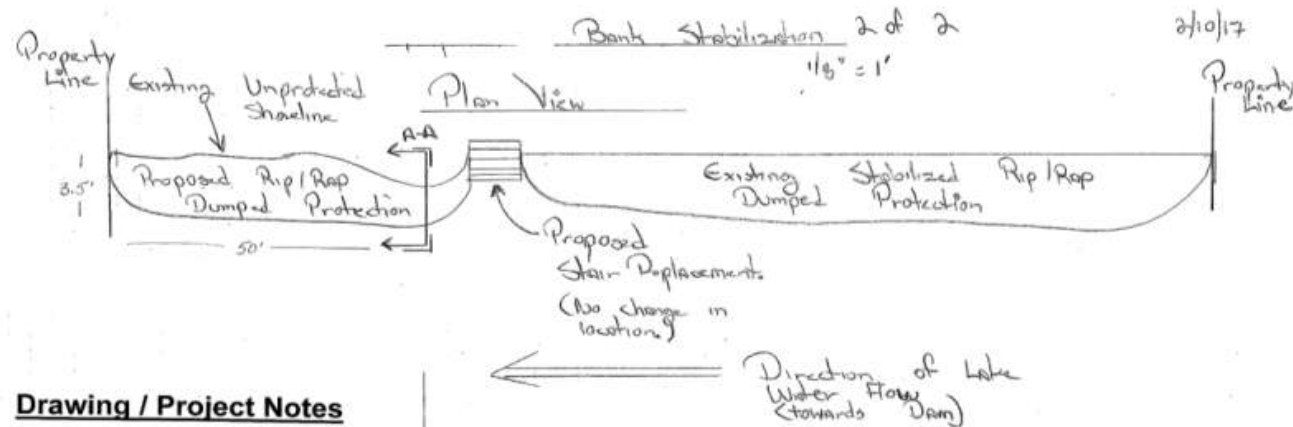
- e-permit Overview
- Enrolling to use e-permitting
- Instructions, Videos, User Guides
- General Permit Types

DEP's e-permitting system allows for more efficient review and processing of GPs. An analysis of DEP General Permit decisions for calendar years 2020 through 2022 revealed that **General Permits which needed corrections due to deficiencies had decisions in e-permitting made an average of 28 business days (30%) faster than other submission methods.** The graph below shows the improvements for all GPs averaged and GP-5 and GP-11 separately.



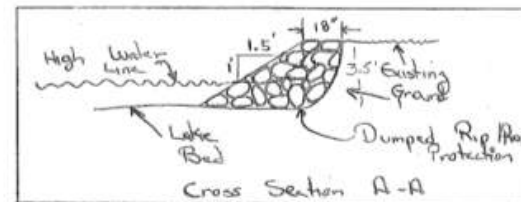


Pike County Conservation District



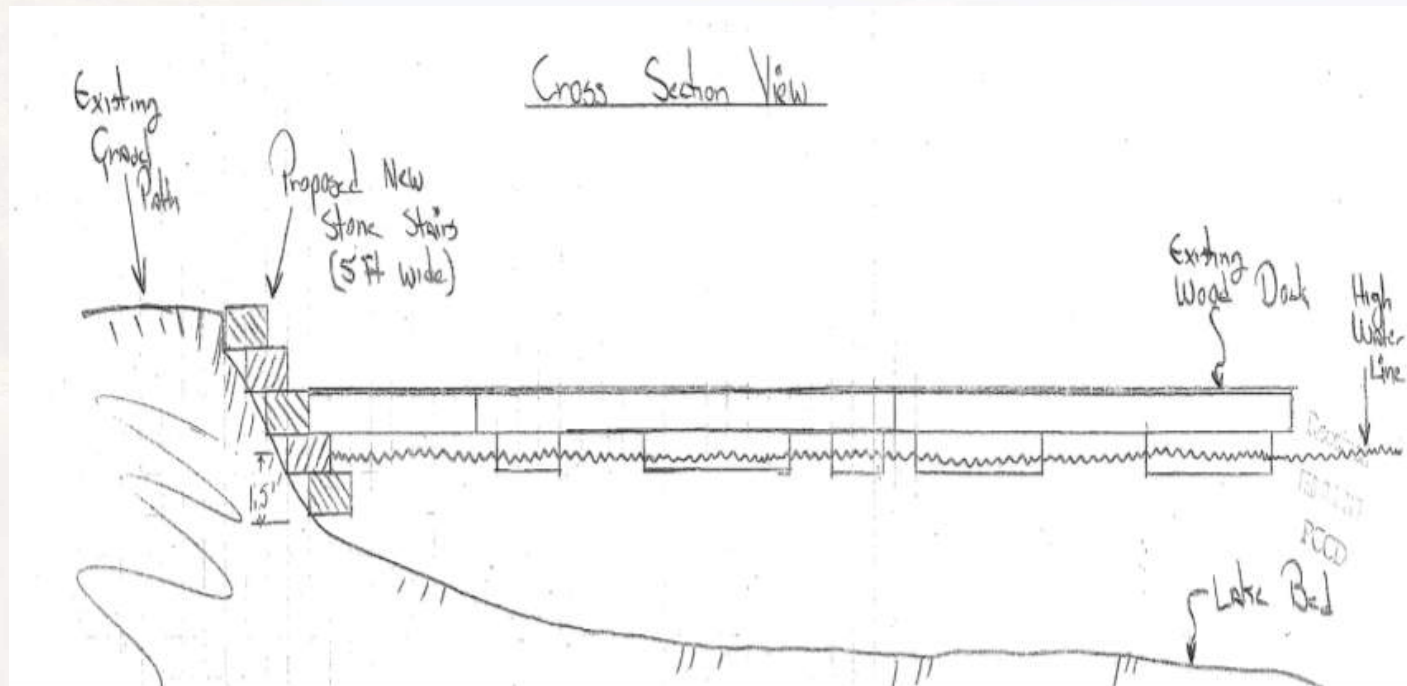
Drawing / Project Notes

1. See narrative description contained within permit package for scope details.
2. See photos contained within permit package for illustration of existing conditions.
3. Proposed stair location is the same as existing stair location.
4. Entire site location is contained within homeowner's frontage.
5. Total shoreline (property line to property line) 100 feet.
6. Proposed shoreline stabilization is under 4 feet (existing lake bed to existing grade level). Top of dumped protection and stairs will be at existing grade level.
7. Existing floating wood dock is under 450 sf.
8. Proposed dumped materials will match existing materials. Approx R-4 fieldstone material.
9. Lake flow (current) is negligible.



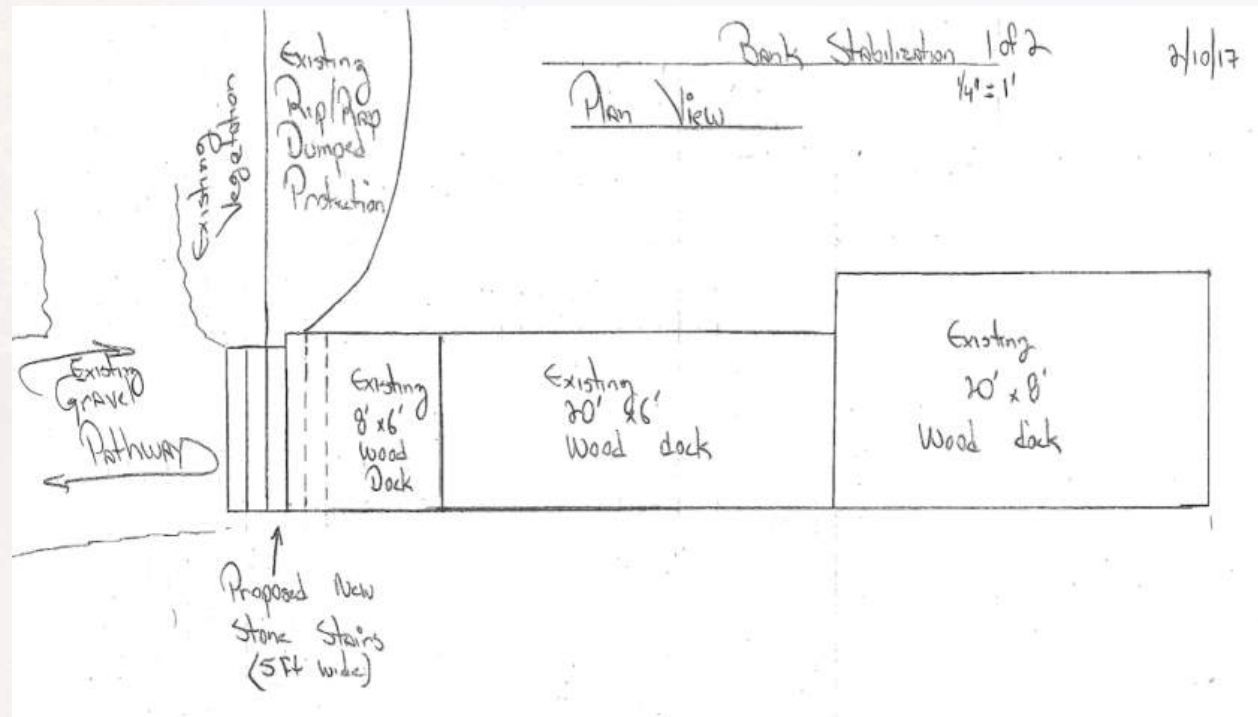


Pike County
Conservation District





Pike County
Conservation District





Pike County
Conservation District

General Permit # 3

BANK REHABILITATION, BANK PROTECTION AND GRAVEL
BAR REMOVAL

- Less than 500 feet long
- Cannot constrict or increase normal channel width.
- No fills, levees or channel relocation.
- Walls must be less than 6 feet high.





Pike County
Conservation District

General Permit #5

Utility Line Crossing

- Maximum diameter of pipe is 36 inches.
- Must have 3 feet of cover over encasement or 1 foot of cover in bedrock.
- Utility lines in wetlands are permitted as long as the entire wetland system is less than 10 acres in size.
- Backfill shall not create permanent ridges over trench.
- If possible, crossings should be constructed “in the dry”.



Pike County
Conservation District

General Permit #7

Minor Road Crossing

- Includes stream & wetland crossings
- Drainage area to structure must be 1 square mile or less
- Not available in Exceptional Value Watersheds
- Total length of crossing must be less than 100 feet





Pike County
Conservation District

General Permit #7

Minor Road Crossing

- Wetland crossing should have minimum 12" diameter pipes installed on 10 foot centers to maintain hydrology.
- Use alternate location if possible
- Professional engineer seal and certification required on structures used by the general public.
- Culvert inverts shall be set 6 inches below normal streambed elevations.





Pike County
Conservation District

General Permit #8

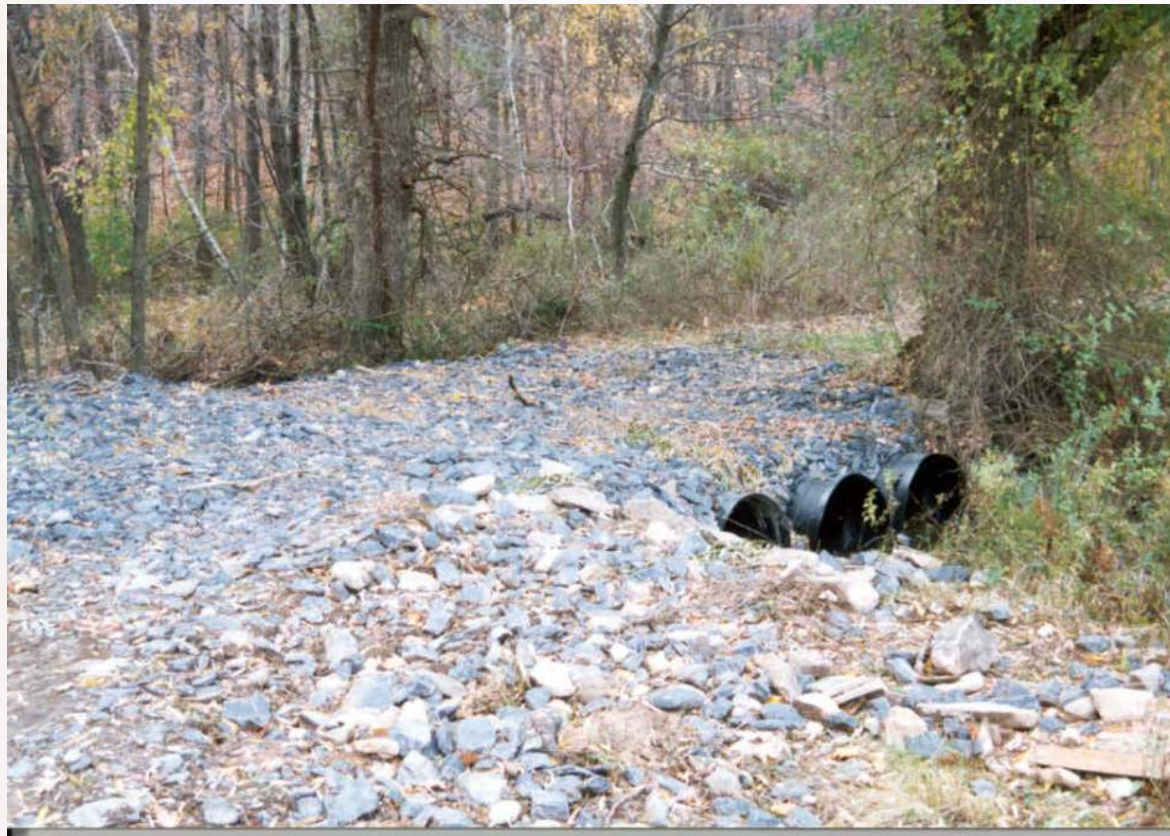
Temporary Road Crossing





Pike County
Conservation District

Temporary Road Crossing





Pike County
Conservation District

General Permit #11

MAINTENANCE, TESTING, REPAIR, REHABILITATION OR REPLACEMENT
OF WATER OBSTRUCTIONS OR ENCROACHMENTS

- Applies only to water obstructions & encroachments that already exist
- DEP Regional Office registers permit and reviews the E&S control plan
- Registration form allows for multiple structures
- No sample drawings provided
- Projects are limited to the existing footprint and minor reconfigurations to address health, safety and the environment
- For bridges and culverts, there can be no significant reduction in waterway opening, and no significant change to grades of approach roadways or to overtopping characteristics
- Wetland impacts limited to 0.05 acre per site
- Professional Engineer's seal and certification, and hydrologic & hydraulic calculations are required for certain bridge and culvert projects
- Projects must meet the criteria of Chapter 105



Pike County
Conservation District

Contact us

www.pikeconservation.org

pikecd@pikepa.org

570-226-8220

556 Route 402
Hawley PA 18428



@pikeconservation



@pike_conservation



Questions

