Reading the Landscape: Soils

Soils Training Workshop
October 2009

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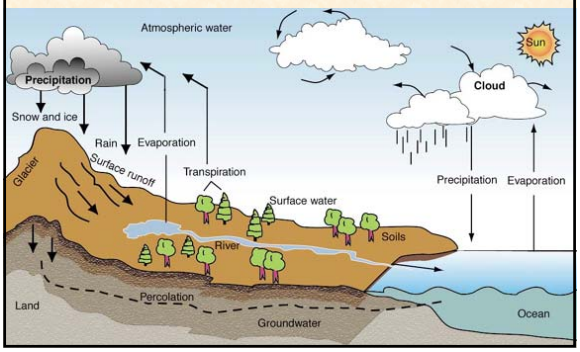
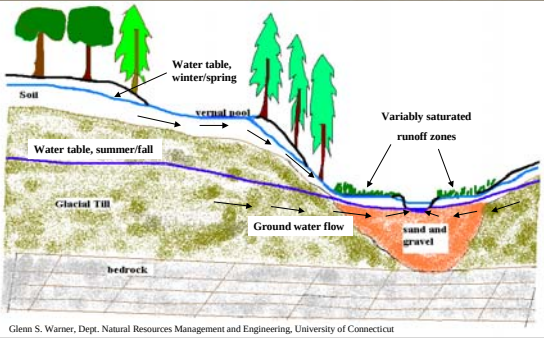
Hydrologic Cycle



Annual Amounts in Connecticut

- **Precipitation**
  averages 42 to 52 inches
- **Evapotranspiration**
  averages 22 to 24 inches
- **Runoff**
  averages 22 to 26 inches
- **Groundwater Recharge**
  averages 7 to 10 inches

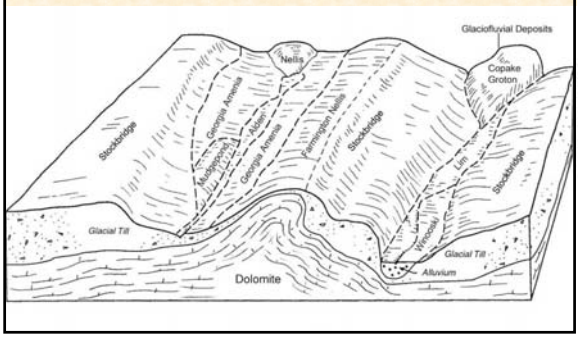
Typical Connecticut Natural Landscape



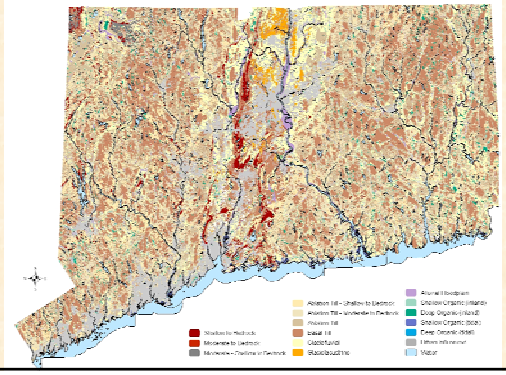
Glenn S. Warner, Dept. Natural Resources Management and Engineering, University of Connecticut

Seasonal High Water Tables

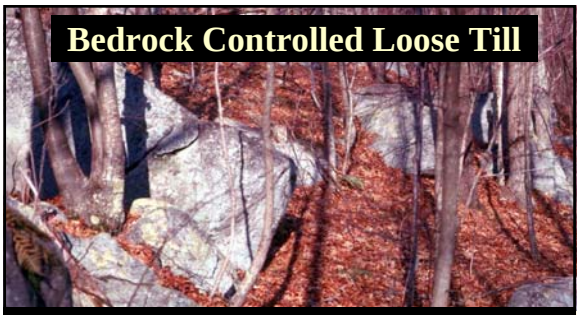
Connecticut Soil Landscapes



Parent Material of Connecticut Soils

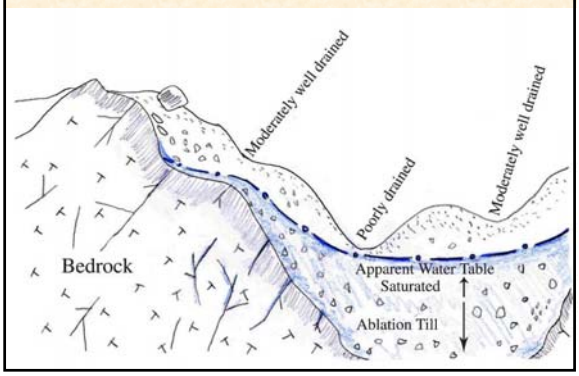


Bedrock Controlled Loose Till

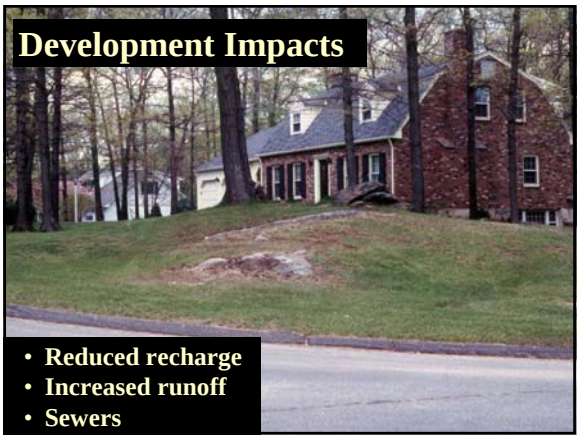


- Highest percentage of state
- Groundwater generally deep
- Medium to high surface runoff
- Wetlands, vernal pools in depressions

Hydrology in Bedrock Controlled Till



Development Impacts

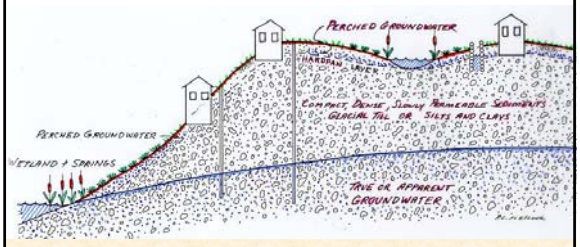


- Reduced recharge
- Increased runoff
- Sewers

Deep Dense Till

- Medium surface runoff from side slopes
- Shallow, perched groundwater flow follows contours of dense till
- Wetlands in depressions and seeps
- Occurs statewide, second highest percentage

Hydrology in Tills



Development Impacts

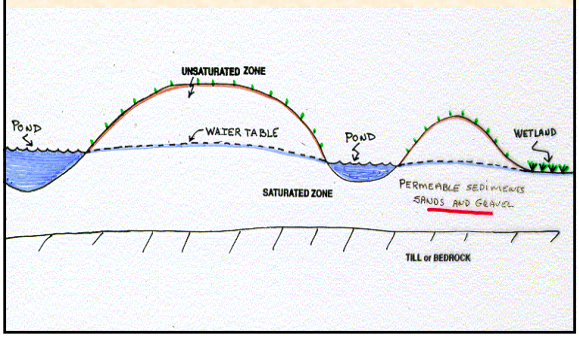
- Subsurface drainage
- Increased runoff
- Sewers
- Erosion

Glacial Outwash

(sand and gravel)

- Deep groundwater
- Few wetlands or vernal pools
- Low runoff
- Critical to recharge of larger aquifers
- Statewide in valleys, third highest percent

Outwash Hydrology



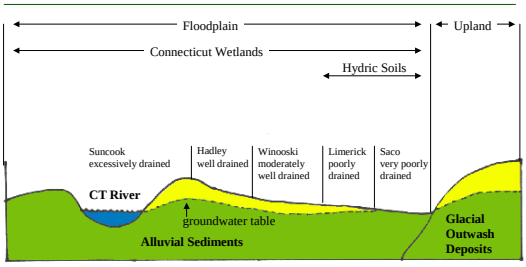
Development Impacts

- Highest increase in runoff
- Loss of groundwater recharge
- Loss of prime farmland
- Possible groundwater contamination

Floodplain and Riparian

- Shallow groundwater
- Wetlands dominate
- Stores sediments and nutrients
- Maintains stream dynamics
- Statewide limited acreage
- Stores and discharges floodwaters, groundwater

A Topodrainage Sequence on the Connecticut River Floodplain



Development Impacts

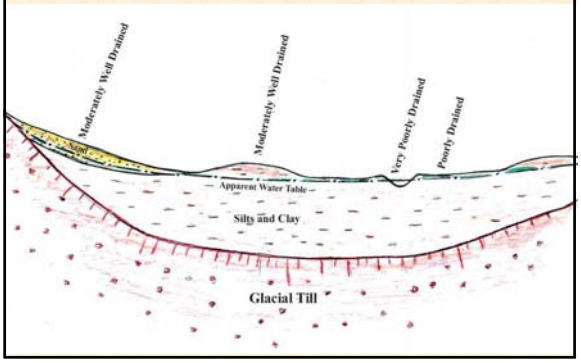
- Increased flooding frequency
- Erosion
- Increased nutrients/contaminants/ sediments
- Point discharges of storm water
- Loss of wildlife corridors

Lacustrine

(silt and clay)

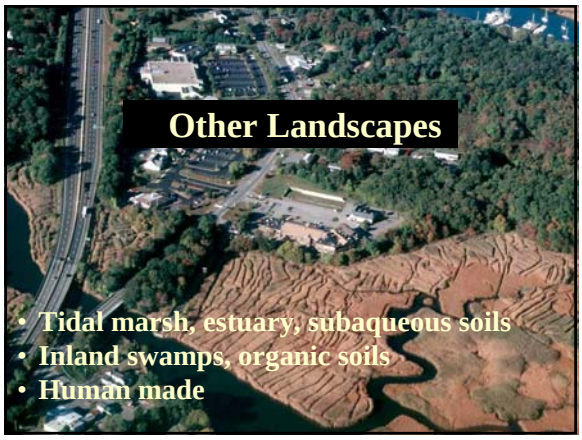
- High surface runoff
- Extensive wetlands
- Many vernal pools
- Groundwater both shallow and deep
- Limited, mostly in Connecticut Valley

Lacustrine Hydrology

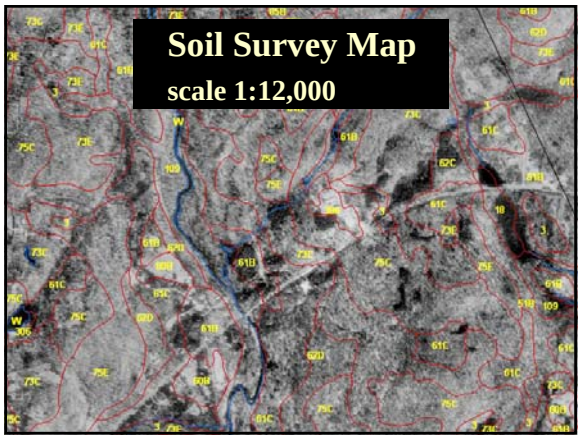


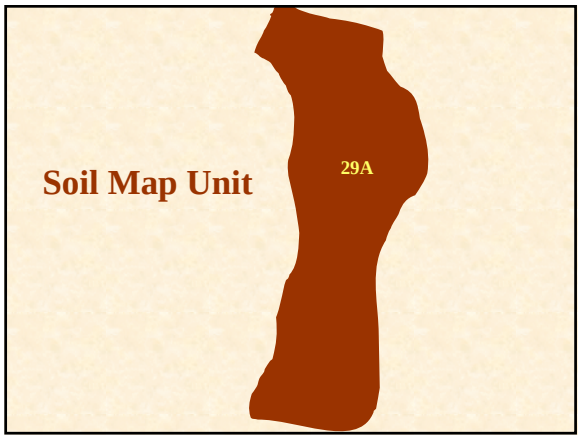
Development Impacts

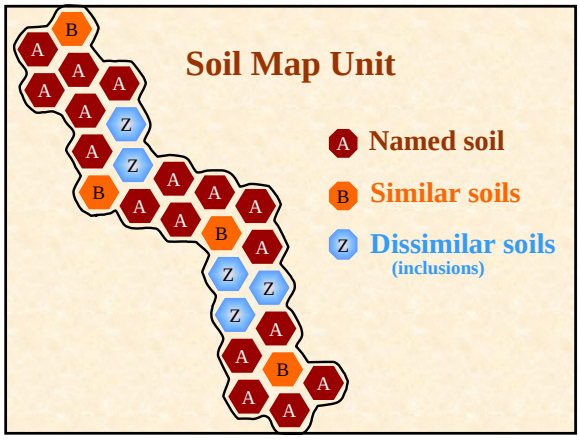
- Increased runoff
- Subsurface drainage for homes and roads
- Surface runoff captured
- Sewers
- Erosion



Soil Mapping




Soil Map Unit
29A


Soil Map Unit
A Named soil
B Similar soils
Z Dissimilar soils
(inclusions)

Kinds of Soil Map Units

Consociations

dominantly a single kind of soil or miscellaneous area

always mostly soil A

29A Agawam fine sandy loam, 0 to 3 percent slopes

Undifferentiated Groups

two or more kinds of soils or miscellaneous areas, occuring an irregular pattern

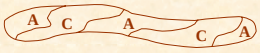
soil A and B or all A or all B

86D Paxton and Montauk fine sandy loams, 15 to 35 percent slopes, extremely stony

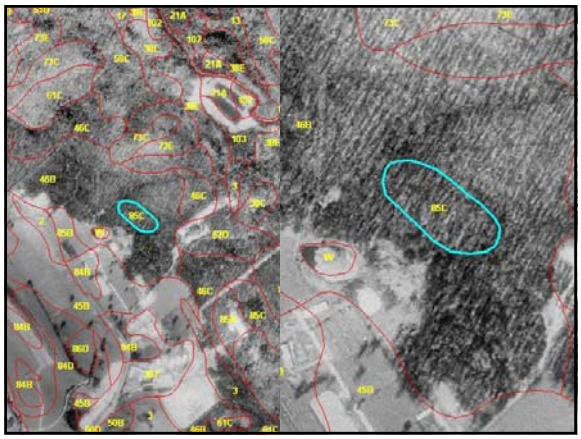
Complexes

two or more kinds of soils or miscellaneous areas, occur in a regular pattern

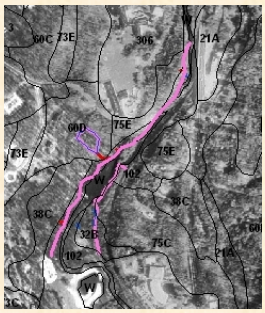
always soil A with soil C



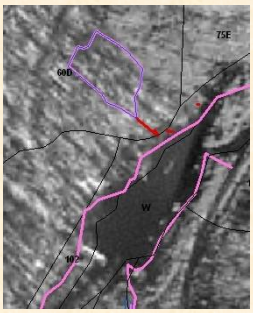
73C Charlton-Chatfield complex, 3 to 15 percent slopes, very rocky



Map Scale

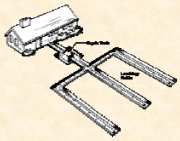


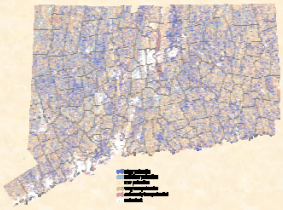
1:12,000 scale



1:3,000 scale

Subsurface Sewage Disposal Systems (SSDS) for Single Family Residences





Soil properties correspond to criteria identified in the CT State Health Code Regulations, as well as factors deemed significant by NRCS

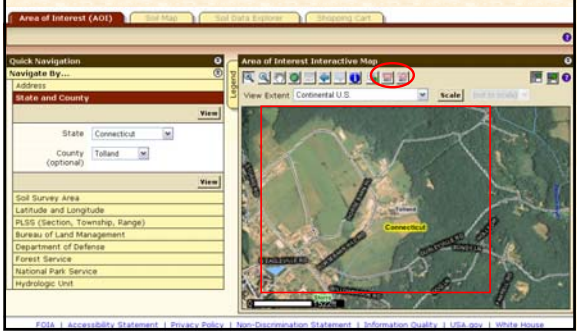
http://www.ct.nrcs.usda.gov/soils

Click on the green "start" button

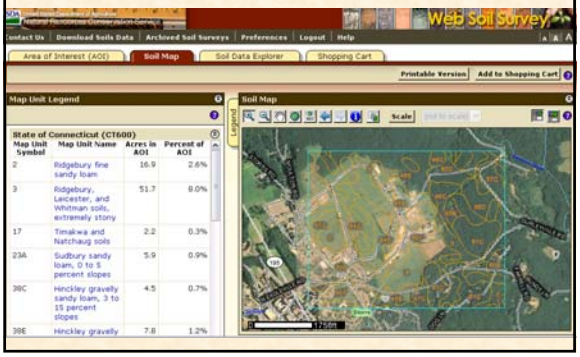
http://websoilsurvey.nrcs.usda.gov

Navigate to your Area of Interest

Click and drag one of the AOI buttons to outline the boundaries of your area of interest

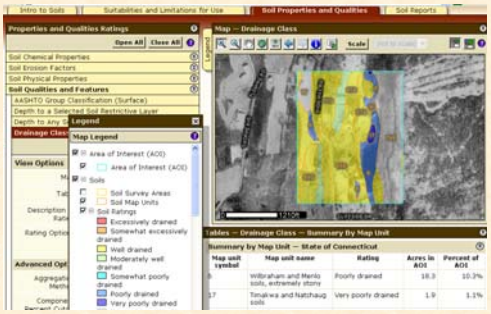


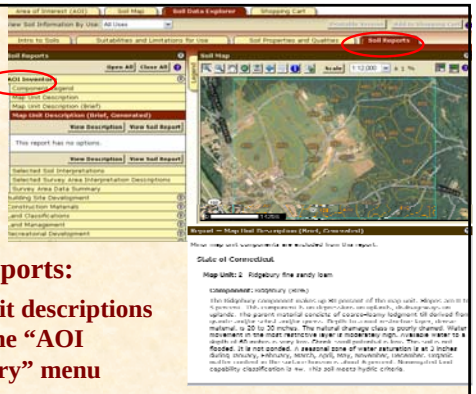
View the soil map



Soil Data Explorer Tab

Soil Properties and Qualities: Drainage Class



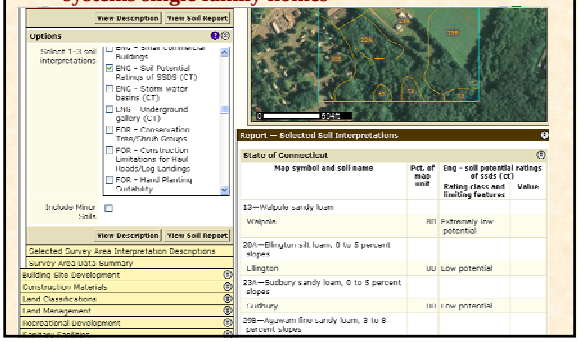


Soil Reports:

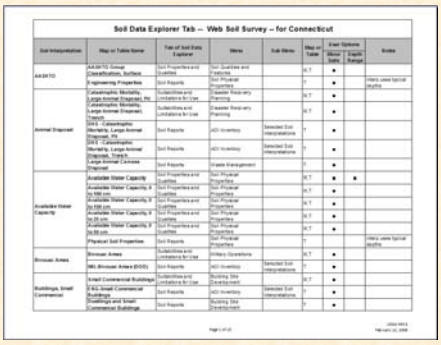
Map unit descriptions are in the "AOI Inventory" menu

Soil Reports: "Selected Survey Area Interpretations"

Soil potential ratings of subsurface sewage disposal systems single family homes



Guide to Soil Interpretations Available for Connecticut on the Web Soil Survey



http://www.ct.nrcs.usda.gov/soils.html

Connecticut Environmental Conditions Online

Users can make maps online or download them!

Initial soils information will include:

- Parent Material
- CT Inland Wetlands
- Prime and Important Farmland
- Storm Water Runoff Management
- Subsurface Sewage Disposal Systems

Partners

- USDA-Natural Resources Conservation Service (NRCS)
- Connecticut Department of Environmental Protection (CT DEP)
- University of Connecticut Center for Land Use Education and Research (UCONN CLEAR)

Nothing beats the on-site investigation!