

# FPG Refresher & Review

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*...some Deer(e) can't swim...*



# Keeping the Water Clean

**Why is it bad to get dirt in the creek?**

## Too much sediment in the water can:

- Raise costs to treat & filter public water supply
- Smother and choke-out fish, amphibians, aquatic life

**Why is it bad if woody debris gets in the creek?**

## Too much leaf / needle / branches in the water can:

- Block water flow, make flooding worse
- Draw out oxygen from the water, when it de-composes



# What Are The Rules? - Outline

N.C. “Forest Practice Guidelines Related to Water Quality” (FPGs)

N.C. General Statutes (G.S.)

Petroleum Spill Notification

DWR ‘Riparian Buffer Rules’



# The Rules: FPGs

## The FPGs are 9 performance standards:

- Goal-oriented, results-based, not prescriptive
- Each FPG section describes the desired outcome, not necessarily how to achieve it
- You may be able to achieve FPG compliance by using *Best Management Practices* (“**BMPs**”), or some other suitable methods
- As long as the outcome/standard of the FPG is being achieved, “*I don’t care how you do it...*”



# *The Rules: FPGs*

## The 9 FPG standards: *(02 NCAC 60C .0100 - .0209)*

- .0201 Streamside Management Zone - SMZ**
- .0202 Prohibition of Debris Entering Streams and Waterbodies**
- .0203 Access Roads and Skid Trail Stream Crossings**
- .0204 Access Road Entrances**
- .0205 Prohibition of Waste Entering Streams, Waterbodies and Groundwater**
- .0206 Pesticide Application**
- .0207 Fertilizer Application**
- .0208 Stream Temperature**
- .0209 Rehabilitation of Project Site**

### *Two common themes:*

*Prevent / control / restrain “accelerated erosion” & “visible sediment”*



# *The Rules:* FPG .0201

## Streamside Management Zone - SMZ

### Key Points

Establish SMZ on intermittent stream, or perennial stream, or perennial waterbody

Maintain ground cover

Keep skid trails, log decks, & roads out of SMZ

### Purpose

Keep sediment and debris out of water

Retain some shade on water (perennial str.)

### BMPs That Can Help

(1) Leave 50-foot SMZ. (2) Retain 50% shade.

(3) Minimize overall harvest disturbance.



# BMPs for Streamside Management Zone - SMZ

*Wrap the end of SMZ around the head of the stream.  
Risk Management.... Lowers the risk of a problem.*



## 50-feet wide is the general BMP recommendation:

*However..... for those who want to be flexible:*

Sediment Control	30 to 150 feet
Nutrient Management	15 to 200 feet
Streambank Stability	25 to 55 feet
Wildlife / Aquatics	25 to 300 feet

# Types of Streams Where FPG / SMZ Apply

**“Intermittent Stream”**: *Wet periods of the year (30% to 90% of the time) and flows in a continuous well-defined channel.*

**“Perennial Stream”**: *Flows throughout a majority of the year (greater than 90% of the time) and in a well-defined channel.*

**What about ditches or streams - that - look - like - ditches ???**

- *2 Gen.Statute Laws prohibiting obstructions.*
- *If it's a 'ditchified stream'.....than it's still a stream!*
- *If it's really just a plain ditch...adhere to the state law prohibiting obstructions and use common sense.*

***Maps Do Not Matter for FPG SMZs:***

***If it's a stream, It's a stream,..... and It Needs a SMZ !***





# Quiz Time: Which is a “stream” and which is a “ditch”?



**It's the same channel (left side & right side of this crossing), so don't jump to conclusions without fully investigating. Ask NC Forest Service for help.**

# SMZ's left in place during a logging job



What about trout stream buffers?  
What about water supply watershed buffers?  
*Forestry is exempt IF THE SITE is in compliance with the FPG's.*



Don't overlook  
"sausage link" SMZ's



SMZ left in place during a logging job

# SMZ left in place alongside a stream



***Q – Are you allowed to cut trees from the SMZ?***

***A – Yes. As long as FPG standards are met.***

# *The Rules:* FPG .0202

## Prohibition of Debris Entering Streams and Waterbodies

### Key Points

Keep debris, soil, other stuff out of creek.

### Purpose

Prevent water backing-up. Keep sediment out of water.  
Too much woody material can draw out oxygen from water.

### BMPs That Can Help

Do not skid across, or build a road/deck next to streams.  
Fell & de-limb trees away from SMZ.



***Debris in this stream...must be removed!***



2003 12 22

***Bridgemats work, but only if used right***



# *The Rules: FPG .0203*

## **Access Road and Skid Trail Stream Crossings**

### Key Points

***“Stream crossings shall be avoided whenever possible”.***

**Must keep sediment & debris out of stream.**

**Do not use stream as a skid trail or road.**

**Protect stream banks from damage.**

**Minimize # of times..... no criss-crossing.**

**Rehab and stabilize right away (10 days).**

**Crossings are #1 frequent violation + highest risk potential**





# *The Rules: FPG .0203 (con't.)*

## **Access Road and Skid Trail Stream Crossings**

### Purpose

If there is going to be a problem....it is likely to be at the stream crossing.

.....And if there is a problem at a stream crossing.....it is likely to cause a water quality concern.

### BMPs That Can Help

Do not install a new stream crossing.

If you must cross....use bridgemats. And use them right.

For log roads, consider a ford... instead of a culvert.

**Crossings are #1 frequent violation + highest risk potential**





**TOP: Culvert set below-water level. Headwall reinforced. Good BMPs, low risk**

**Crossings are #1 frequent violation + highest risk potential**

**BOTTOM: Culvert set atop of stream bed. This disconnects the stream flow. Soil eroding off road side edge. Needs BMP work. This is a high risk scenario.**





Bertie Co,  
ditch road crossing

**Crossings are #1 frequent violation + highest risk potential**



Durham Co,  
stream skid trail crossing

**Log pole crossing  
in a dry ditch,  
Northampton Co.**



**Crossings are #1 frequent violation + highest risk potential**



**Ford crossing,  
ample ballast  
on each  
approachway  
and side banks  
grassed-over,  
Franklin Co.**

# Stream Crossings: Bridgemats

Wilkes Co.



**Crossings are #1 frequent violation + highest risk potential**



- **Bridgemats butted tight together**
- **Road approachways stabilized with stone**

## Stream Crossings: Bridgemats

If you are dragging this much soil onto your  
bridgemat stream crossing....

Then you are not effectively managing risk!



**Crossings are #1 frequent violation + highest risk potential**

# Skid Trail Stream Crossings: Stabilize the Approachways



What about this crossing?



**Crossings are #1 frequent violation + highest risk potential**



# *The Rules: FPG .0204*

## **Access Road Entrances**

### Key Points

Keep excessive soil & debris off the public road.

### Purpose

Prevent sediment from washing off the highway and into nearby stream.

### BMPs That Can Help

Stone or wood mats, 50 to 100 feet in from public entrance.

### Also helpful (but not related to FPG rules):

- Do not plug-up the DOT road ditch (NO LOGS IN DITCH).
- Keep public highway safe from mud & debris.



# Keep mud & soil off the road!

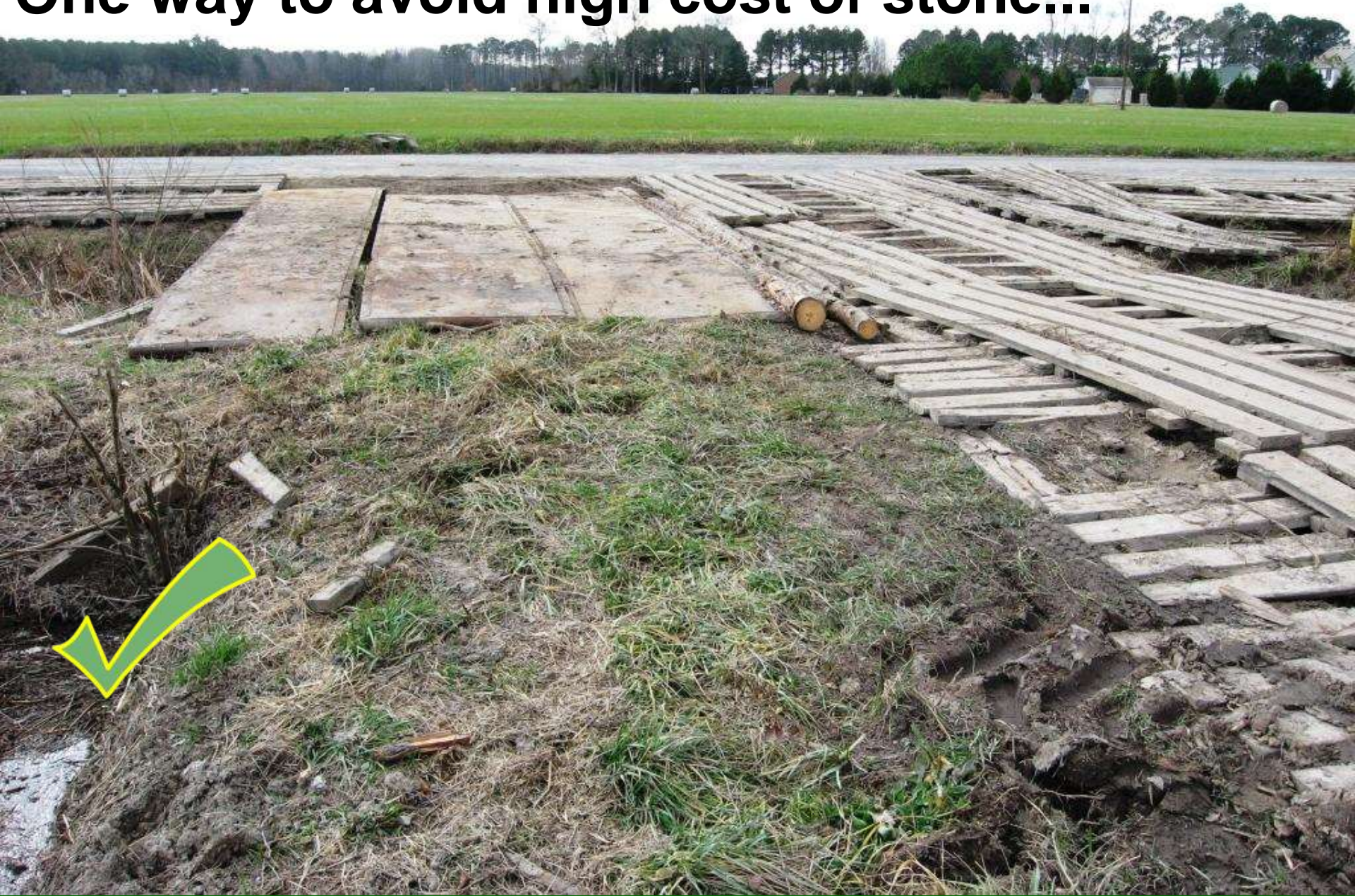
Question:  
*What are some ways to prevent this?*



One way to avoid high cost of stone...



# One way to avoid high cost of stone...





**...Keep the DOT road ditch open -- don't dam it up!**



# *The Rules: FPG .0205*

## **Prohibition of Waste Entering Streams, Waterbodies and Groundwater**

### Key Points

Do not dump or discharge oil, fuel, chemicals, or waste.

### Purpose

Keep pollution out of the water.

Surface water (streams, ditches, lakes) AND groundwater.

### BMPs That Can Help

Fix & prevent persistent leaks. (1 drop/sec = 5 gallons/day)

Have spill-kit material to control spill or leak.

Keep fluid containers collected, upright, sealed.





**You don't have to be next to a stream or ditch for oil / fluid spills to create water pollution.**

# *The Rules: FPG .0206*

## **Pesticide Application**

Follow the label (that is the law...)

Dispose containers properly.

Apply in accordance with state rules (drift, waters)

# *The Rules: FPG .0207*

## **Fertilizer Application**

Prevent adverse impacts to water quality.





# *The Rules: FPG .0208*

## Stream Temperature

### Key Points

Retain adequate shade in SMZ

Applies to any “*natural perennial stream*”

### Purpose

Minimize changes to water temperature, to protect aquatic habitat (fish, insects, amphibians)

### BMPs That Can Help

If cutting in SMZ, retain 50% of pre-harvest shade.



# SMZ left in place alongside a stream



*Good shade*

*Streambank protected*



*No shade*  
*Unstable streambank*  
*Debris in stream*

**Is this a good SMZ?**



# *The Rules: FPG .0209*

## Rehabilitation of Project Site

### Key Points

- Install erosion control measures and/or groundcover.
- Stabilize areas with “potential” for accelerated erosion or sedimentation.
- Must stabilize within 30 days of ceasing work, even if you plan to return to the site and finish later.

### Purpose

- Prevent accelerated erosion or sedimentation.
- Protect stream banks.
- Conserve soil resources.



# *The Rules: FPG .0209 (con't.)*

## Rehabilitation of Project Site

### BMPs That Can Help

Apply and pack-down slash / tree tops / laps on the skid trails & stream crossing approachways, do it FROM THE START OF THE JOB.

- *( leave gaps on steep skid trails for future waterbars ? )*

Conduct rehab in phases: do not wait until whole site is completed (that could leave it exposed for weeks)

- If you see runoff moving soil,..... fix it now!

Sub-contract rehab work (???)



**Stream Crossing with Bridgemats.  
Logging is Done. Looks good.  
Little Rehab, Low Risk Management**



## What Not To Do:

Stream crossing soil exposed with no groundcover.

Rutted, compacted soil on approachway. Will funnel runoff into stream.

Only a token brush-pile dropped on the slope.



# FPG Summary:

- Apply statewide on “forestry related” activities.
- Part of the NC Sedimentation Pollution Control Act.
- Primary objectives:
  - erosion & sediment control.
  - overall pollution prevention.
- Goal-oriented / Performance-based.
- Apply to any Intermittent Stream... any Perennial Stream... any Perennial Waterbody.
- **Maps Do Not Matter...for FPGs.**





# *The Rules:*

## **Clean Water Act, Sec.404 Silvicultural Exemption**

**Silviculture is exempt from USACE permitting to fill or discharge into a waters (or wetlands) or the U.S.**

- **Must be “normal, established, ongoing” silviculture.**

**So long as... certain conditions are met:**

- **For forestry roads, must comply with 15 baseline federally-defined BMPs, and apply State BMPs.**
- **For mechanical site prep, must comply with 6 baseline BMPs established by USACE & USEPA.**

***The 15 federal road BMPs apply to any road stream crossing. It is not just for “down east in the swamps”...***



# *The Rules:* **N.C. General Statutes**

- Two state laws prohibit waterway obstructions.
- Applies to streams, ditches and natural drainages.
- NCFS has authority when occurs “in woodlands”.
- These are technically treated as crimes.
  
- These are different from FPG .0202 “*Prohibition of Debris Entering Streams and Waterbodies*”.
  
- These laws are:
  - N.C. GS 77-13 Obstructing Streams a Misdemeanor*
  - N.C. GS 77-14 Obstructions in Streams and Drainage Ditches*



# *The Rules: Petroleum Spill Notification Law*

*Spill notification rules are cited in N.C. General Statute 143-215.85(b)*

## Notify NC-DEQ within 24 hours of discharge / spill IF:

- Amount is 25 gallons or more; *OR*
- Spill causes a sheen on nearby surface water; *OR*
- Spill occurs within 100 feet of any surface water.

*Also refer to  
page 117 in  
the BMP  
Manual or  
page 9-1 in  
BMP pocket  
Field Guide*

## No notification is needed, but cleanup must still occur IF:

- Amount is less than 25 gallons; *AND*
- No sheen is produced on nearby surface water; *AND*
- The spill is located more than 100 feet from surface water.

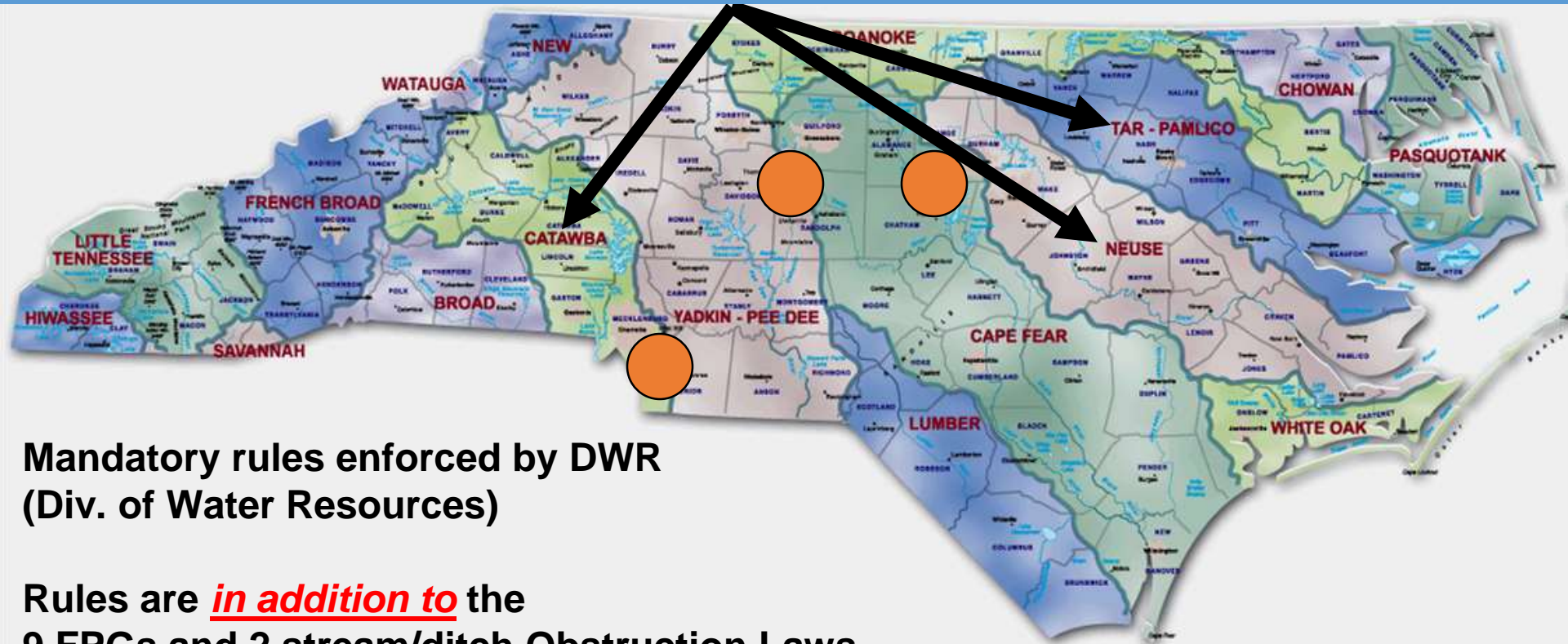
## Notify NC-DEQ immediately IF:

- Amount is less than 25 gallons; *AND*
- You cannot effectively clean it up within 24-hours of spill; *OR*
- Spill causes a sheen on surface water.

*Bottom Line = If you spill... clean it up ASAP & notify as needed!*



# Riparian Buffer Rules



Mandatory rules enforced by DWR  
(Div. of Water Resources)

Rules are ***in addition to*** the  
9 FPGs and 2 stream/ditch Obstruction Laws.

Currently in 6 regions:

- *Identified streams in the Neuse River Basin*
- *Identified streams in the Tar-Pamlico River Basin*
- *Catawba River & mainstem Lakes*
- *Identified streams in the Randleman Lake watershed*
- *Identified streams in the Jordan Lake watershed*
- *Identified streams in the Goose Creek watershed (Union and Mecklenburg Co.)*

# Riparian Buffer Rules

- 50-foot buffer zone, 100-ft or 200-ft in Goose Crk.
- Subdivided into Inner Zone 1... Outer Zone 1... Zone 2.
- Diameter Limit Cut, def. by rule. Streambank trees must remain.
  - Inner Zone 1 = 0 ft. -- 10 ft. Only “High Value” trees can be cut.
  - Outer Zone 1 = 10 ft. -- 30 ft. Half of # trees >5” DBH can be cut.
  - Zone 2 = 30 ft. – 50 ft. Can be clearcut so long as groundcover maintained.
- Rules restrict forestry operations that occur within a buffer zone alongside designated streams and bodies of water.
- Each rule is a little bit different.
- Restrictions cover harvesting, burning, chemicals, site prep....all forestry operations.

*Only apply to specific types of streams or ditches. Different from FPGs.*

*Reference “WQ” Forestry Leaflets >> [ncforestservation.gov](http://ncforestservation.gov)*

# Where do the Buffer Rules Apply?

## Applies to:

- Perennial streams
- Intermittent streams
- Lakes and reservoirs
- Ponds (incl. beaver ponds)
- Estuaries
- Modified Natural Streams

## Does not apply to:

- Ditches & Manmade conveyances\*; unless constructed for navigation or boat access
- Ephemeral streams
- Ponds that are not attached to streams
- Agricultural ponds

### \* Randleman Lake Watershed exception:

“Kick-In Clause”: The buffer rule also applies if other site specific evidence indicates the presence of waters that are not otherwise shown on either of the two maps.

# Which Streams do the Buffer Rules Apply To?

Intermittent Streams or Perennial Streams that are “approximately shown” on the ***most recently published version*** of either:

- USGS Topographic 1:24,000 scale map,  
-- ***or*** --
- *Published printed copy of NRCS Soil Survey map.*

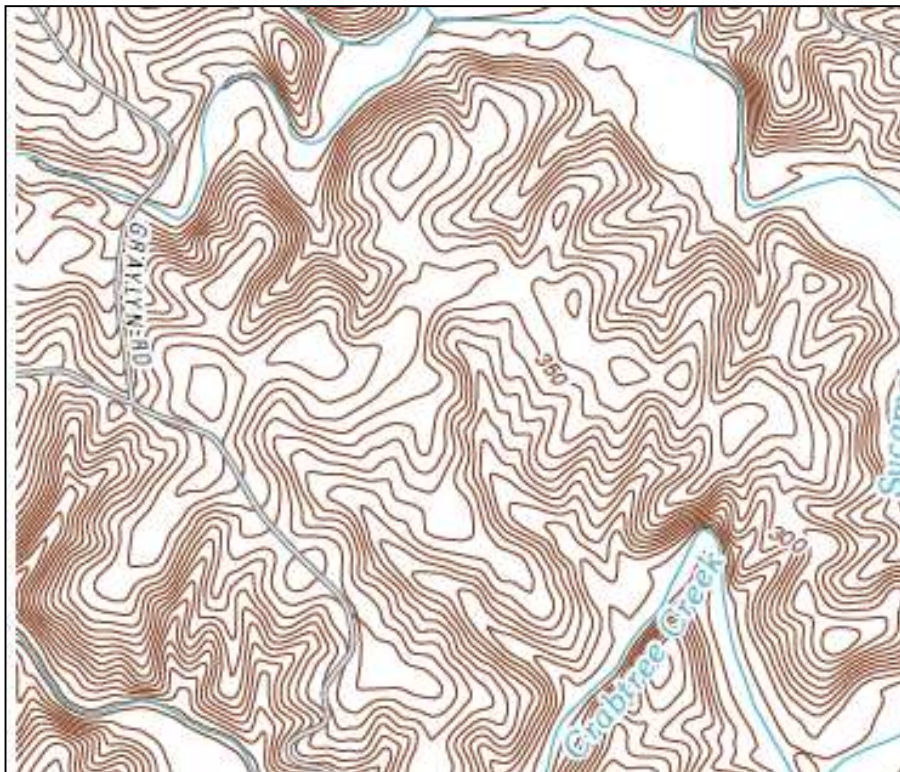
***Intermittent Streams & Perennial Streams for these Buffer Rules are defined differently than in FPGs!***

# U.S. Geological Survey Maps

1:24,000 scale (7.5 minute series) maps

***\*/* BEWARE *\*/***

- *Often leave out streams in the piedmont and mountain regions*
- *Often show man-made ditches in the coastal plain region*





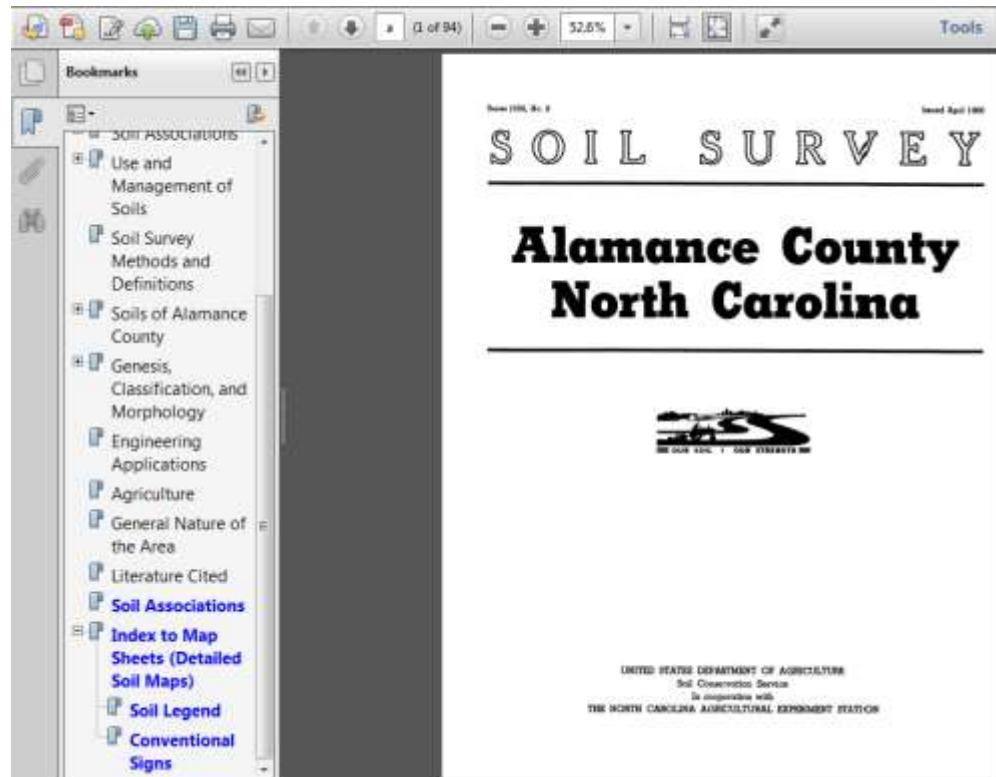
# USDA - NRCS County Soil Survey Maps

**!!\* BEWARE !!\***

- *Must be the most-recently printed / published version.*
- *“Web Soil Survey” or GIS layers are not acceptable.*

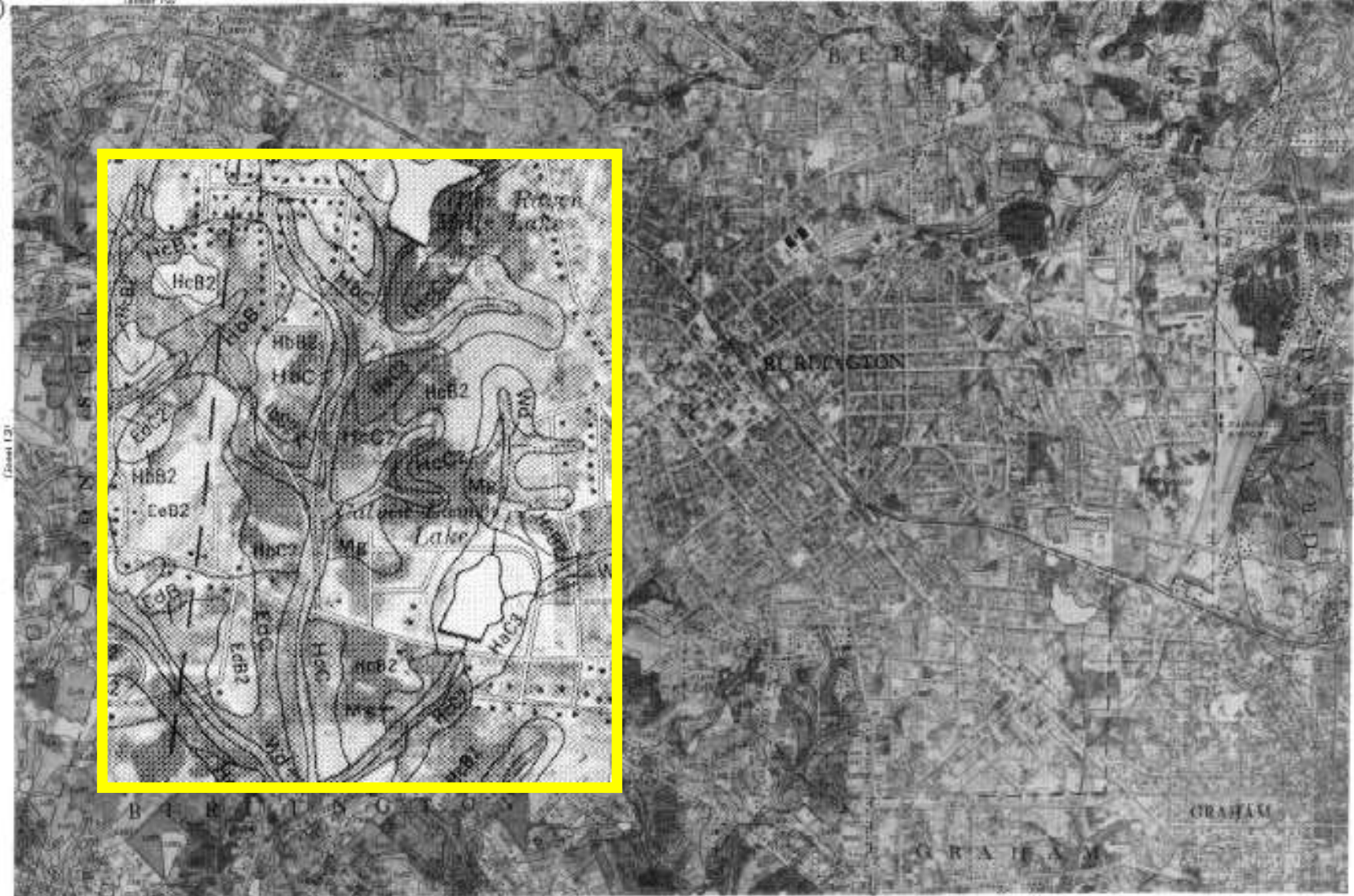
NRCS website list of soil survey publication years:

<http://www.nrcs.usda.gov/wps/portal/nrcs/surveylist/soils/survey/state/?stateId=NC>



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Sheet 12



Sheet 12

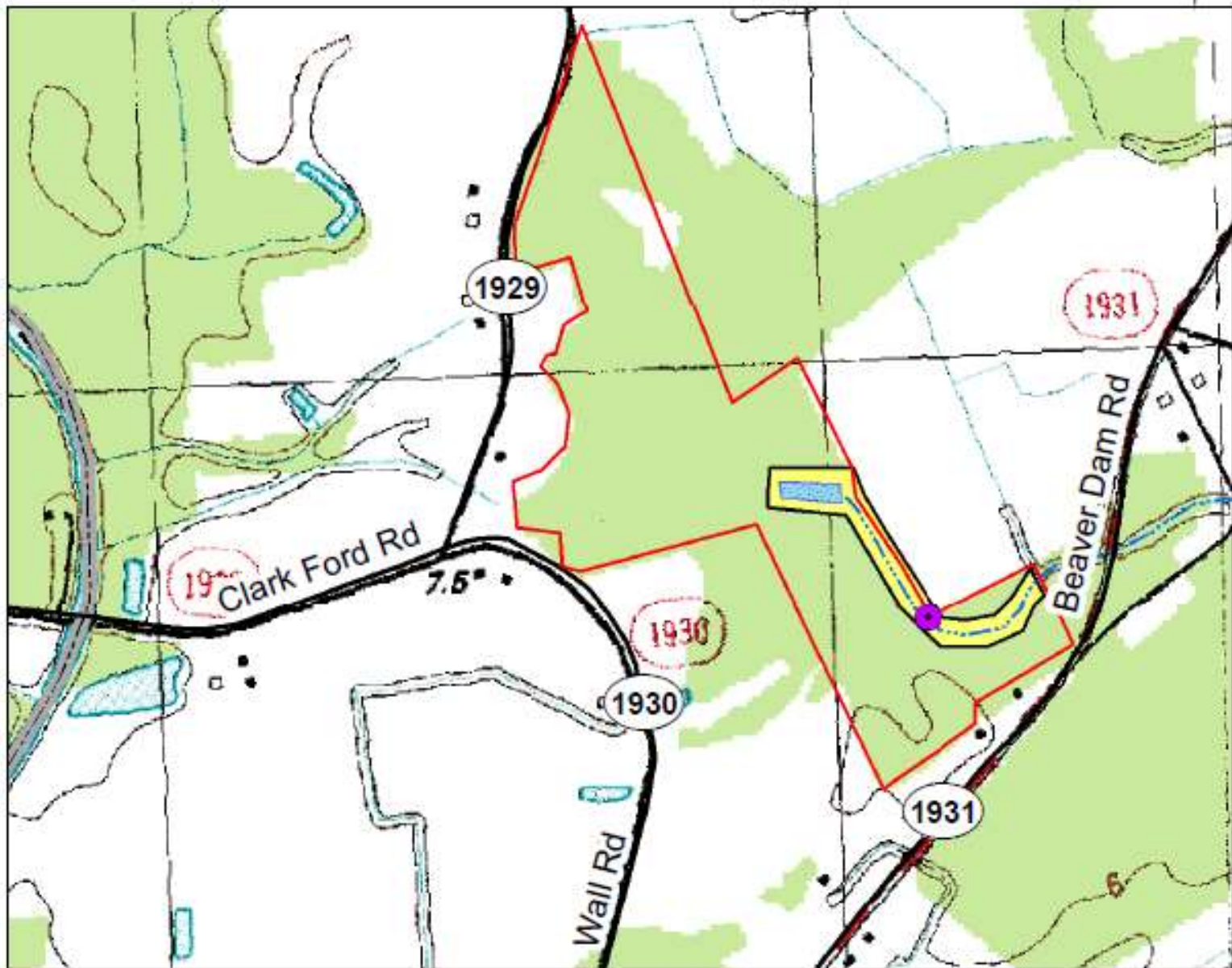
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# “Approximately Shown”: What Does It Mean?

- USGS Topo Map shows a water feature on the east side...



# “Approximately Shown”: What Does It Mean?

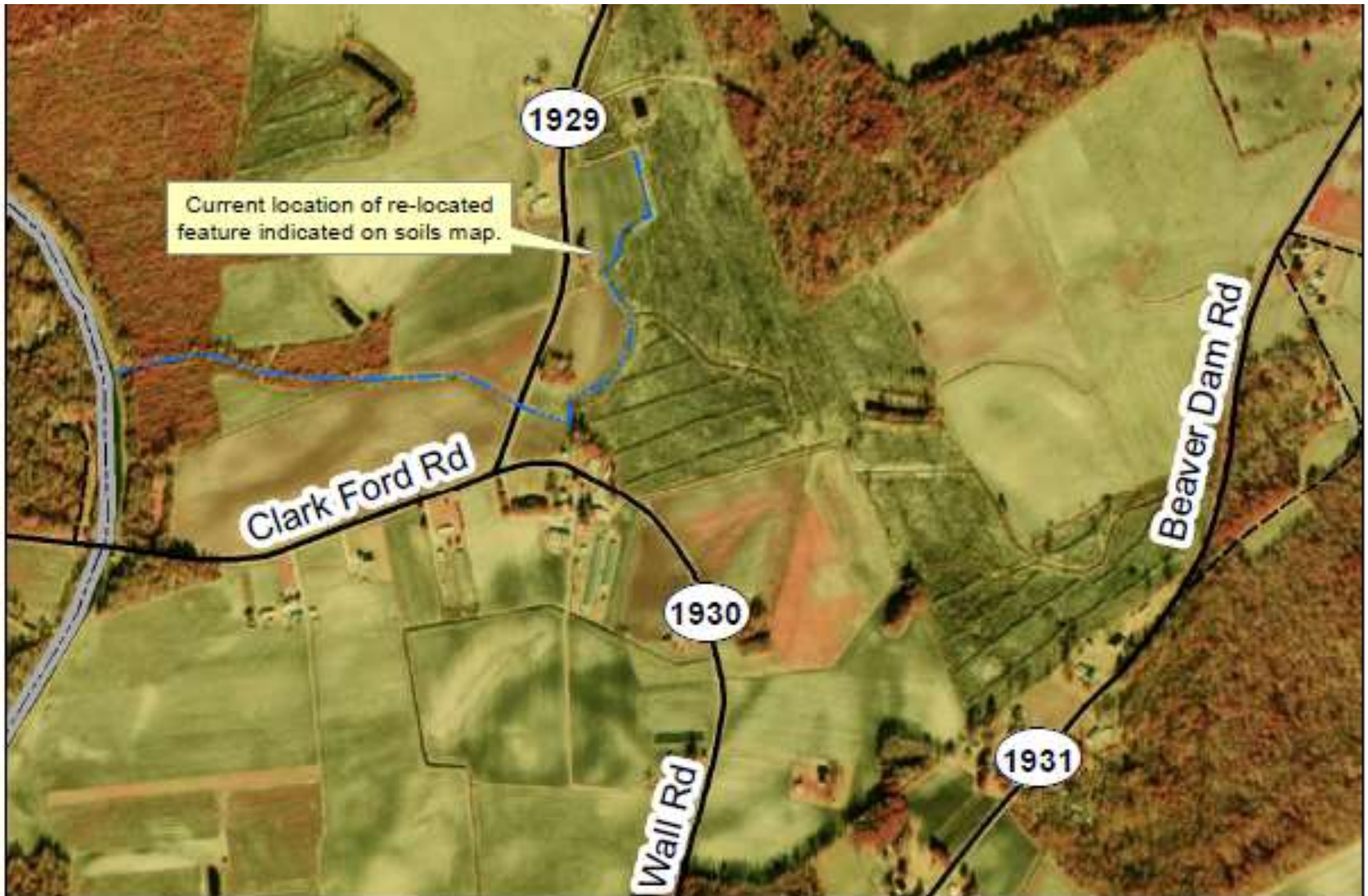
- NRCS Soil Survey Map shows a water feature on the west side...
- It also shows the same water feature from the Topo Map (at the arrow)



(Joins sheet 83)

# “Approximately Shown”: What Does It Mean?

- Ground-Truthing revealed that the water feature from the Soil Survey had been moved some time in the past, and is currently located as drawn on this photo.
- The logger clearcut both Riparian Buffers. It is a violation, because that stream is “approximately shown” on either the topo or soils map.



# FPG SMZs ≠ Buffer Rules

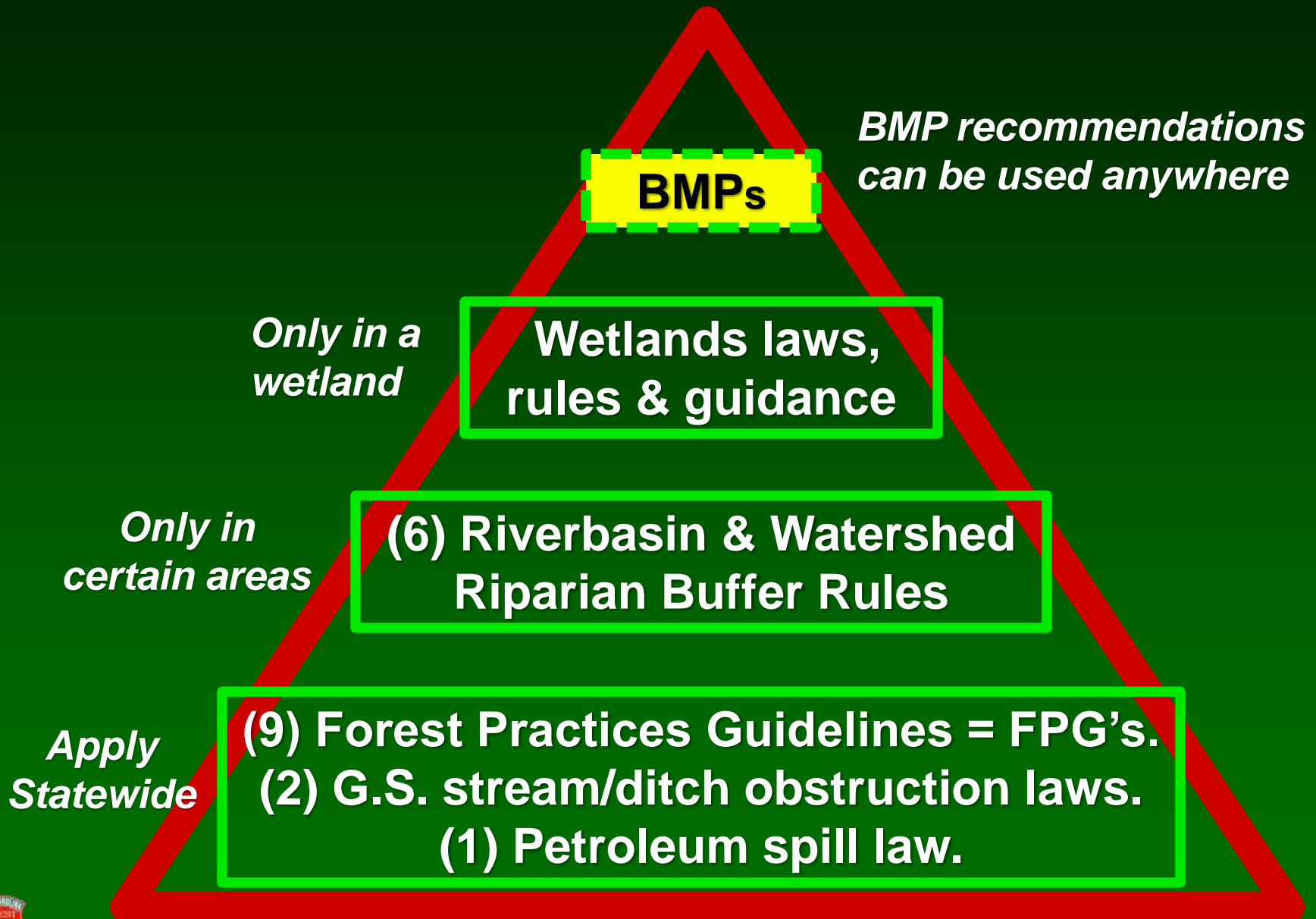
In FPGs, “intermittent” and “perennial” definitions are broader. If stream is on-the-ground... it needs a SMZ!

**It is very possible – and often happens – that a tract of timber has multiple streams on it:**

- Some streams require both the Buffer Rule Zone + SMZ...
- Some streams require only a SMZ.

**You cannot pick & choose which rule to follow.  
Both sets of rules must be in compliance.**

# The Rules: Summary



# BMPs are a logger's best friend...

## “Risk Management”:

Low risk, Low cost

High return-on-investment

High likelihood of success

Easy to implement

## Logging is all about risk management....

Eliminate Safety Risk

Reduce Business Risk

Contain Cost Risk

Manage Environmental Risk >>>>> BMPs