

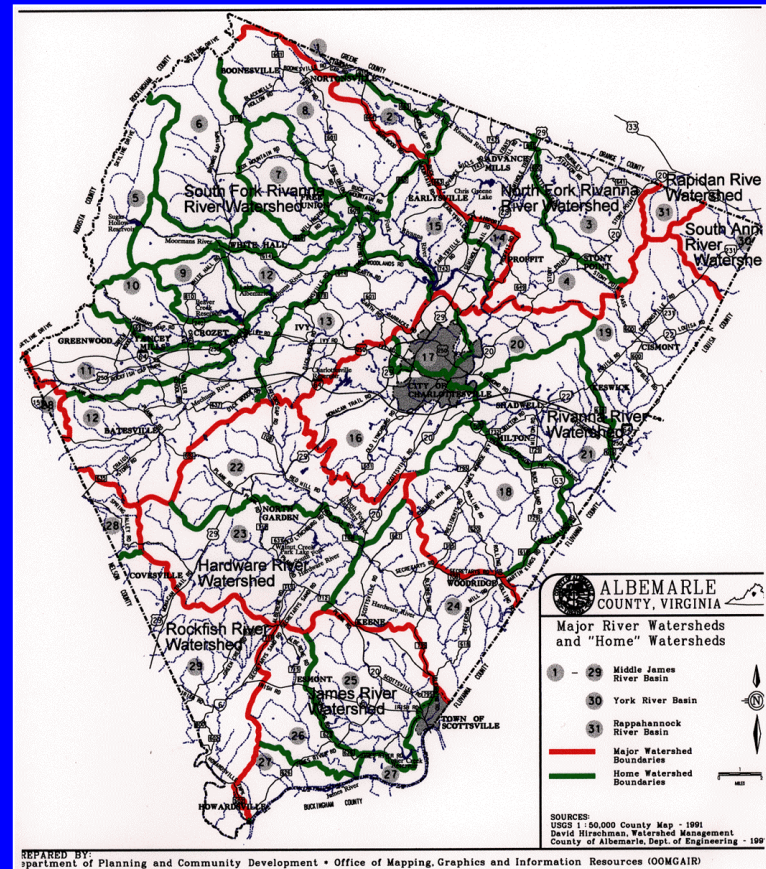
# Groundwater Issues Confronting Local Governments

Issues From Albemarle County,  
Virginia

David J. Hirschman  
Water Resources Manager

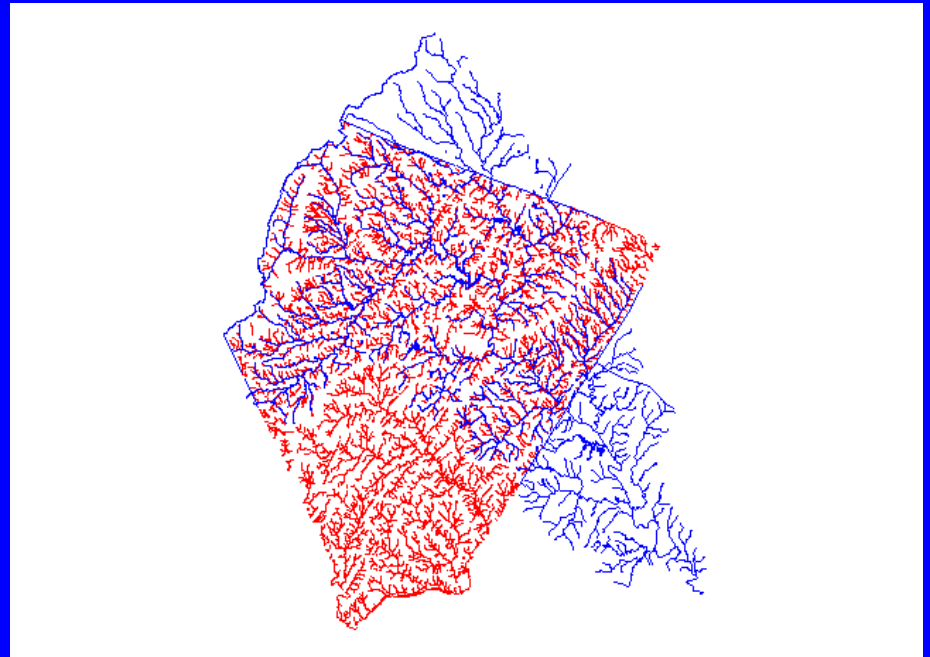
# Groundwater Issues

- Groundwater at Various Scales
  - County-wide
  - Watershed or Subregion
  - Site
- It's About Land Use
  - Development: How Much? Where? Density?

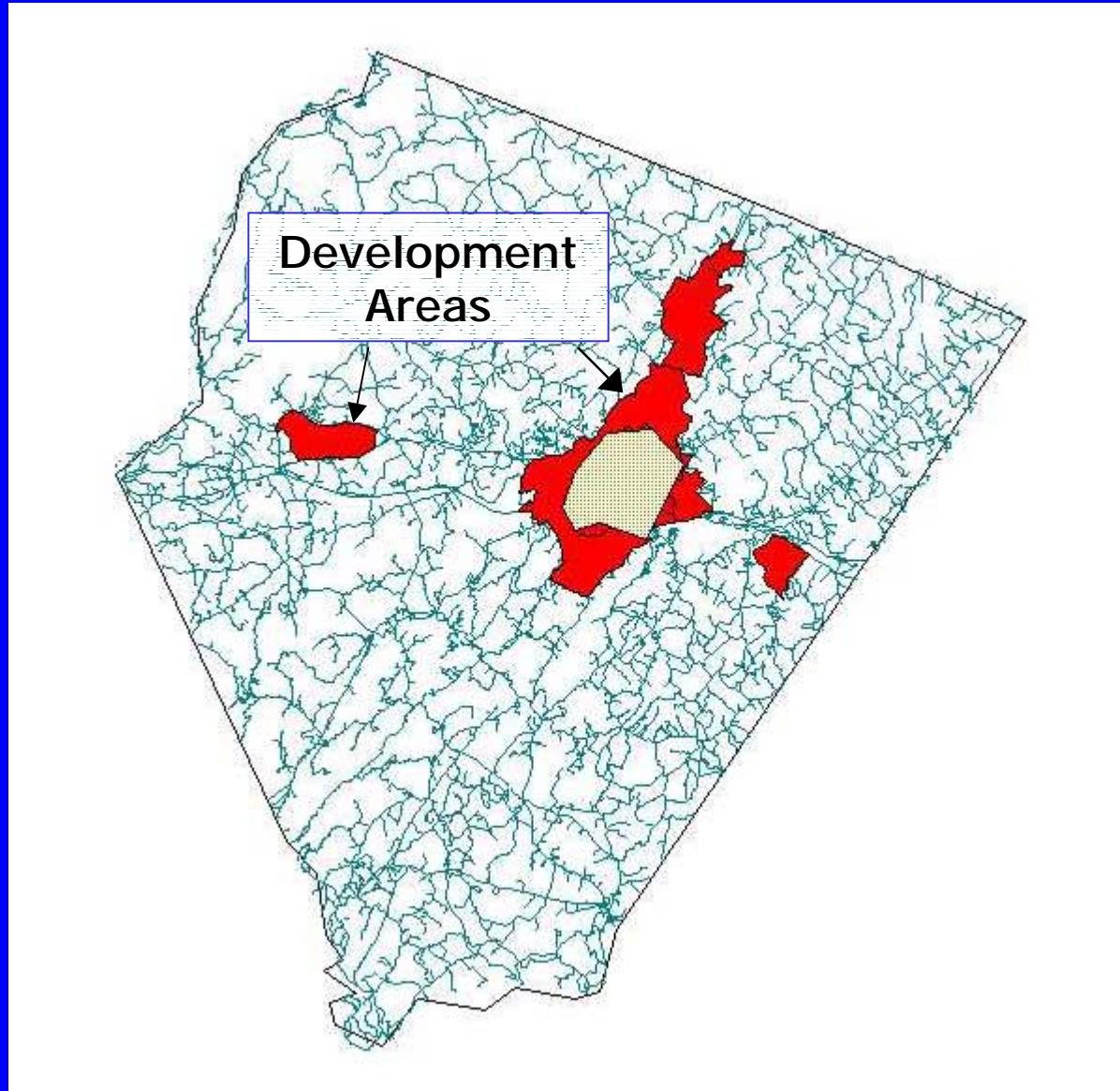


# County-Wide Scale

- General GW Availability & Vulnerability
- Anecdotal Info on Groundwater
- Comprehensive Plan
- Testing & Outreach



# Land Use Plan - Development Areas & Rural Areas





# Rural Area Water Supplies

- Private,  
Individual Wells
- Central Systems



# Albemarle County Groundwater Data Base

Microsoft Access

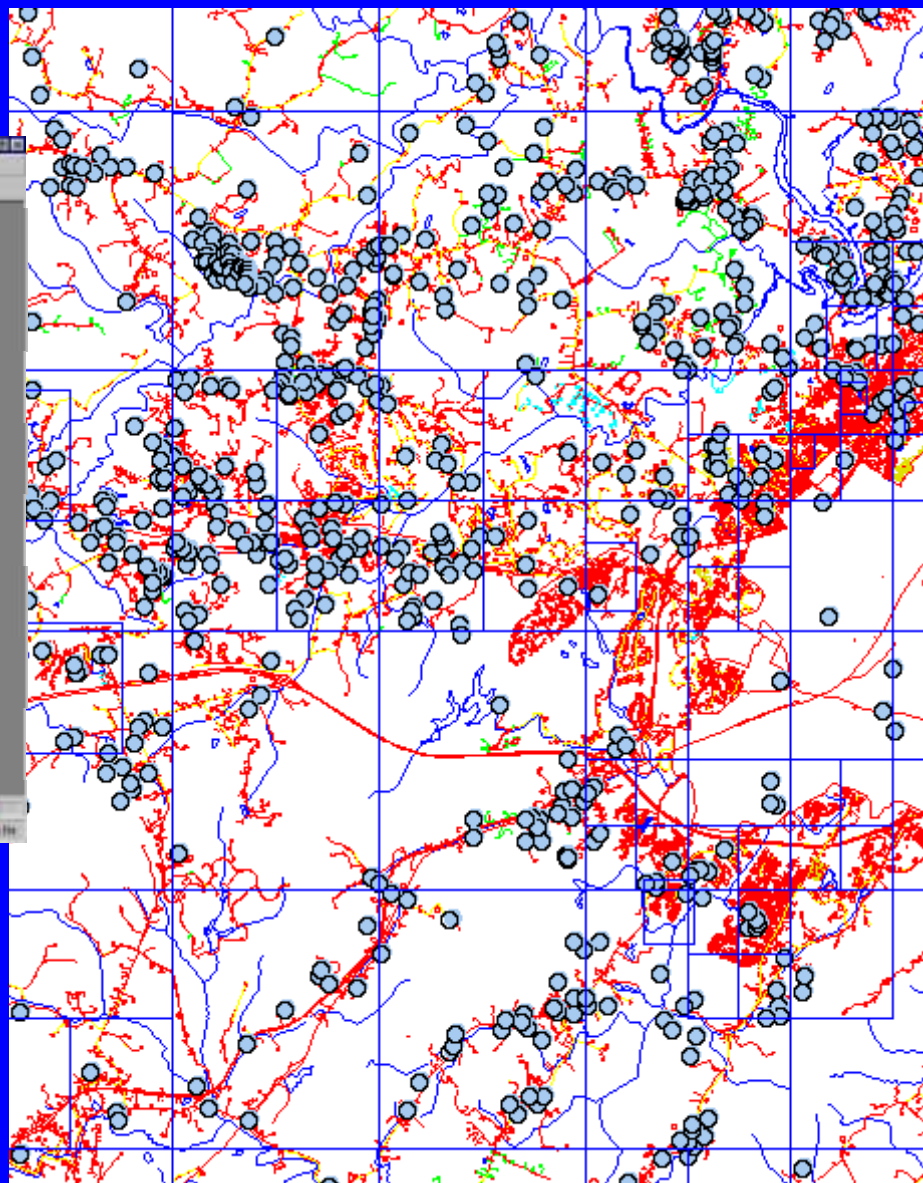
Albemarle County Groundwater Database  
Data Entry Form - Health Department Records

Automatic Well ID: 1451

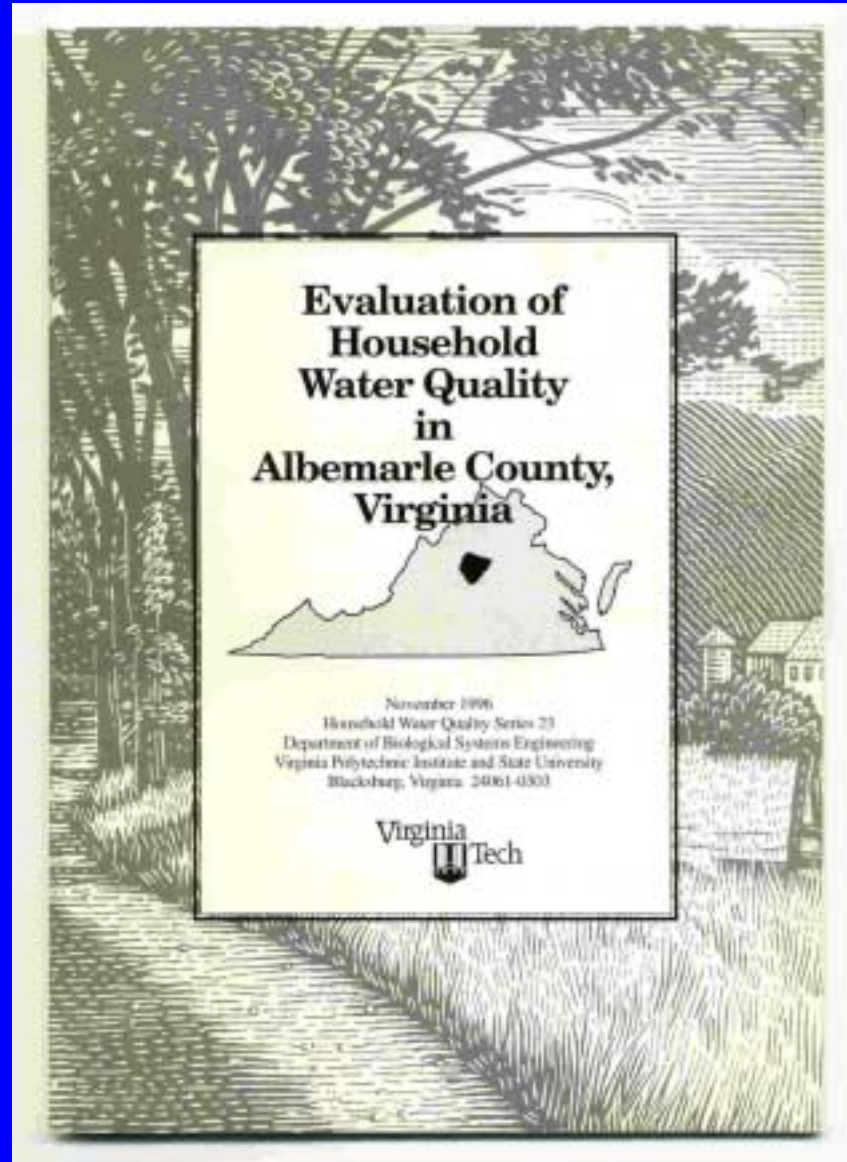
Agency ID Number	01000010000	File	01000010000
Source Agency	Albemarle County Health Department	Well Date	Date
File Map (Division/Block/Parcel)		Well Completion Date	10/1/00
Substation		Total Well Depth (ft)	100
Owner	WALTON, LARA CORP	Depth to Bottom (ft)	37
Property Address		Well Casing Length (ft)	41
Location Description	WEST OF ST. SMITHS RD	Well Casing Diameter (inches)	4.25
Supplemental Information		Casing Material	PLASTIC
Well Constructed?	<input checked="" type="checkbox"/> Pump well	Well Construction Type	Drilling
Water Zone?	<input checked="" type="checkbox"/>	Private or Public Well?	Private
Driller Log?	<input checked="" type="checkbox"/> Drills System Permit?	Well Size	Domestic
Culvert?	<input checked="" type="checkbox"/> Chemical Analysis?	(Diameter) Well Yield (GPM)	00
Geologic Log?	<input checked="" type="checkbox"/> Well Evaluation Report?	Static Water Level (ft)	0
		Stagnant/Chlorine Level (ft)	0
		Estimated Flow Rate (GPM)	0

Location Map PDF Name: 01000010000.pdf

Record: 11 of 11



# Testing & Outreach



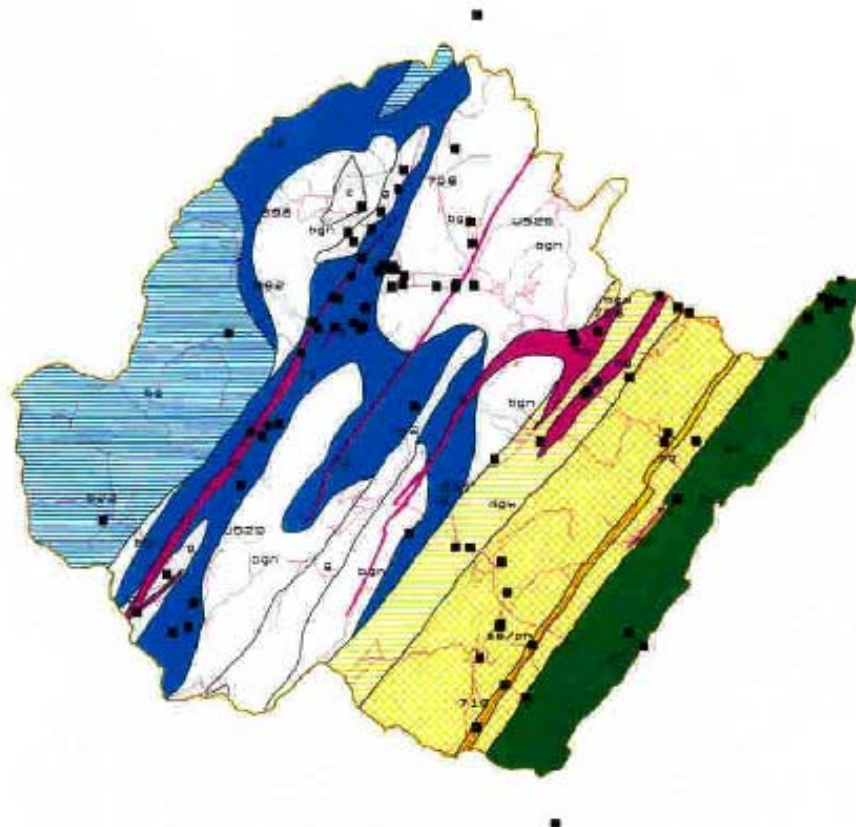
# Watershed or Subregion Scale

- Spatial Distribution for availability & vulnerability
- Land Use Patterns
- Central Systems
- Public Health





# Pilot GW Study: Groundwater & Land Use



map 2

## Pilot Groundwater Study Wells Tested (with Geology)

- Well Site
- Roads
- Watered Boundary for N. Fork/S. Fork Hardware River (HBR)

### GEOLOGY

- ss/ph - micaceous sandstone, siltst. and phyllite
- sd - meta sandstone
- sgn - meta graywacke
- cc - greenstone metabasalt
- lg - biotite-muscovite leucogranite gneiss
- dg - layered granulite and gneiss
- fg - metagabbro
- bgn - porphyroclastic biotite-plagioclase augen gneiss
- g - granite
- c - charnockite

Source (Geology): Draft geologic map by Alice Evans and Jim Ginter, Virginia Division of Mineral Resources, August 1998

Note: These geologic maps are not based on detailed geologic mapping at standard 1:24,000 scale, but rather are primarily based on reconnaissance mapping, field checking, and/or literature research. The maps are generalized guides to the regional geology so that the placement of contacts is not exact and the descriptions of stratigraphic units is generalised. These maps have not been reviewed by the Virginia Division of Mineral Resources and do not meet its standards for consistency and accuracy. Neither the Virginia Division of Mineral Resources nor the authors take responsibility for any inaccuracies that might be discovered in the geology as it is presented on these maps.

Source (Wells): All weller quality and well information is credited to this study.

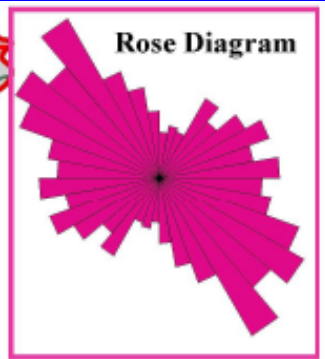
Prepared for the Allegheny County Engineering Department  
by the Thomas Jefferson Planning District Commission  
Date: June 30, 1994

**Well Yield with Fracture Trace Lines**

Lickinghole Creek

Beaver Creek

Watts Branch



Mechums River

**Legend**

- Mechums Watershed Boundary
- Fracture Trace Lines
- Well Yield Contours
- Boundary for Enhanced Display

**Mechums Watershed Geology**

- Blue Ridge Basement Complex
- Catoctin Formation
- Crozet Granite
- Fauquier Formation
- Lynchburg Group
- Swift Run Formation

Dollins Creek

Stockton Fork

Miller Branch  
Whiteside Branch

Mechums River

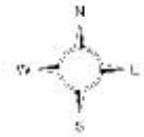


Scale:  
1 Inch = 3,000 Feet



ENVIRONMENTAL SERVICE AND TECHNOLOGY CORPORATION

## Enhanced Well Yield With Fracture Trace Lines



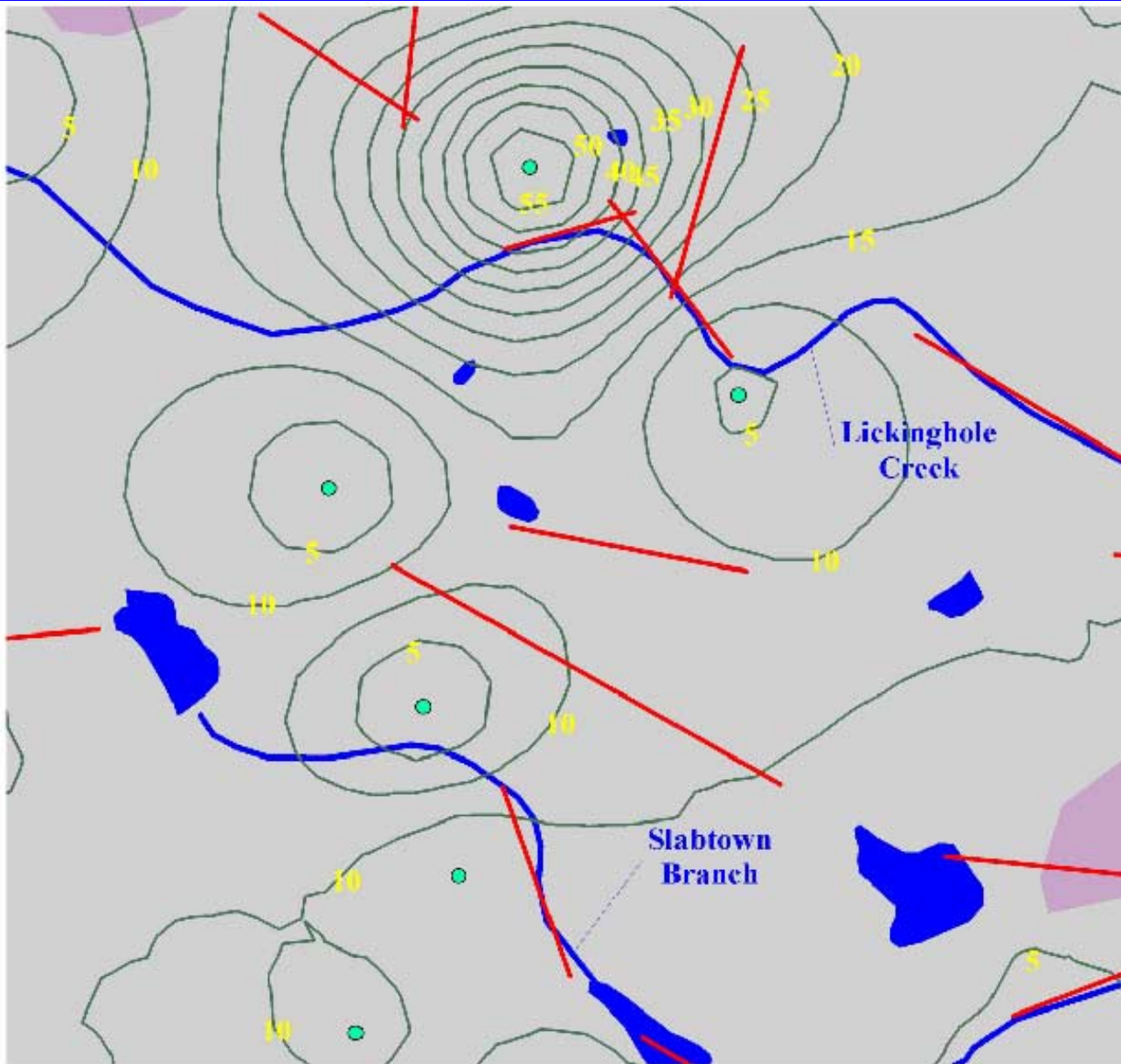
1 INCH = 300 FEET

### Legend

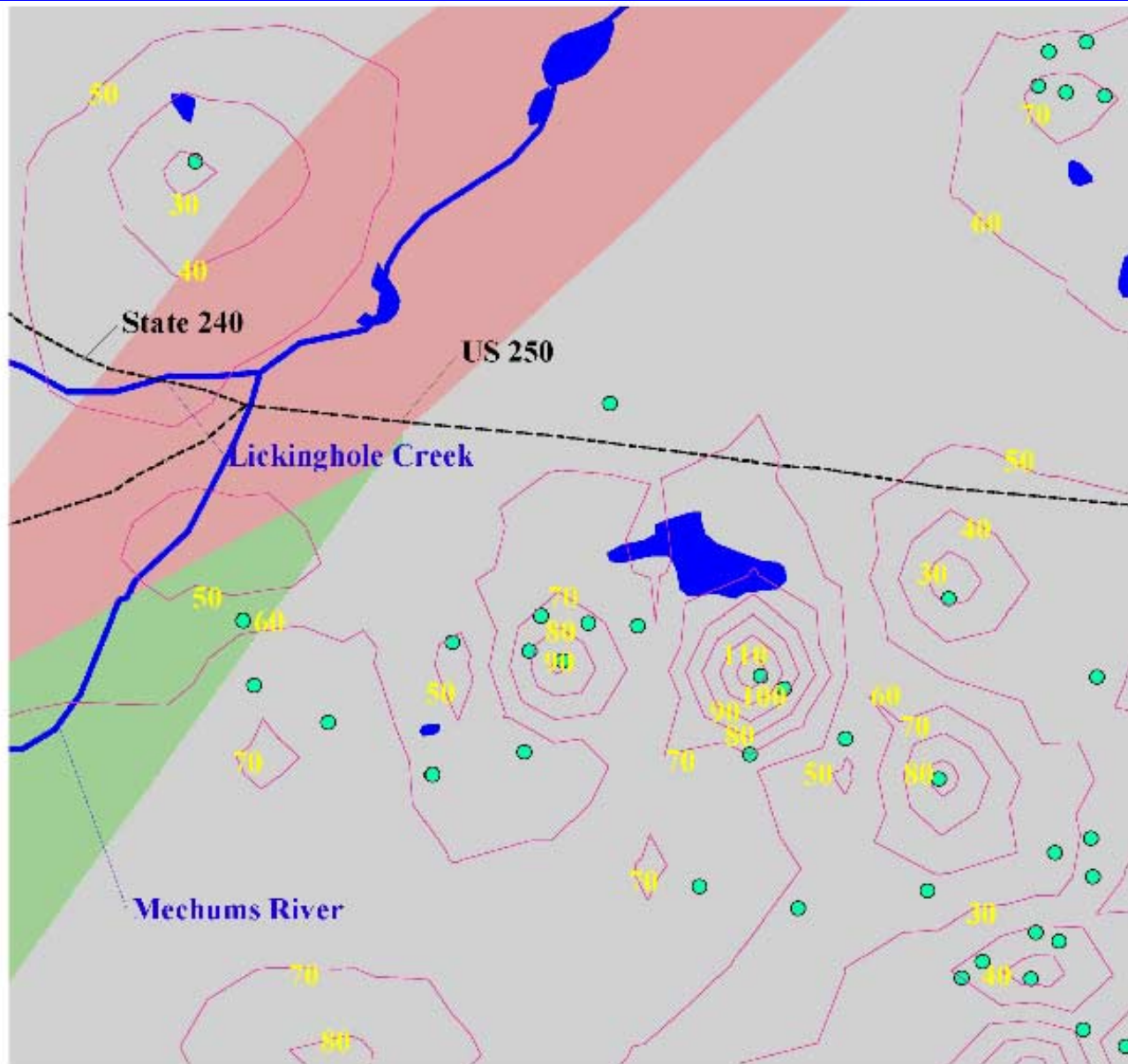
-  Fracture Trace Lines
-  Well Yield Contour (GPM)
-  Existing Groundwater Wells



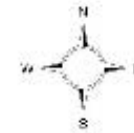
ENVIRONMENTAL SERVICE AND TECHNOLOGY CORPORATION







## Enhanced Casing Length Contour



1 INCH = 300 FEET

### Legend

-  Casing Length Contour (Feet)
-  Existing Groundwater Wells



ENVIRONMENTAL SURVEILLANCE TECHNOLOGY CORPORATION



# Site Scale

- Impacts of Development on gw quantity & quality
- Verify adequate supply
- Off-site impacts
- Septic Fields
- Homeowner Practices



# Groundwater Committee

- “Good Development Practices”
- Testing & Reporting Standards for Development
- Central Systems

