

PART 2

STORMWATER PERMITTING BIG PICTURE ISSUES

STORMWATER 2005

TOPICS

STORMWATER 2005

- 01 - Dry Bottom Ponds Excavated into Clayey Soils
- 02 - Pond Berm Failures & Flooding Consequences
- 03 - Flooding of Land Locked Lakes
- 04 - Land-Locked Basins Affected by Floridan Aquifer
- 05 - Pavement Failure Due to Grades Cut into Water Table
- 06 - Pavement Failure Due to Over Irrigation of Landscape Areas
- 07 - Perched Water Table Due to Low Permeability Lot Fill
- 08 - Seepage Through Pond Berms
- 09a - Water Table Altitude Can Change Significantly Over Short Distances
- 09b - Seepage Faces
- 10 - Failure of Erosion Control Measures and Impact to Wetlands
- 11 - Load Testing of Natural Depressions
- 12 - Side Slope Failures Due to Storm-Induced Wave Action
- 13 - Water Table Drawdown Impact Due to Ditching
- 14 - Drought

TOPIC # 01

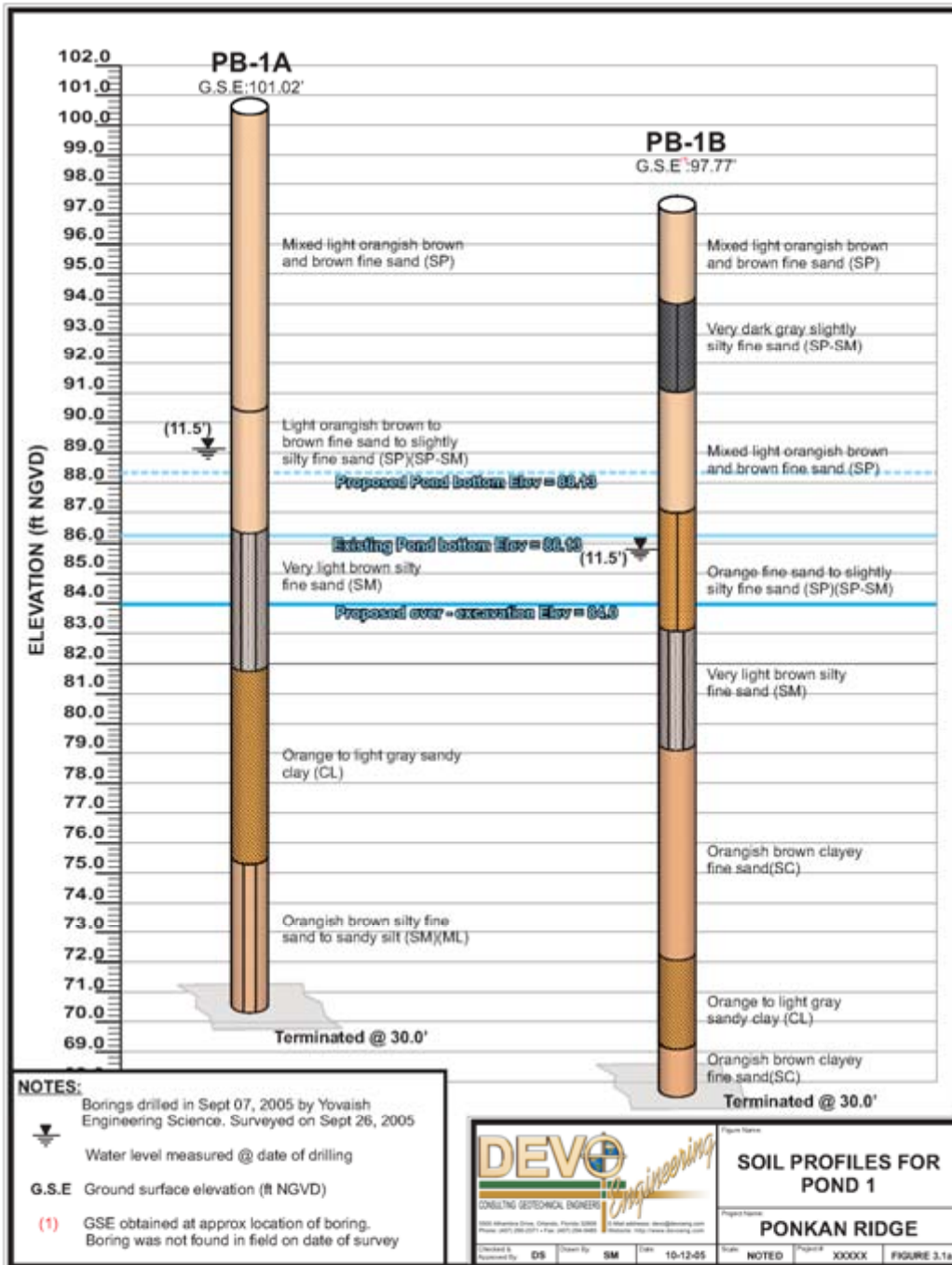
STORMWATER 2005

Dry Bottom Ponds Excavated into Clayey Soils

Wekiva Run – Pond 1



Photo date: 2005



Wekiva Run – Pond 2

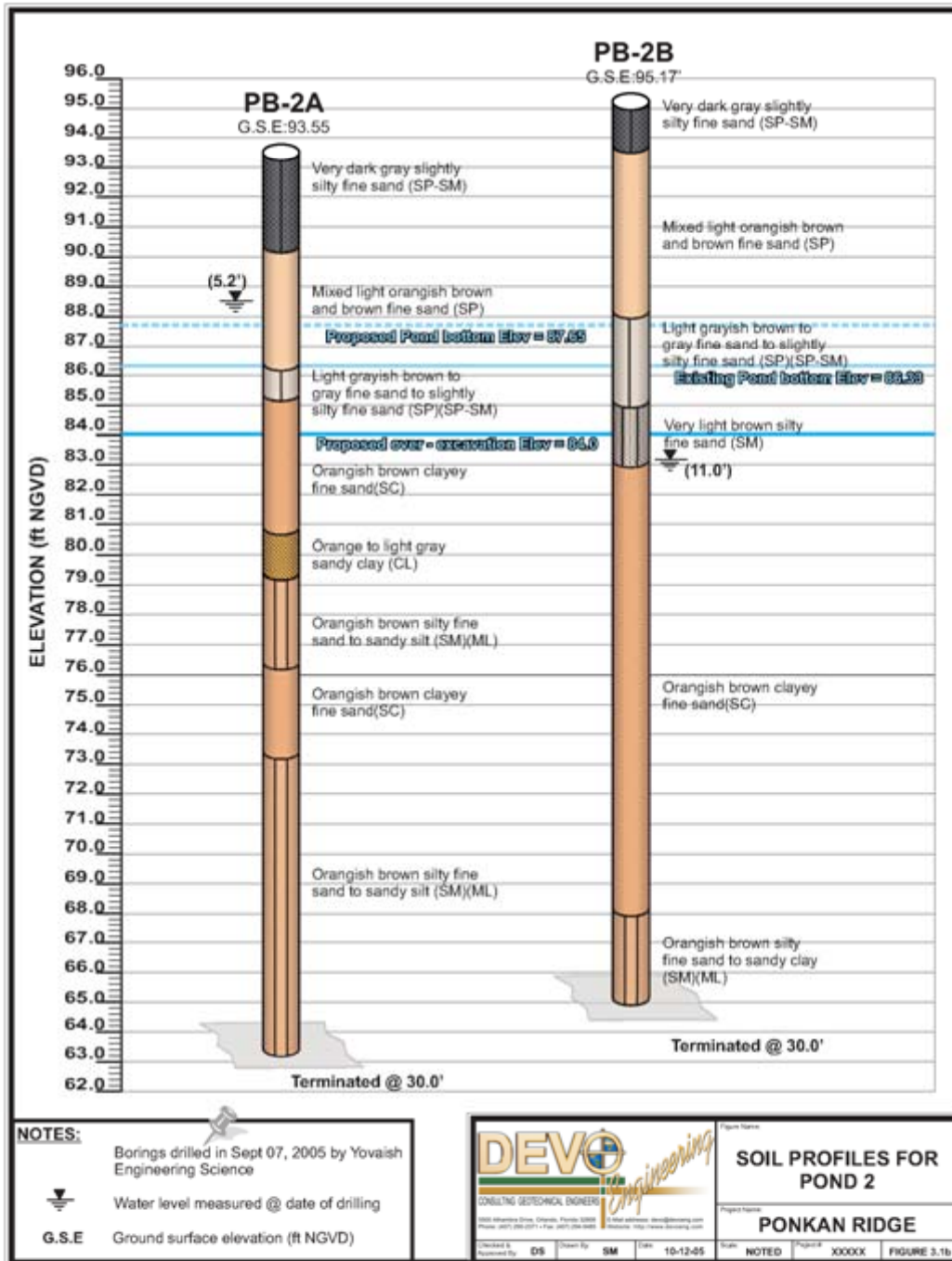


Photo date: 2005

Wekiva Run – Pond 3

STORMWATER 2005



Photo date: 2005

TOPIC # 02

STORMWATER 2005

Pond Berm Failures & Flooding Consequences



Site in Debarry

STORMWATER 2005



Photo date: 2004

Site in Debarry

STORMWATER 2005



Photo date: 2004

Site in Debarry

STORMWATER 2005



Photo date: 2004

Site in Debarry

STORMWATER 2005



Photo date: 2004

TOPIC # 03

STORMWATER 2005

Flooding of Land Locked Lakes



Big Sand Lake

STORMWATER 2005



Photo date: 2004

Big Sand Lake

STORMWATER 2005



Photo date: 2004

Big Sand Lake

STORMWATER 2005



Photo date: 2004

Big Sand Lake

STORMWATER 2005



Photo date: 2004

Big Sand Lake

STORMWATER 2005



Photo date: 2004

Big Sand Lake

STORMWATER 2005



Photo date: 2004

Debary Plantation

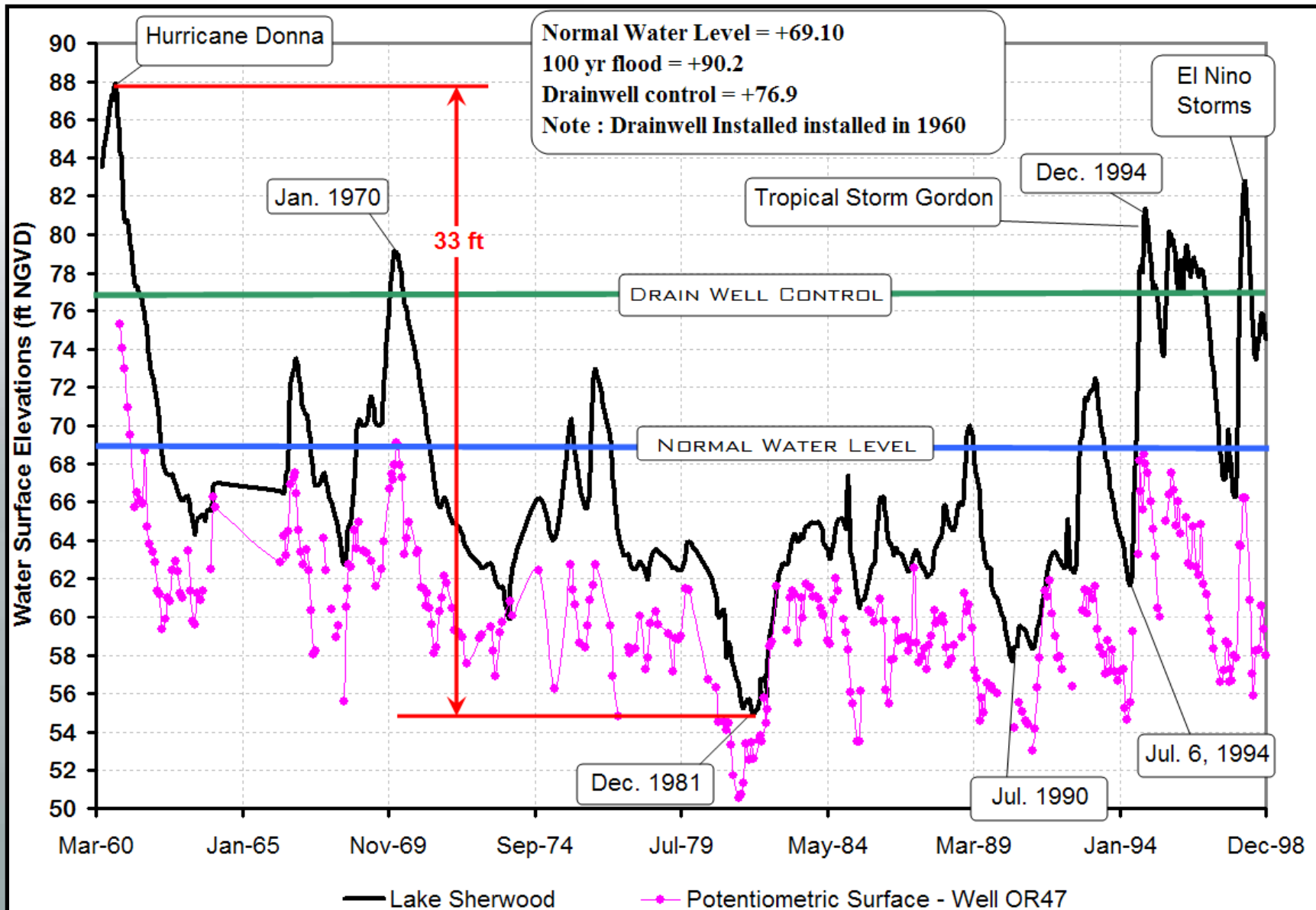
STORMWATER 2005



Photo date: 2004

Lake Sherwood

STORMWATER 2005



Lake Sherwood

STORMWATER 2005



Photo date: 2004

Lake Sherwood

STORMWATER 2005



Photo date: 2004

Lake Sherwood

STORMWATER 2005



Photo date: 2004

Lake Sherwood

STORMWATER 2005



Photo date: 2004

Lake Sherwood

STORMWATER 2005



Photo date: 2004

Lake Sherwood

STORMWATER 2005



Photo date: 2004

Lake Sherwood

STORMWATER 2005



Photo date: 2005

Lake Sherwood

STORMWATER 2005



Photo date: 2005

TOPIC # 04

STORMWATER 2005

Land-Locked Basins Affected by Floridan Aquifer



Lake Rexford and Lake Osage, Orange County

STORMWATER 2005



Photo date: 2003

Lake Rexford and Lake Osage

STORMWATER 2005



Photo date: 2003

Lake Rexford and Lake Osage

STORMWATER 2005



Photo date: 2003

Lake Rexford and Lake Osage

STORMWATER 2005



Photo date: 2003

Lake Rexford and Lake Osage

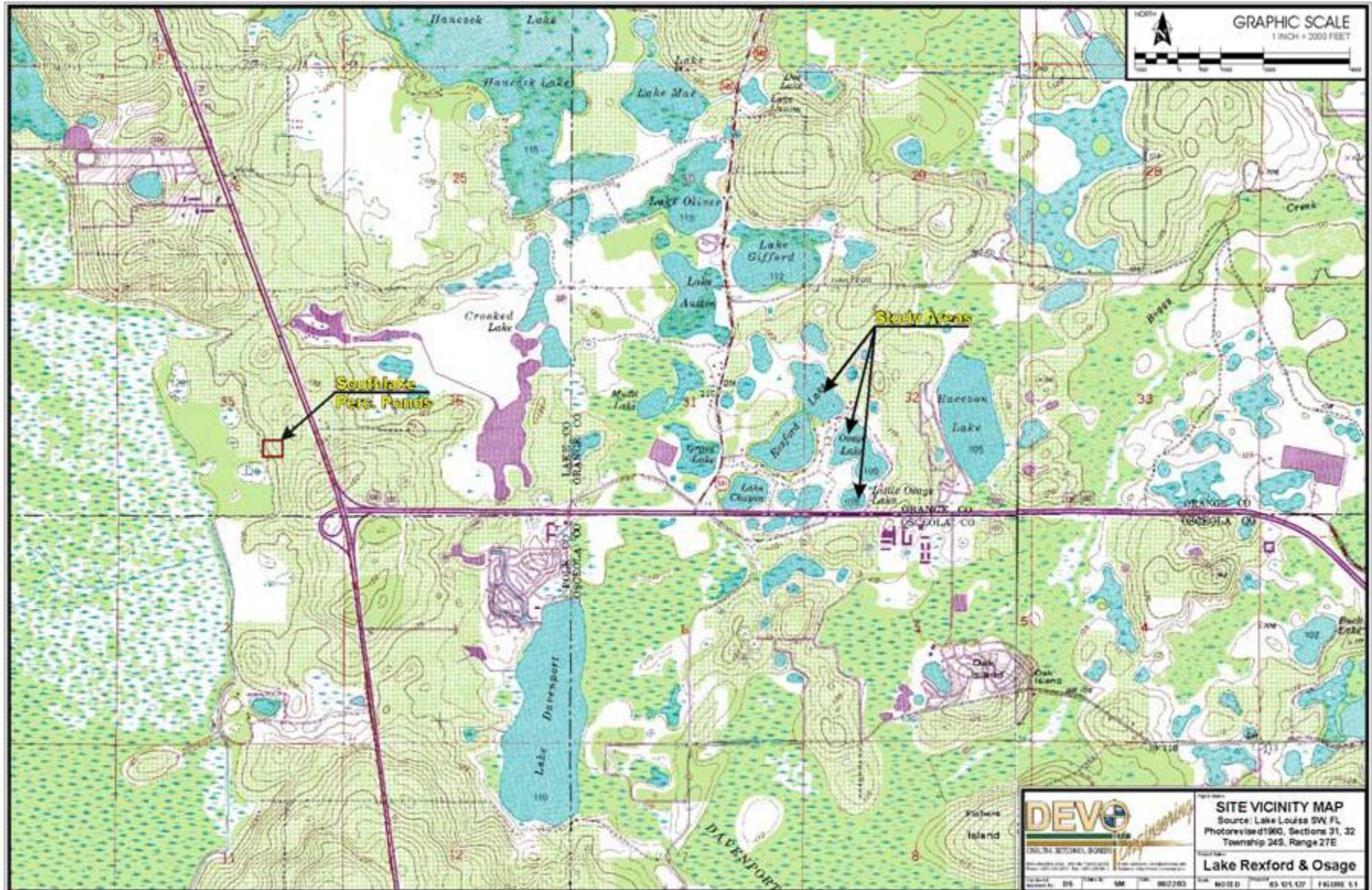
STORMWATER 2005



Photo date: 2003

Lake Rexford and Lake Osage – Site Vicinity

STORMWATER 2005



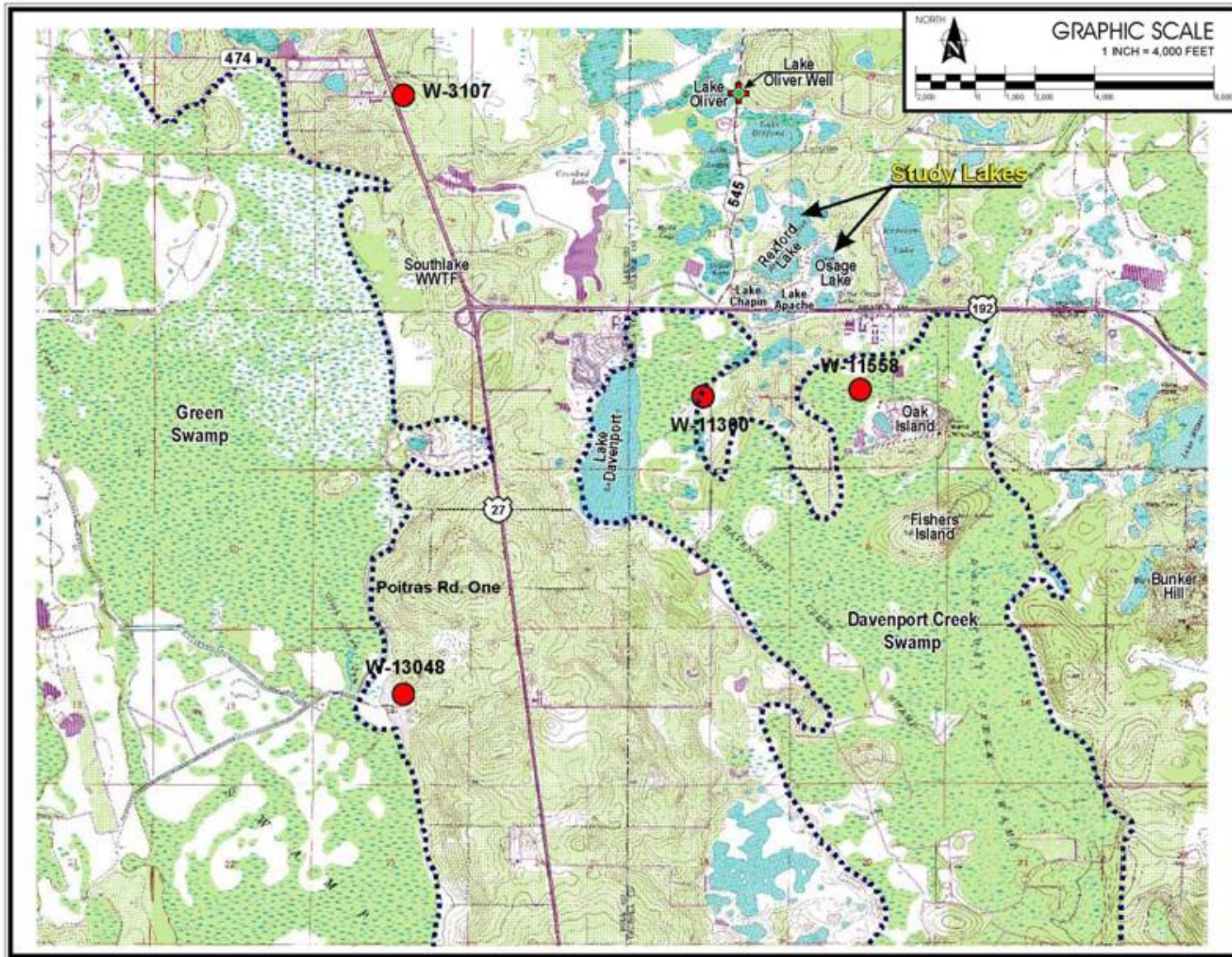
Lake Rexford and Lake Osage

STORMWATER 2005



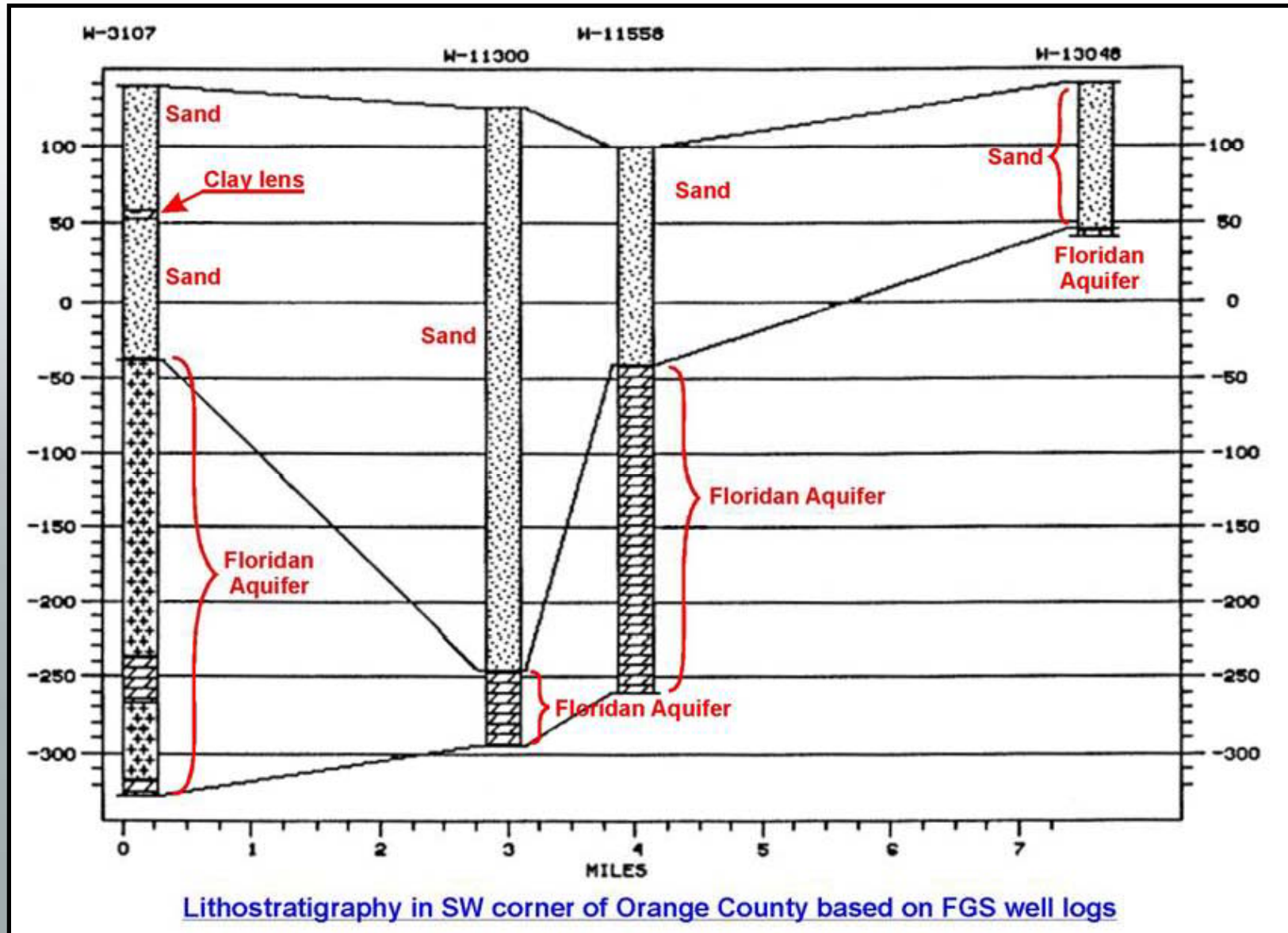
Lake Rexford and Lake Osage – Well Locations

STORMWATER 2005



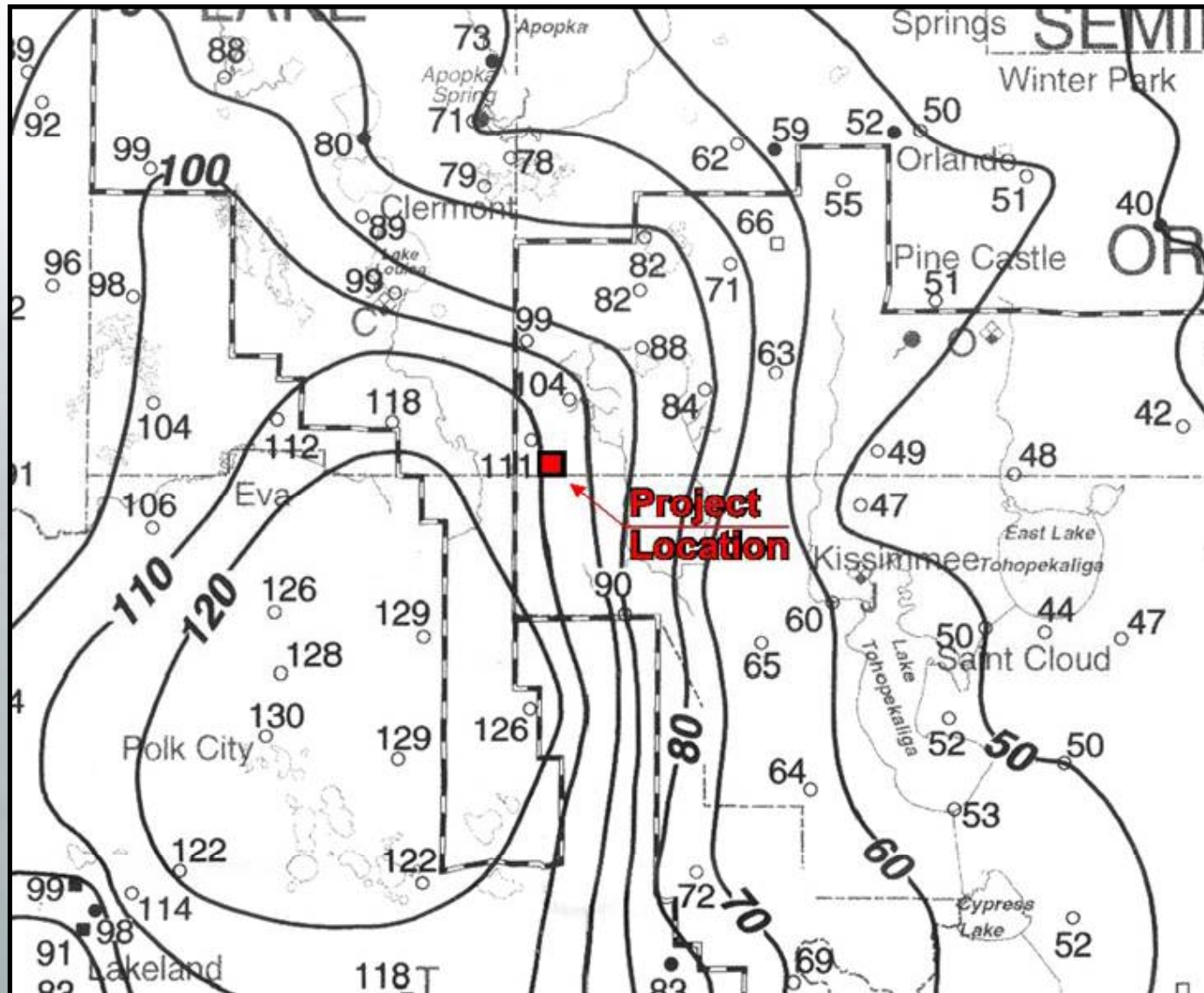
Lake Rexford and Lake Osage -Lithostratigraphy

STORMWATER 2005

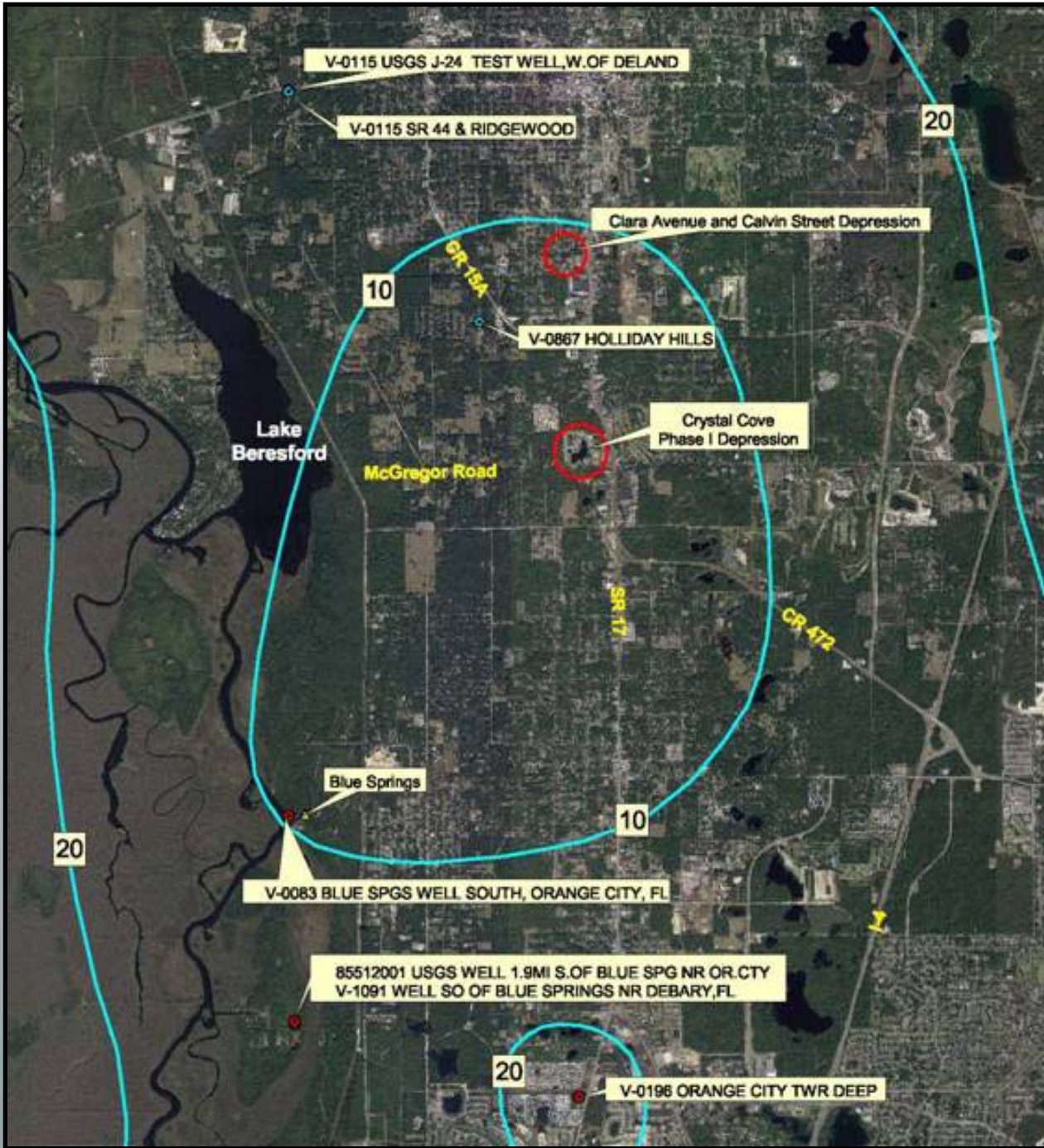


Lake Rexford and Lake Osage Potentiometric Surface Contours

STORMWATER 2005



Calvin Street and Crystal Cove Depressions, Deland



Calvin Street Depression, Deland Area

STORMWATER 2005



Photo date: 2005

Calvin Street Depression, Deland Area

STORMWATER 2005



Photo date: 2005

Calvin Street Depression, Deland Area

STORMWATER 2005



Photo date: 2005

Calvin Street Depression, Deland Area

STORMWATER 2005



Photo date: 2005

Calvin Street Depression, Deland Area

STORMWATER 2005



Photo date: 2005

Crystal Cove, Deland Area

STORMWATER 2005



Photo date: 2005

Crystal Cove, Deland Area

STORMWATER 2005



Photo date: 2005

Crystal Cove, Deland Area

STORMWATER 2005



Photo date: 2005

Calvin Street and Crystal Cove Depressions, Deland Area

STORMWATER 2005

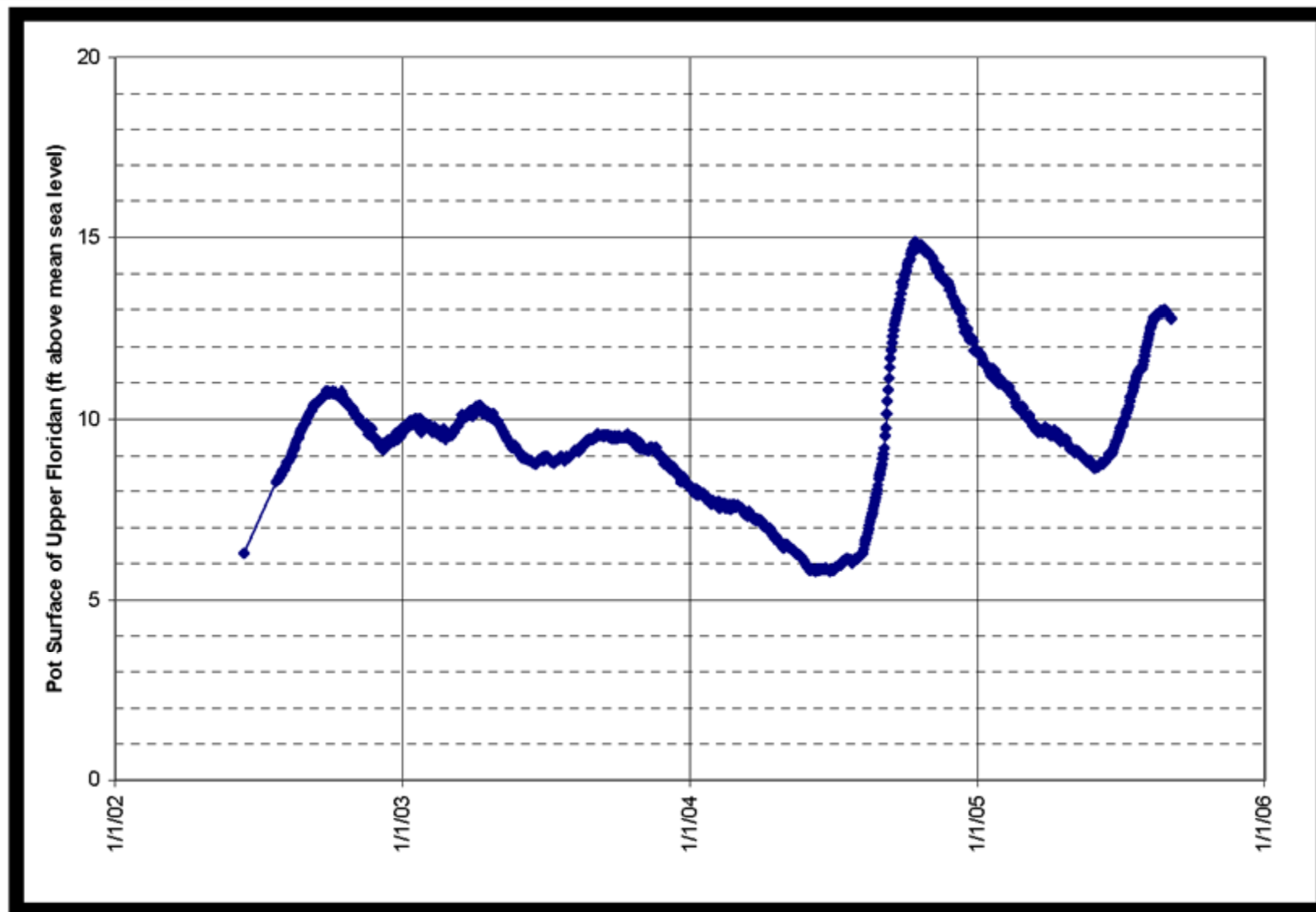


Exhibit 1. Holiday Hills Floridan well water level

Calvin Street and Crystal Cove Depressions, Deland Area

STORMWATER 2005

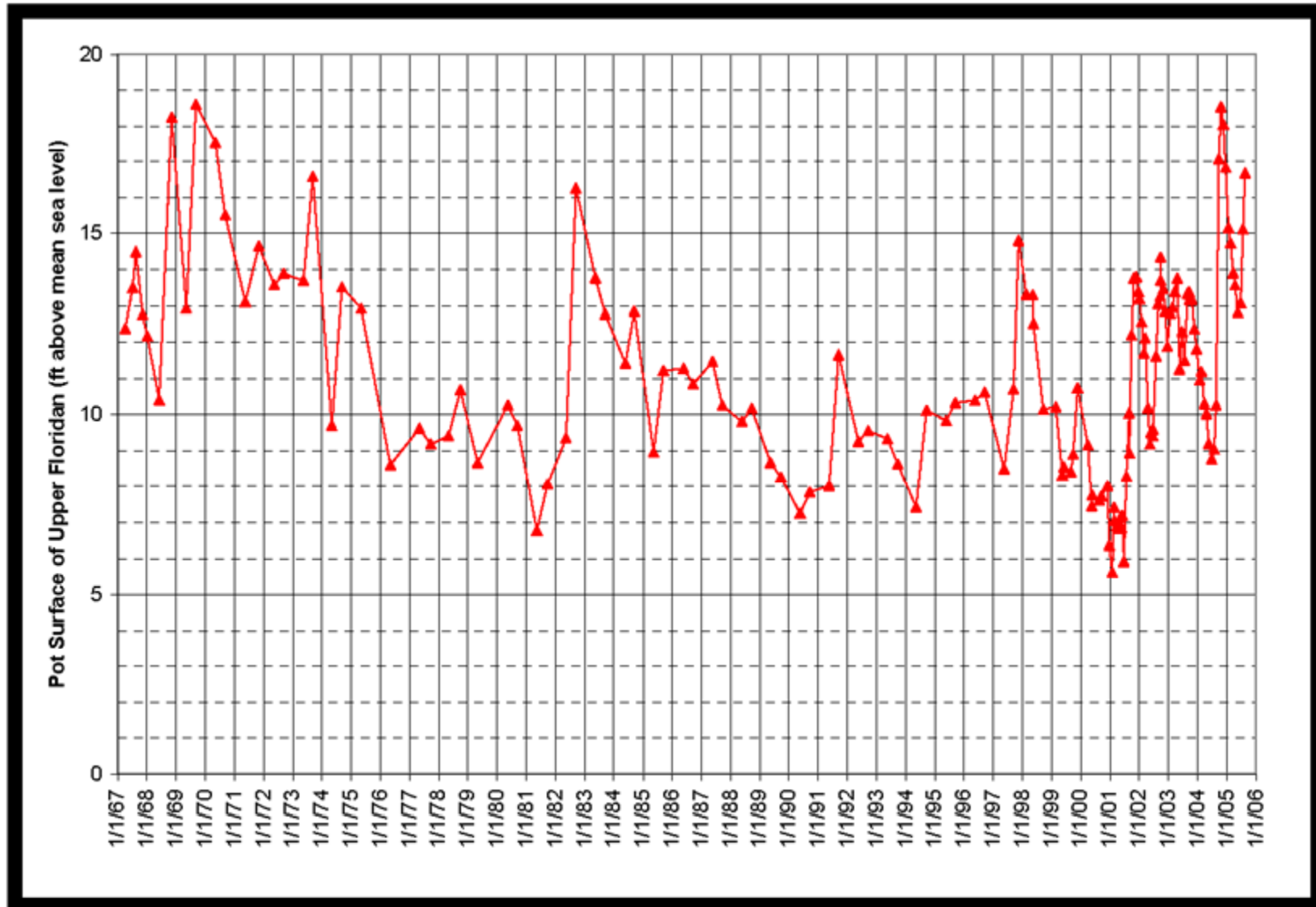


Exhibit 2. Water level in Floridan aquifer at Ridgewood/SR 44 well

Calvin Street and Crystal Cove Depressions, DeLand Area

STORMWATER 2005

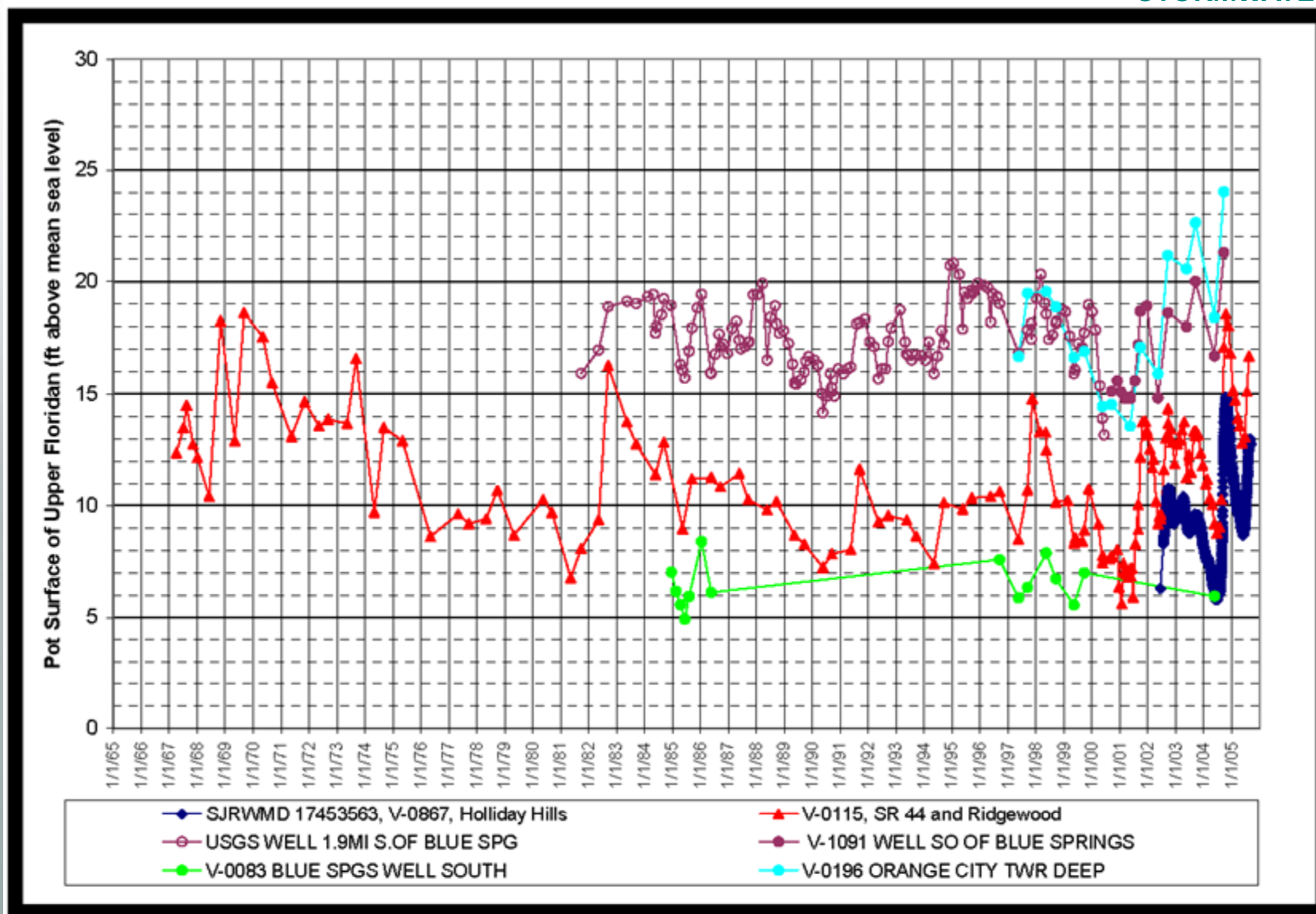


Exhibit 3. All Floridan aquifer wells in DeLand area for period of record

TOPIC # 05

STORMWATER 2005

Pavement Failure Due to Grades Cut into Water Table

Community Area - Reflections Subdivision in Ocoee

STORMWATER 2005



Photo date: 2000 (during drought)

Community Area - Reflections Subdivision in Ocoee

STORMWATER 2005



Photo date: 2000 (during drought)

Cool Spring Circle - Reflections Subdivision in Ocoee

STORMWATER 2005



Photo date: 2000 (during drought)

Econ River Estates in East orange County

STORMWATER 2005



Photo date: 2000 (during drought)

TOPIC # 06

STORMWATER 2005

Pavement Failure Due to Over Irrigation of Landscape Areas

Central Florida Parkway

STORMWATER 2005



Photo date: 2005

Hiawassee Road

STORMWATER 2005



Photo date: 2005

Hiawassee Road

STORMWATER 2005



Photo date: 2005

Hiawassee Road

STORMWATER 2005



Photo date: 2005

Hiawassee Road

STORMWATER 2005



Photo date: 2005

TOPIC # 07

STORMWATER 2005

Perched Water Table Due to Low Permeability Lot Fill

Site in Windermere

STORMWATER 2005



Photo date: 2005

Site in Windermere

STORMWATER 2005



Photo date: 2005

Site in Windermere

STORMWATER 2005



Photo date: 2005

Site in Windermere

STORMWATER 2005



Photo date: 2005

Site in Windermere

STORMWATER 2005



Photo date: 2005

Site in Windermere

STORMWATER 2005



Photo date: 2005

TOPIC # 08

STORMWATER 2005

Seepage Through Pond Berms

FDOT Saxon Pond

STORMWATER 2005



Photo date: 2002

FDOT Saxon Pond

STORMWATER 2005



Photo date: 2003

FDOT Saxon Pond

STORMWATER 2005



Photo date: 2003

Highbanks and Enterprise Pond

STORMWATER 2005



Photo date: 2005

Highbanks and Enterprise Pond

STORMWATER 2005



Photo date: 2005

Highbanks and Enterprise Pond

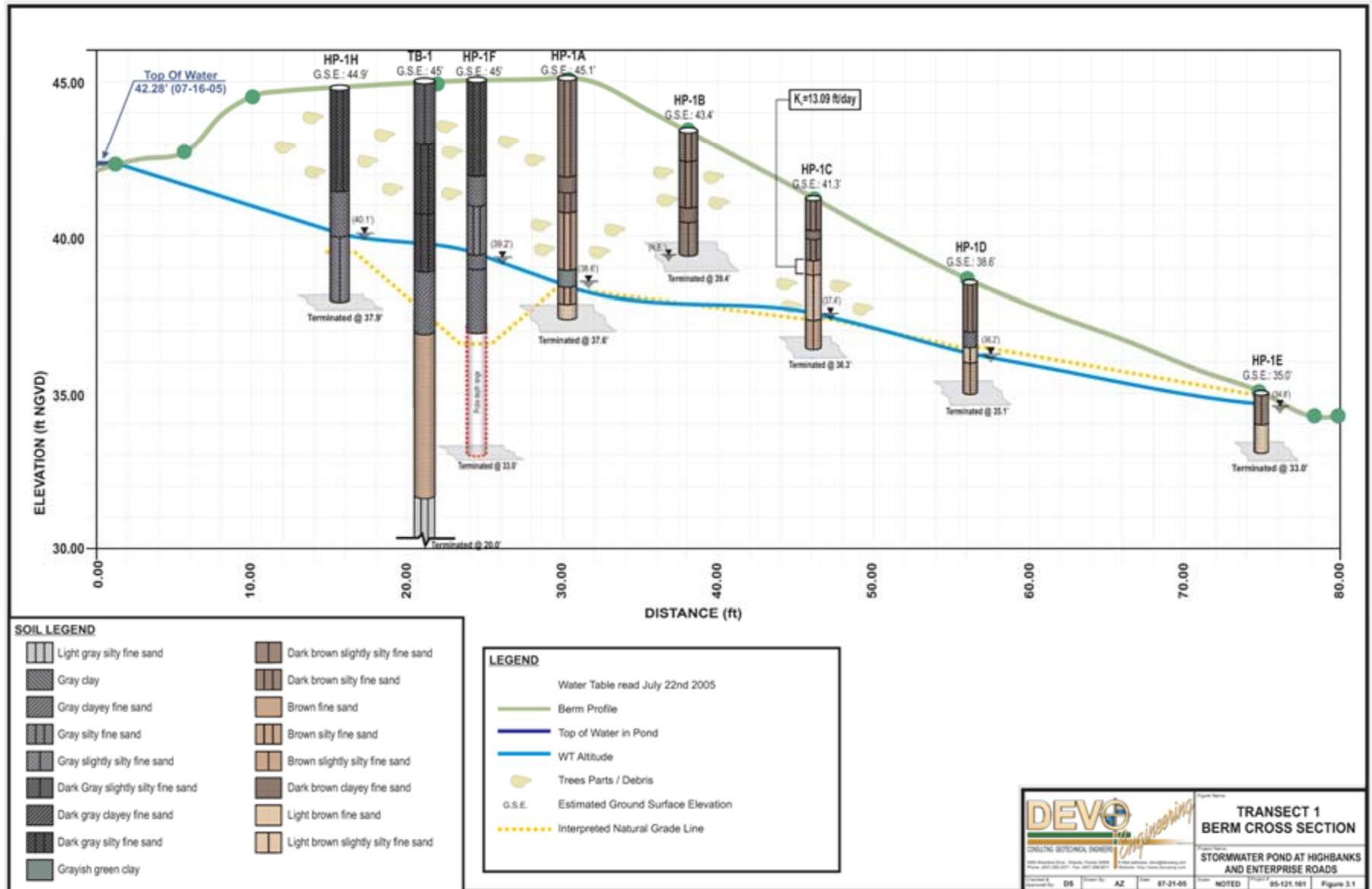
STORMWATER 2005



Photo date: 2005

Highbanks and Enterprise Pond

STORMWATER 2005



The Overlook at Lake Louisa

STORMWATER 2005



Photo date: 2004

The Overlook at Lake Louisa

STORMWATER 2005



Photo date: 2004

The Overlook at Lake Louisa

STORMWATER 2005



Photo date: 2004

The Overlook at Lake Louisa

STORMWATER 2005



Photo date: 2004

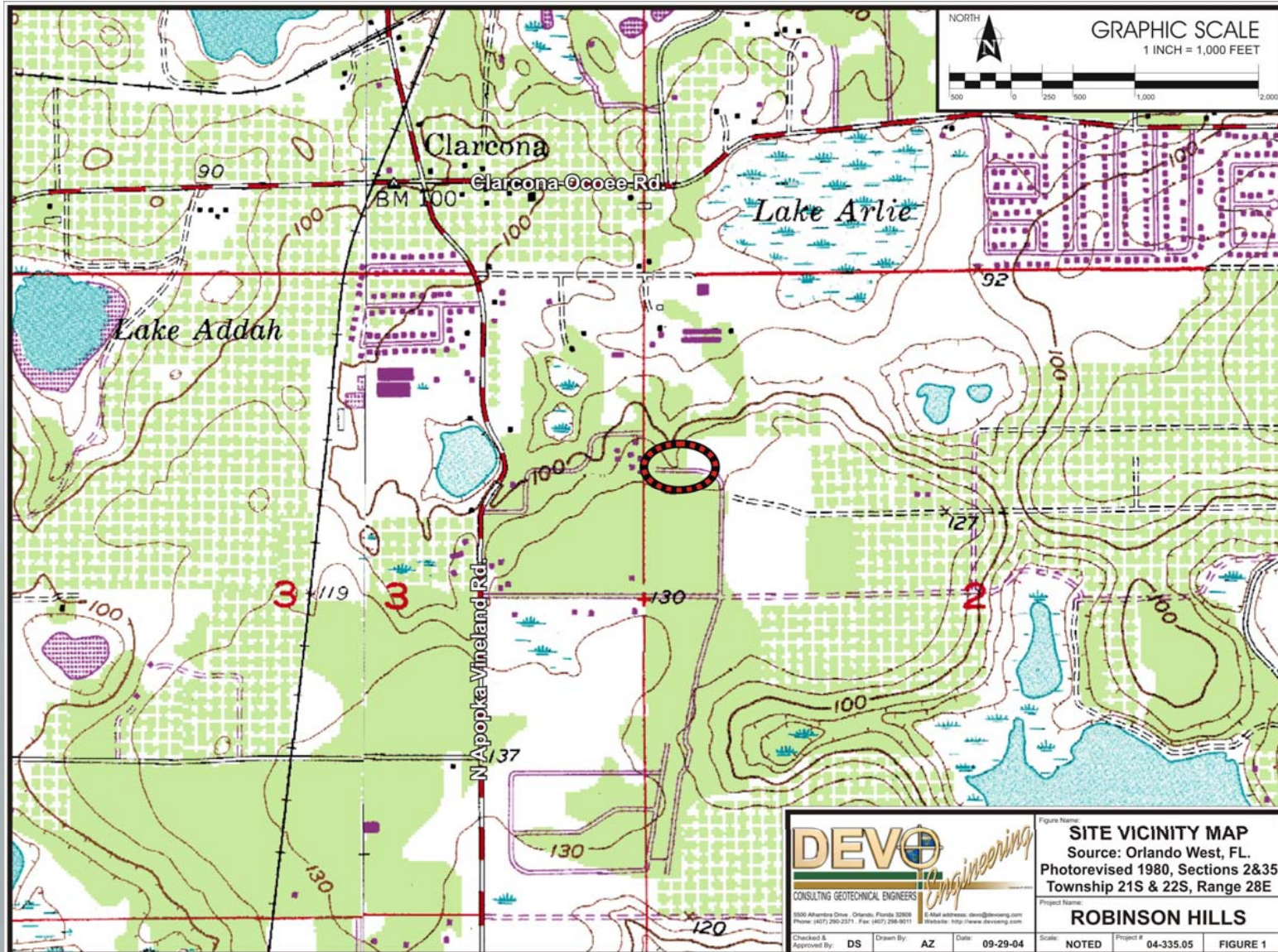
TOPIC # 09a

STORMWATER 2005

**Water Table Altitude Can Change
Significantly Over Short Distances**

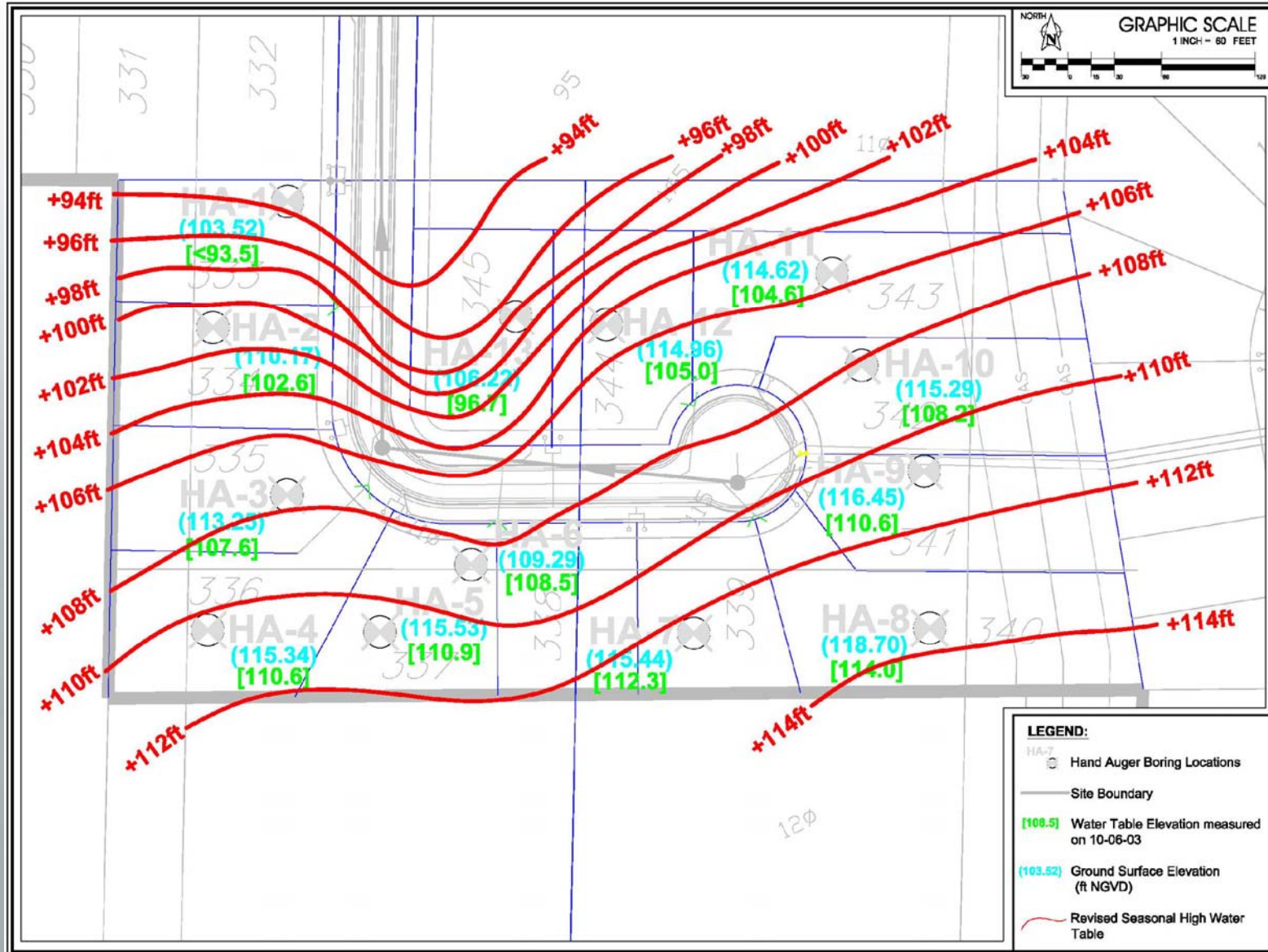
Robinson Hills

STORMWATER 2005



Robinson Hills

STORMWATER 2005



TOPIC # 09b

STORMWATER 2005

Seepage Faces

A perspective view of a concrete wall with a series of rectangular openings, illustrating seepage faces. The wall is light gray and the openings are arranged in a diagonal line from the bottom left to the top right. The background is a soft, out-of-focus light blue and white.

Steep upland adjacent to Lake Meadow in Ocoee

STORMWATER 2005



Photo date: 2003

TOPIC # 10

STORMWATER 2005

Failure of Erosion Control Measures and Impact to Wetlands

Site in Seminole County

STORMWATER 2005



Photo date: 2004

TOPIC # 11

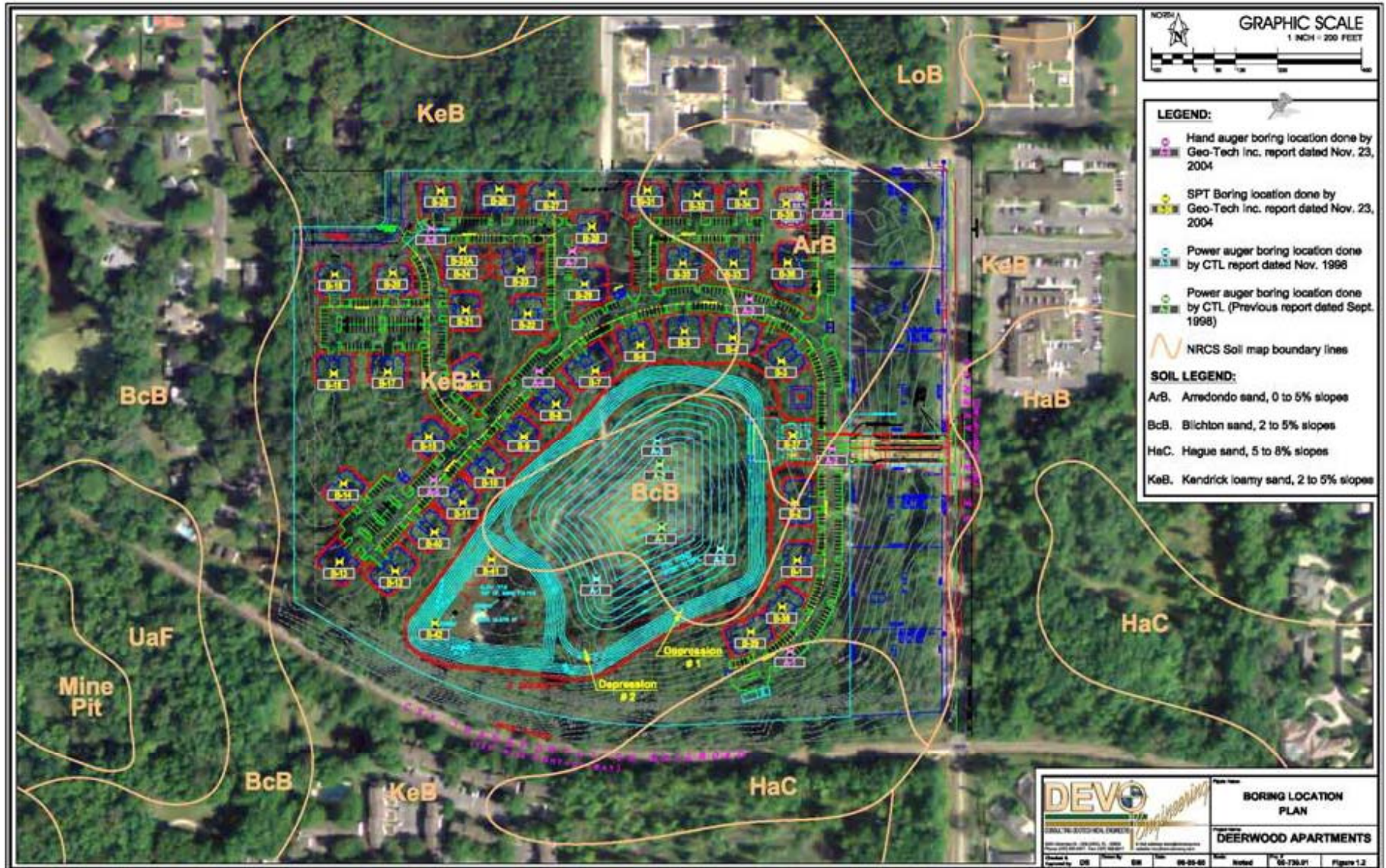
STORMWATER 2005

Load Testing of Natural Depressions



Deerwood Apts in Ocala

STORMWATER 2005



Deerwood Apts in Ocala – Main Pond

STORMWATER 2005



Photo date: 2000

Deerwood Apts in Ocala – Main Pond

STORMWATER 2005



Photo date: 2005

Deerwood Apts in Ocala – Sinkhole 1 Load Test

STORMWATER 2005



Photo date: 2005

Deerwood Apts in Ocala – Sinkhole 1 Load Test

STORMWATER 2005



Photo date: 2005

Deerwood Apts in Ocala – Sinkhole 1 Load Test

STORMWATER 2005



Photo date: 2005

Deerwood Apts in Ocala – Sinkhole 1 Load Test

STORMWATER 2005



Photo date: 2005

Deerwood Apts in Ocala – Sinkhole 2 Load Test

STORMWATER 2005



Photo date: 2005

Deerwood Apts in Ocala – Sinkhole 2 Load Test

STORMWATER 2005



Photo date: 2005

Deerwood Apts in Ocala – Sinkhole 2 Load Test

STORMWATER 2005



Photo date: 2005

Deerwood Apts in Ocala – Sinkhole 2 Load Test

STORMWATER 2005



Photo date: 2005

Deerwood Apts in Ocala – Sinkhole 2 Load Test

STORMWATER 2005



Photo date: 2005

TOPIC # 12

STORMWATER 2005

Side Slope Failures Due to Storm-Induced Wave Action



CR 561 Clermont

STORMWATER 2005



Photo date: 2004 (Hurricane Jeanne)

CR 561 Clermont

STORMWATER 2005



Photo date: 2004 (Hurricane Jeanne)

TOPIC # 13

STORMWATER 2005

Water Table Drawdown Impact Due to Ditching

Site in Brevard County

STORMWATER 2005



Photo date: 2005

Site in Brevard County

STORMWATER 2005



Photo date: 2005

Site in Brevard County

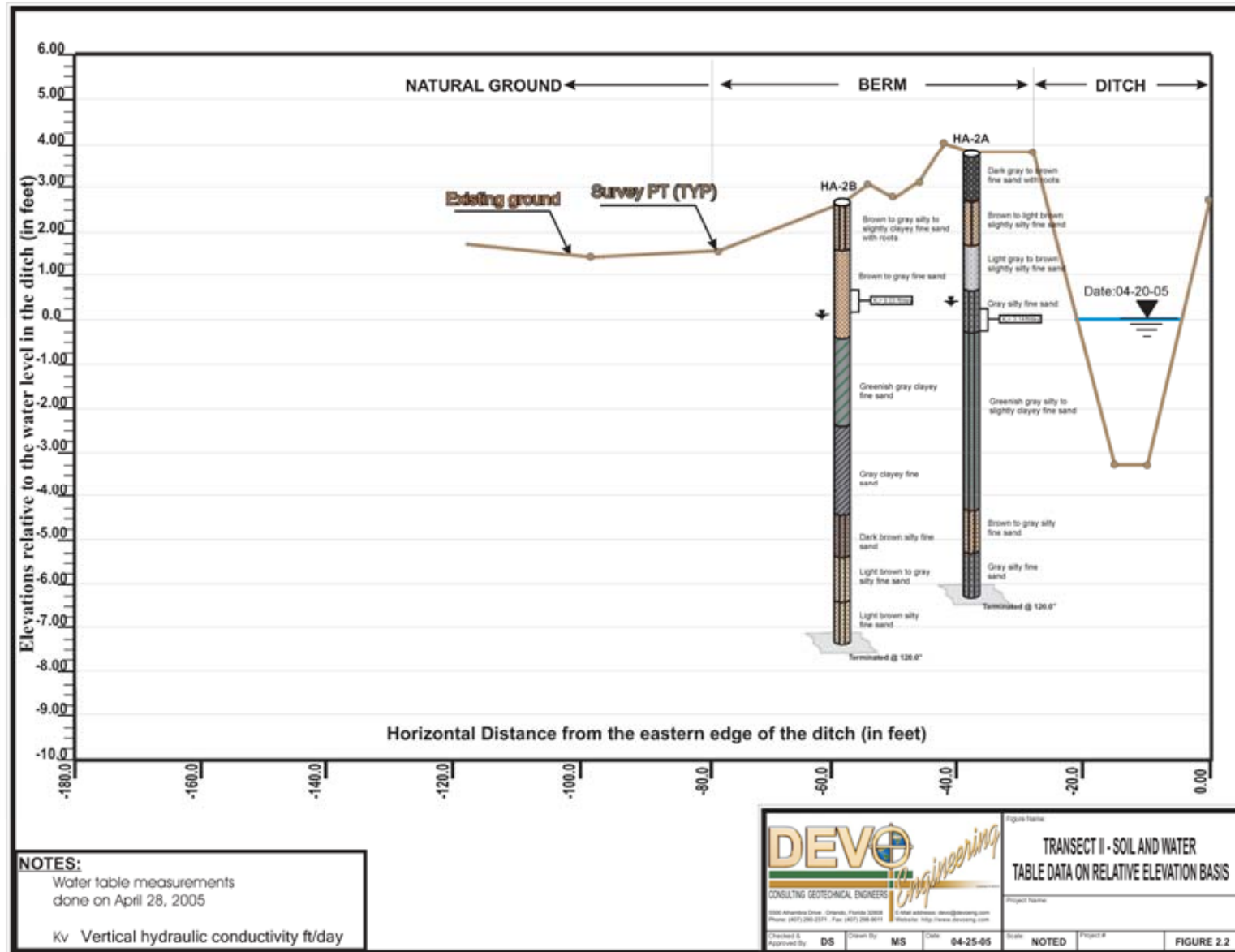
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Photo date: 2005

Site in Brevard County – Soil Cross Section, Transect 2

STORMWATER 2005



Site in Brevard County – Drawdown Predictions, Transect 2

STORMWATER 2005

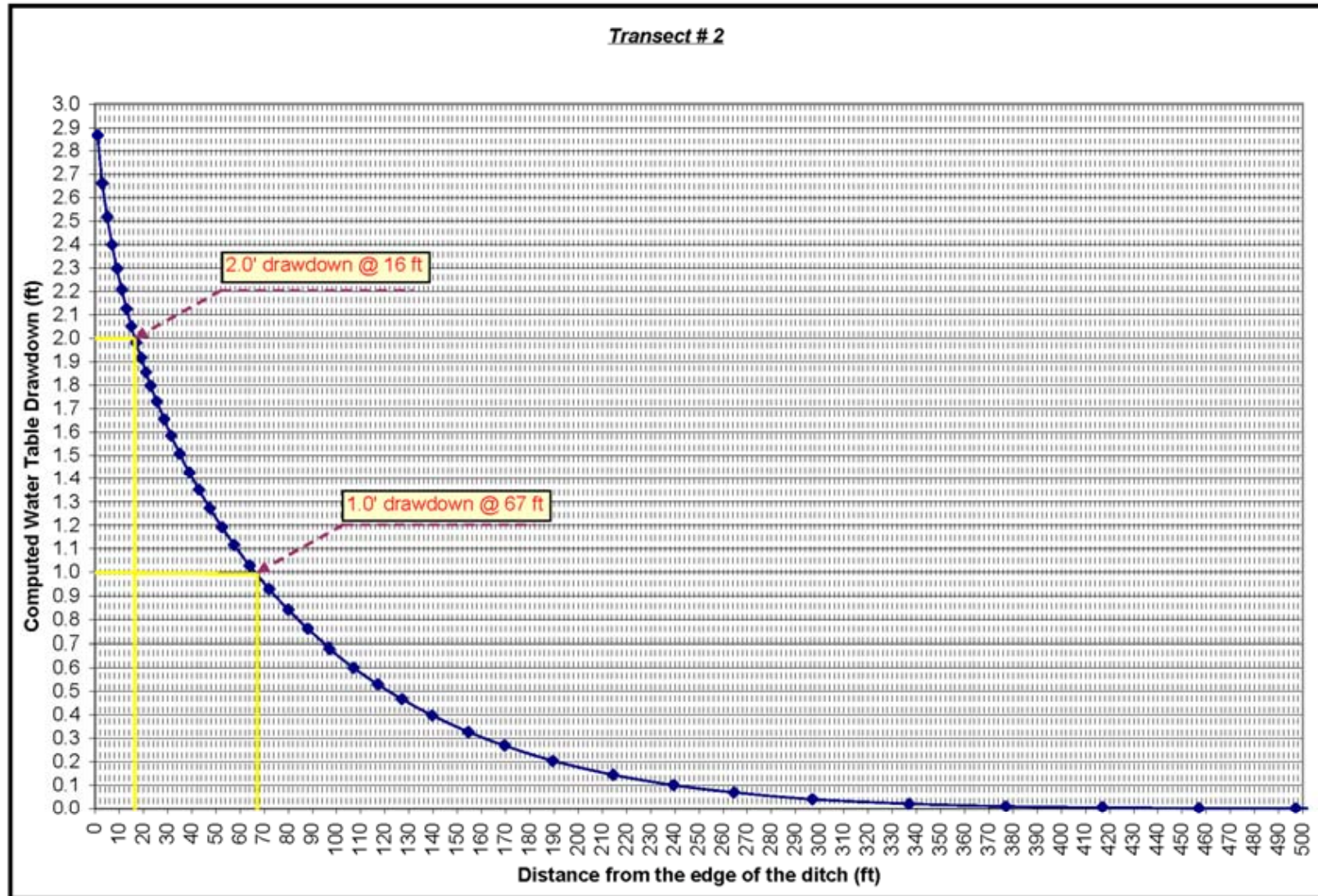


Exhibit 3. Predicted water table drawdown profile for transect 2

TOPIC # 14

STORMWATER 2005

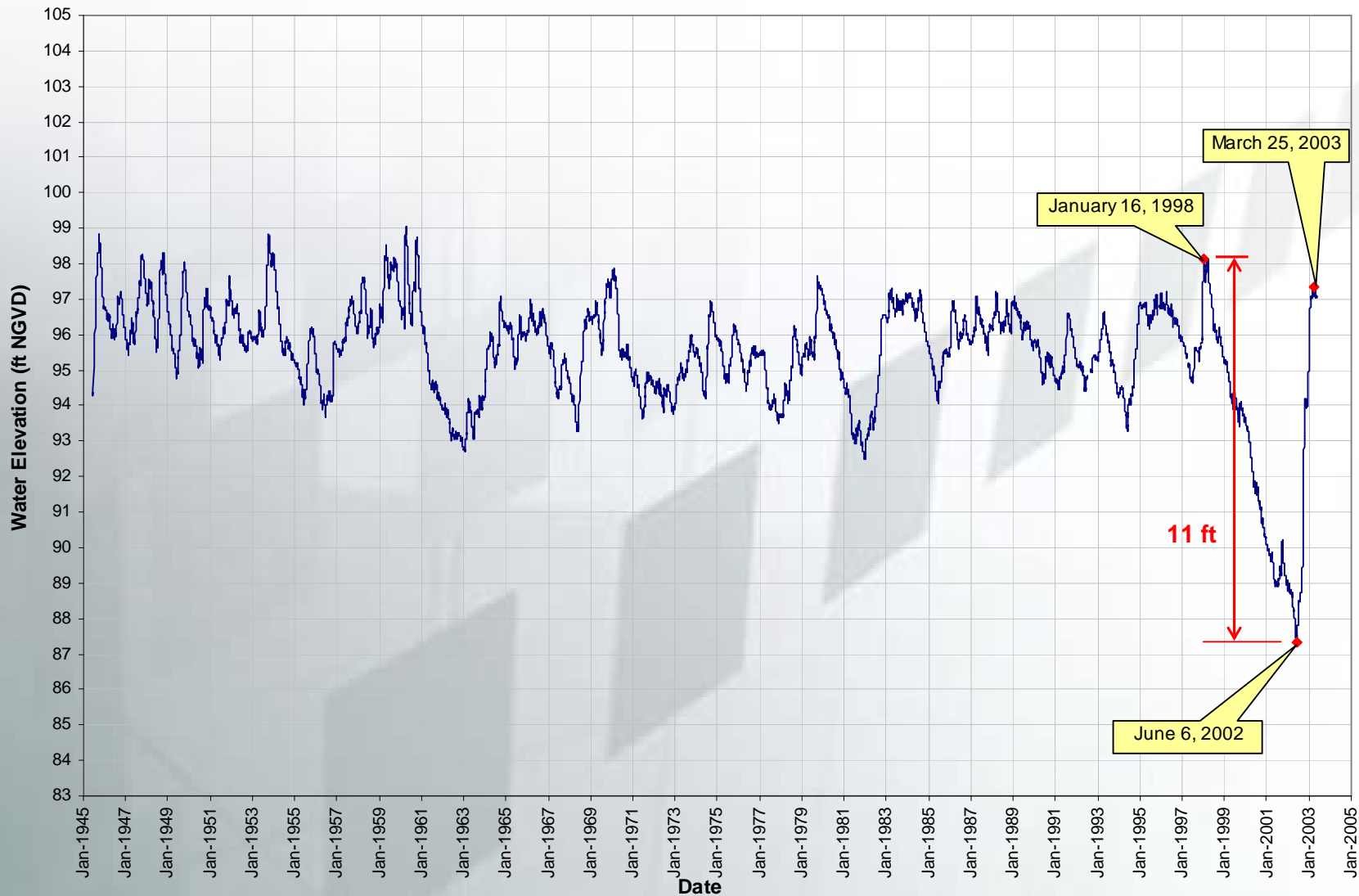
Drought



Clermont Chain of Lakes – Lake Minnehaha

STORMWATER 2005

Lake Minnehaha Water Levels - January 1, 1945 through May 14, 2003



Clermont Chain of Lakes – CR 565A Bridge

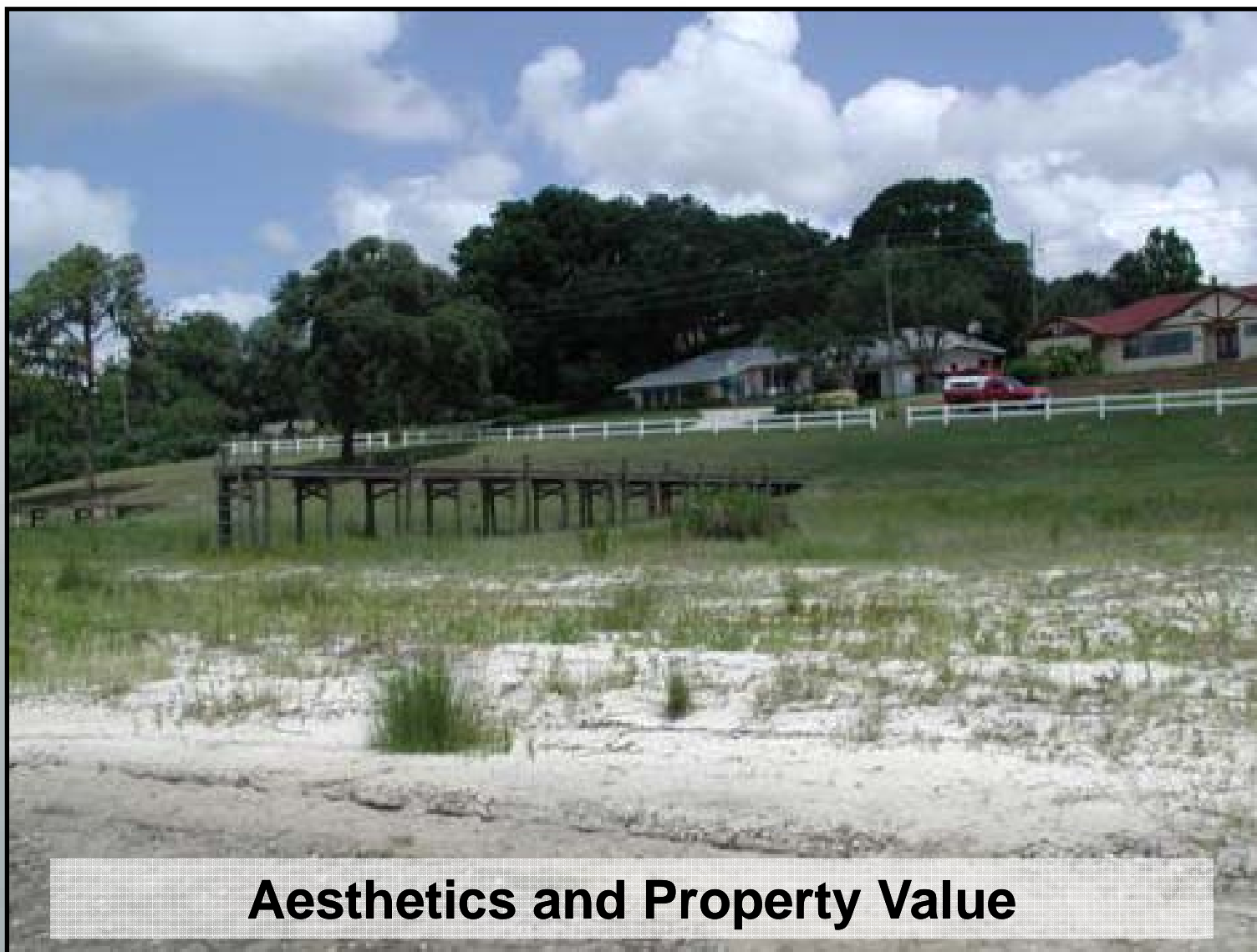
STORMWATER 2005



Navigability and Recreation

Clermont Chain of Lakes – Lake Minneola

STORMWATER 2005



Aesthetics and Property Value

Clermont Chain of Lakes – CR 561

STORMWATER 2005



Pavement Distress Due To Buried Peat