

# LAND USE PLAN AND ENVIRONMENTAL PERMITTING

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Broward County Environmental  
Permitting Division



# *ENVIRONMENTAL PERMITTING DIVISION*

## Key Permitting Programs

- Surface Water Management
- Aquatics/Wetlands
- Tree Preservation
- Wastewater and NPDES
- Cleanup and Waste Regulation
- Hazardous Material Licensing & Wellfield Protection
- Pollution Prevention (Storage Tank Compliance)



POLICY 2.5.5 Amendments to the Broward County Land Use Plan containing golf courses, including closed golf courses, shall address the following...

d. Mitigation of environmental contamination. The level of environmental contamination must be determined by conducting a Phase 1 environmental assessment. A Phase 2 environmental assessment may be required based upon the findings of the Phase 1 assessment.

**Monosodium  
Methanearsonate  
(MSMA)**



*FORMER FOXCROFT GOLF COURSE:  
ZF BROWNFIELD SITE*





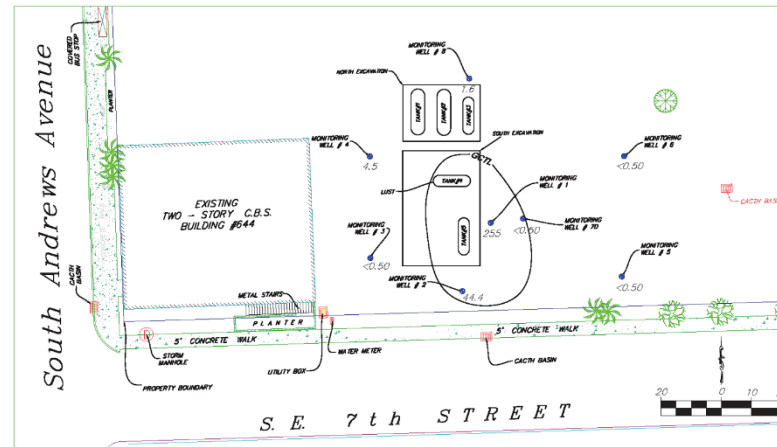
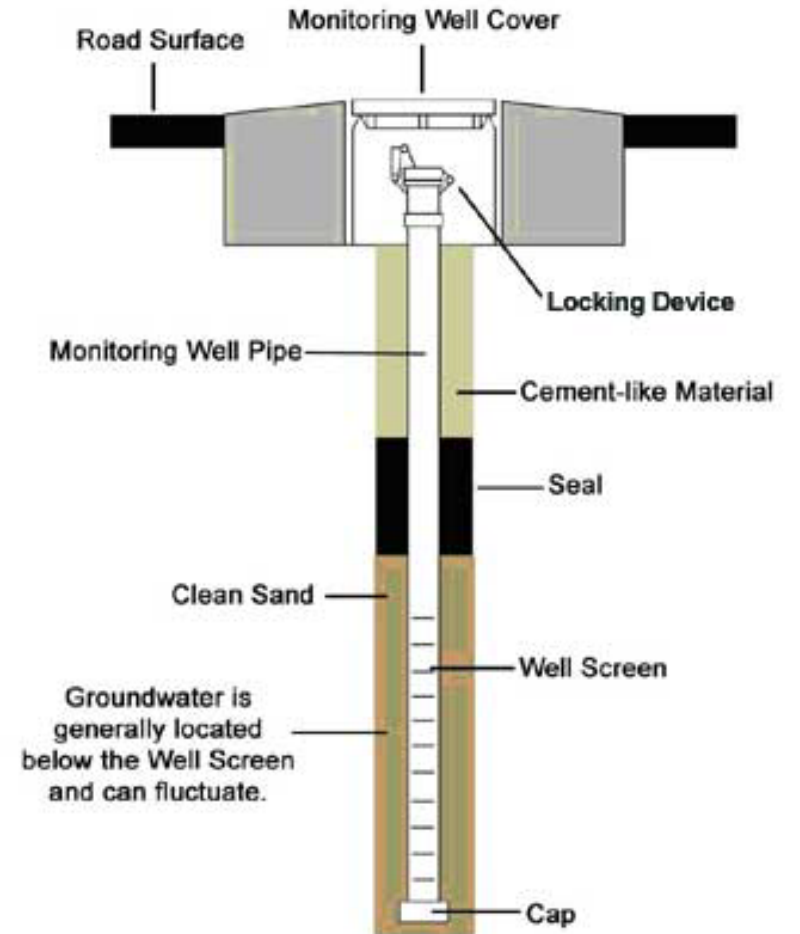
# *PHASE I SITE ASSESSMENT*

- EPA AAI: All Appropriate Inquiry
- Recognized Environmental Conditions
  - Records Review
  - Site Recon
  - Interviews

# PHASE II SITE ASSESSMENT



## MONITORING WELL DIAGRAM



Total Xylenes Isoconcentration Contour Map

**GEOlogistics, Inc.**  
 Environmental, Geotechnical  
 Structural Design, Construction  
 Materials Testing, Threshold  
 and Special Inspections  
 8045 La Fortuna Boulevard,  
 Suite 253  
 Boca Raton, Florida 33434  
 (561) 718-4188  
 (561) 988-8075 Fax

**BROWARD COUNTY COURTHOUSE MAIN PARKING FACILITY**  
 644 SOUTH ANDREWS AVENUE  
 FORT LAUDERDALE, FLORIDA

Job No. 12-1112.01  
 Drawn By: JS  
 Date: 11/30/12  
 Scale: As Shown

FIGURE 8



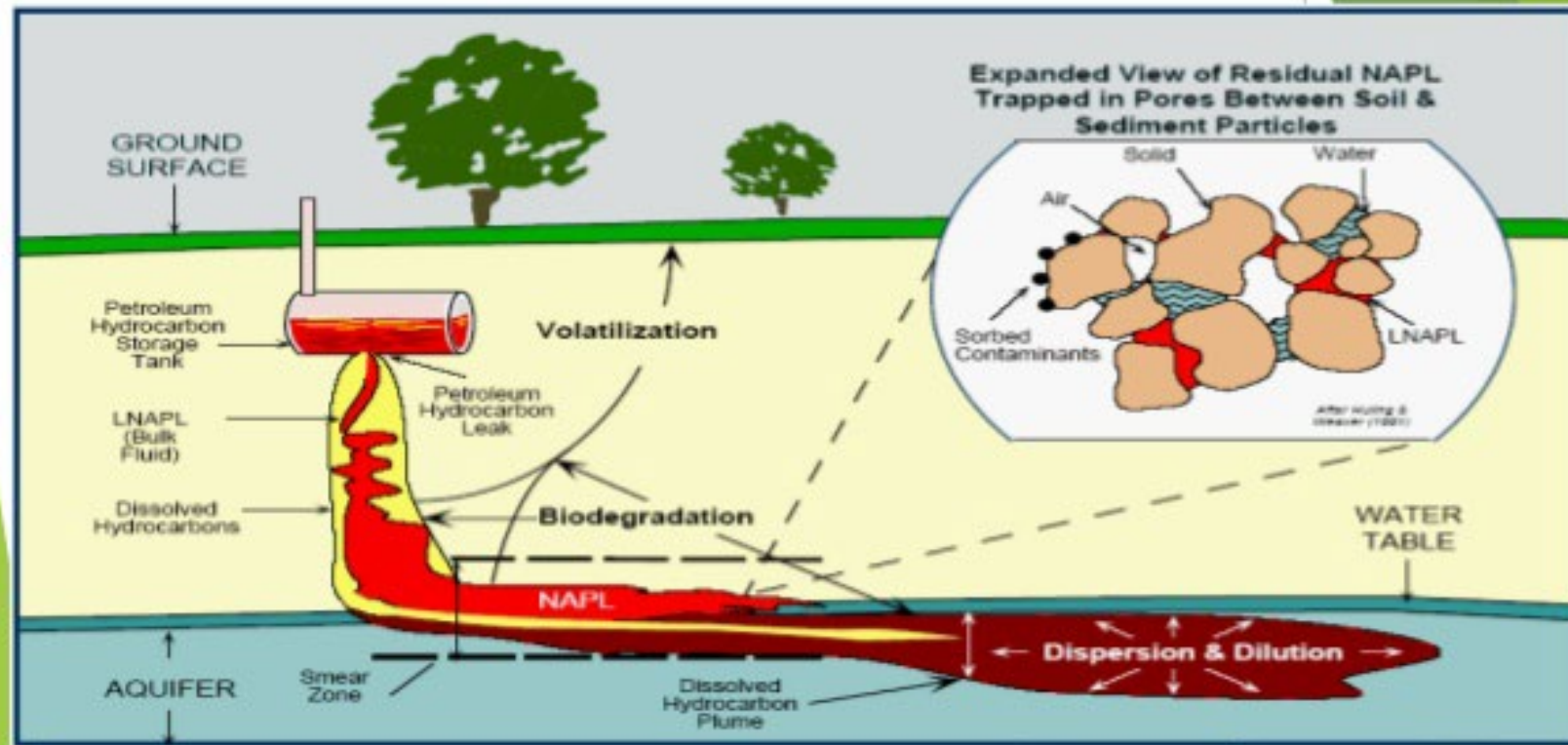
# *NEXT STEPS*

Phase II (or equivalent/superseding document) is submitted for EPD Review.  
If contamination is identified, then:

- EAR License Required (Chapter 27-356(d), BCC)
- Certified Assessment Report (Chapter 62-780, FAC)
- Cleanup Remedy (Chapter 62-780, FAC)
  - Development and Environmental Review (Section 27-66, BCC)
  - Institutional/Engineering Controls (NFAC, Section 62-780.680(3), FAC), Declaration of Restrictive Covenant

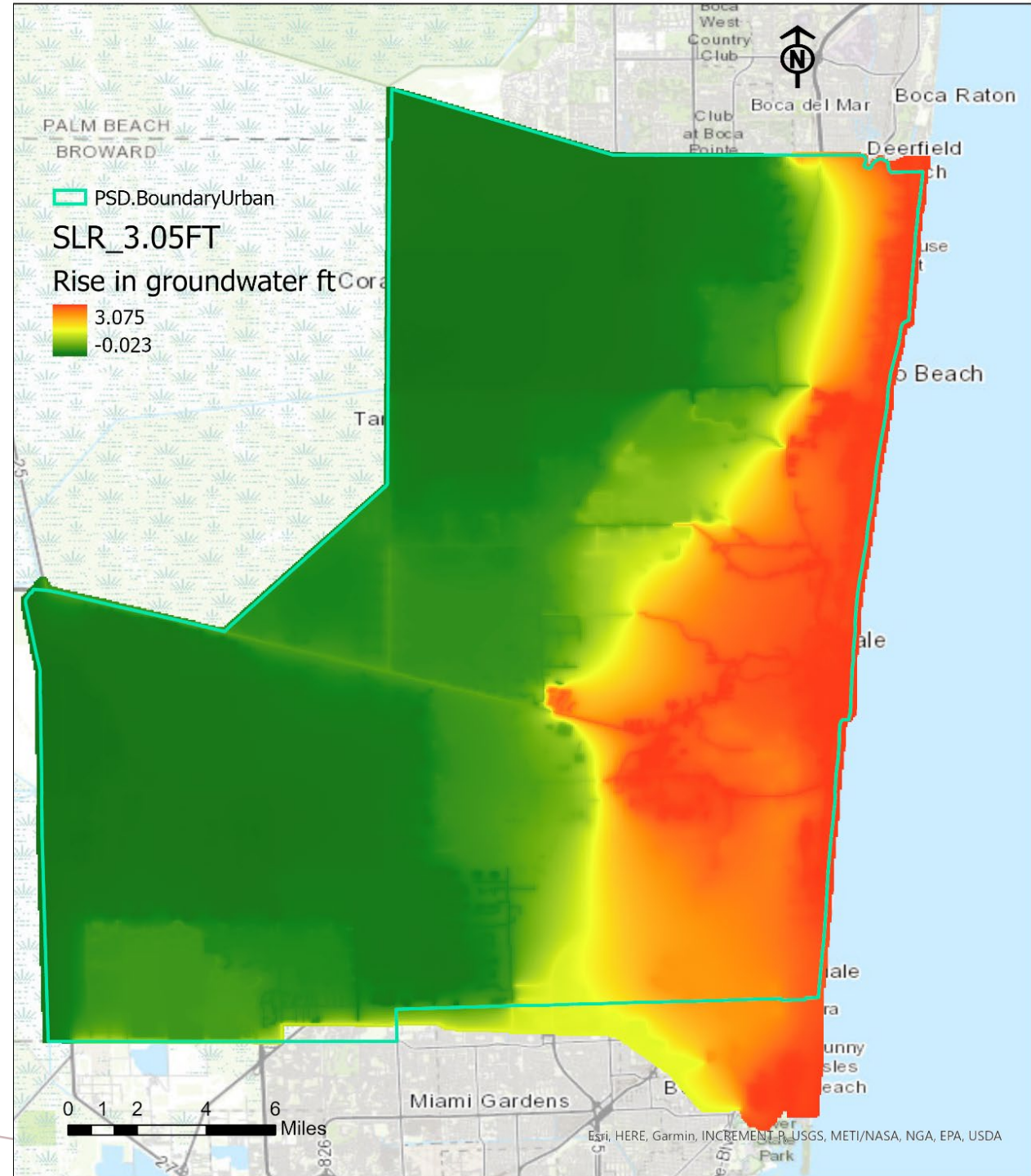
# PETROLEUM PRODUCTS

## LNAPL Light Non Aqueous Phase Liquid Migration Pattern



*PREDICTED  
FUTURE (2070)  
INCREASE IN  
WATER TABLE*

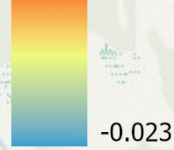
Sea level rise (SLR) = 3.05 ft  
Base year – 2017



SLR 3.05 ft

Water table rise ft

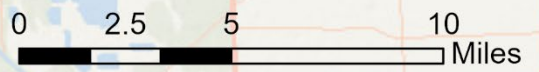
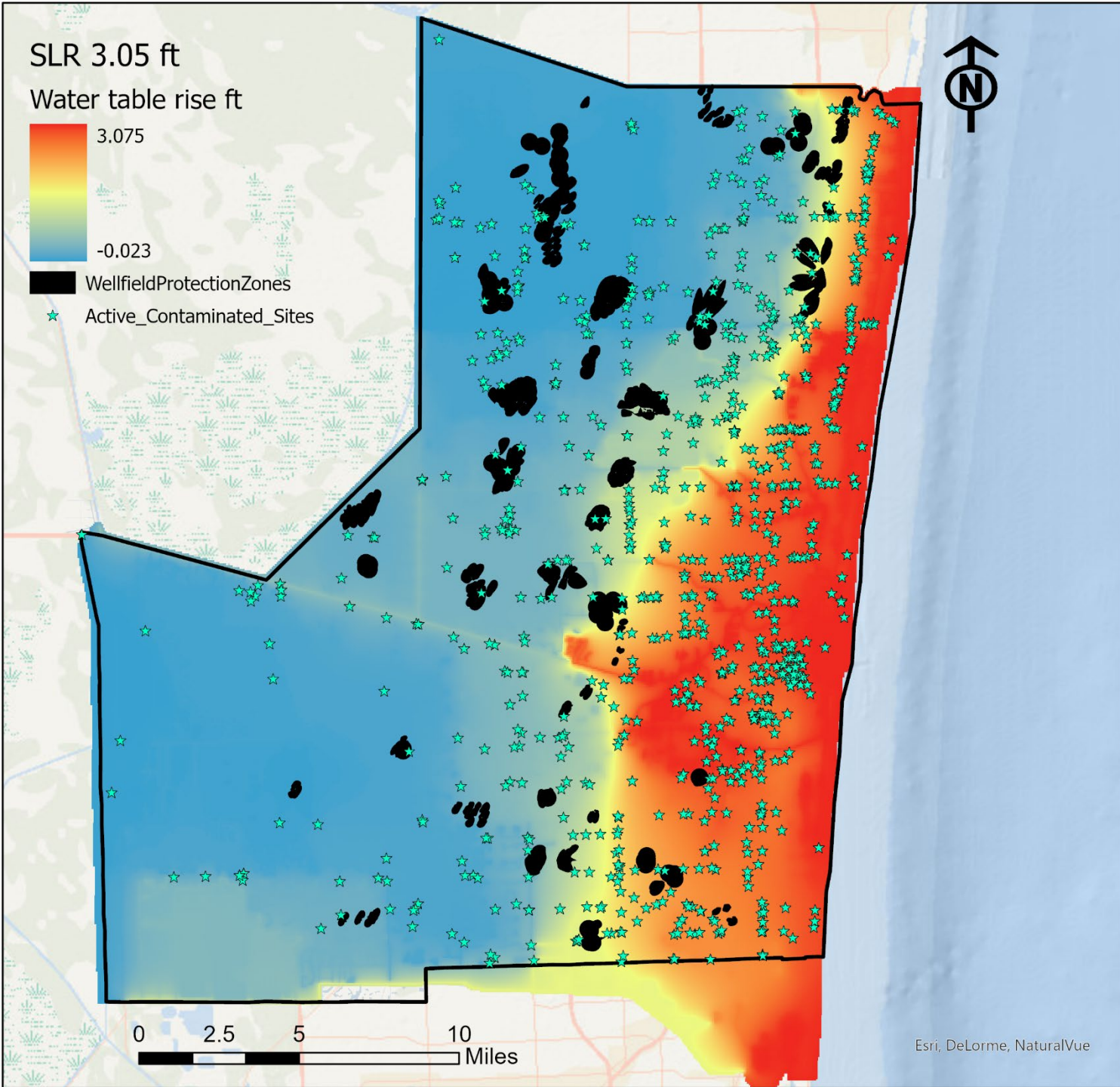
3.075



-0.023

WellfieldProtectionZones

Active\_Contaminated\_Sites



## *ENVIRONMENTALLY SENSITIVE LANDS*

ENVIRONMENTALLY SENSITIVE LAND - means those areas containing Natural Resources, as depicted in the Natural Resource Map Series of the Broward County Land Use Plan, which have been determined to be environmentally sensitive by the Broward County Board of County Commissioners. The criteria for designation of Environmentally Sensitive Lands are contained within the Plan Implementation Requirements section of the Broward County Land Use Plan. Policies which ensure the protection of Environmentally Sensitive Lands are contained within the Broward County Land Use Plan.

### **Policies 2.23.1 through 2.23.3 ensure the protection of designated Environmentally Sensitive Lands (ESLs)**

- POLICY 2.23.1 Natural resources that have been found to comply with the definition of Local Areas of Particular Concern have been identified on a Map of Local Areas of Particular Concern within the Future Broward County Land Use Map Series.
- POLICY 2.23.2 Local Areas of Particular Concern are declared to be environmentally sensitive lands and upon adoption of this plan shall be subject to the provisions of the Broward County Land Development Code regarding environmentally sensitive lands.
- POLICY 2.23.3 Broward County shall implement strategies for the protection of Local Areas of Particular Concern and other environmentally sensitive lands such as: acquisition by public or private organizations; establishment of a County trust fund for acquisition; adoption of innovative land development regulations; conservation easements; transfer of development rights; deed restrictions; and restrictive covenants.

PCNRM 10-1 Amended Map to include Wedge.  
Please contact the Planning Council at  
954.357.8051, if you need additional information.

PALM BEACH COUNTY

### Legend

- Designated lands
- Protected lands
- Section Township Range
- Municipal Boundaries

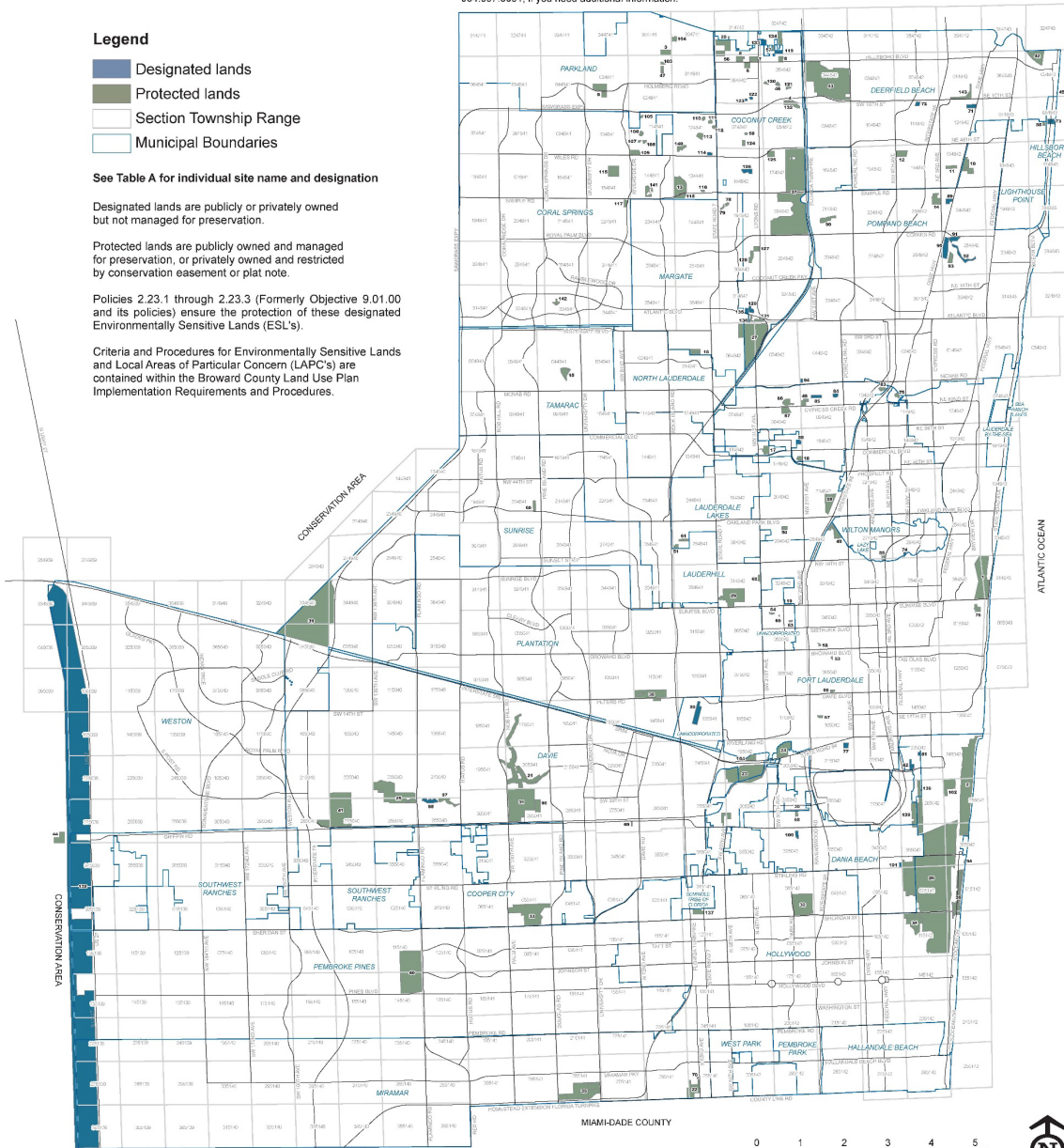
See Table A for individual site name and designation

Designated lands are publicly or privately owned but not managed for preservation.

Protected lands are publicly owned and managed for preservation, or privately owned and restricted by conservation easement or plat note.

Policies 2.23.1 through 2.23.3 (Formerly Objective 9.01.00 and its policies) ensure the protection of these designated Environmentally Sensitive Lands (ESL's).

Criteria and Procedures for Environmentally Sensitive Lands and Local Areas of Particular Concern (LAPC's) are contained within the Broward County Land Use Plan Implementation Requirements and Procedures.



0 1 2 3 4 5 Miles

# MANGROVES MATTER

**Why are Mangroves Important?**

- Mangroves provide function and value to the coastlines they inhabit
  - Shoreline stabilization
    - Storm/erosion protection
  - Ecosystem support
    - Nursery habitat (birds, fish, invertebrates)
  - Commercial fisheries
    - Mangroves support sea grass and coral reef ecosystems that fisheries rely on
  - Trap pollutants
    - Stormwater runoff: nutrients, chemicals, etc.

4/23/2015

**Why are Mangroves Important?**


- Decrease sedimentation on coral reefs and sea grasses, when mangroves are present
  - Better habitat = better fish
  - Shelter and food for development stages of fisheries
  - Beaches and coral reefs are a multi-billion dollar industry
- Mangroves are a natural barrier versus man-made seawalls and rip-rap

4/23/2015

**Why are Mangroves Important?**

**Florida Fishery Economics**

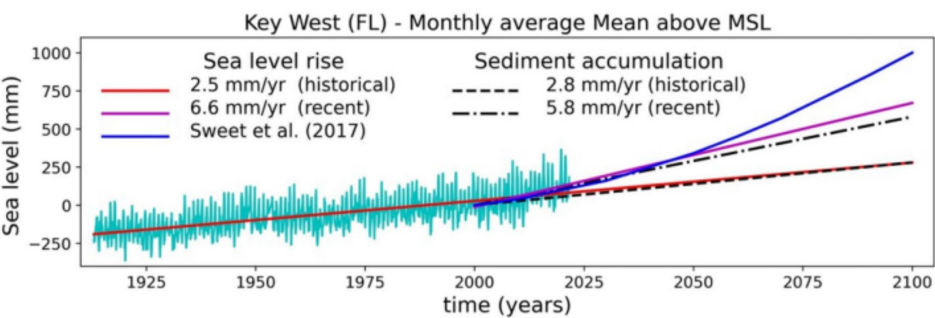
- \$24 billion marine industry
- \$14.6 billion fishing industry
- \$53 billion tourist industry: beaches & coral reefs
- Shorter mangroves contribute less to fisheries
- In 1975 \$ values (worth 4.5x today):
  - a 5 ft. red mangrove contributed \$144/ac/yr
  - a 35 ft. red mangrove contributed \$ 6,514/ac/yr
- Recreational fishing activity creates ~51,000 Florida jobs & \$5.4 billion



Painting by Monica Gutierrez-Quarto, Mangrove Action Project

Florida Fishery Economics  
<http://myfwc.com/conservation/value/saltwater-fishing/> (2010 values)

4/23/2015 24



Mangrove loss with sea level rise

Parkinson, Randall W., and Shimon Wdowinski. "Accelerating sea-level rise and the fate of mangrove plant communities in South Florida, USA." *Geomorphology* 412 (2022): 108329.



Surge Level:  
Without Mangroves ▼

Surge Level:  
With Mangroves ▼

Mangroves  
decrease  
surge level  
at back

Mangroves  
increase  
surge level  
in front





# *RED REVIEW*

Applications for development of a LAPC submitted to Urban Planning Division: Environmental Impact Report (EIR) with recommendations made to the Board

If the Planning Council refers an application that includes modification or removal of a LAPC, RED will:

- Perform records review of title, history, conservation easements or other encumbrances
- Perform site inspection to determine whether the criteria of a LAPC for Native Vegetative Communities Category is currently met
- Document findings and a recommendation to the Planning Council

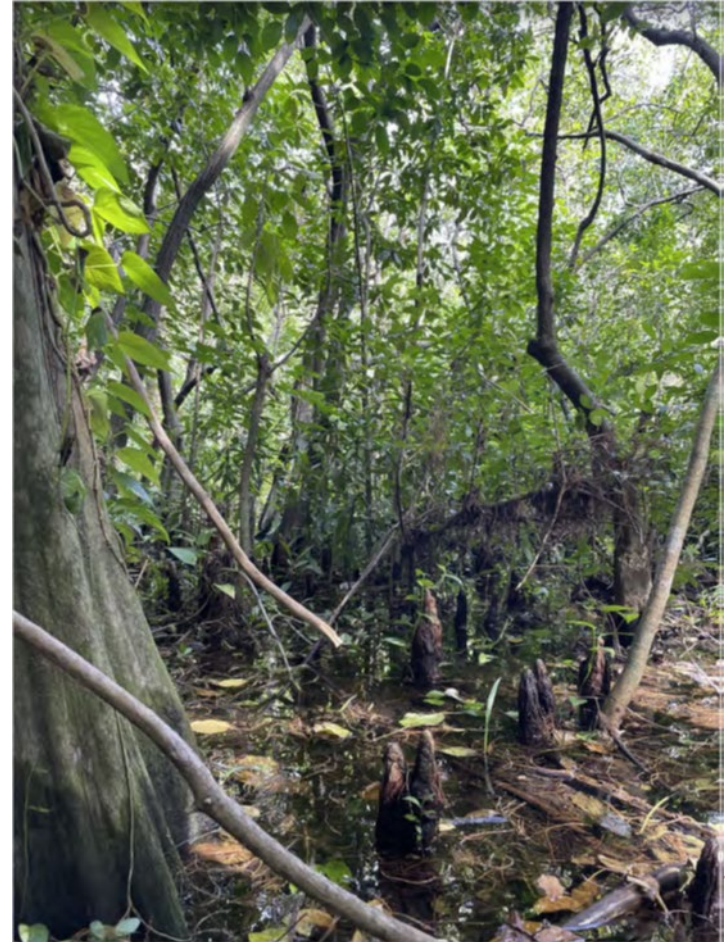
Ultimately the Board must decide

# Criteria for LAPC

A Local Area of Particular Concern (Native Vegetative Communities Category) is an area which shows a predominance of native vegetation associated with one or more of the following ecological Communities:

- Beach and Dune Community
- Coastal Strand Forest Community
- Mangrove Community (Saltwater Swamp)
- Scrub Community
- Pine Flatwoods Community
- High Hammock Community
- Low Hammock Community
- Cypress Wetland Community (Freshwater Swamp)
- Everglades Community (Freshwater Marsh)

AND at least 3 of the following criteria:



# Criteria for LAPC

*i. Uniqueness* - The site contains a significant sample of rare or endangered species, or the site is among a small number of sites in Broward County representing a particular ecological community.

*ii. Low Level of Exotic Invasion* - The degree and nature of exotic invasion on the site is such that it can be easily managed or mitigated.

*iii. Potential for Protection* -Ownership patterns, development status and other factors make the resources of a site likely to be successfully protected.

*iv. Geography* - The site has proximity to other resources which would heighten its value as a LAPC (e.g., other ESLs, public parks, waterfront).





Photo: Crab holes, M. Decker, 5/22/2020

## Wildlife Usage

Wildlife usage is representative of a high-quality Wetland.



Photo: Mammal skull,  
K. Scheffer 2/16/2024

*HIGH QUALITY  
MANGROVE  
WETLAND*

- Tall healthy red mangroves (>20')
- Established red mangroves  
(Prop root ground coverage >85%)
- No or limited exotics



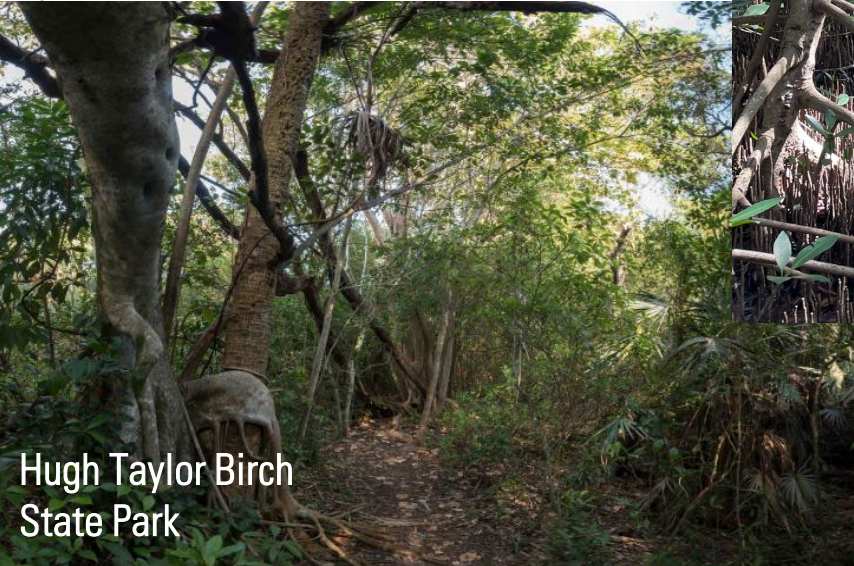
*COMPARE QUALITY TO STATE/LOCAL PARKS*

Dr. Von D. Mizell-Eula Johnson  
State Park



Deerfield Island Park

Hugh Taylor Birch  
State Park



West Lake Park

*THANK YOU!*