

# A New Horizon for Deep Well Disposal of Landfill Leachate

Pasco County, Florida

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SWANA

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# Pasco County Solid Waste Department Goals

- Provide a safe method of landfill leachate management and disposal.
- Reduce County risk and increase control over future disposal method.
- Provide a cost effective disposal method.

# Managing Landfill Leachate

- Low leachate flows that have seasonal variability.
- Deemed non-hazardous annually since initially produced in 1975.
- High salinity variability (TDS ranges between 8,000 mg/L to 75,000 mg/L).
- Trucking offsite for third party disposal.

# Previously Unsuccessful Disposal Options

- Original design pumped to adjacent Shady Hills WWTP
  - high salt content resulted in contamination of the WWTP spray field
- Flash Evaporation Facility
  - poor specification of materials resulted in unreasonable maintenance
- Current Practice – haul to City of Tampa's Howard F. Curren WWTP

# Onsite Leachate Disposal Option

- Leachate is too saline for Pasco County WRF dilution.
- Disposal via deep well injection is viable in southern Florida.
- Is deep well injection a viable option?
- Need to prove feasibility for onsite injection.
  - Understand local hydrogeology.
  - Identify potential injection zones.
  - Identify confinement zones.

# Project Location



Solid Waste Resource Recovery Facility

# Solid Waste Resource Recovery Facility

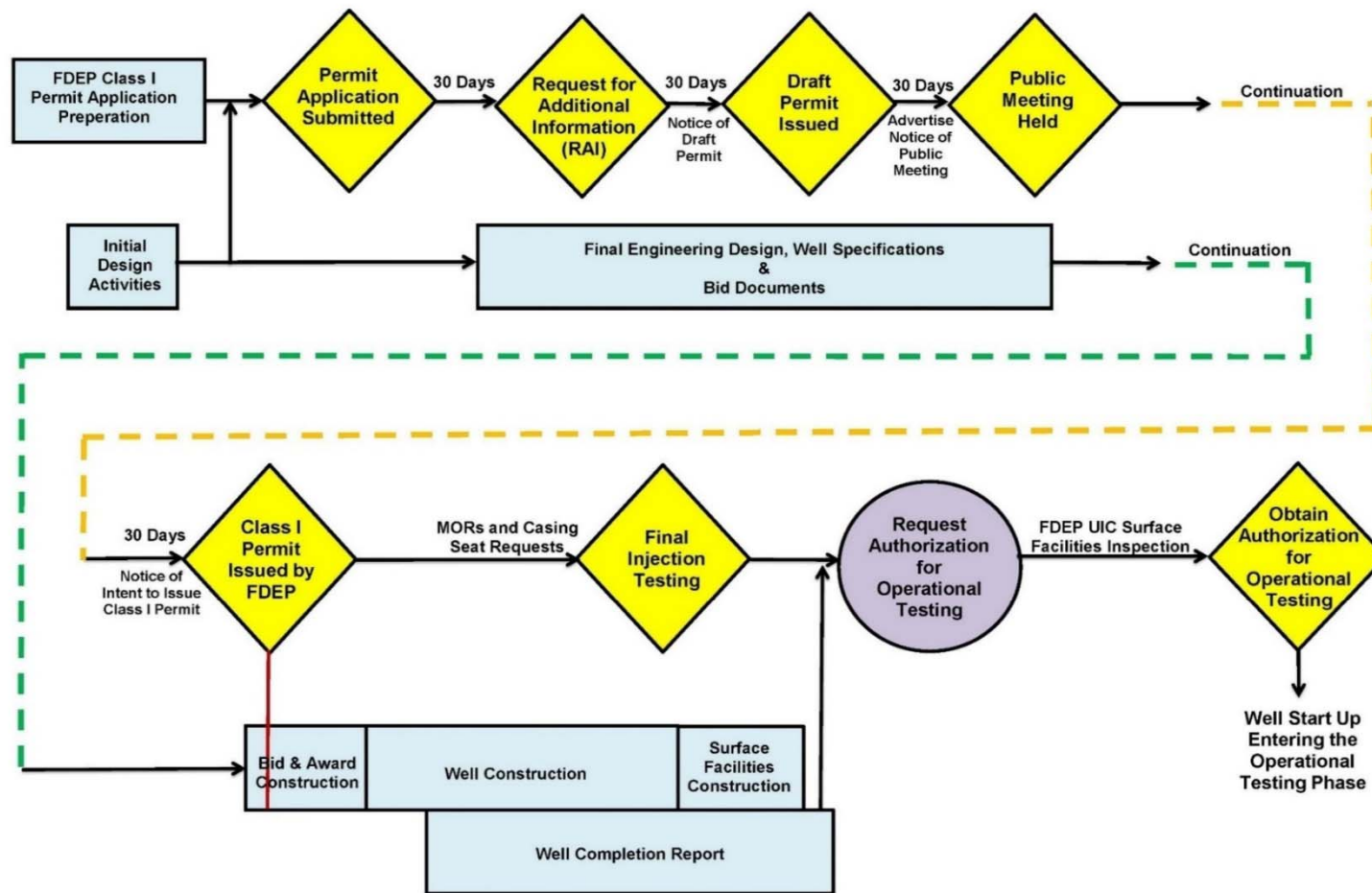


# Potential Injection Well Location





# FDEP UIC Permitting and Injection System Implementation Process



# Will an Injection Well Work in Northern Pasco County??

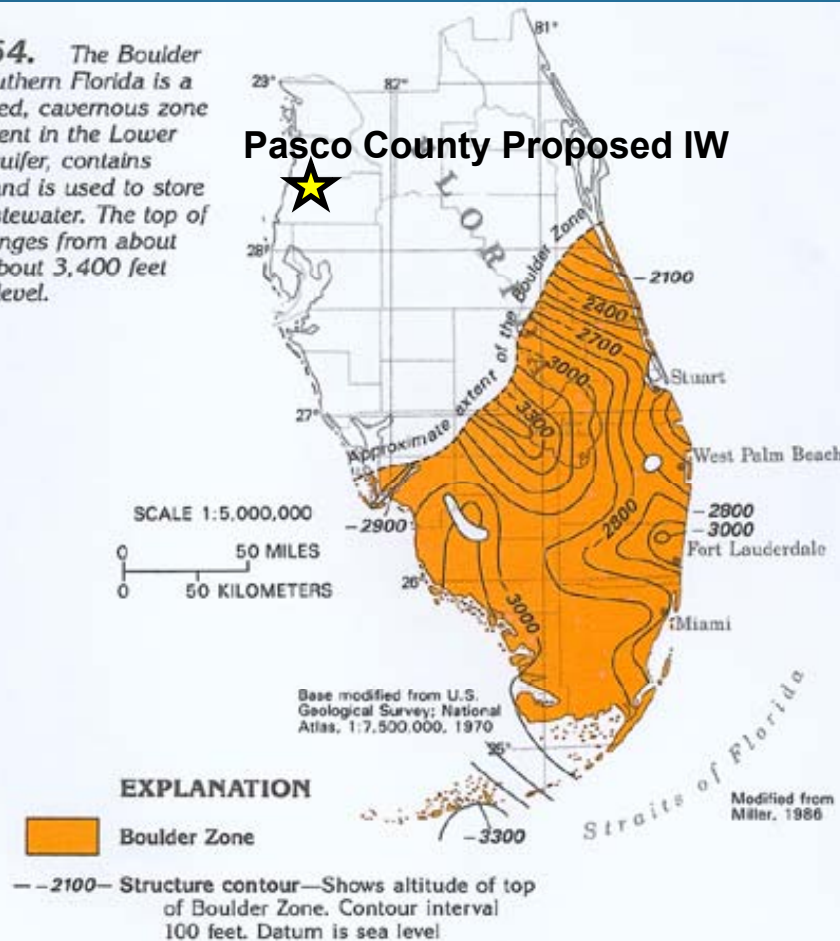
- Northern most Class I injection well in central Florida.
- Confirm the base of the Underground Source of Drinking Water.
- Confirm adequate injection zone.
- Confirm adequate confinement intervals.
- Identify and understand local existing groundwater users.
- Estimate costs to construct a complete injection well system.
- Meet all permitting requirements of the FDEP UIC Department.



# Will an Injection Well Work in Northern Pasco County??

**Figure 54.** The Boulder Zone of southern Florida is a deeply buried, cavernous zone that is present in the Lower Floridan aquifer, contains saltwater, and is used to store treated wastewater. The top of the zone ranges from about 2,000 to about 3,400 feet below sea level.

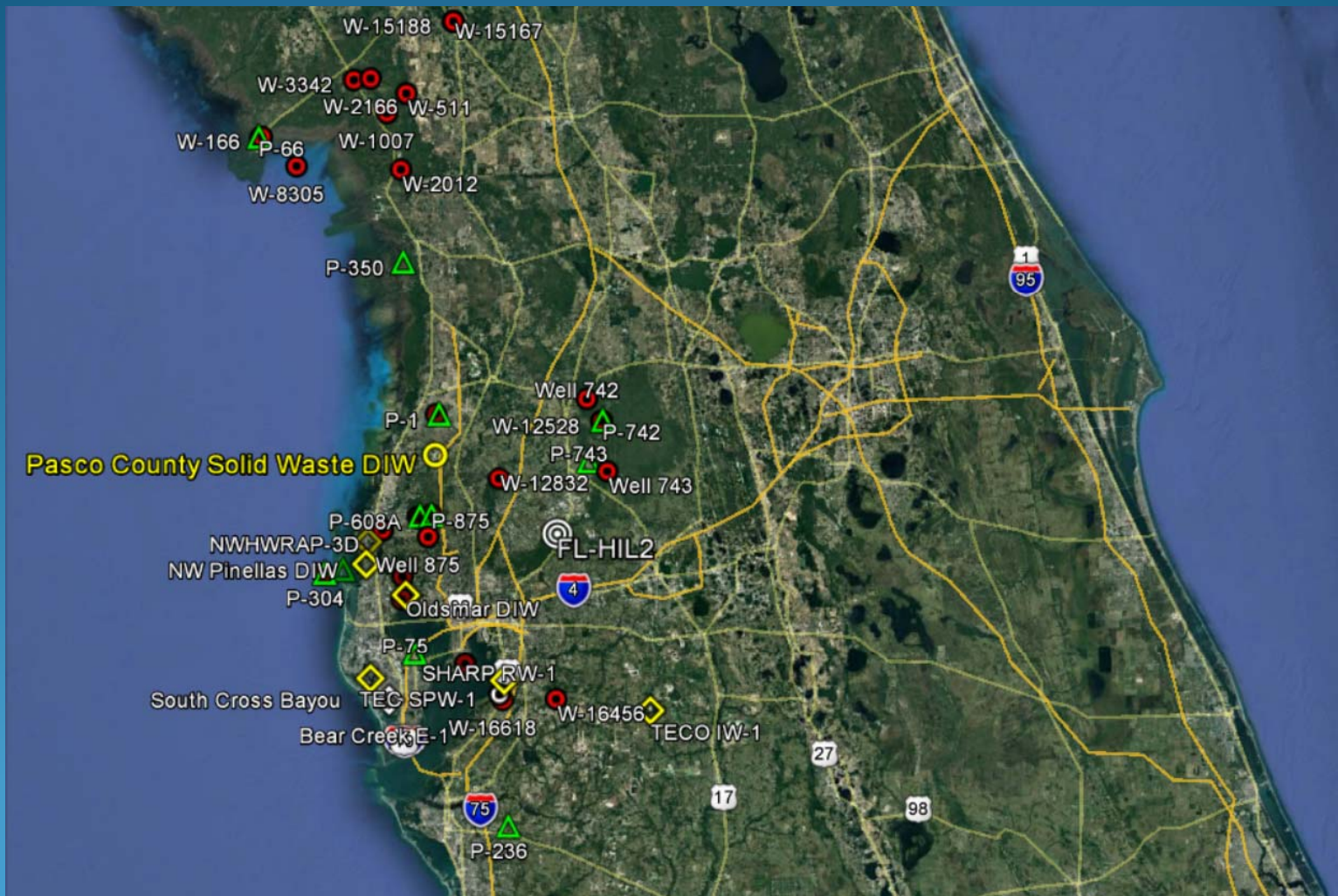
**Pasco County Proposed IW**



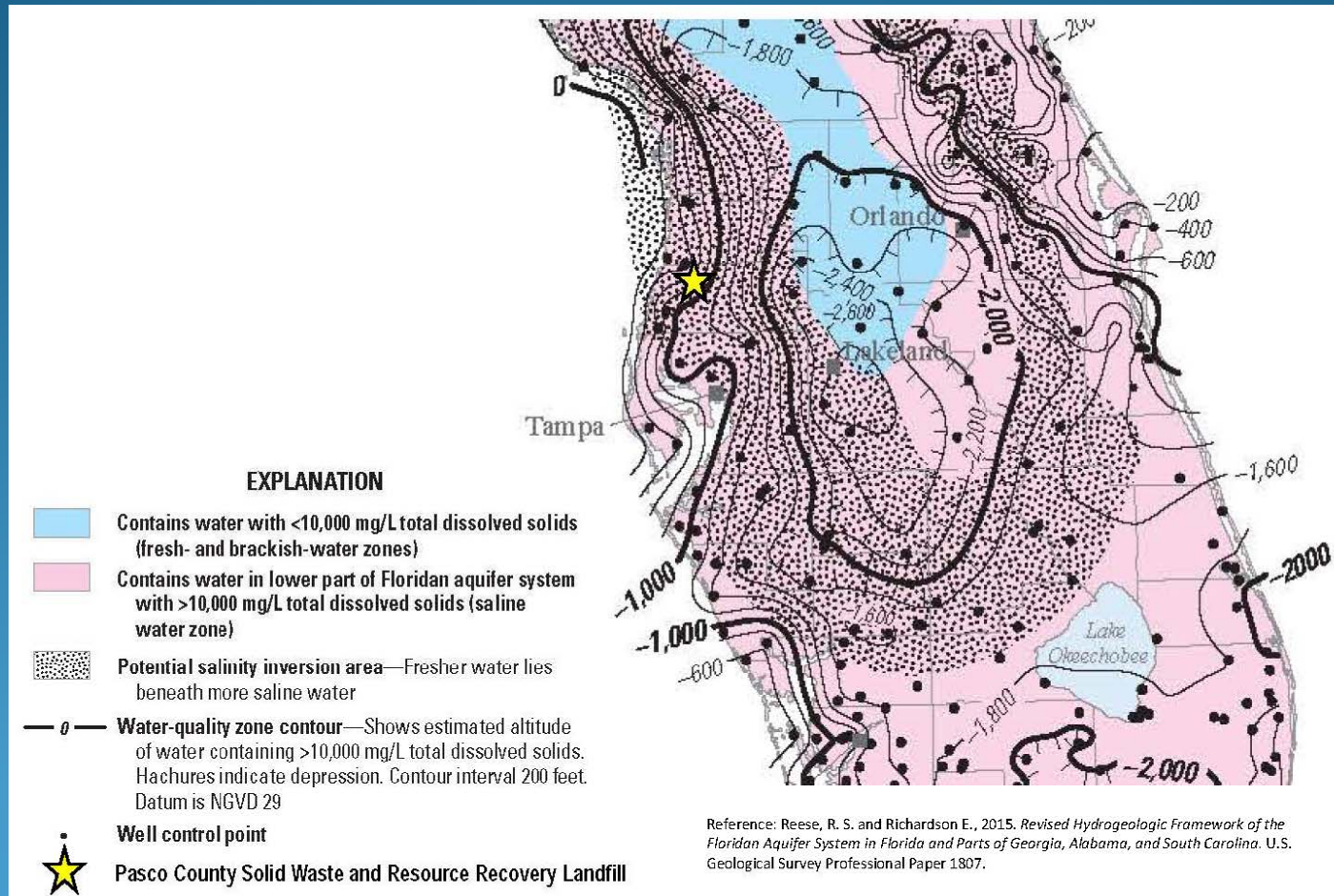
The prolific “Boulder Zone” of the Oldsmar Formation does not exist in Pasco County.

GROUND WATER ATLAS of the UNITED STATES, Alabama, Florida, Georgia, and South Carolina, HA 730-G

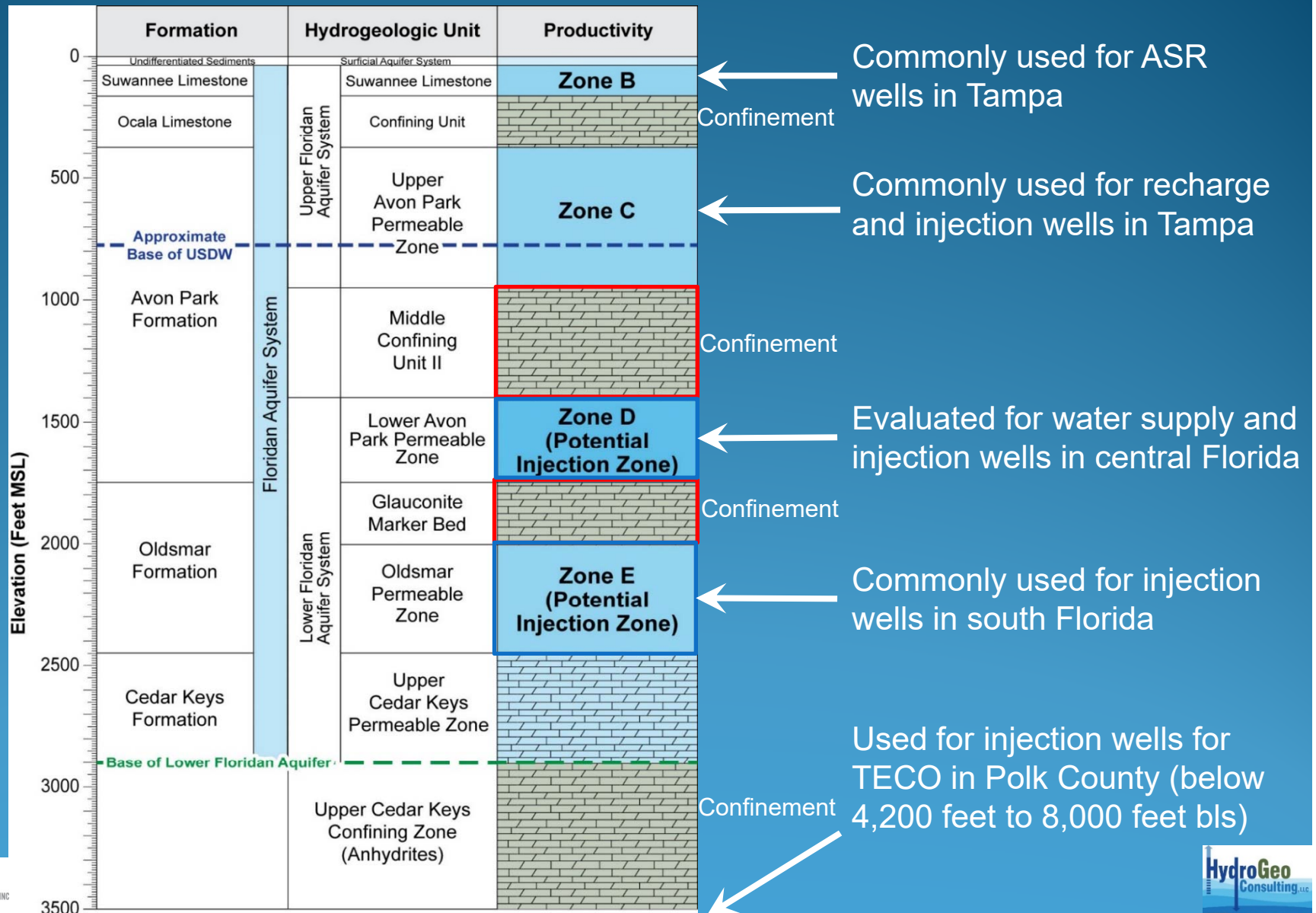
# Central Florida Coastal Geology Data



# Identify the Depth of the Base of the Underground Source of Drinking Water (USDW)



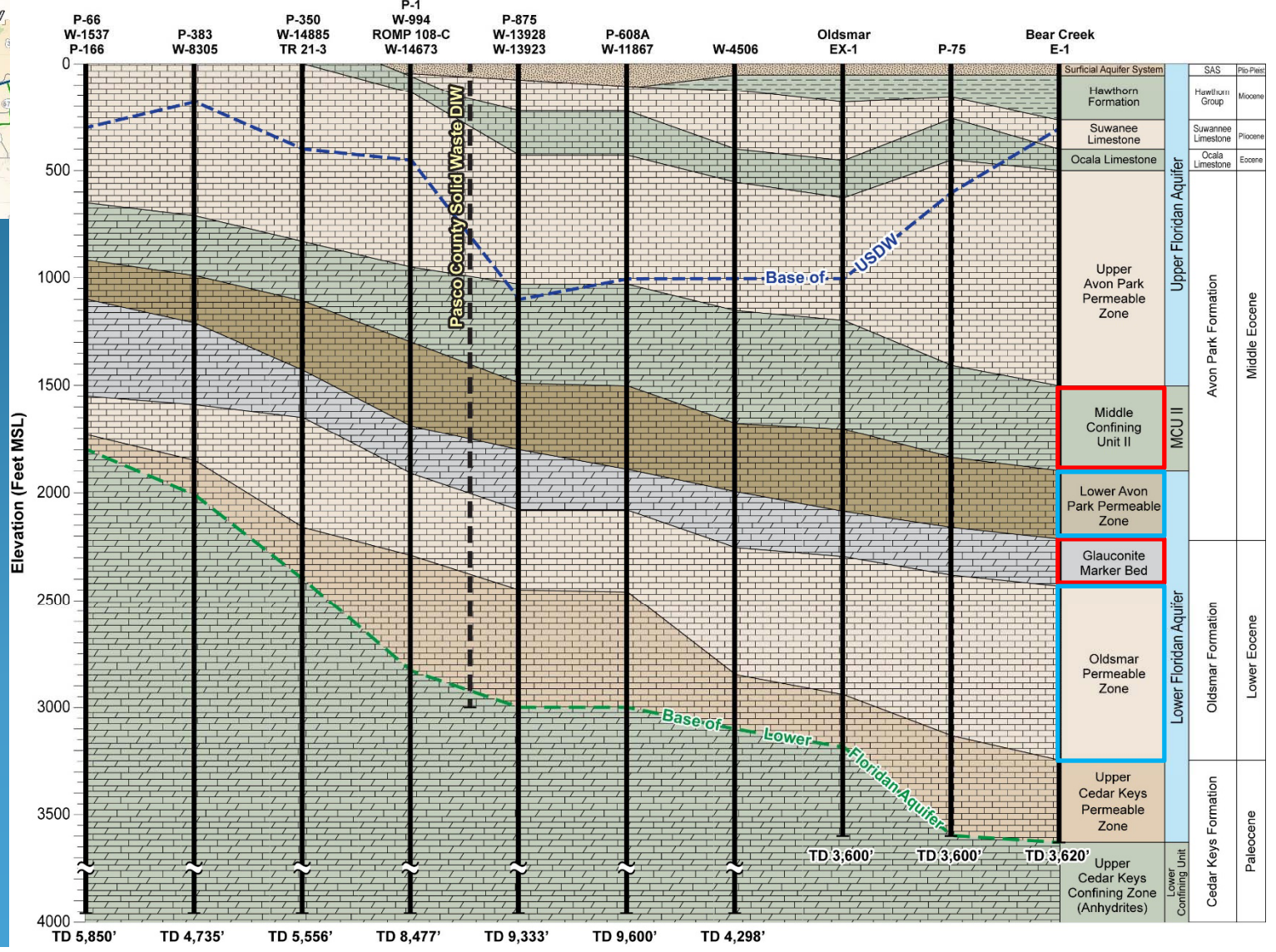
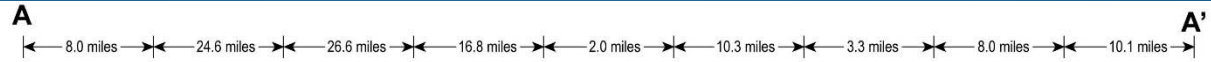
# Local Hydrogeology and Target Injection Zones



# Geology Cross Section Locations



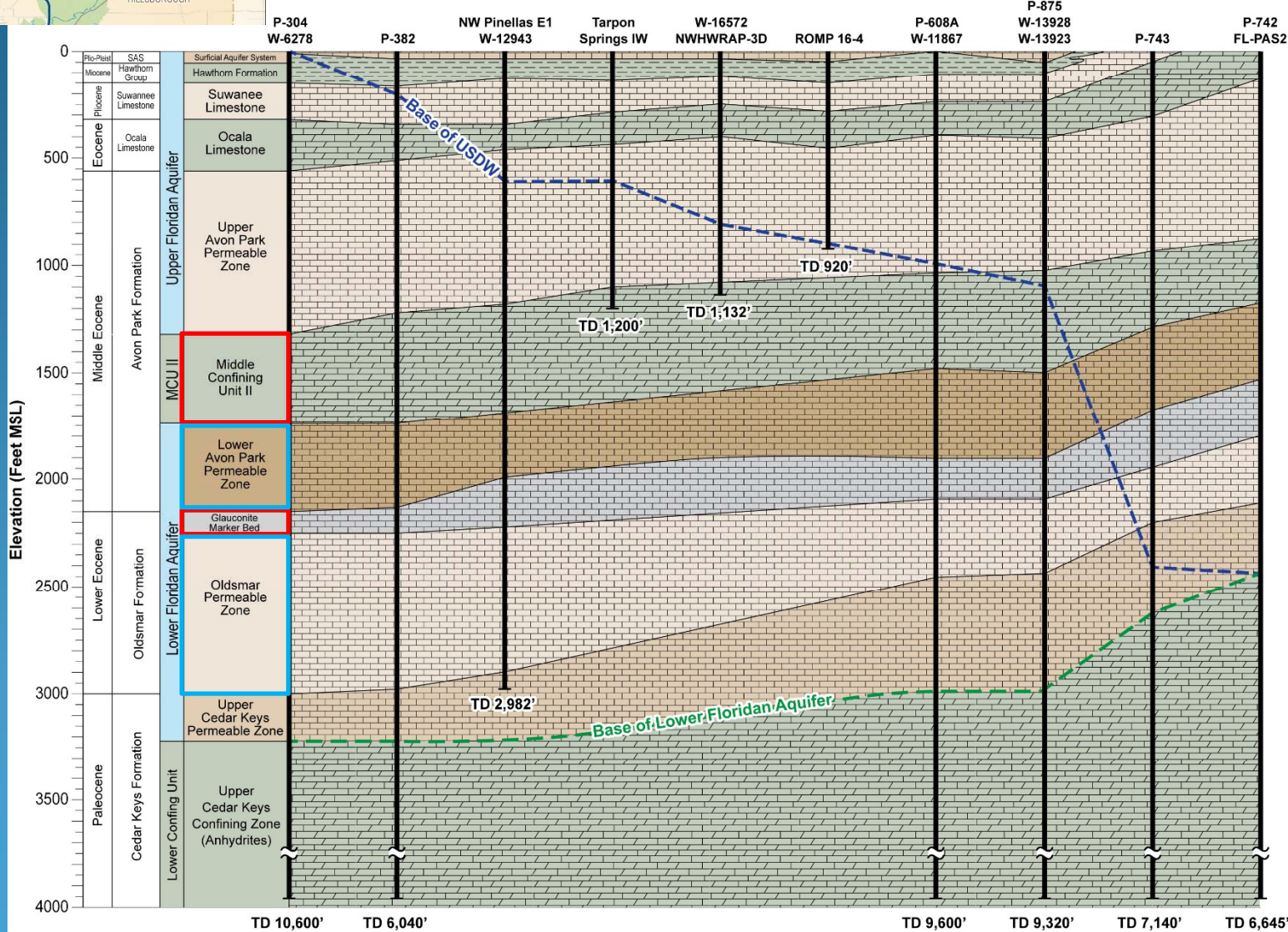
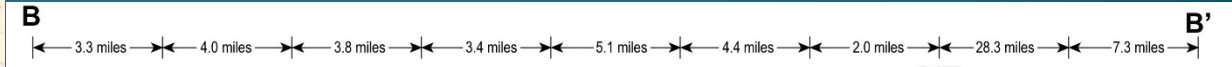
# Cross Section A-A'

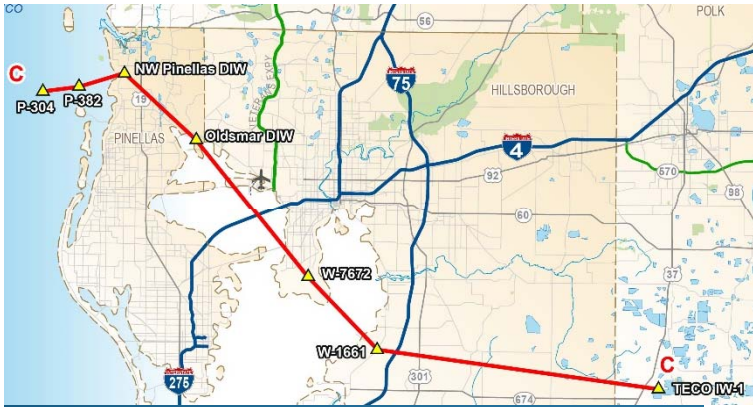




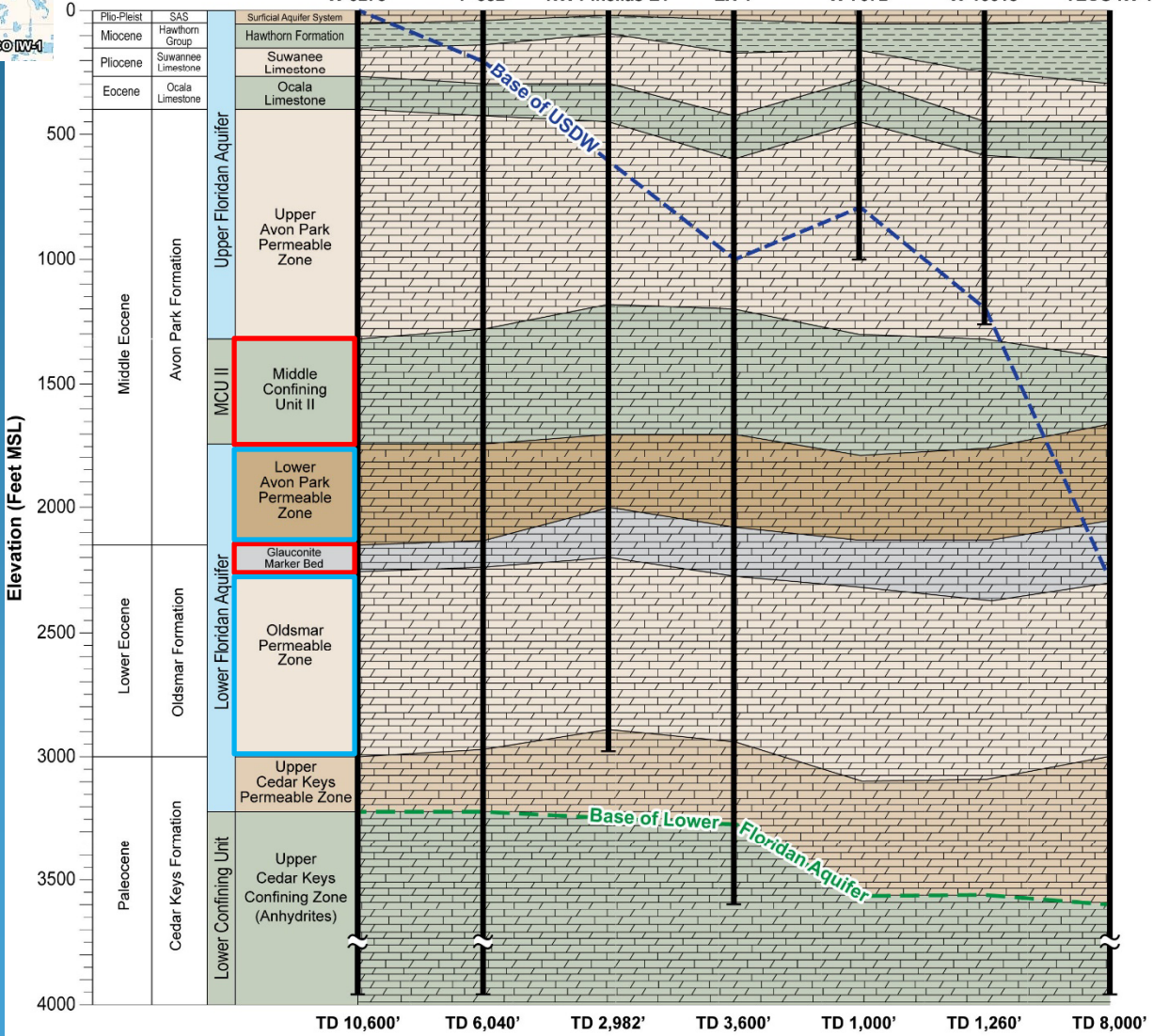
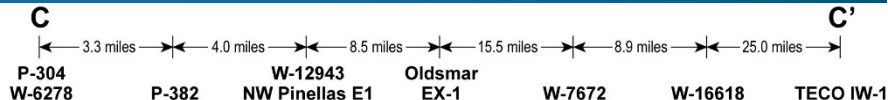


# Cross Section B-B'

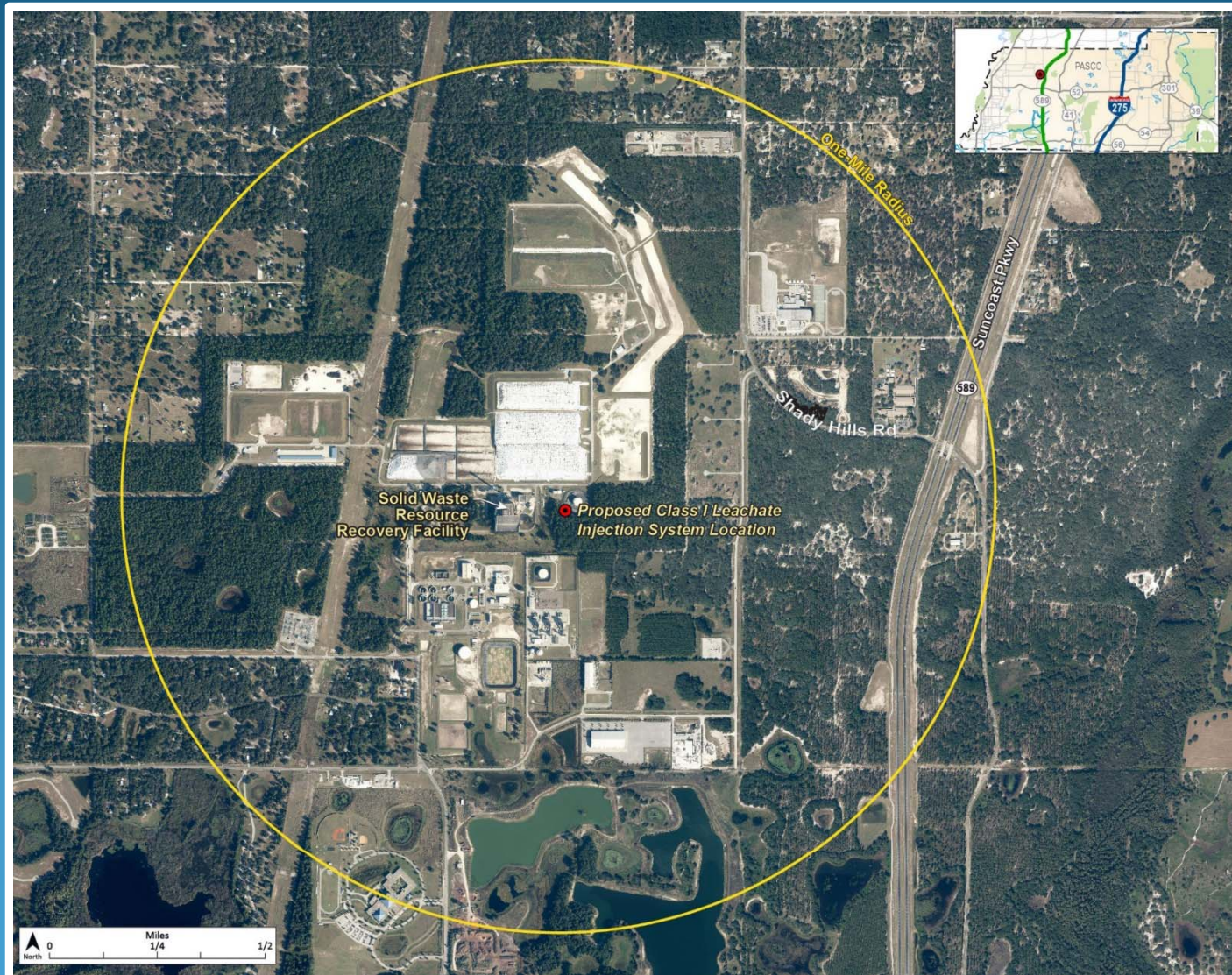




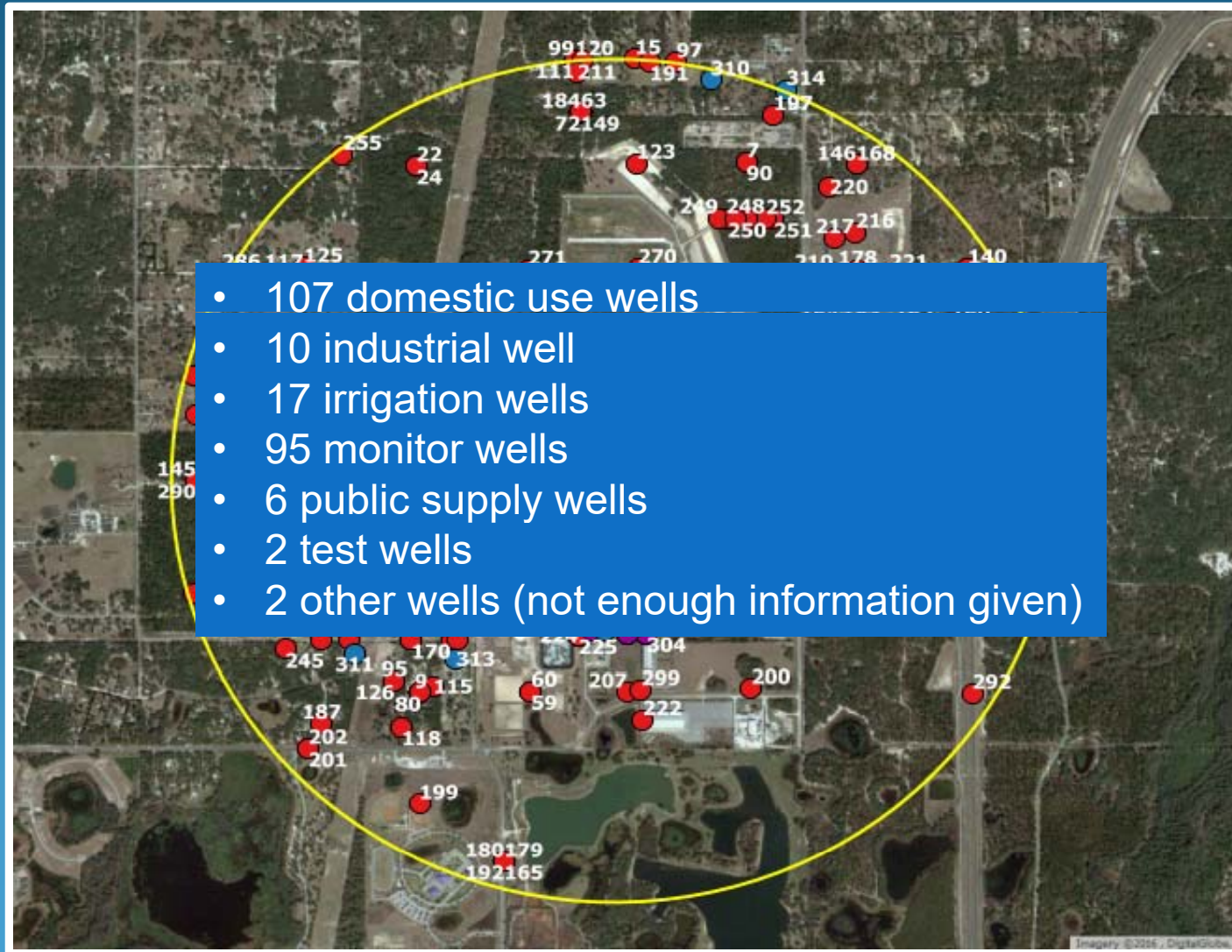
# Cross Section C-C'



# 1-Mile Radius Area of Review



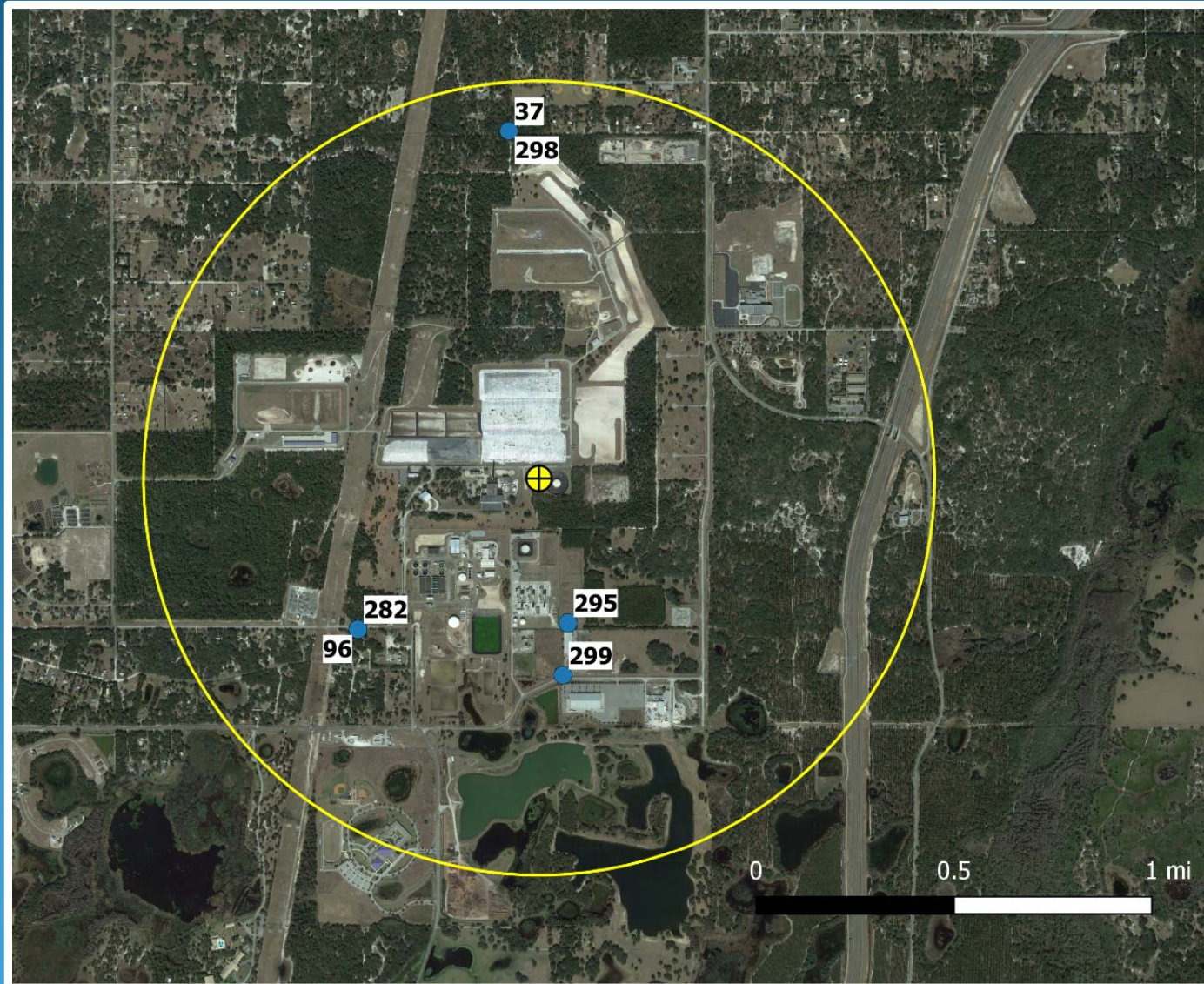
# Existing Wells within 1-Mile Area of Review



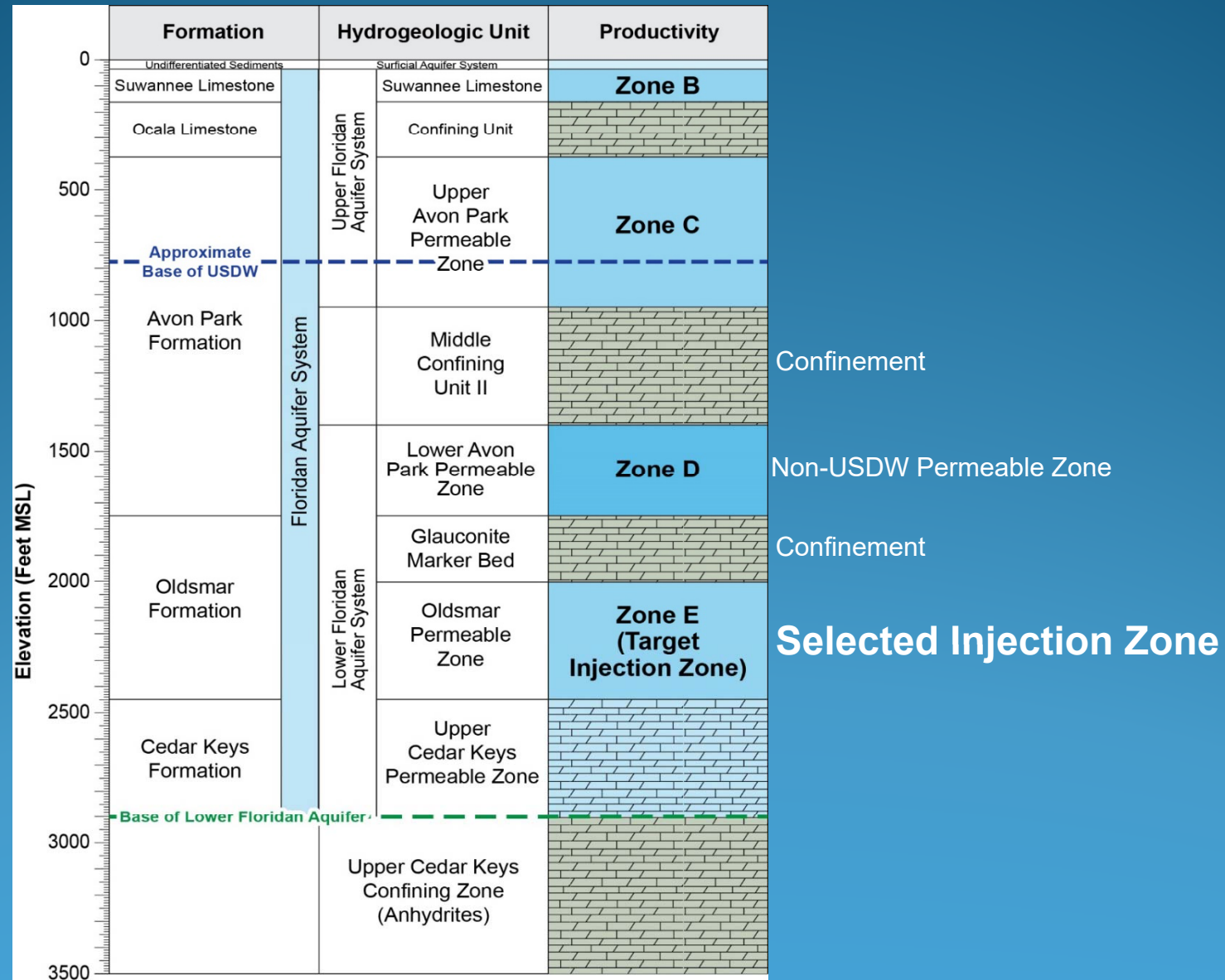
# Wells Deeper than 300 feet within AOR



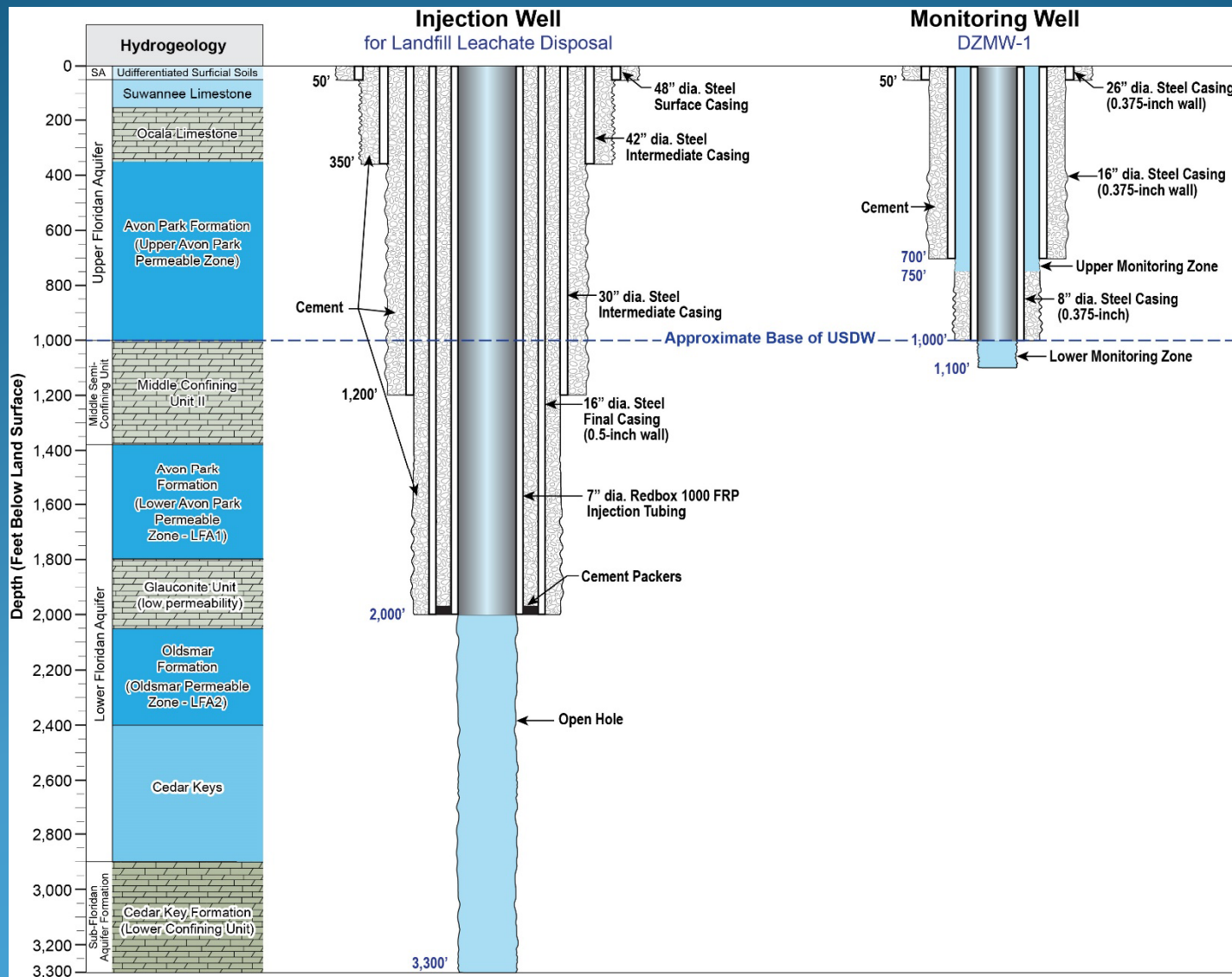
# Public Supply Wells Within 1-Mile Area of Review



# Identified Target Injection Zone

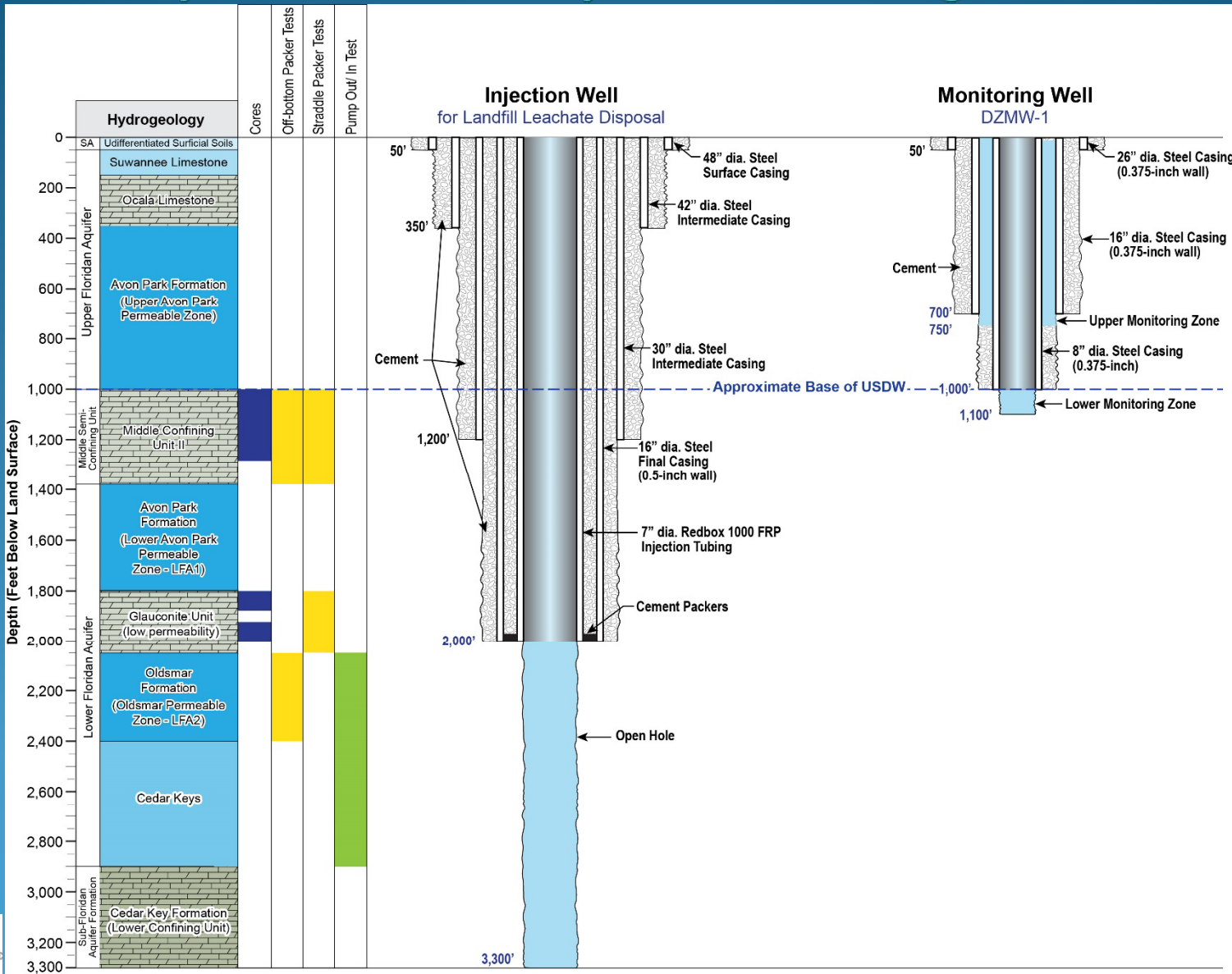


# Injection Well System Design





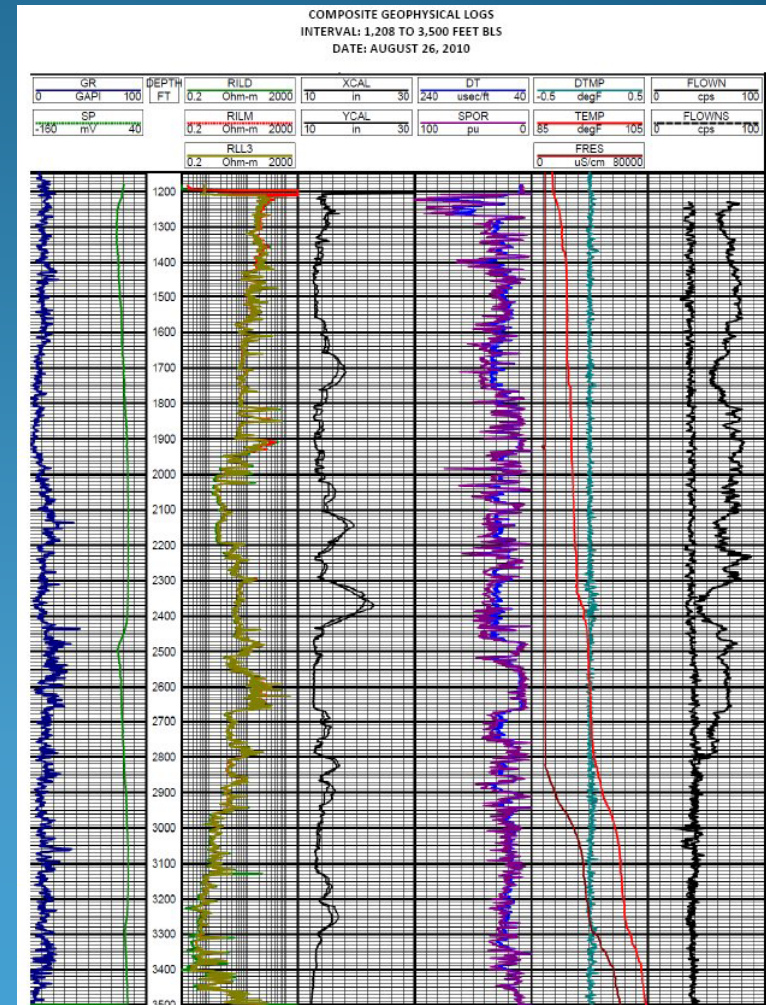
# Injection Well System Testing Plan



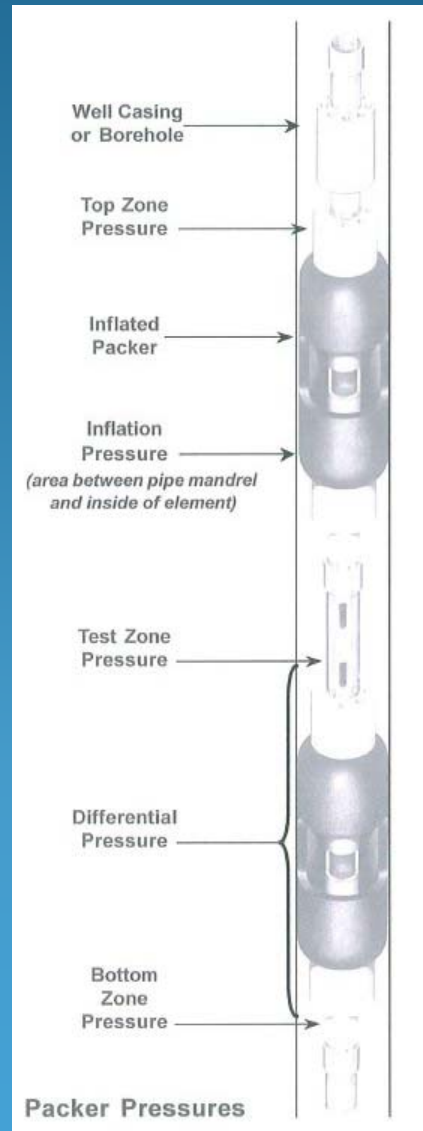
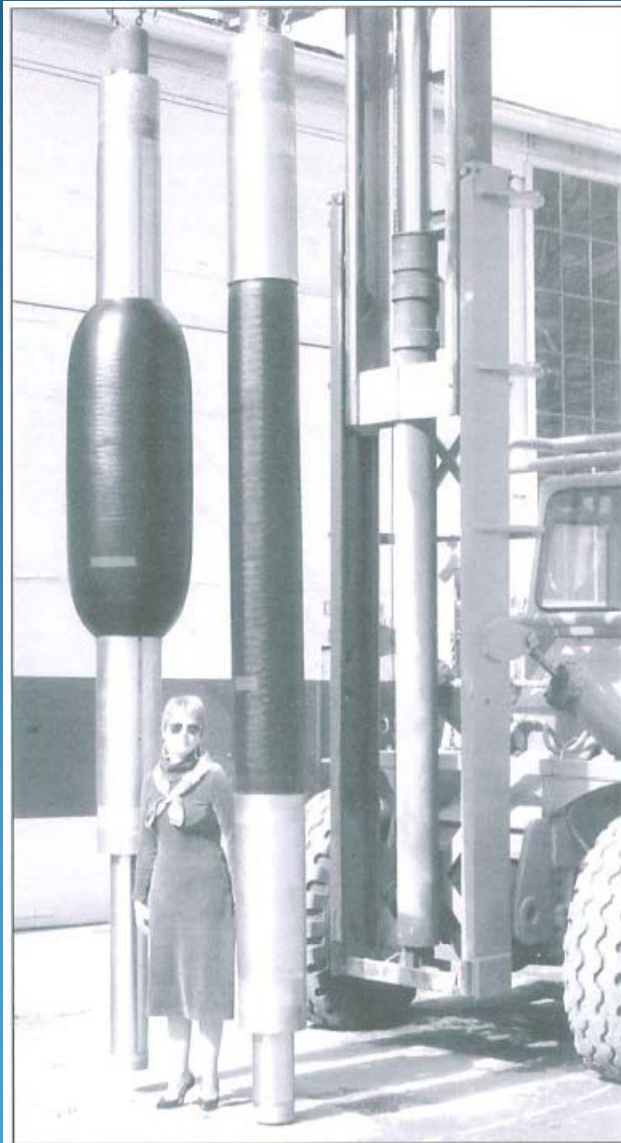
# Rock Core Collection of Confinement Intervals



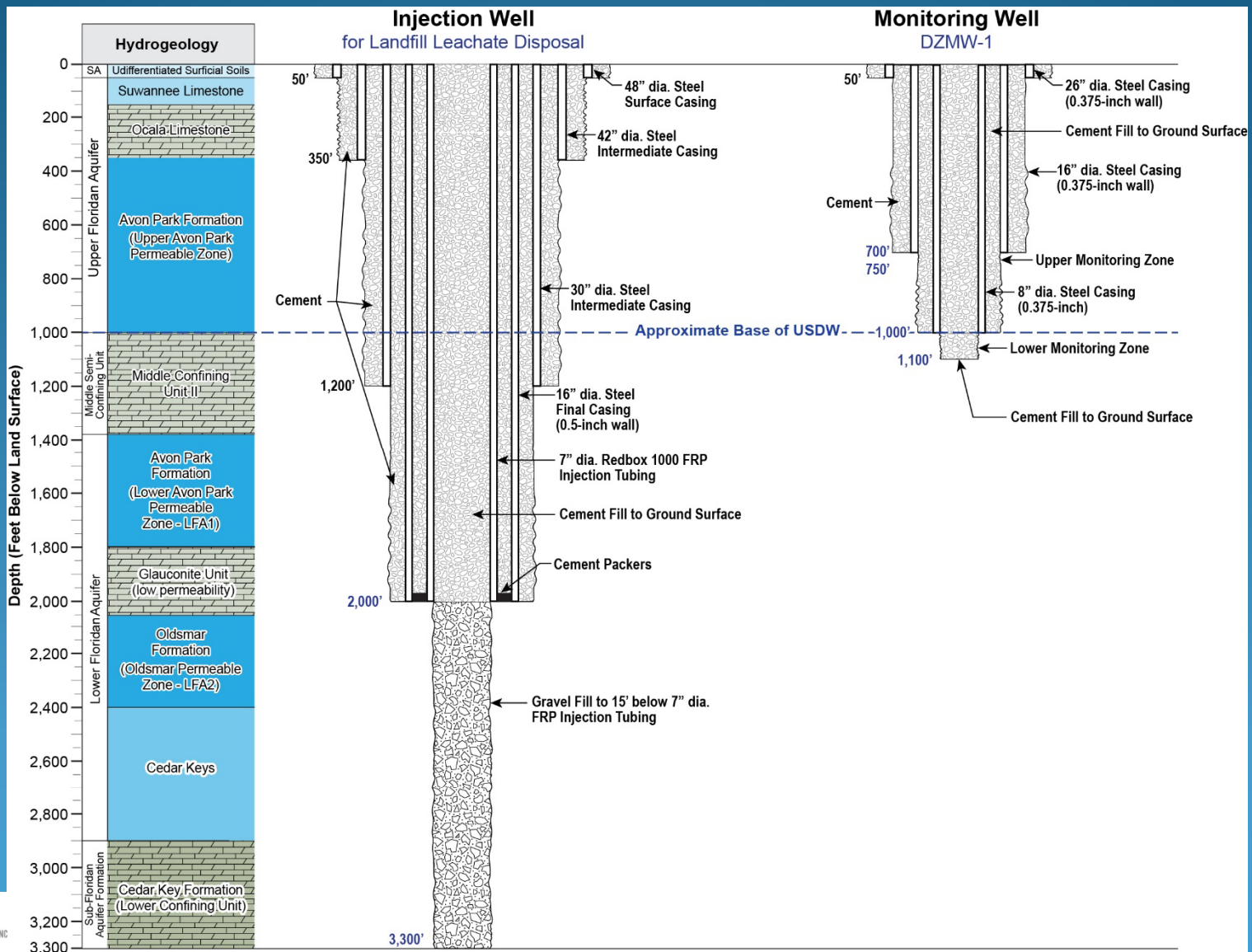
# Geophysical Logging to Identify Permeable and Confinement Intervals



# Packer Testing Will be Conducted to Evaluate Confinement Intervals



# FDEP UIC Required Abandonment Plan



# Pasco County Injection Well Benefit Conclusions

- Provide a safe method of landfill leachate management and disposal.
- Reduce risk and increase control over future disposal method.
- Provide a cost effective disposal method that allows full County control.

# A New Horizon for Deep Well Disposal of Landfill Leachate

Pasco County, Florida

**THANK YOU!**



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