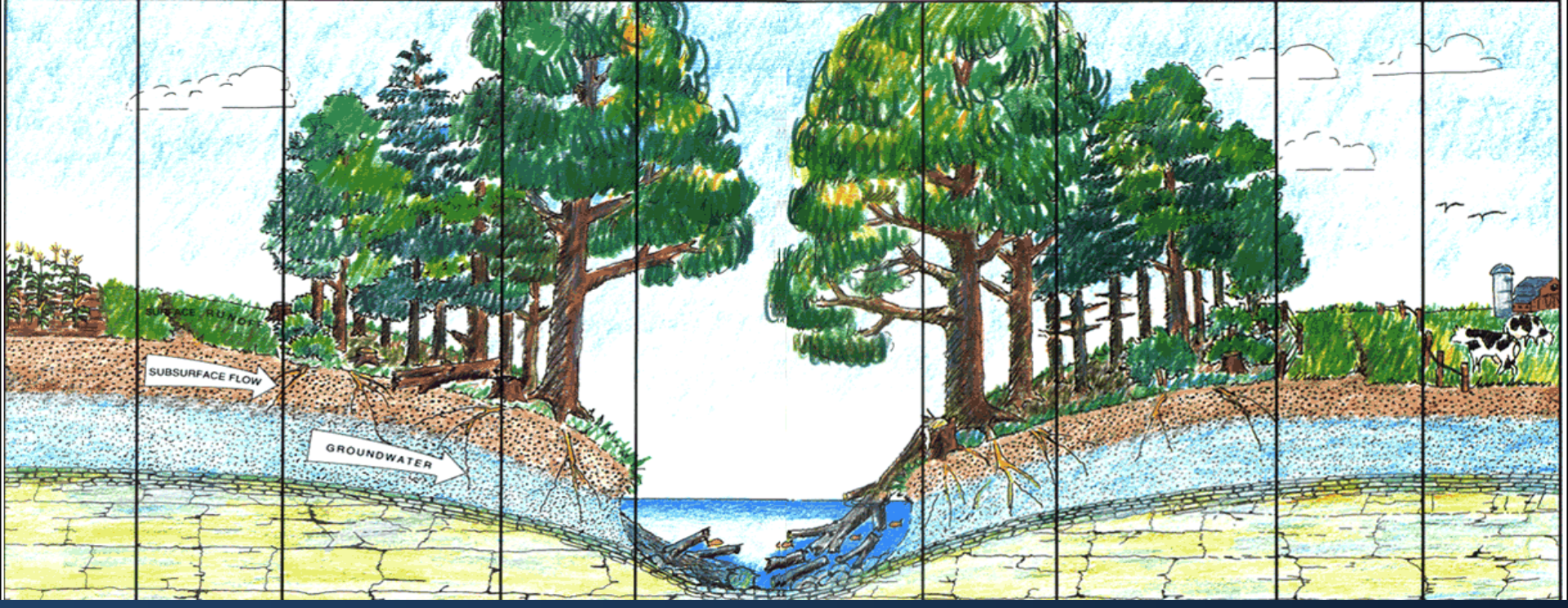

Forest Buffers and Stormwater treatment

Vincent Verweij

ARLINGTON
VIRGINIA
DEPARTMENT OF PARKS
AND RECREATION

Topics

- Stormwater – Quantity and Quality
- Benefits of forest buffers
- DEQ requirements and specifications
- Where can we use this?
- Benefits to forestry
- Questions

Stormwater – quality and quantity

- Quantity: Reducing or slowing down the amount of stormwater hitting our storm systems
- Quality: Reducing the amount of pollutants and sediment in our stormwater

Benefits of Forest Buffers

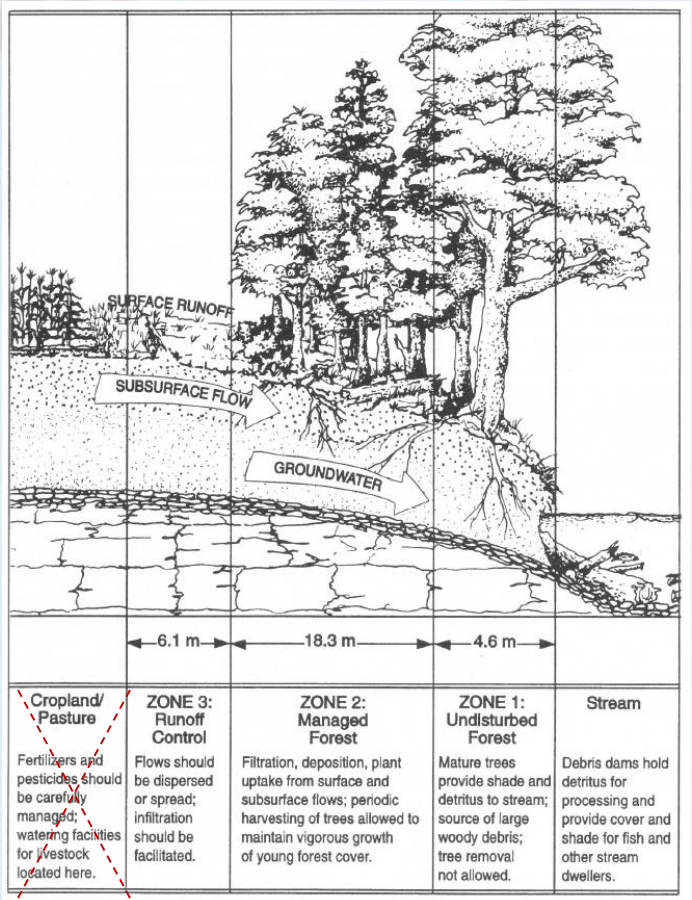

Figure 16.2. Characteristics and management of streamside forest buffer strips (adapted from Welsch 1991).

- Forest buffers reduce velocity of runoff from upland areas
- Reduced velocity causes the sediment and associated pollutants to be deposited within buffer area
- Filtering of buffer keeps a portion of sediment from being deposited in stream channel
- Reduced sediment movement removes nutrients to limited extent
- Materials attached to sediments such as phosphorus and heavy metals are kept from entering water body

Source: Brooks, K. N., et al. Hydrology and the management of watersheds. (1997).

VA DEQ regulations

- As authorized under the State Water Control Law and the federal Clean Water Act, the Virginia Pollutant Discharge Elimination System (VPDES) permitting program regulates point source pollution. “Point source” is defined by the U.S. Environmental Protection Agency as “a source of pollution that can be attributed to a specific physical location – usually an identifiable, "end-of-pipe ‘point." This includes stormwater discharges from:
  - MS4s
  - Construction activities
  - Industrial discharges

VA DEQ specifications

VIRGINIA STORMWATER
DESIGN SPECIFICATION No. 2

SHEET FLOW TO A VEGETATED FILTER STRIP OR CONSERVED OPEN SPACE

VERSION 2.0
January 1, 2013

VA DEQ specifications

- Slope and minimum width
  - 1-4% slope – 35 Ft width
  - 4-6% slope – 50 Ft width
  - 6-8% slope – 65 Ft width
  - Nothing over 8% slope (streambanks would not be appropriate)
- Soils
  - Must drain properly, and support plants. Construction fill cannot be used
  - May need compost amendment, depending on soil type

Where to use this option

- Yes:
  - Projects with significant space and flat areas under 8% slope, preferably 2% slope
  - When developing near or in the RPA
- No:
  - Restricted space, extreme slopes
  - Outside the RPA, where engineered solutions may be more space-efficient

Existing project: Bluemont Park

Positive impact on urban forestry

- This technique is a non-engineered, nature-based solution to stormwater
- Near streamsides, can significantly improve tree canopy and our natural habitat
- Lower cost than engineered solutions, in most cases
- Preserved open space (including trees) can also be used, in some cases

Questions?

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DEQ stormwater management page:
http://www.deq.virginia.gov/Programs/Water/StormwaterManagement.aspx

Arlington Stormwater ordinance:
https://building.arlingtonva.us/chesapeake-bay-preservation-ordinance/