

City of Deltona Stormwater Management Master Plan

Ground Water Considerations & The Need for Long-Term Continuous Simulation Modeling of Stormwater Management Systems in Deltona

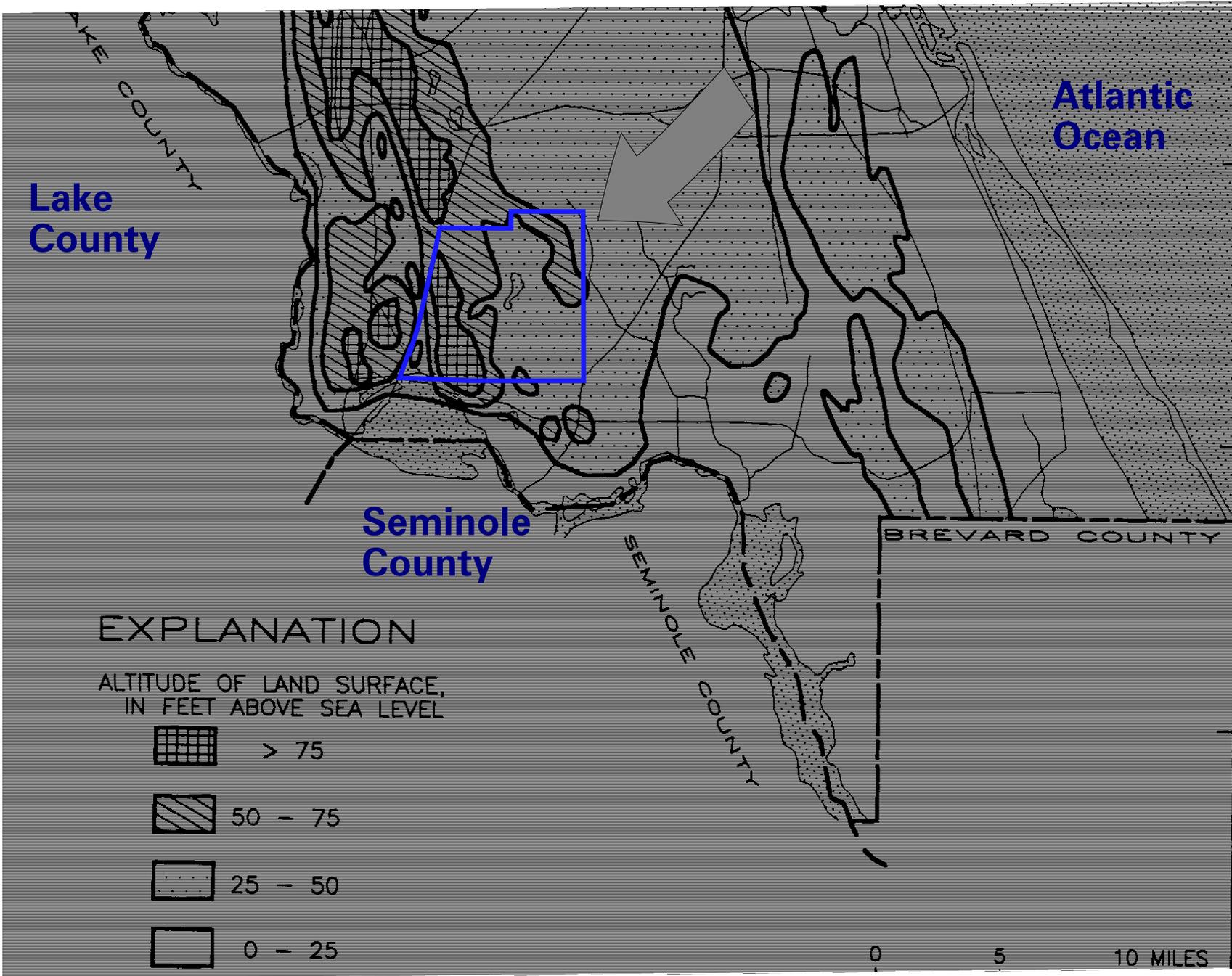
presented by
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a member of the PEC Team

Presentation Outline

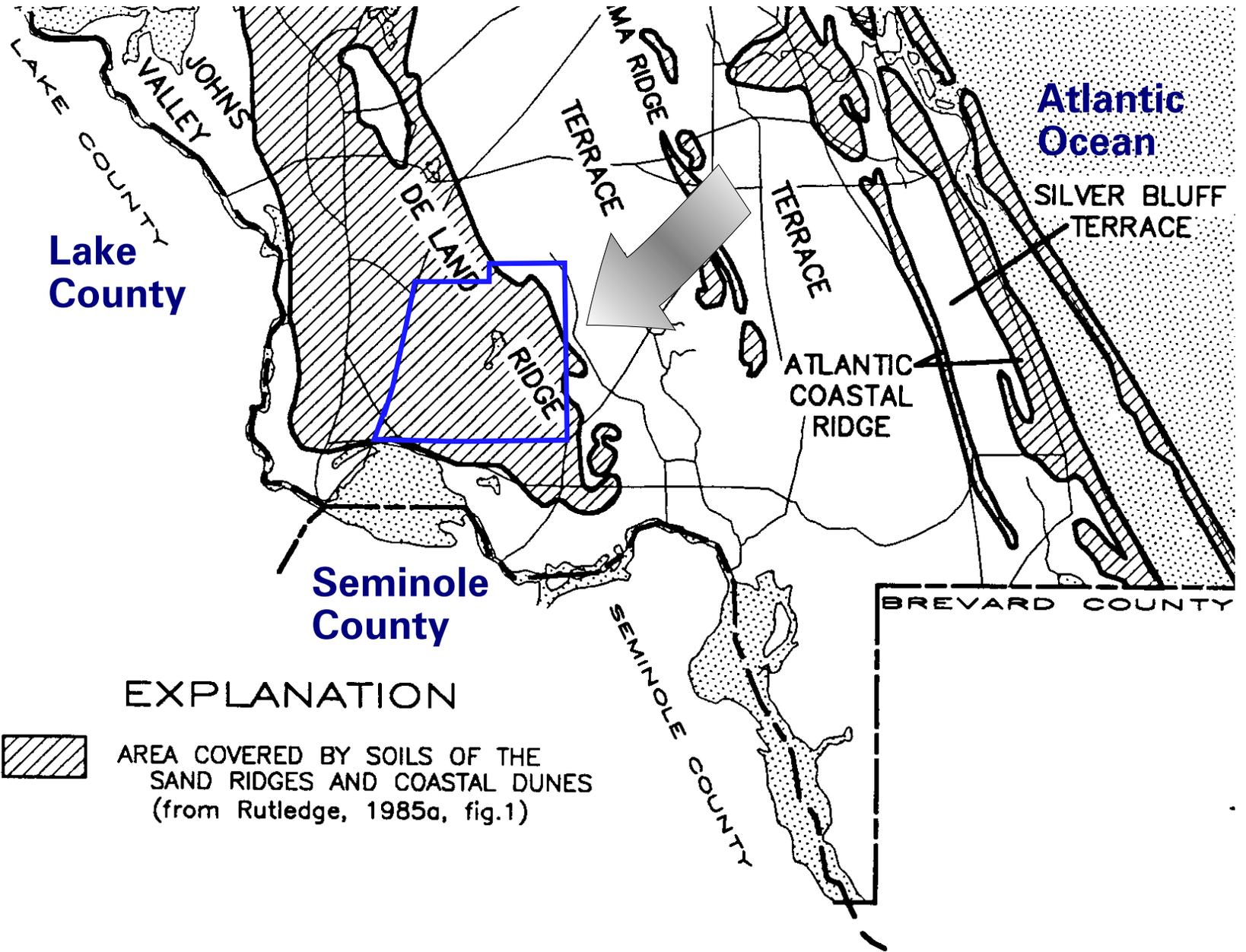
Deltona Stormwater Master Plan

- **Overview of the hydrogeology of the Deltona area**
- **Brief overview of continuous simulation modeling with some recent practical applications in Central Florida**
- **A recent example project within the City of Deltona to illustrate our geotechnical experience in this locality**

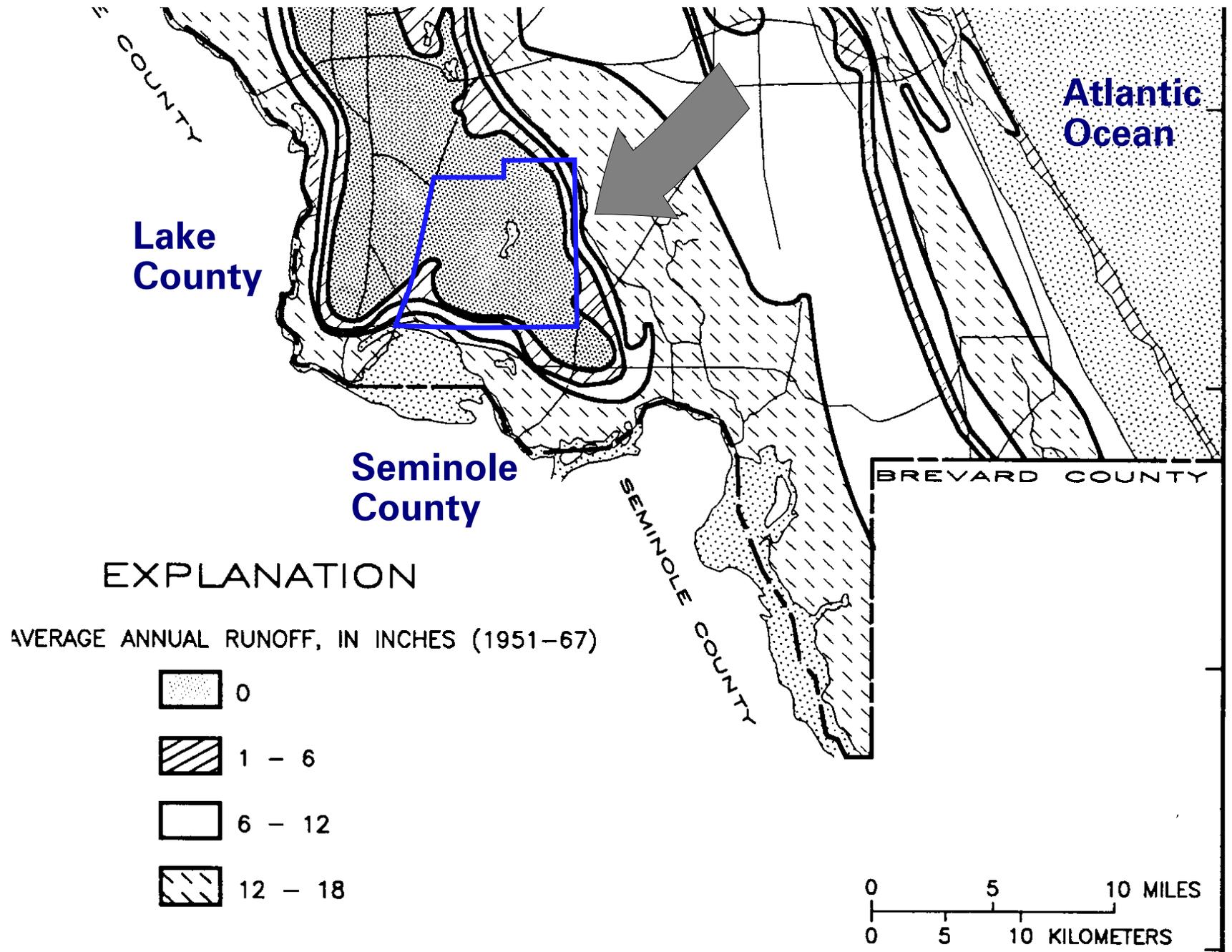
TOPOGRAPHY OF THE DELTONA AREA



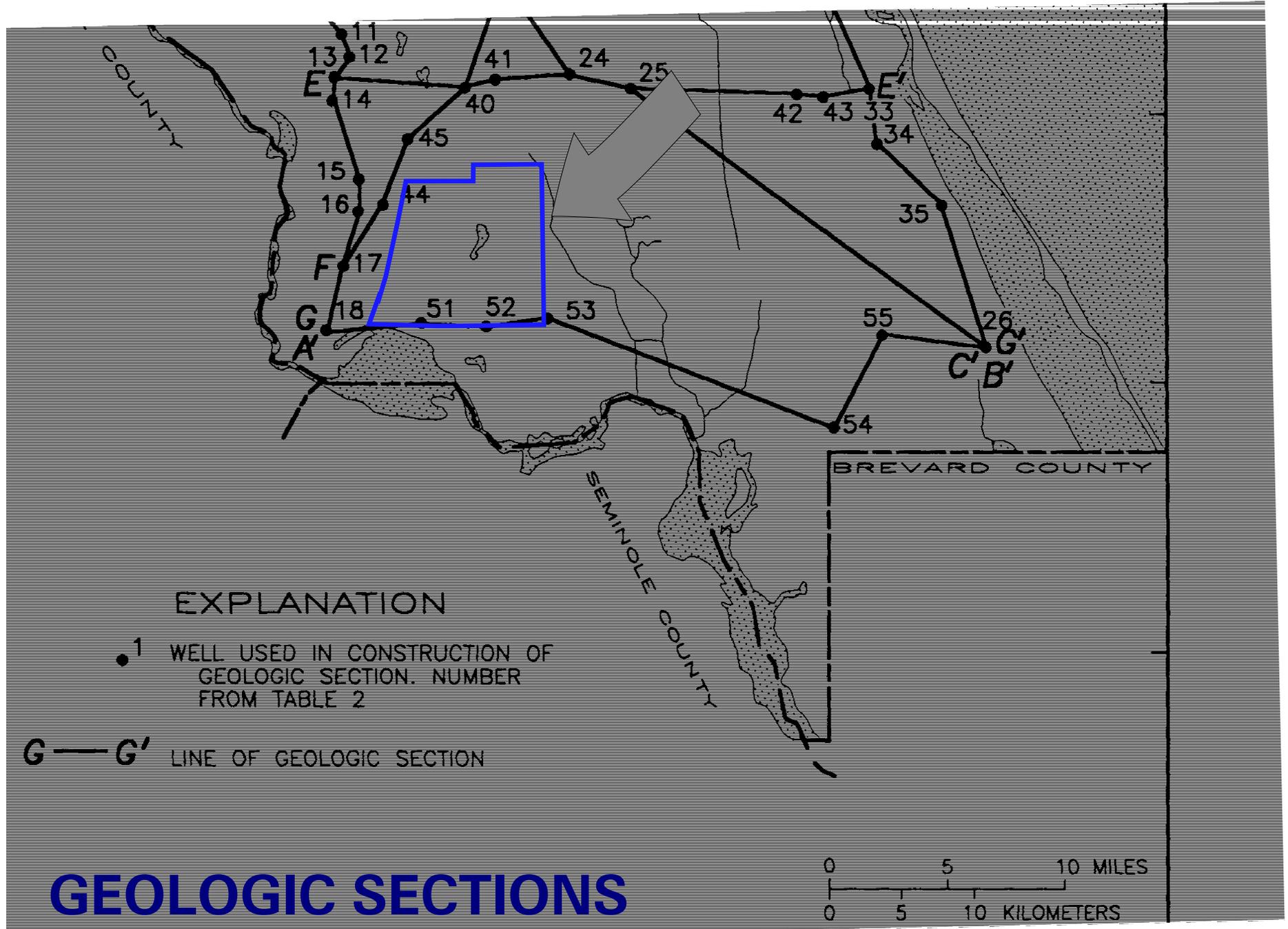
PHYSIOGRAPHIC REGIONS



AVERAGE ANNUAL RUNOFF



note: over 75% of the soils are Type A, excessively drained soils



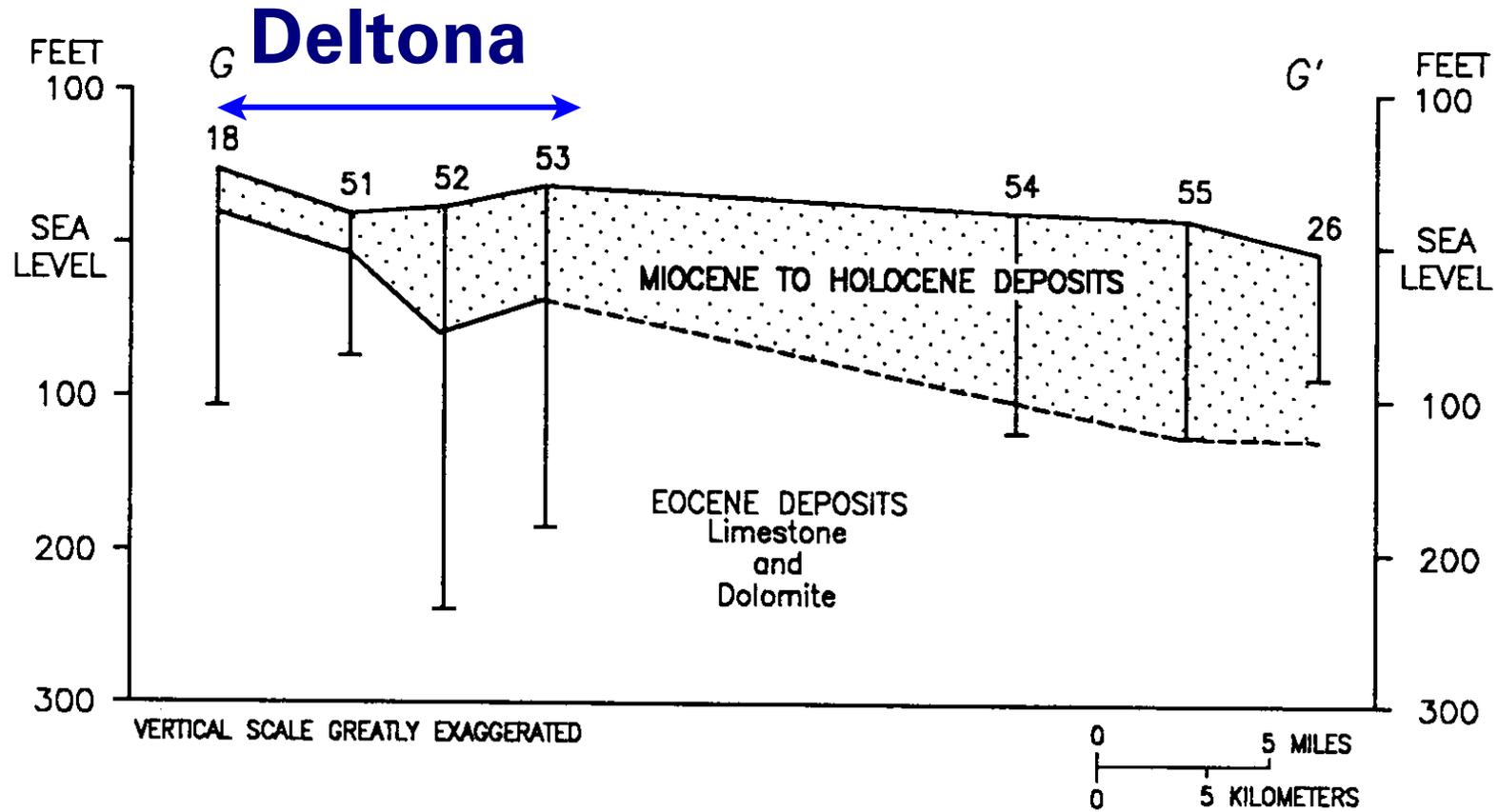
EXPLANATION

● 1 WELL USED IN CONSTRUCTION OF GEOLOGIC SECTION. NUMBER FROM TABLE 2

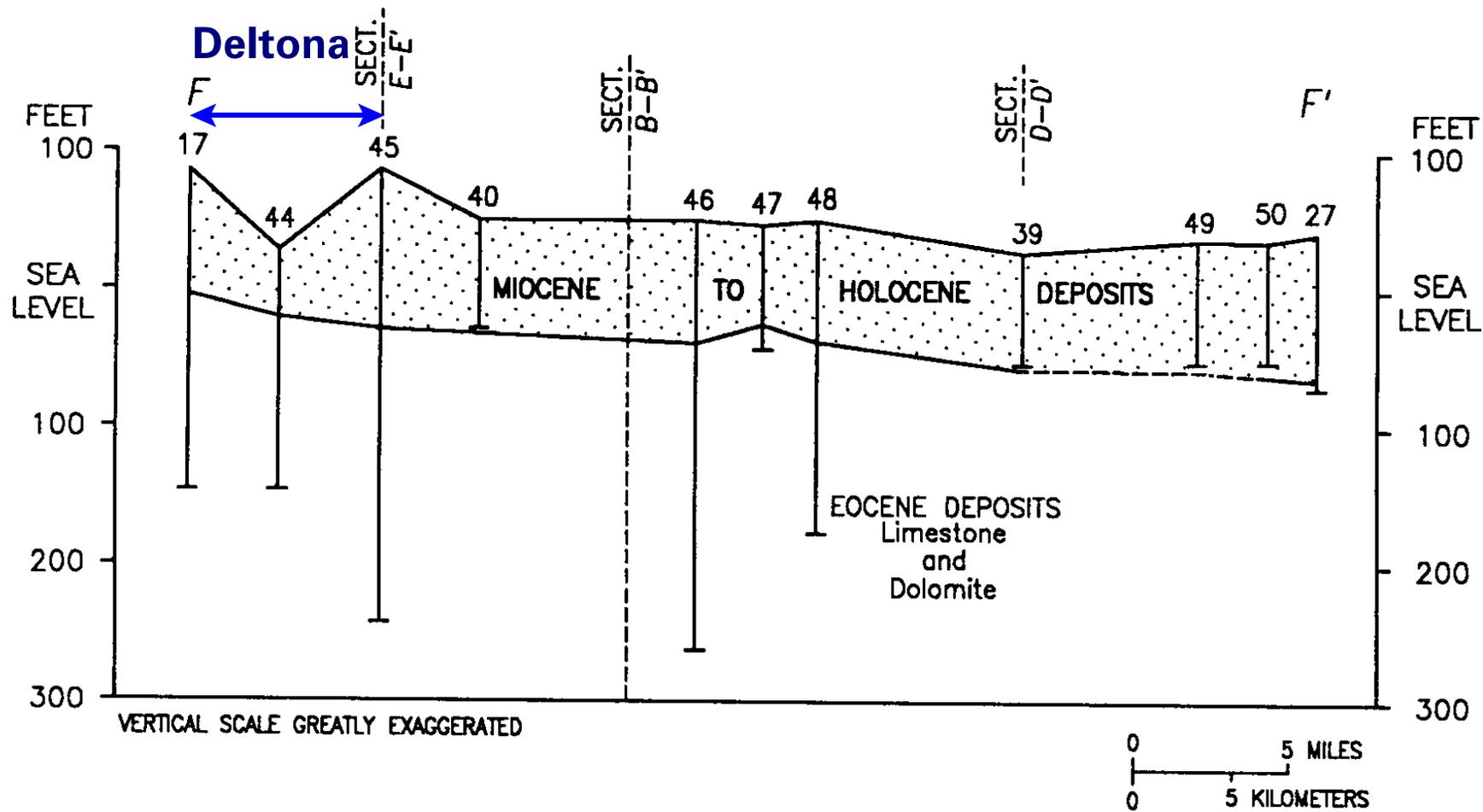
G—G' LINE OF GEOLOGIC SECTION

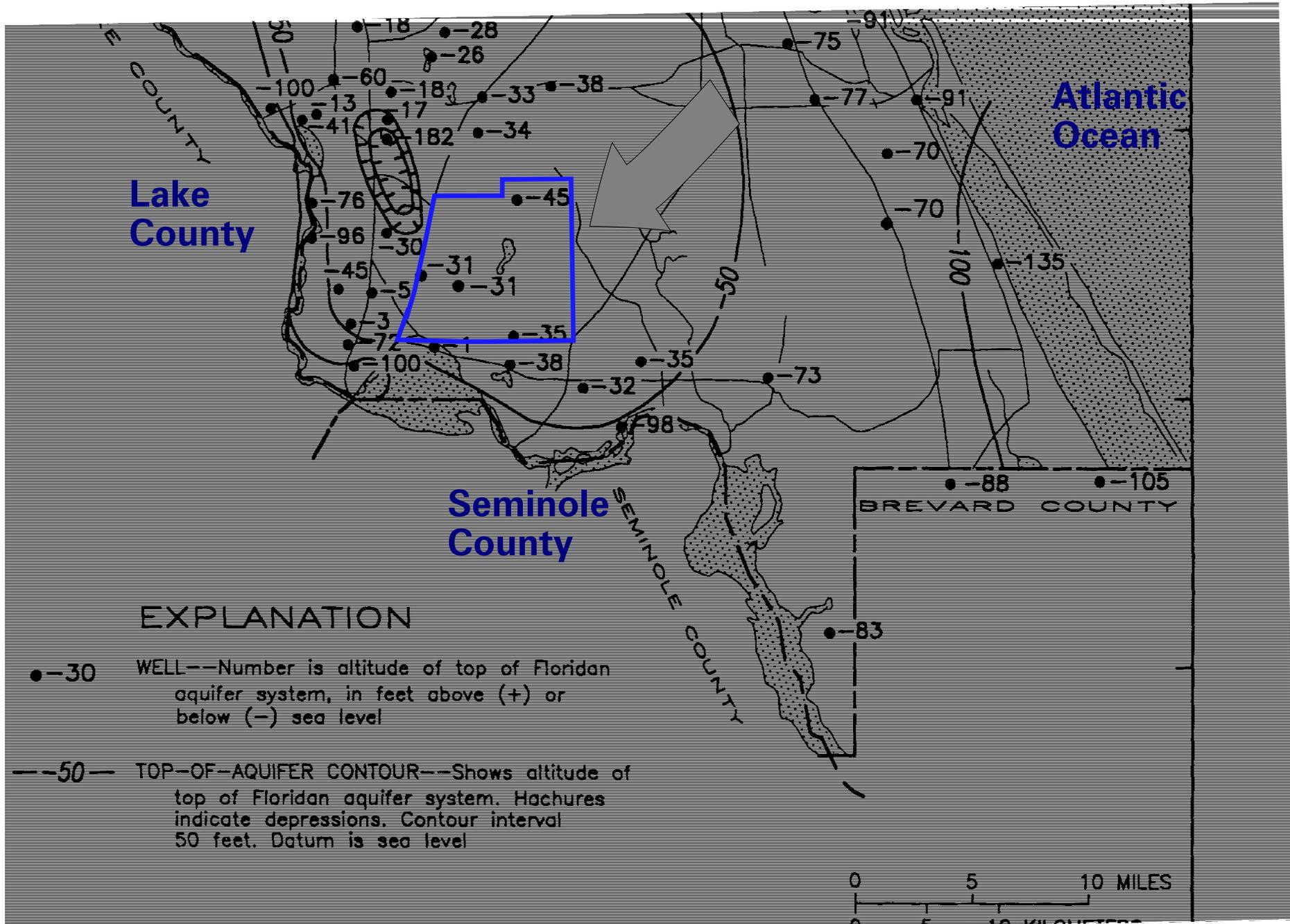
**GEOLOGIC SECTIONS
DELTONA VICINITY**

east-west transect along southern boundary of Deltona



north-south transect along western boundary of Deltona

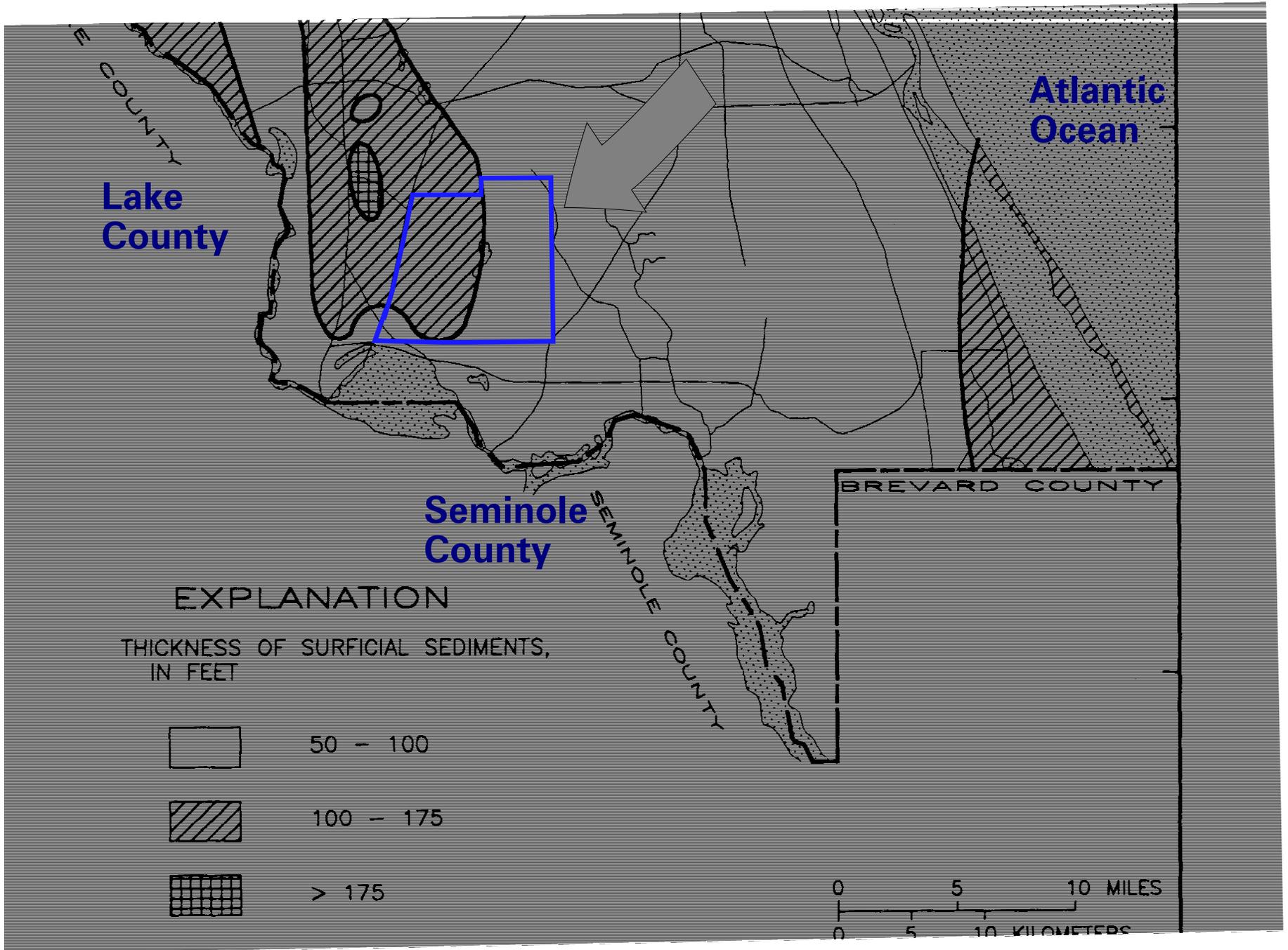




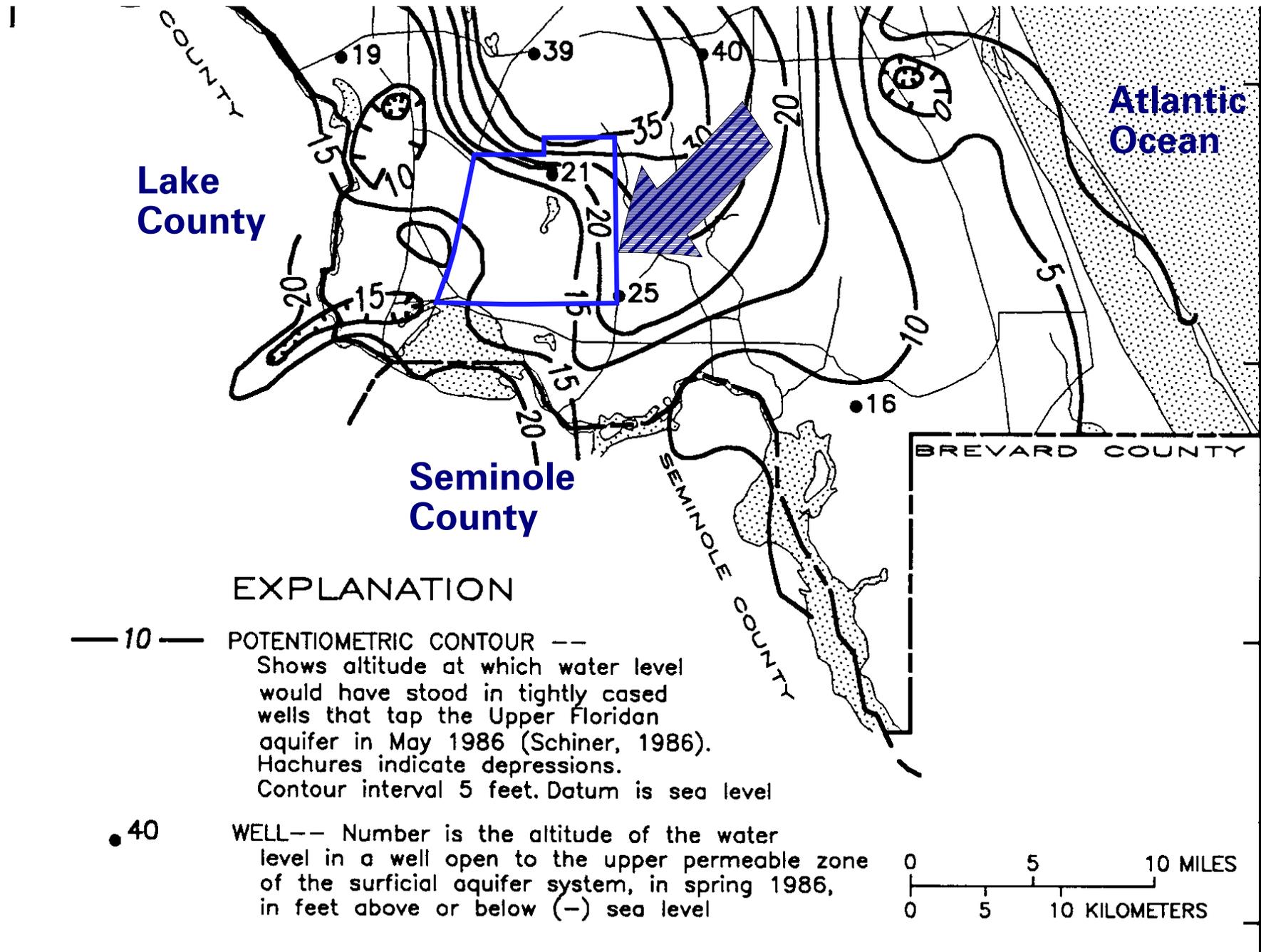
EXPLANATION

- -30 WELL--Number is altitude of top of Floridan aquifer system, in feet above (+) or below (-) sea level
- 50--- TOP-OF-AQUIFER CONTOUR--Shows altitude of top of Floridan aquifer system. Hachures indicate depressions. Contour interval 50 feet. Datum is sea level

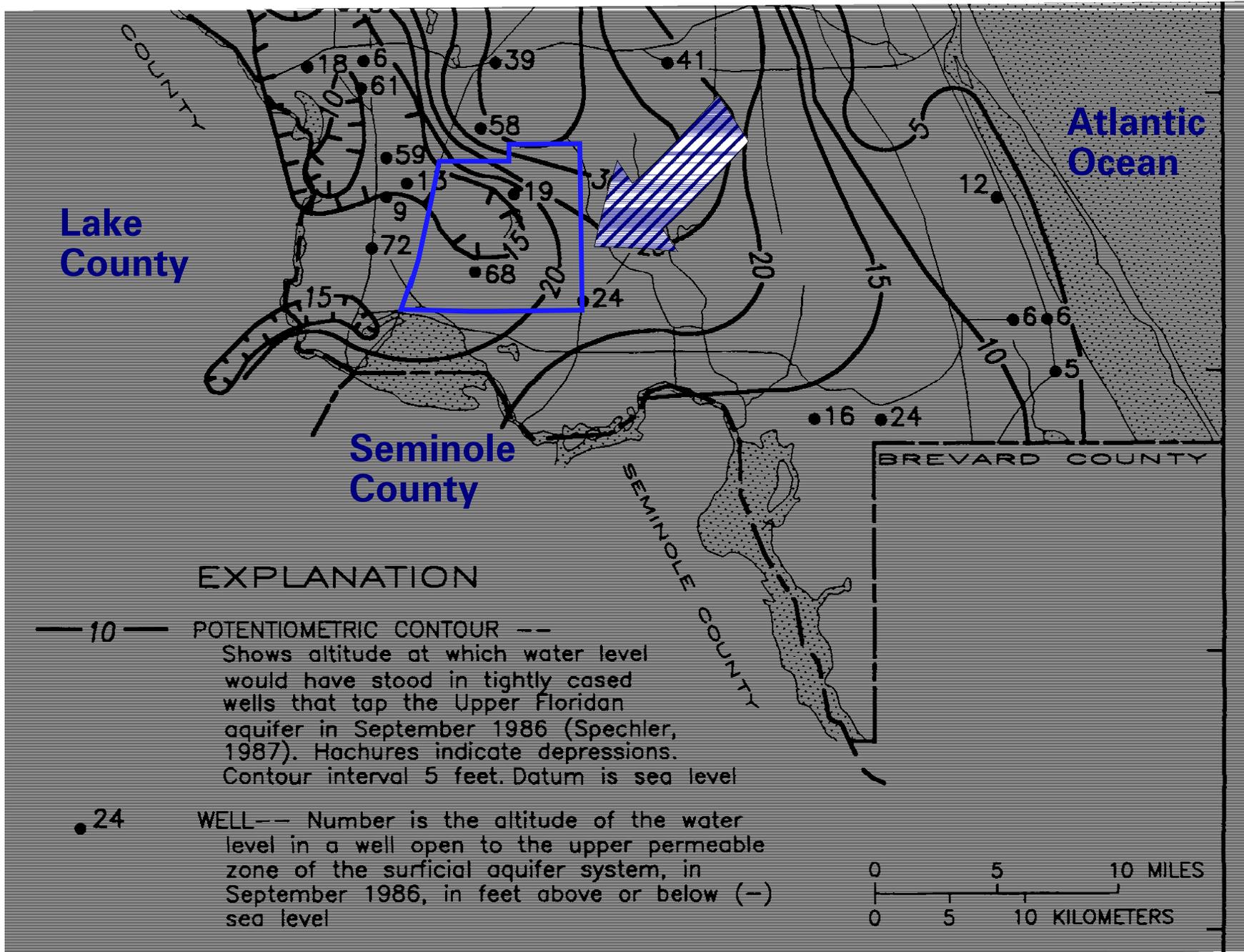
ALTITUDE OF TOP OF FLORIDAN AQUIFER



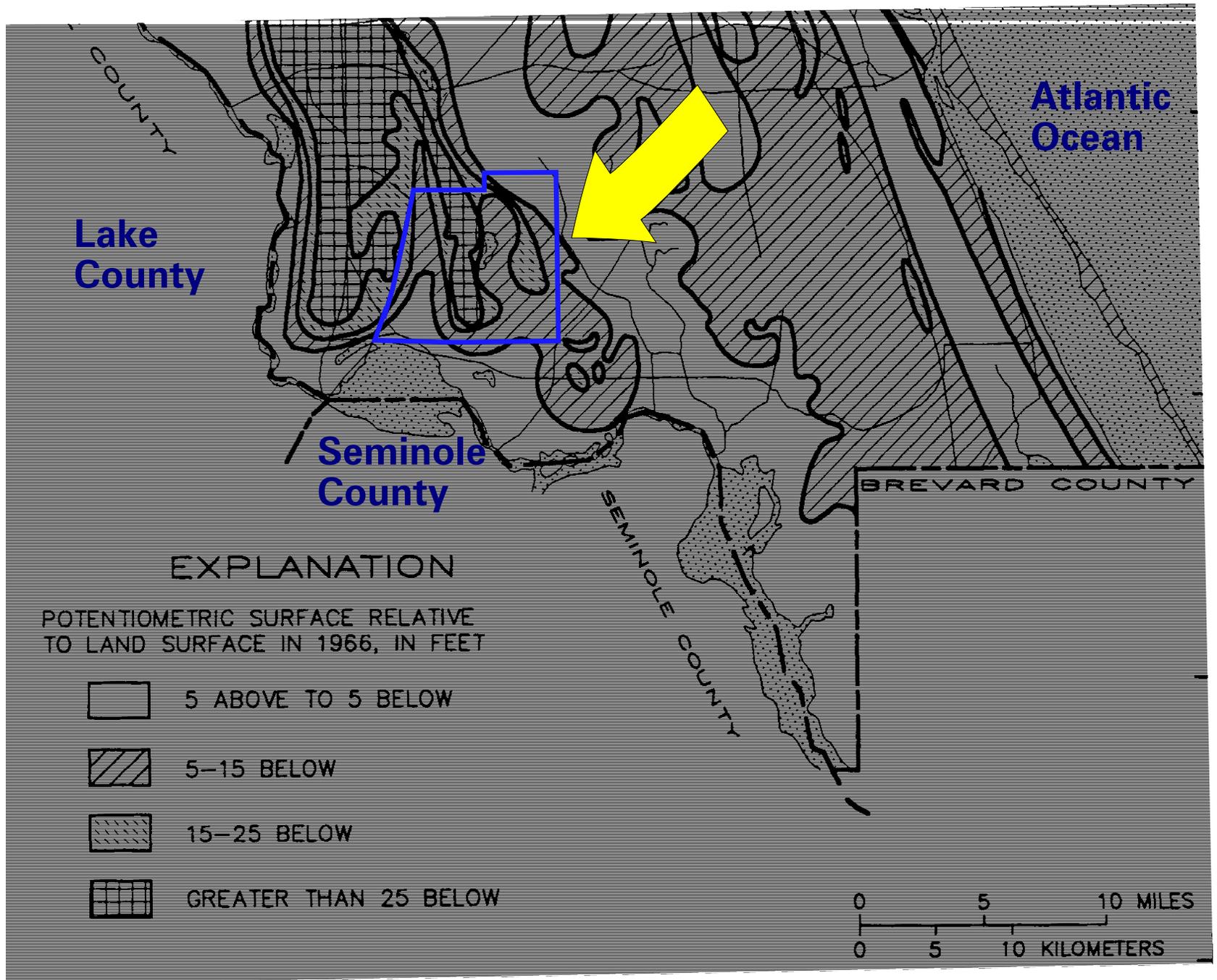
THICKNESS OF SEDIMENTS OVERLYING FLORIDAN AQUIFER



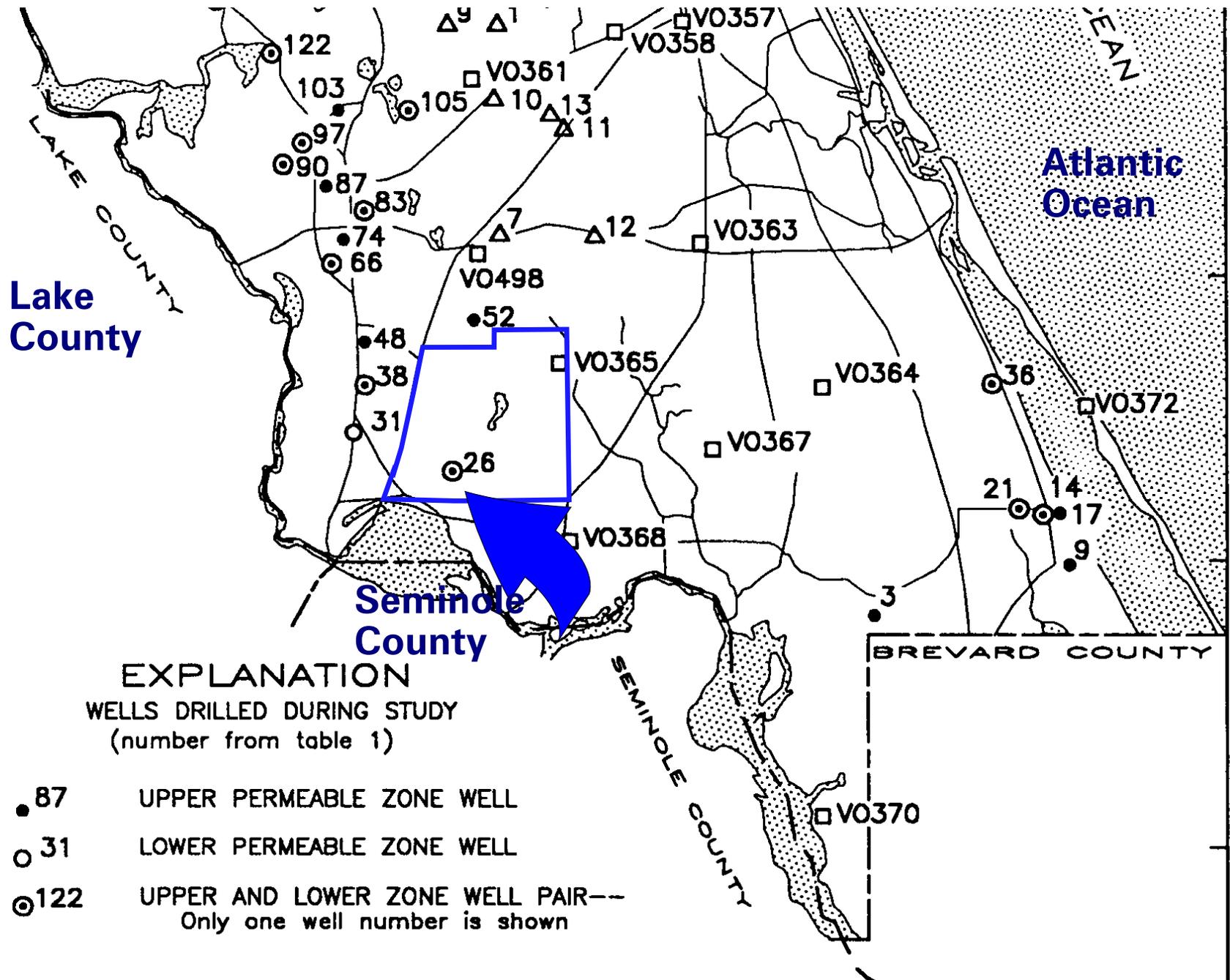
water levels in surficial aquifer & potentiometric surface - may 1986



water levels in surficial aquifer & potentiometric surface - september 1986

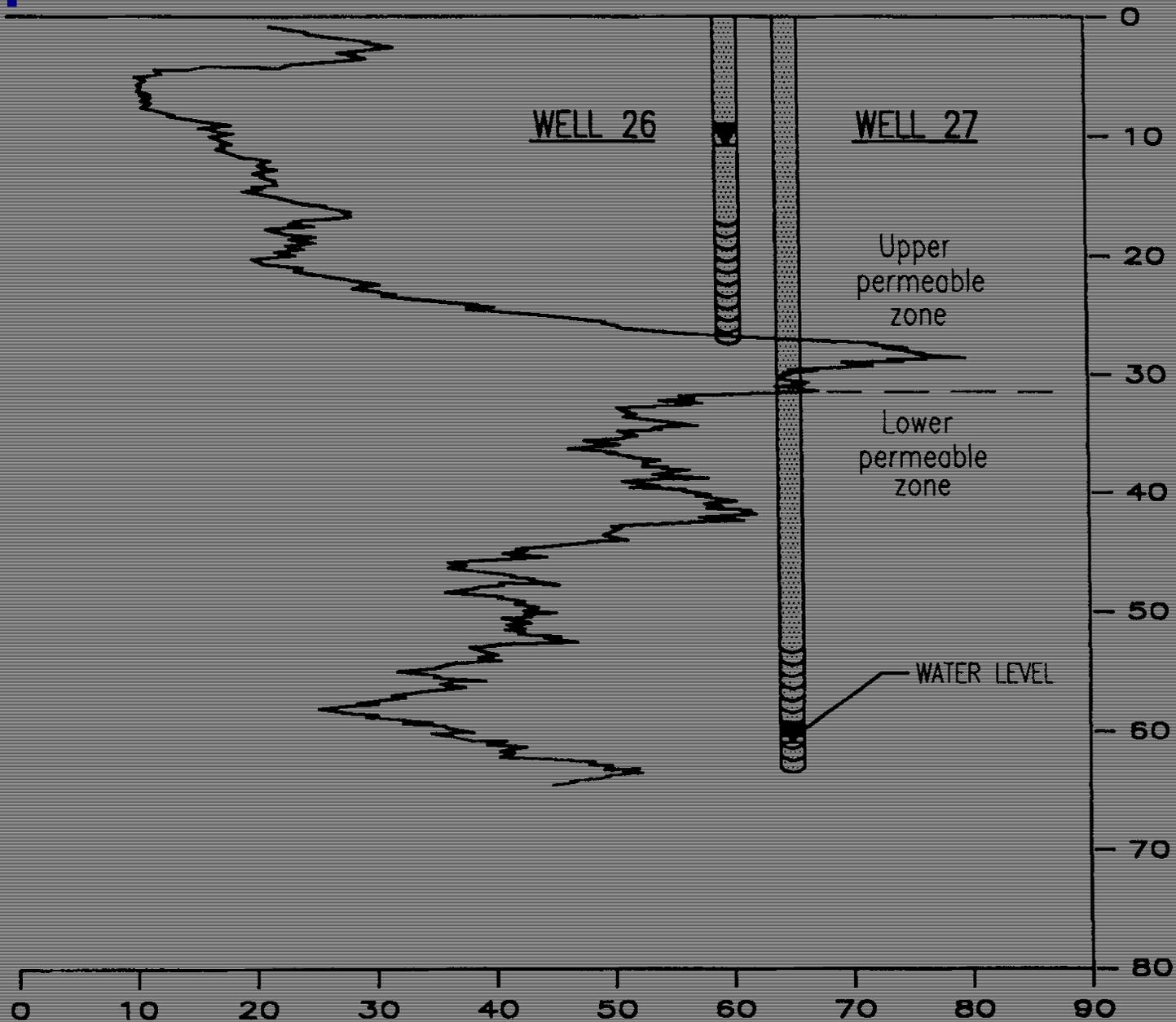


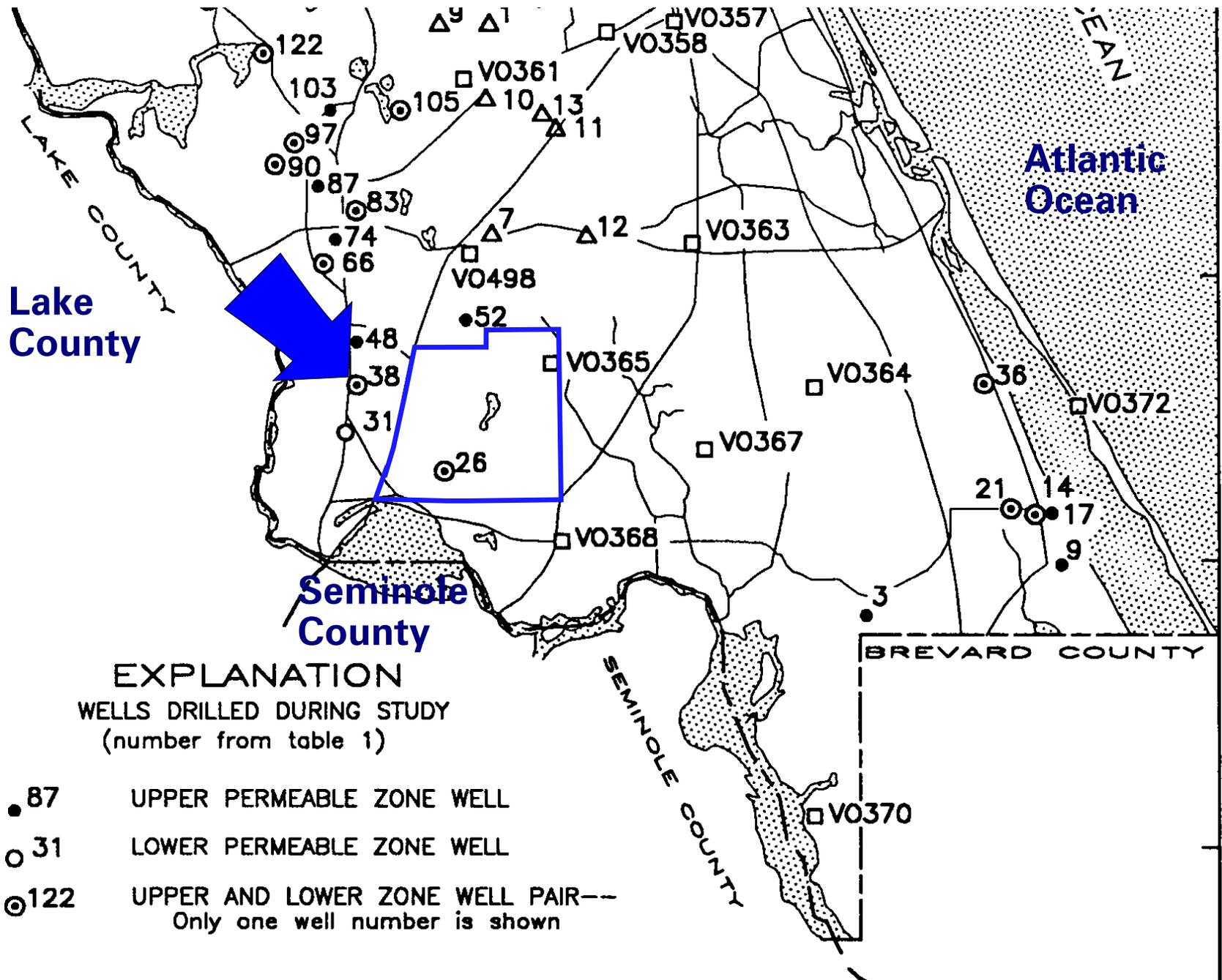
**Depth from land surface to potentiometric surface
feasibility of drain wells**



Locations of test wells in Deltona area

**notice upper & lower permeable zones
perched condition in this area**





Lake County

Seminole County

BREVARD COUNTY

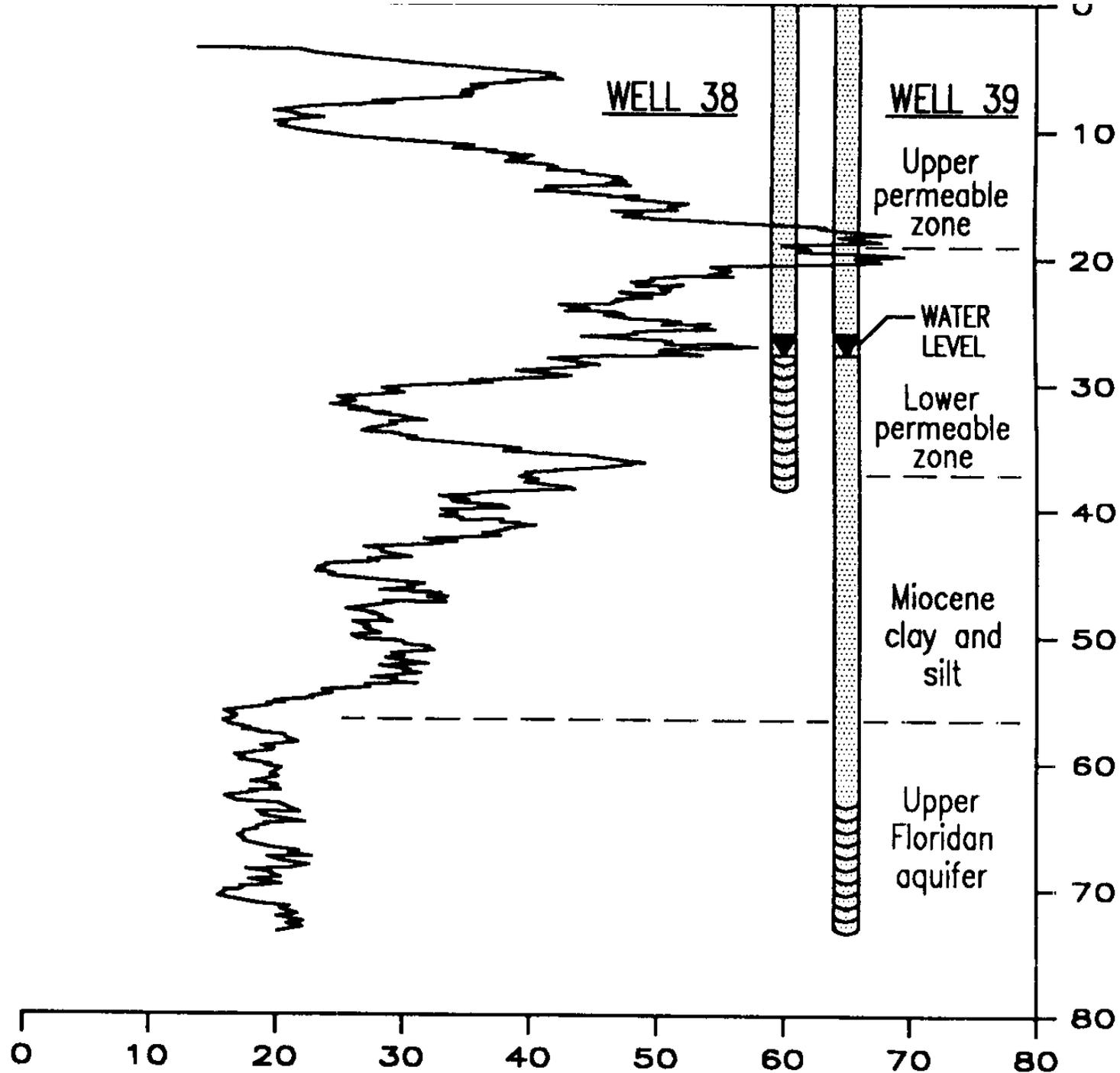
Atlantic Ocean

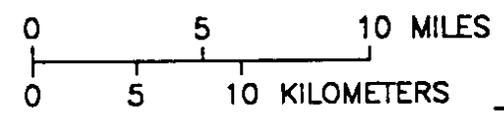
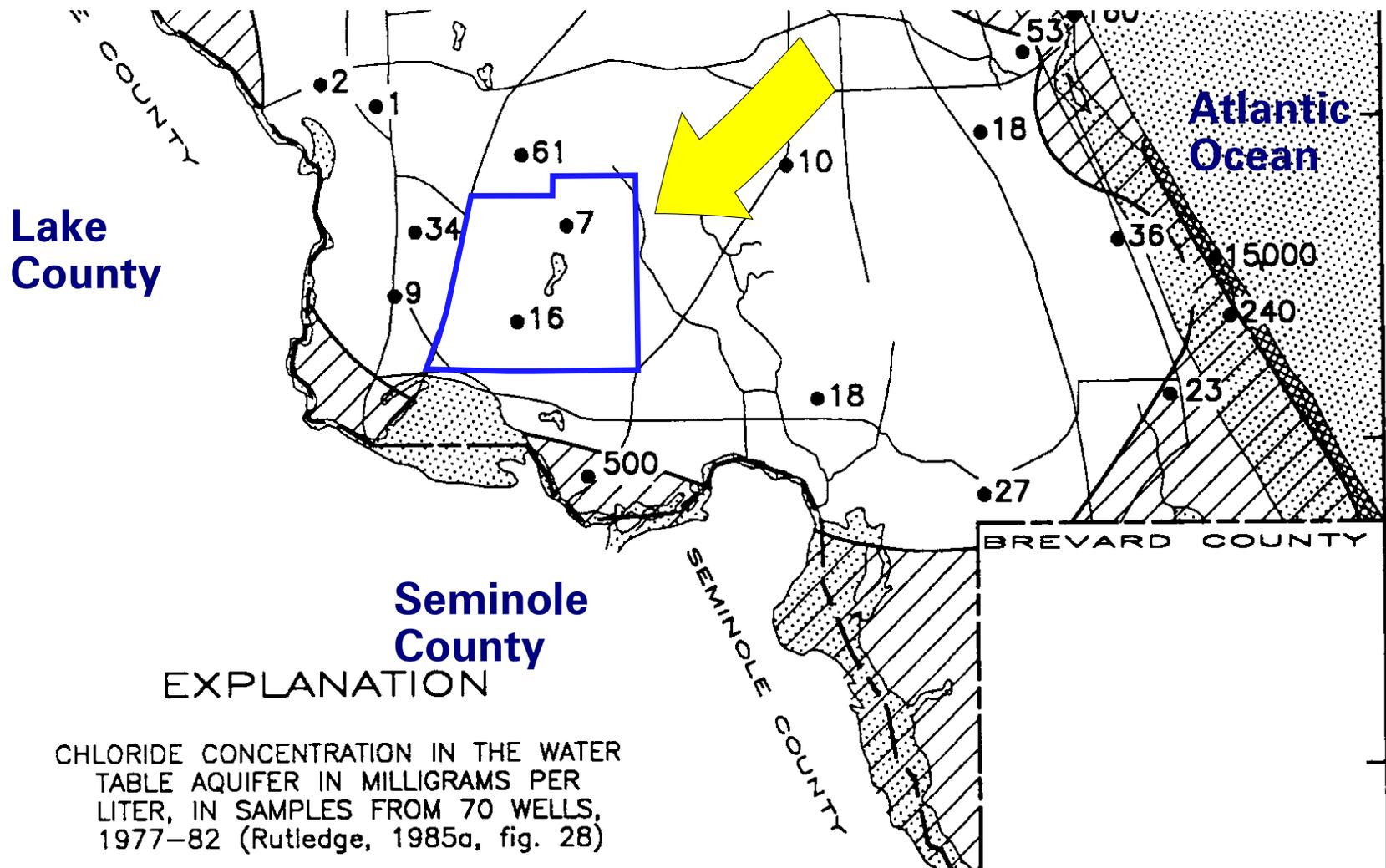
EXPLANATION
 WELLS DRILLED DURING STUDY
 (number from table 1)

- 87 UPPER PERMEABLE ZONE WELL
- 31 LOWER PERMEABLE ZONE WELL
- ⊙ 122 UPPER AND LOWER ZONE WELL PAIR---
 Only one well number is shown

Locations of test wells in Deltona area

**notice upper & lower permeable zones
no perched condition in this area**





WATER QUALITY IN THE SURFICIAL AQUIFER IS GOOD