



# **SOUTHEAST ADVANCED WATER RECLAMATION FACILITY**

CPA2023-00003

Local Planning Agency  
September 25, 2023

# Presentation Team

## Lee County Utilities

Nathan Beals

## Jacobs

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## Johnson Engineering

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## RVi Planning & Landscape Architecture

Alexis Crespo & Josephine Medina



# Jacobs



Planning + Landscape Architecture

# Presentation Outline

- Planning Framework
- Project Need & History
- Southeast Advanced Water Reclamation Facility (SEAWRF) Overview
- Groundwater Resource & Surface Water Management Overview
- Environmental Overview
- Traffic Overview
- Lee Plan Compliance & Conclusions



# Property Location

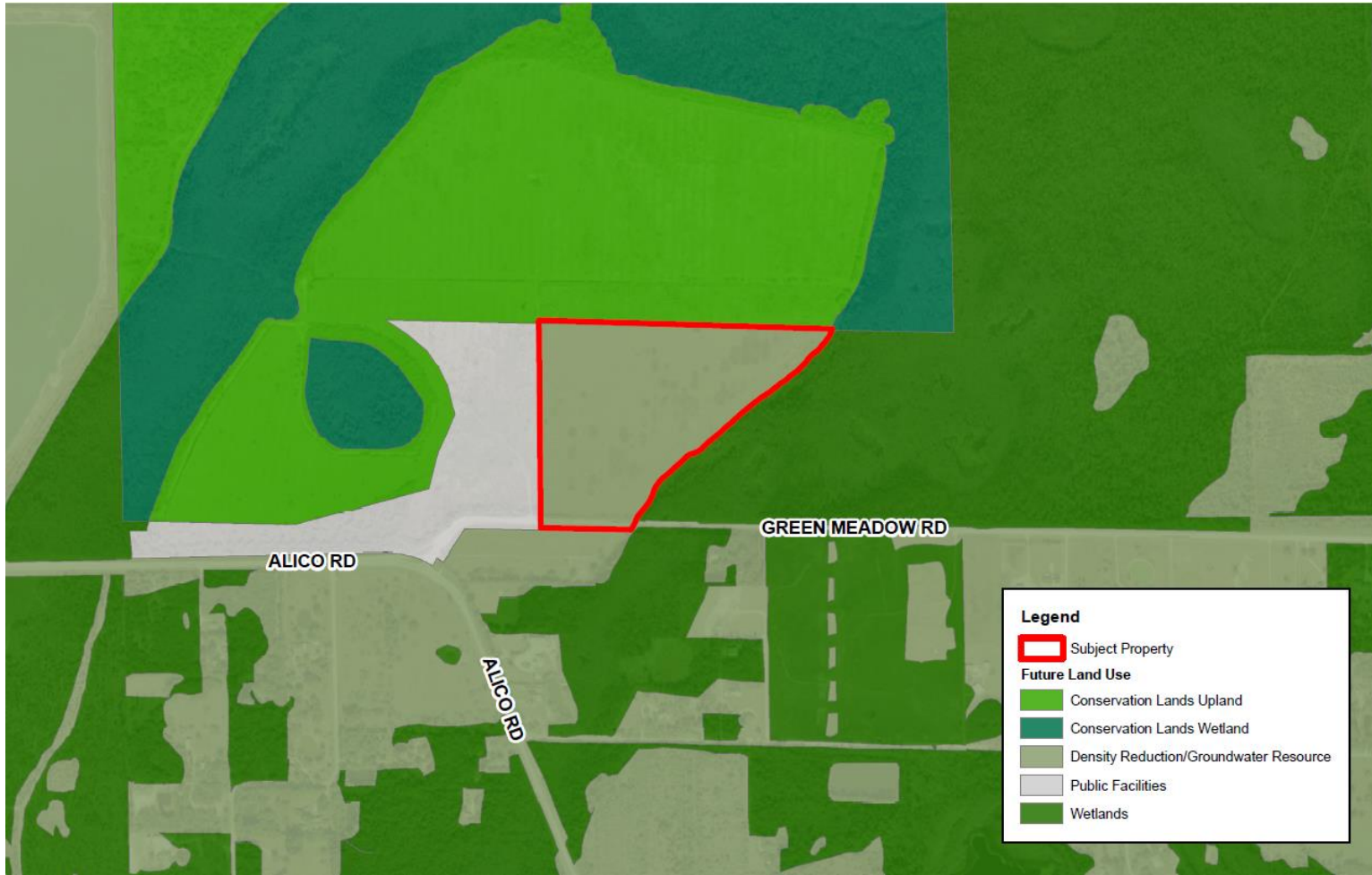


# Request Summary

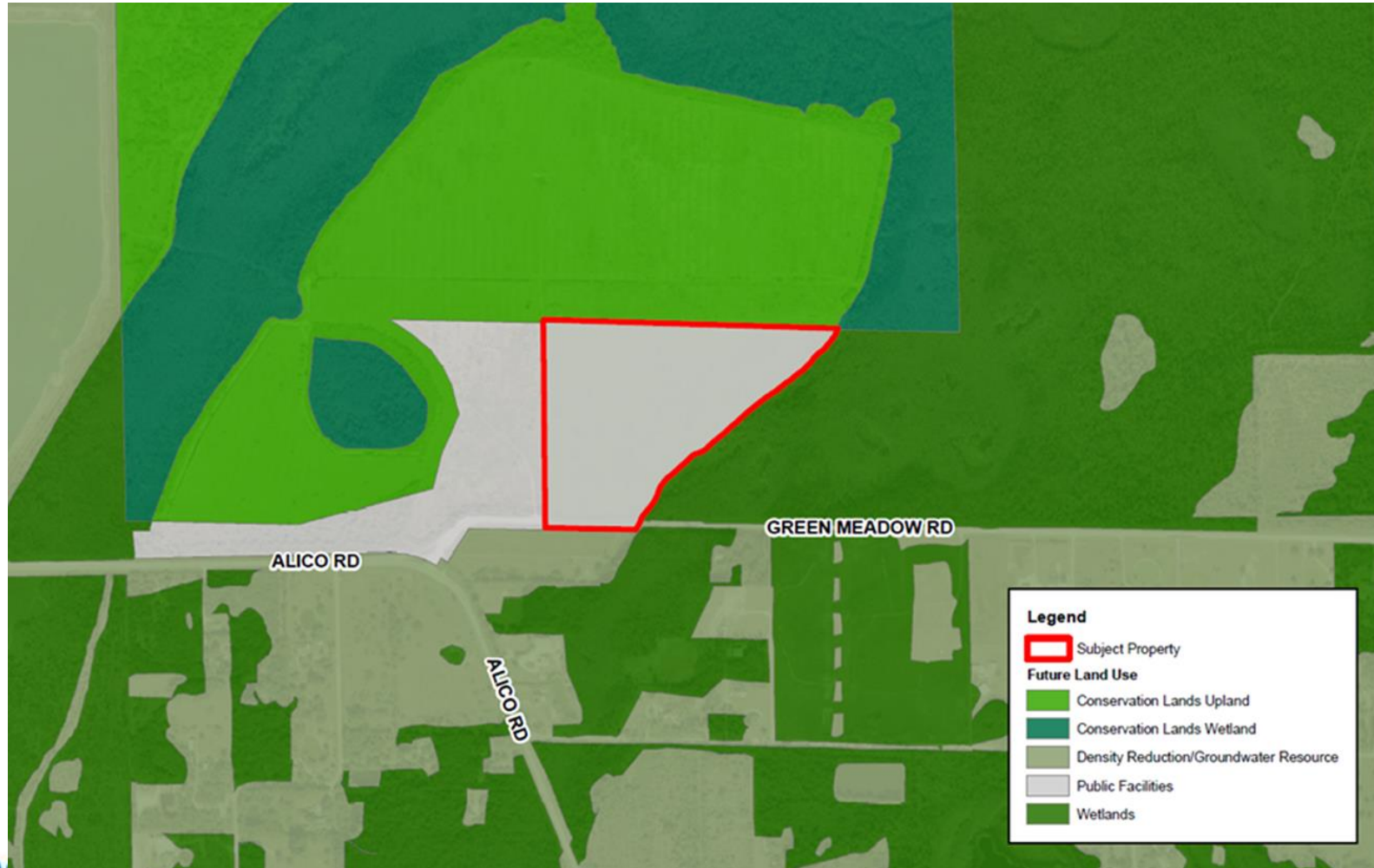
- Small Scale Comprehensive Plan Amendment
- Redesignate 36 +/- acres from “Density Reduction Groundwater Resource” DR/GR to “Public Facilities” future land use designation
- NO change to “Wetlands” future land use designation on the east side of the property
- Companion Community Facilities Planned Development (CFPD) rezoning petition filed to allow for a Southeast Advanced Water Reclamation Facility (SEAWRF)



# Current Future Land Use Map



# Proposed Future Land Use Map



**NATHAN BEALS, PMP**

Lee County Utilities



# Project Need & History

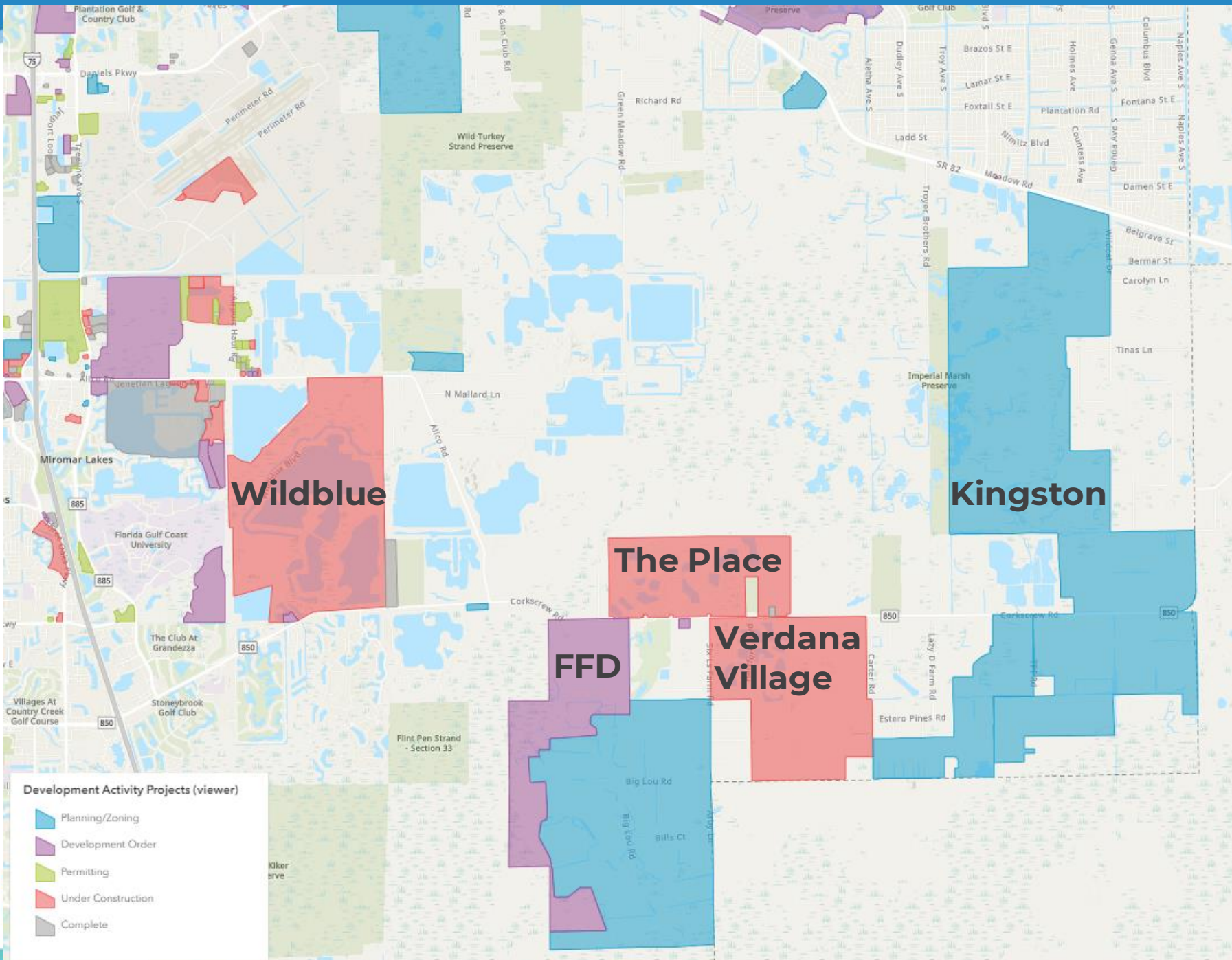
- 2010 to 2017 – Multiple studies and reports indicate the need for additional sewer treatment capacity to meet the population growth demands for the Three Oaks Water Reclamation Facility's and Southeast Planning Community's service areas
- 2018 – Board approved Purchase Agreement for the voluntary purchase of subject property to be a shared site for a Wastewater Treatment Plant, Solid Waste Transfer Facility, and road right-of-way
- 2018 – Zoning action proposed for a Wastewater Treatment Plant with a maximum 6 million gallon per day (MGD) capacity and a Solid Waste Transfer Facility
  - Staff requested the CFPD remanded back to Staff for additional analysis and modifications to address public concerns regarding compatibility, environmental protection and consistency with DR/GR future land use



# Project Need & History

- 2020 – Board approved Settlement Agreement with Florida Farm Development (FFD) to allow 5,208 residential units on land south of the Corkscrew Road/Alico Road intersection (where approximately 800 units were possible based on the Lee Plan prior to approval)
- 2022 – Board approved Settlement Agreement relating to the “Kingston” property to allow 10,000 residential units
- 2022 – With 2 Settlement Agreements adding 15,208 residential units to be served by LCU, the SEAWRF project was re-initiated by LCU to meet the demand for utilities in SE Lee County

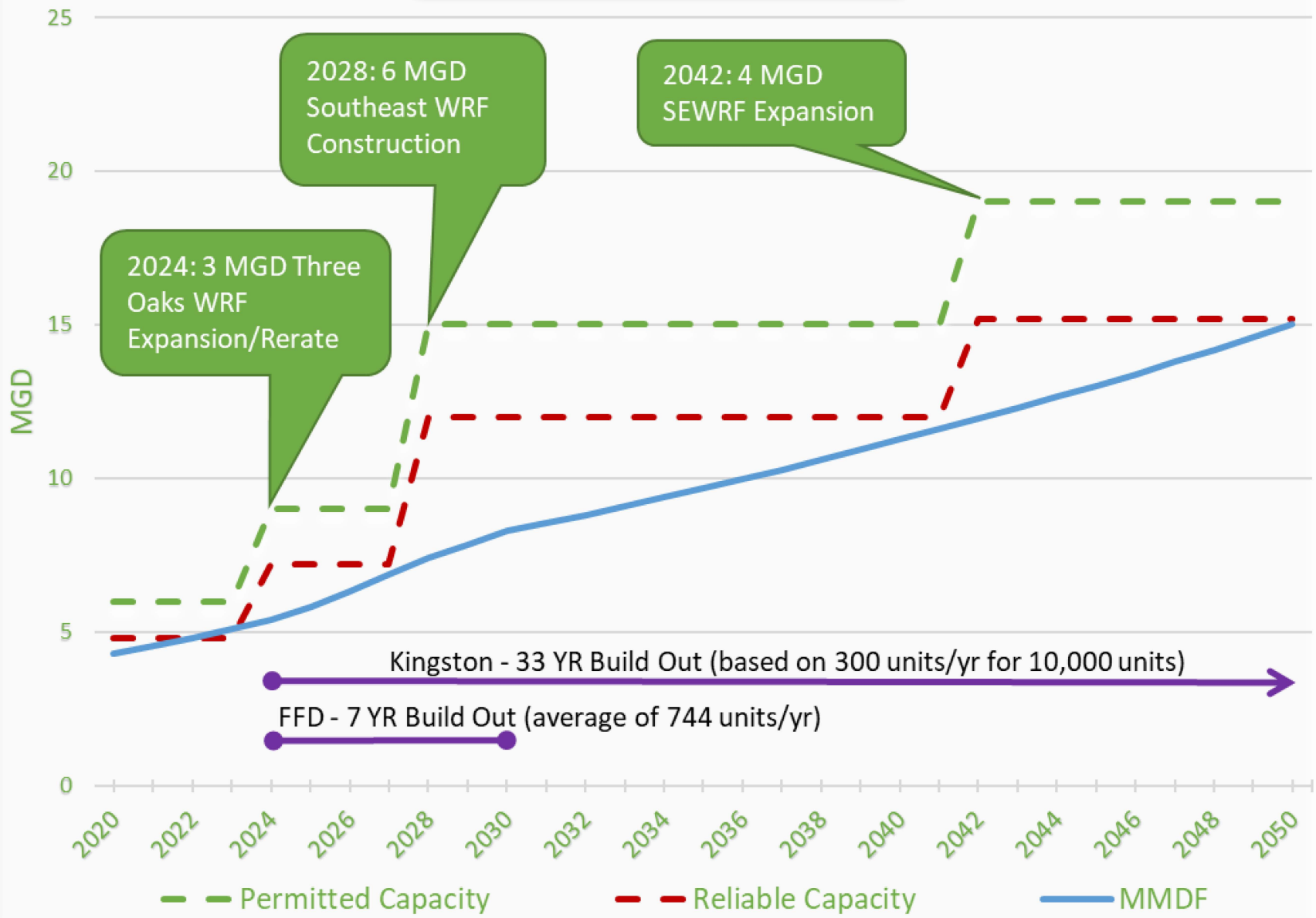




**Development Activity Projects (viewer)**

- Planning/Zoning
- Development Order
- Permitting
- Under Construction
- Complete

# Southeast County Service Area Flow Projections (TO & SE)



# Project Need & History

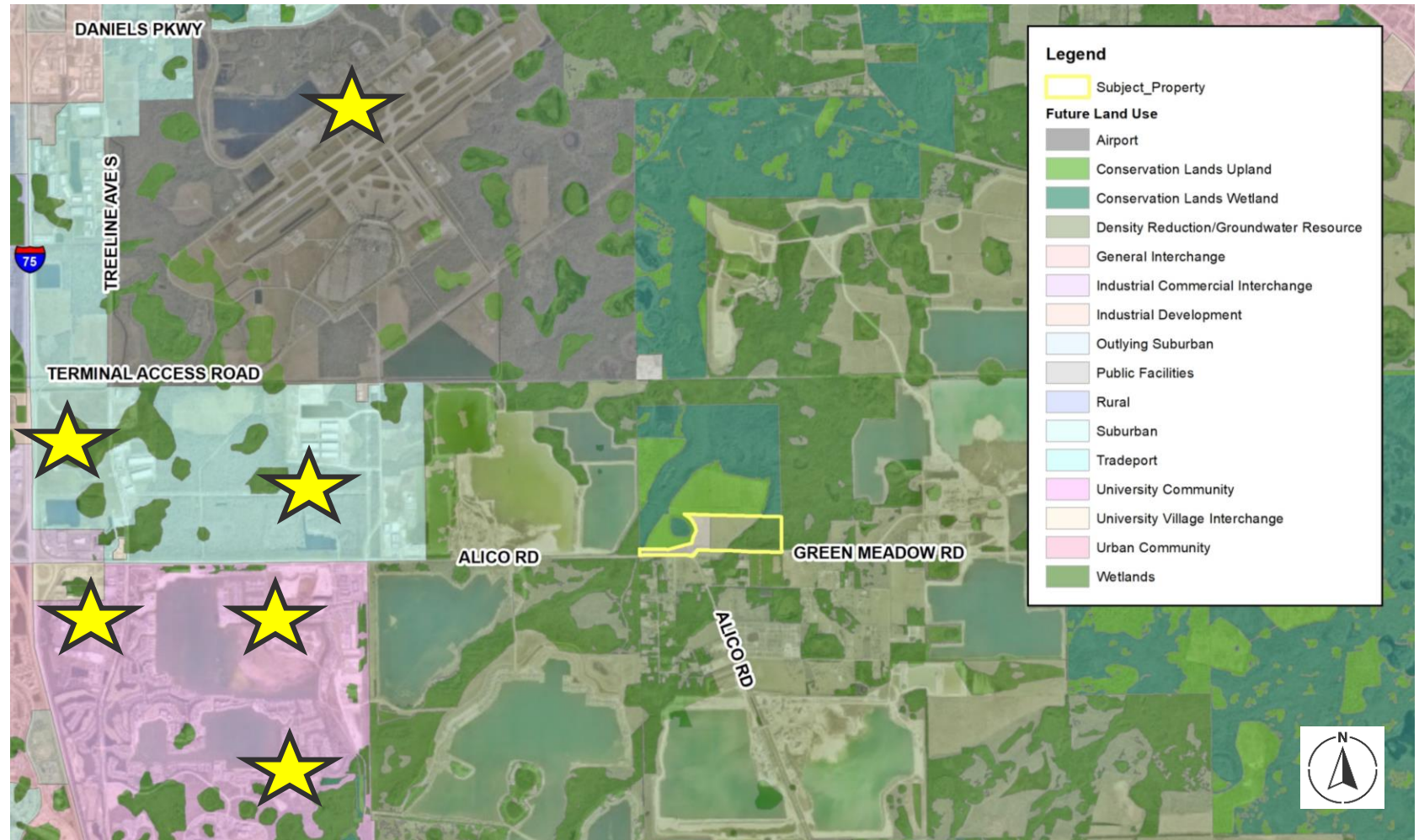
- March 2022 – Previous CFPD rezoning petition withdrawn & new CFPD & Comprehensive Plan Amendment applications filed, with substantial updates to address concerns
  - The build-out capacity of the proposed SEAWRF is now 10 MGD and the site doesn't accommodate a Solid Waste Transfer Facility. Thus, the Solid Waste Transfer Facility was removed from the project.



# **ALEXIS CRESPO, AICP**

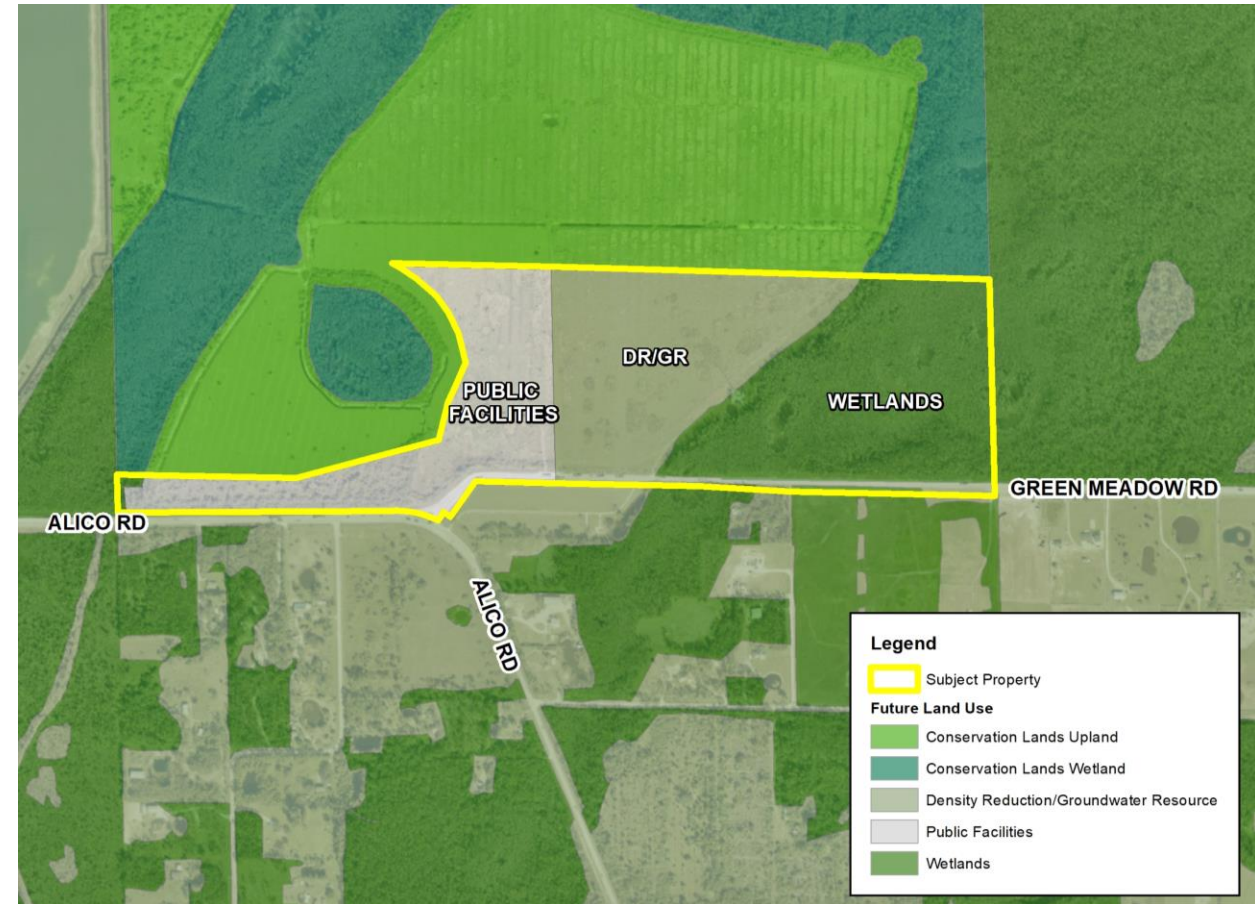
RVi Planning + Landscape Architecture

# Southeast Lee County Future Land Use



# SEAWRF Future Land Use

- Total Property Size = 112+/- acres
- Unimproved access from Green Meadow Road (Future Alico Rd. Ext.)
- Western portion re-designated to Public Facilities FLU per Ordinance No. 18-25
- Remaining portions designated as DR/GR and Wetlands



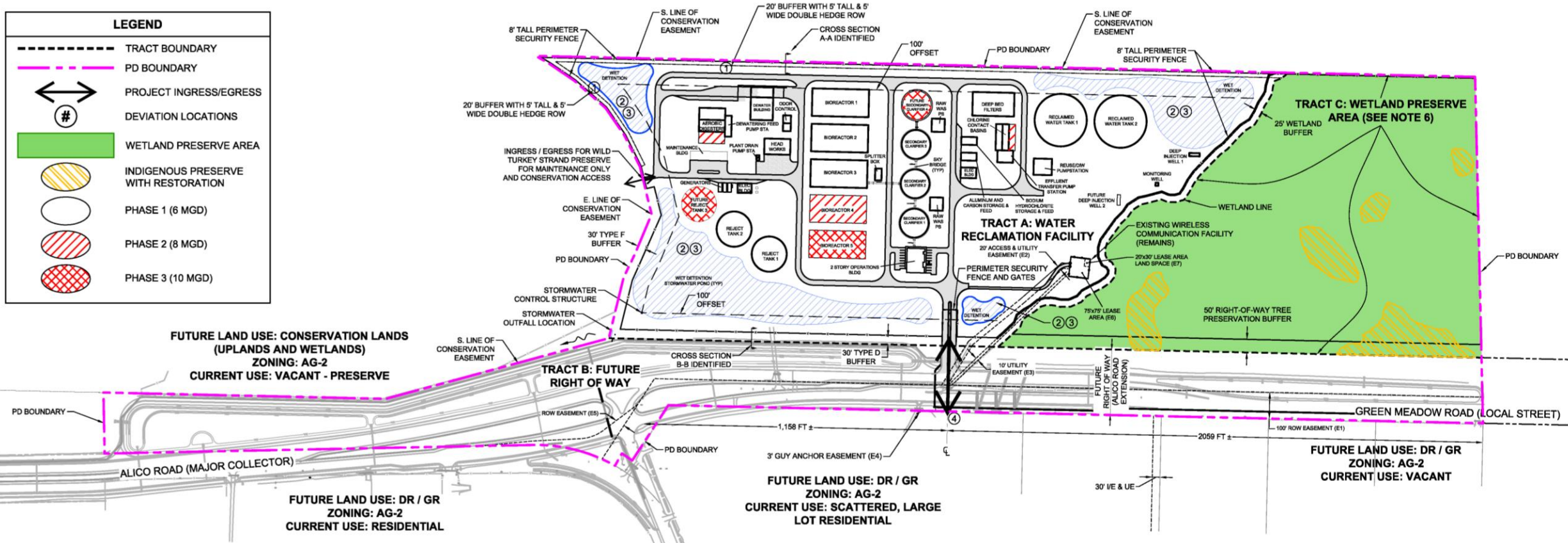


# Comprehensive Plan Amendment Justification

- Demonstrated **demand** for additional wastewater treatment facilities to serve SE Lee County
- Demonstrated **consistency** with required infrastructure and services to support the project (Roads, Fire/EMS, Sheriff's Office, etc.)
- Provided extensive environmental and hydrological **data & analysis** to demonstrate the conversion to Public Facilities will not adversely impact natural resources
- **Preservation** of the Wetland FLU area
- Companion CFPD addresses **sensitive site design** to ensure well-planned, phased development and extensive protection to neighborhood compatibility/quality of life

# Companion CFPD Rezone

LEGEND	
	TRACT BOUNDARY
	PD BOUNDARY
	PROJECT INGRESS/EGRESS
	DEVIATION LOCATIONS
	WETLAND PRESERVE AREA
	INDIGENOUS PRESERVE WITH RESTORATION
	PHASE 1 (6 MGD)
	PHASE 2 (8 MGD)
	PHASE 3 (10 MGD)



**Southeast Advanced Water Reclamation Facility**

# View from Alico Rd./Green Meadow Rd. Intersection



# View from Alico Road/Devore Lane Intersection



# View of Project Entry from South (Entry)



# Lee Plan Vision Statement

The Lee Plan is designed to depict Lee County as it will appear in the year 2045 when the population is projected to be 1,056,600 permanent residents with an additional 18% seasonal residents. In order to balance the County's projected growth with evolving planning priorities, the following trends are expected to continue through the year 2045 planning horizon:

**The County's public facilities will be maintained at adequate levels of service, partly by the construction of new facilities and partly by the use of new methods to conserve the capacity of existing facilities.**



# Lee Plan Compliance – Future Land Use Element

- POLICY 1.1.8: Public Facilities Future Land Use
- POLICY 1.5.1: Wetland Future Land Use
- POLICY 1.6.5: The Planning Districts Map and Acreage Allocation Table (Map 1-B and Table 1(b))
- POLICY 2.1.3: Public Uses Permitted In All Land Use Categories
- POLICY 5.1.5: Compatibility with Residential Land Uses
- GOAL 33: Southeast Lee County Planning Community



**Erik Howard, P.E., P.S.M**

Johnson Engineering



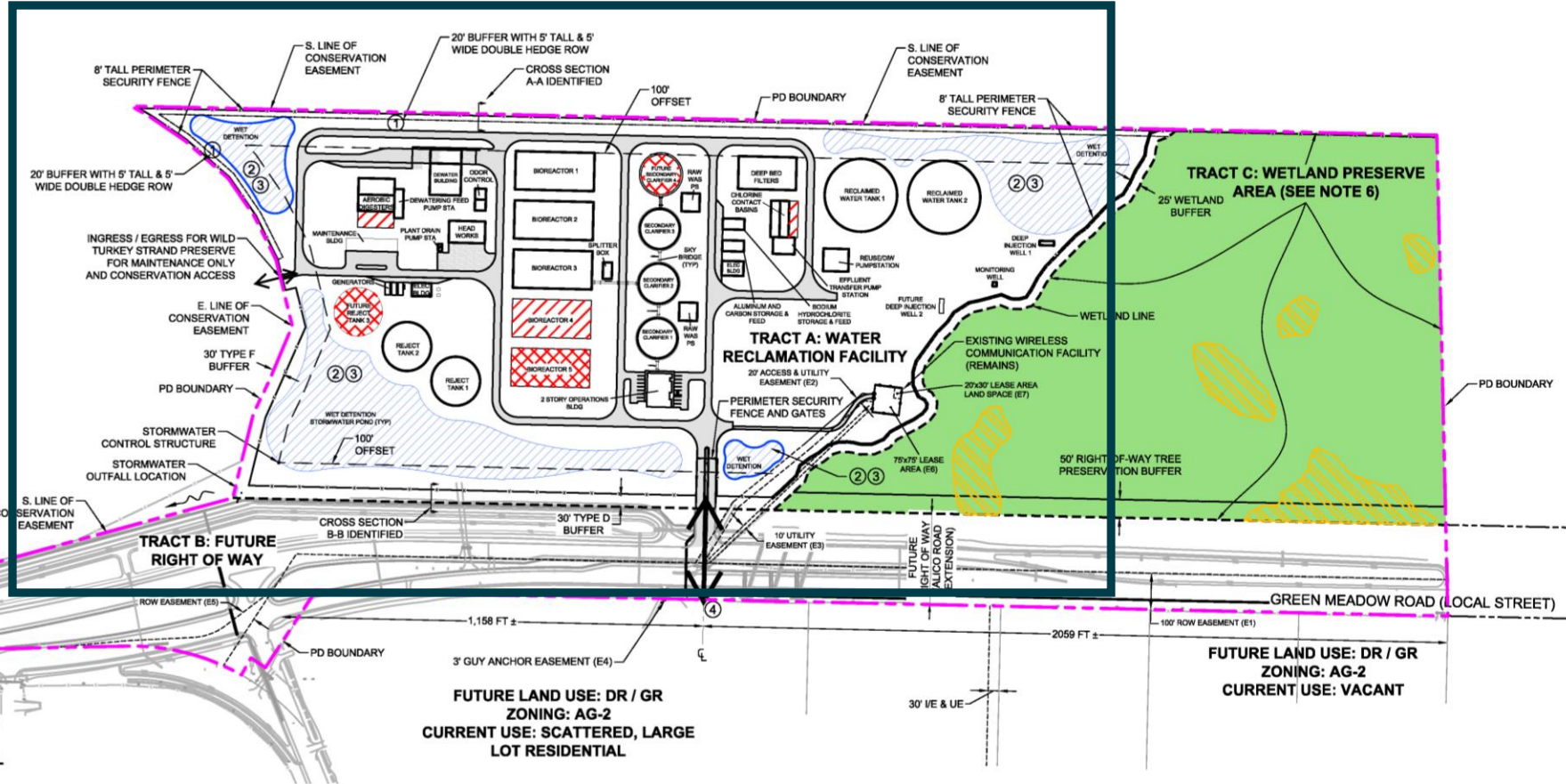
# Water Reclamation Facility Project Overview

- New advanced water reclamation facility to treat 6 million gallons per day (mgd) expandable to 10 mgd in the future
- Advanced waste treatment (AWT) is a higher standard than required
  - Removes additional nutrients
  - Exceeds requirements for Part III public access reuse
- Facility designed to mitigate impacts
  - Plant is set-back to mitigate visual impacts
  - Odor control and noise attenuation is included

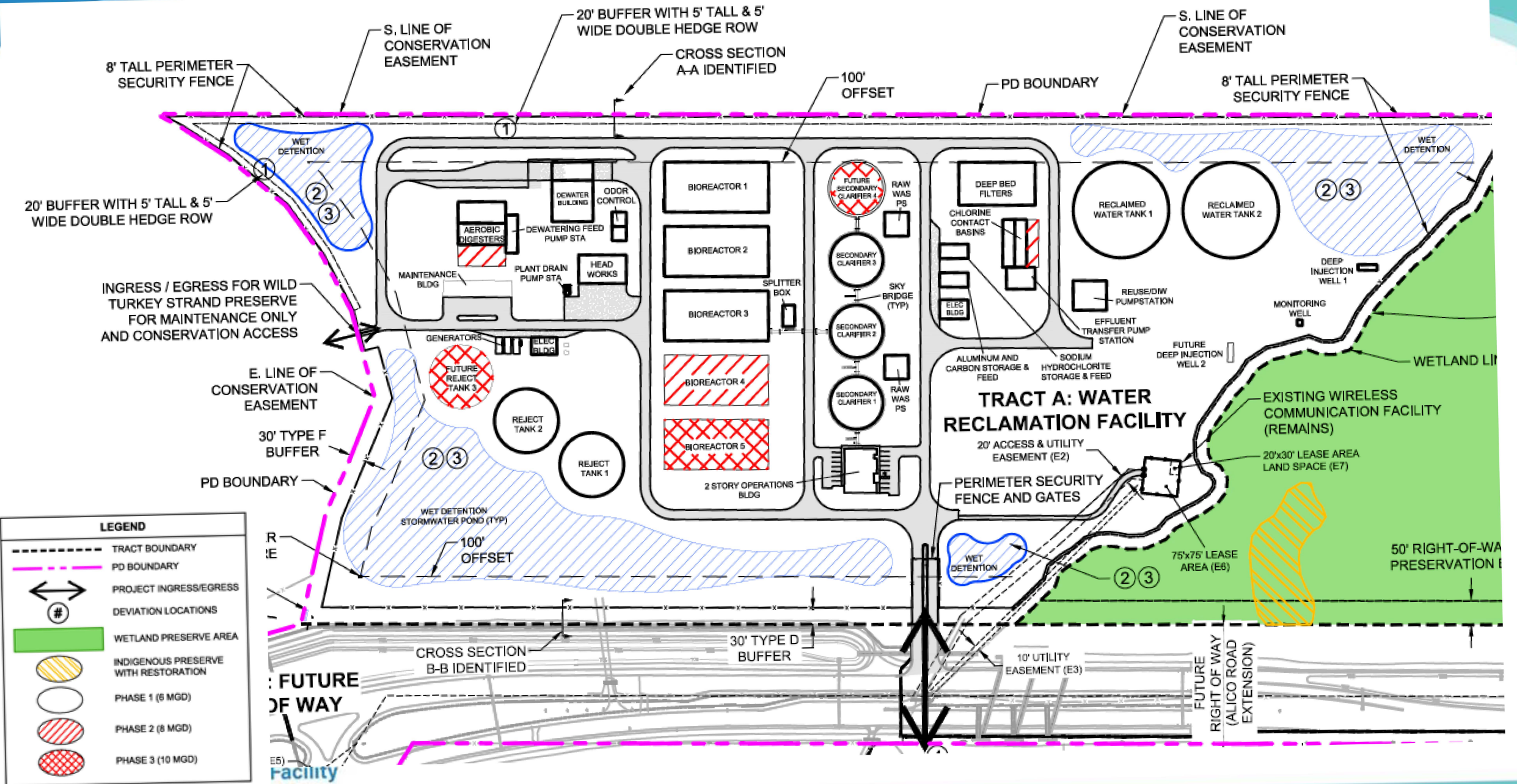


# Master Concept Plan/Site Design

LEGEND	
	TRACT BOUNDARY
	PD BOUNDARY
	PROJECT INGRESS/EGRESS
	DEVIATION LOCATIONS
	WETLAND PRESERVE AREA
	INDIGENOUS PRESERVE WITH RESTORATION
	PHASE 1 (6 MGD)
	PHASE 2 (8 MGD)
	PHASE 3 (10 MGD)



**Southeast Advanced Water Reclamation Facility**



**LEGEND**

	TRACT BOUNDARY
	PD BOUNDARY
	PROJECT INGRESS/EGRESS
	DEVIATION LOCATIONS
	WETLAND PRESERVE AREA
	INDIGENOUS PRESERVE WITH RESTORATION
	PHASE 1 (6 MGD)
	PHASE 2 (8 MGD)
	PHASE 3 (10 MGD)

FUTURE OF WAY Facility

# SEAWRF is Designed From Ground Up to be Reliable

- The WRF is designed to operate in all conditions, including storms, and is staffed accordingly
- Facility is regulated by State and Federal rules
  - Permit is required and will be regularly inspected by the FDEP after permit issuance
  - Testing is required with monthly reporting to demonstrate permit compliance
  - Treatment plant operators are licensed professionals
- Facility is designed to highest Federal and State standard for reliability called “Class I” reliability
  - This ensures that the plant remains operational under adverse conditions
- This design is consistent with other reliably operated Lee County Utilities WRFs



# Rendering of Facility Phase 1 – 6 million gallons per day



**Southeast Advanced Water  
Reclamation Facility**

# Rendering of Facility Phase 2 – 8 million gallons per day



# Rendering of Facility Phase 3 – 10 million gallons per day



# Lee Plan Compliance – Infrastructure Element

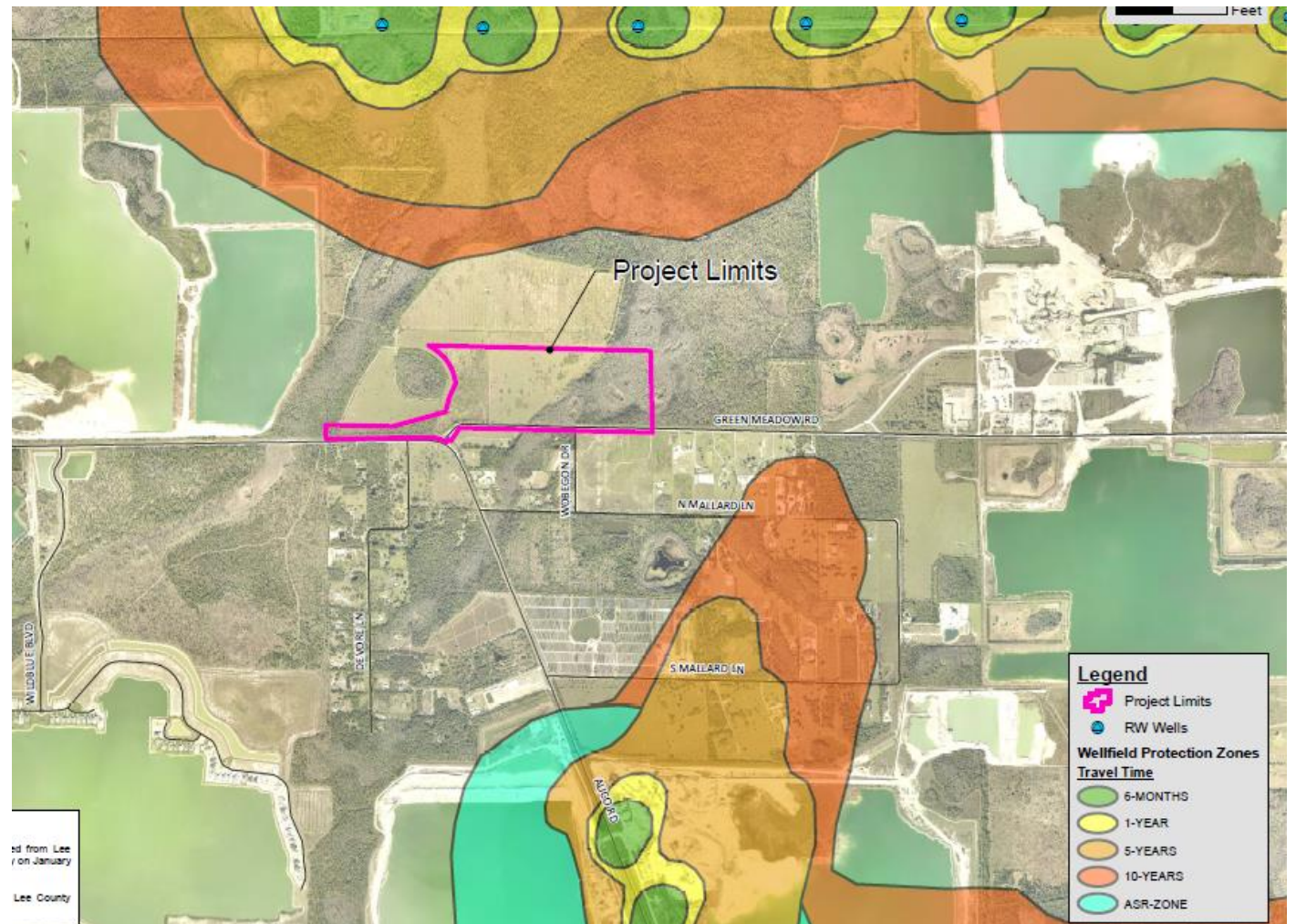
- OBJECTIVE 56.1: Ensure the Provision of Acceptable Levels of Sanitary Sewer
- POLICY 56.1.3: Provision of Sufficient Treatment Facilities & Collection Systems
- OBJECTIVE 56.2: Require The Connection of Commercial and Larger Residential Establishments To Central Utility Systems
- POLICY 95.2.1: Track Development Permit Approvals and Available Capacities Of Public Facilities
- POLICY 127.1.1: Development Must Prevent Significant Emissions of Air Pollution





# Wellfield Protection Zones

- Project is outside of Lee County Wellhead Protection Zones



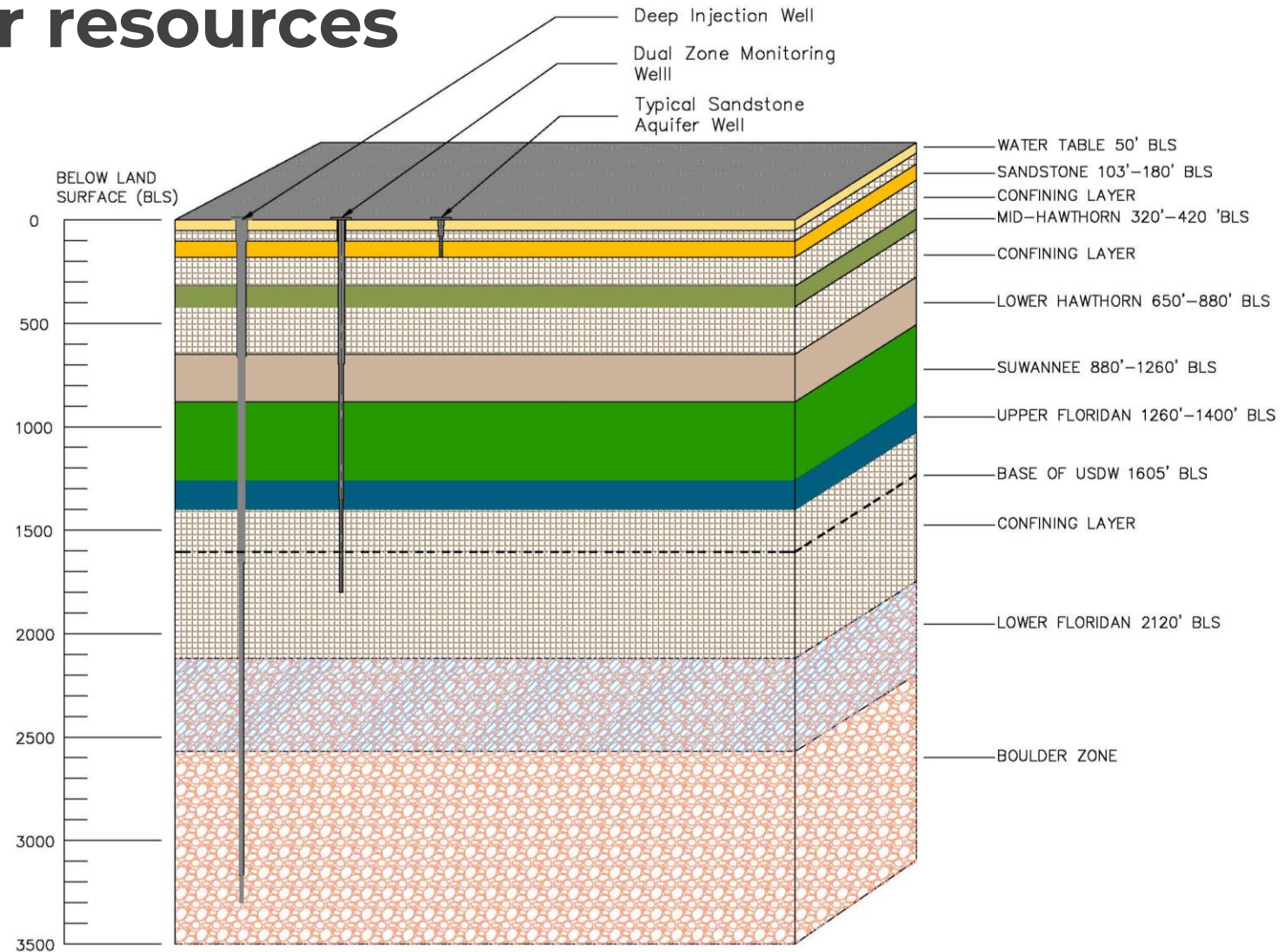
# Two Class I DIWs Will Safely Dispose Excess RW While Protecting Water Supply

- Class I injection well identified as safest, most reliable & effective disposal mechanism
- Regulated federally by EPA and in Florida by FDEP Underground Injection Control (UIC) Program
- Class I wells can only inject reclaimed water below the lowermost Underground Source of Drinking Water (USDW)
- There are more than 180 active Class I wells in Florida and 21 in Lee County, including the nearby Green Meadows, Pinewoods and Three Oaks DIWs.



# DIWs protect our water resources

Shallow potable supply wells are vertically separated from injection zone by more than 2,000 feet

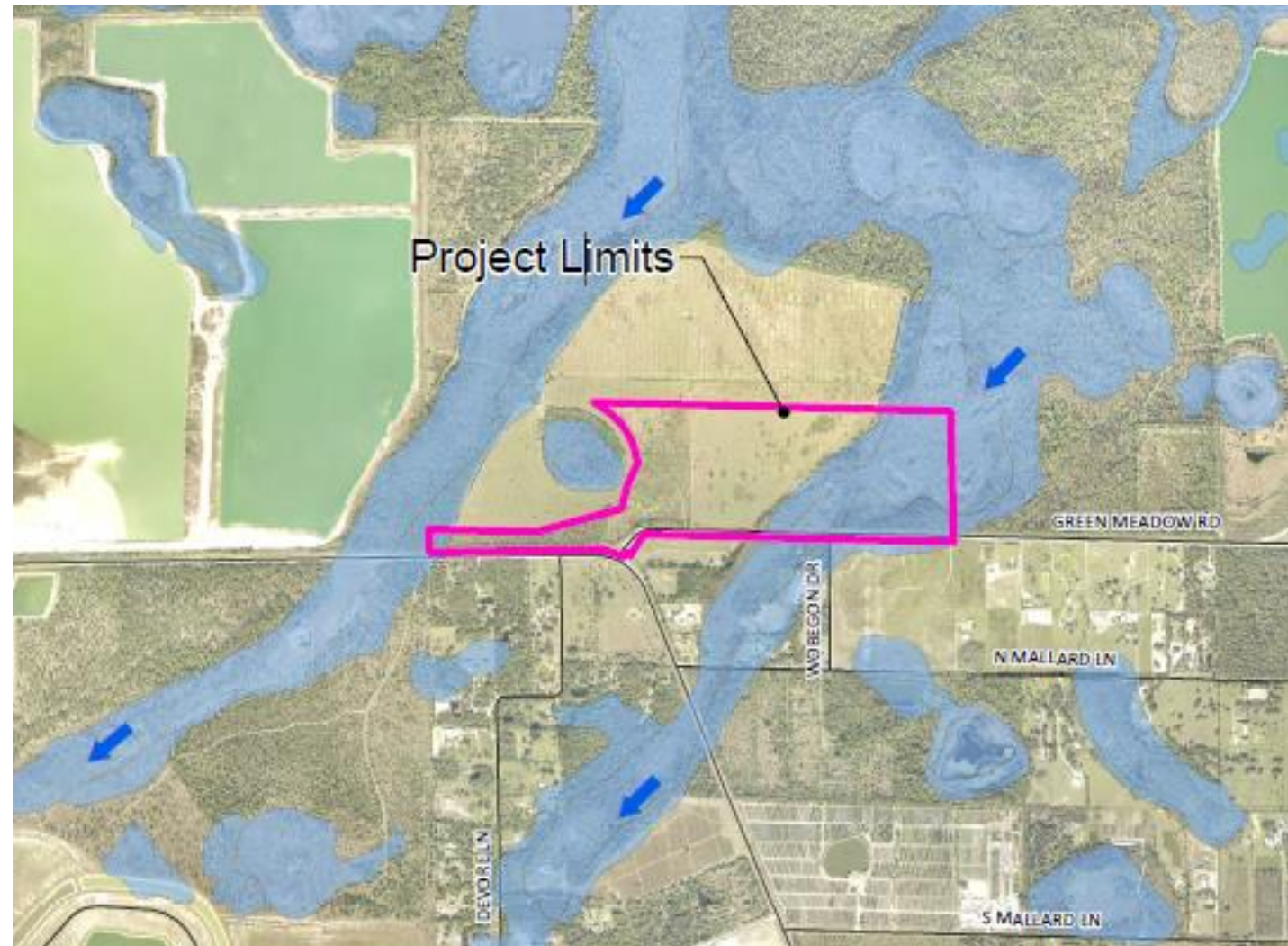


# Lee Plan Compliance – DR/GR

- POLICY 2.3.1: No significant impacts to present or future water resources
- POLICY 2.3.2: Future Land Use Map amendments to the existing DR/GR areas south of SR 82 must show:
  1. Availability of irrigation and domestic water sources
  2. Consistency with the Regional Water Supply Plan
  3. Data and Analysis showing no harm to present and future public water resources
  4. Data & Analysis addressing Urban Sprawl

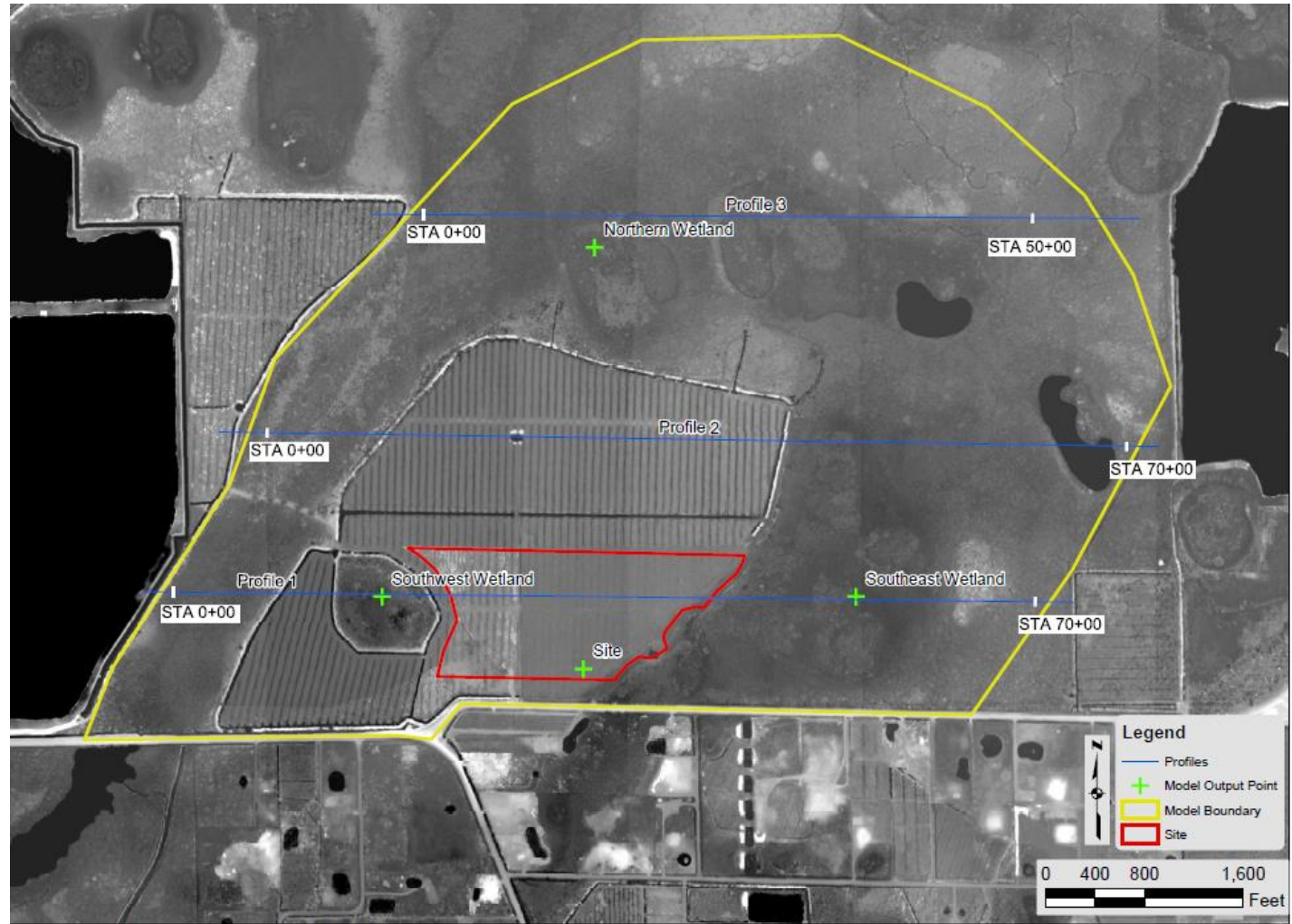
# Historic Flowways

- Project is in between two surface water flowways
- Development will be within uplands
- Flowways will be undisturbed



# Lee Plan Compliance – DR/GR & Surface Water

- Project was modeled with ICPR Version 4
- The model incorporated groundwater and surface water for existing and proposed conditions
- Results demonstrate no adverse impacts to adjacent wetlands



# Surface/Ground Water Quality Monitoring Ensures Water Resource Protection



# Lee Plan Compliance – Surface/Ground Water Quality

- POLICY 60.1.1: Surface water management systems protect or enhance the groundwater
- POLICY 60.1.2: Restore natural surface water flowways and associated habitats
- POLICY 123.2.3: Prevent altering or disrupting the natural function of natural systems
- POLICY 125.1.2: Prevent surface and ground water quality degradation
- POLICY 125.1.3: Artificial drainage systems minimize nutrient loading and pollution of freshwater and estuarine systems.
- POLICY 126.1.1: Protection & Management of natural water system features
- POLICY 126.1.4: Surface water flows, groundwater levels, and lake levels .

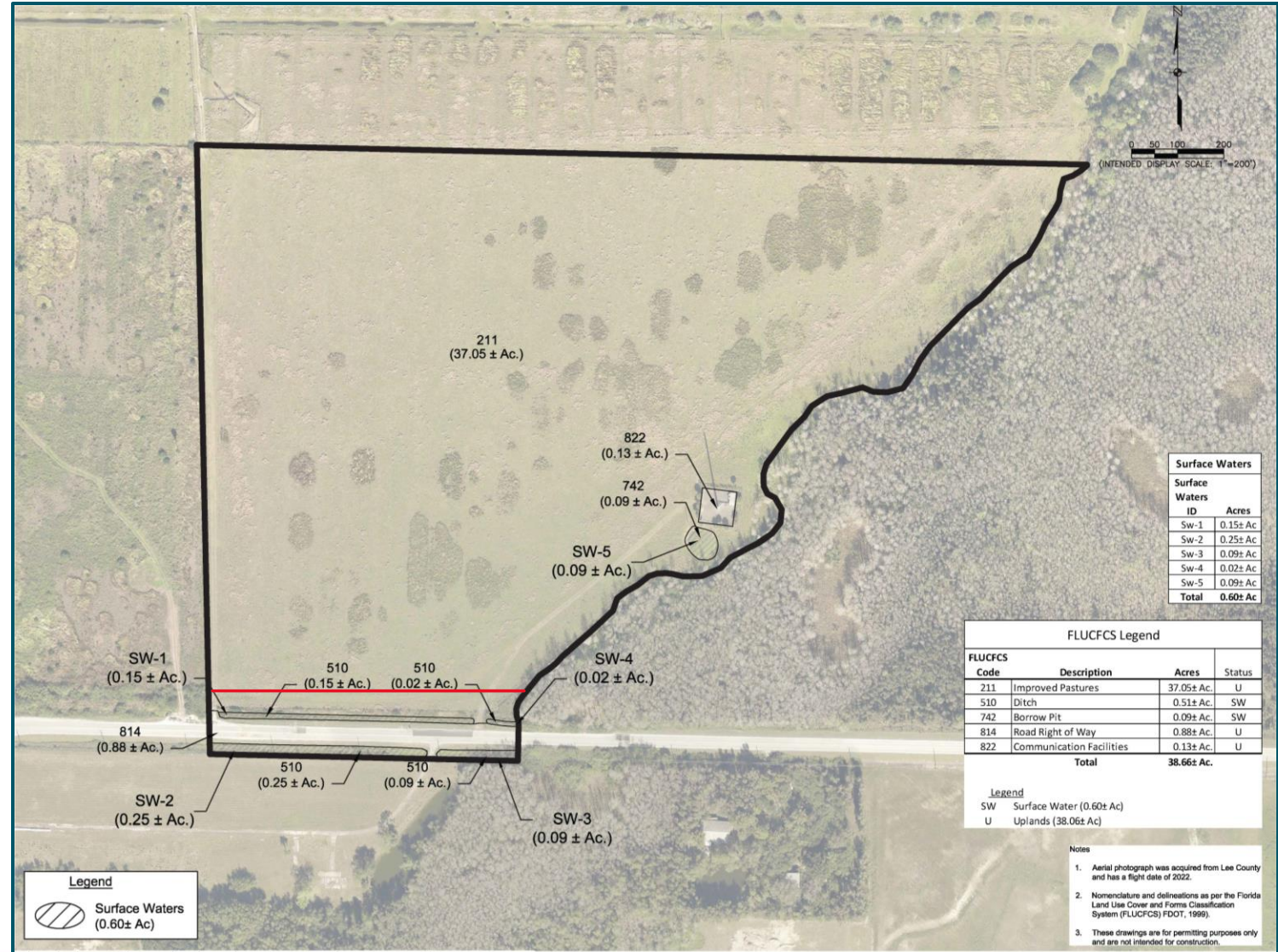


**Laura Herrero, CE**

Johnson Engineering

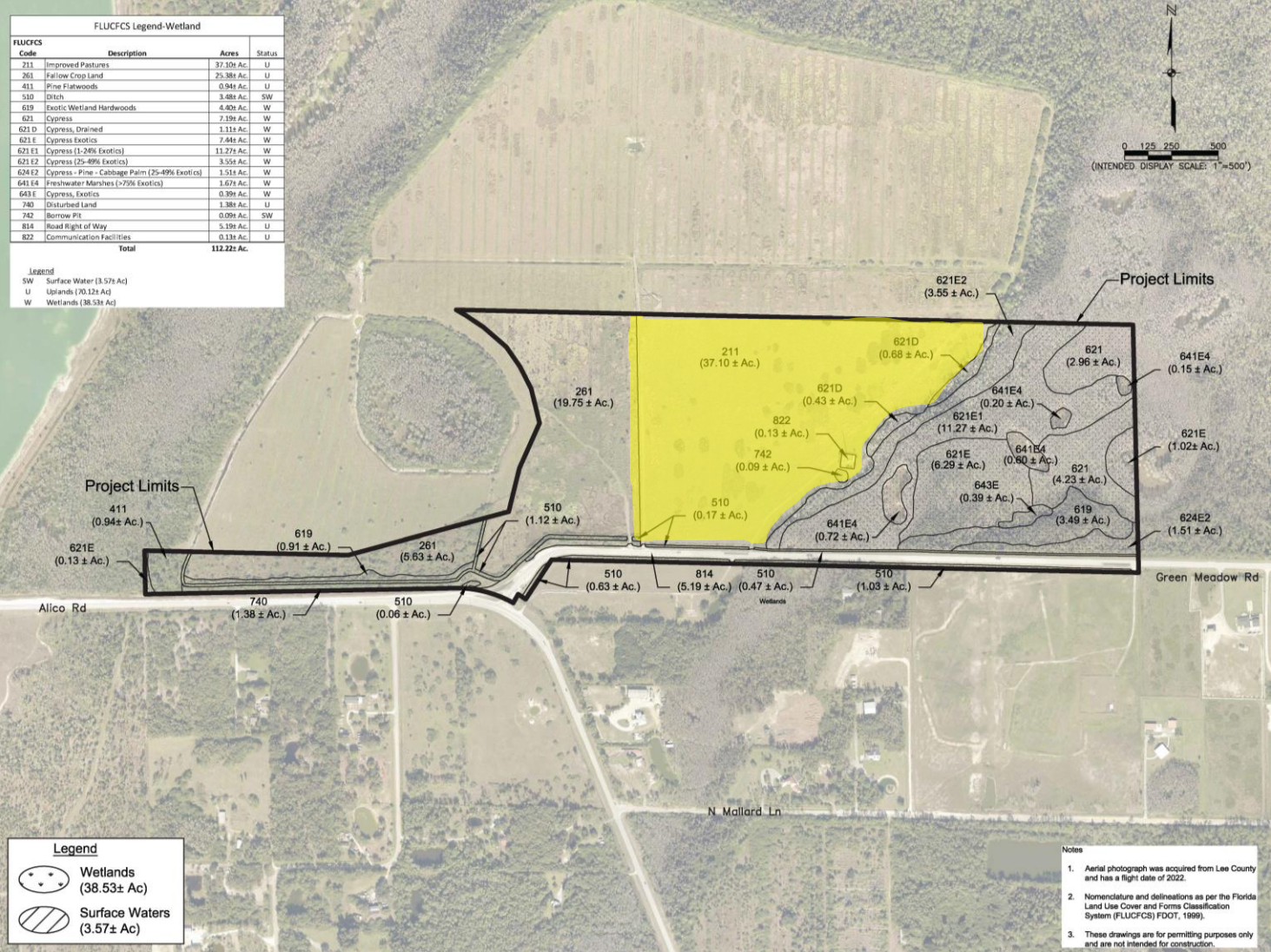
# Environmental Background

- Parcel Boundary  $\pm 39$  Ac.
- Southern portion of the parcel ( $\pm 3$  Ac.) designated for right-of-way for the Alico Roadway widening.
- Comprehensive Plan Amendment over  $\pm 36$  Ac.



# Environmental Background

- Project Area is comprised largely of improved pasture
- Communication Tower to remain on eastern edge
- Minor Surface Water that will be impacted but replaced by other surface water management

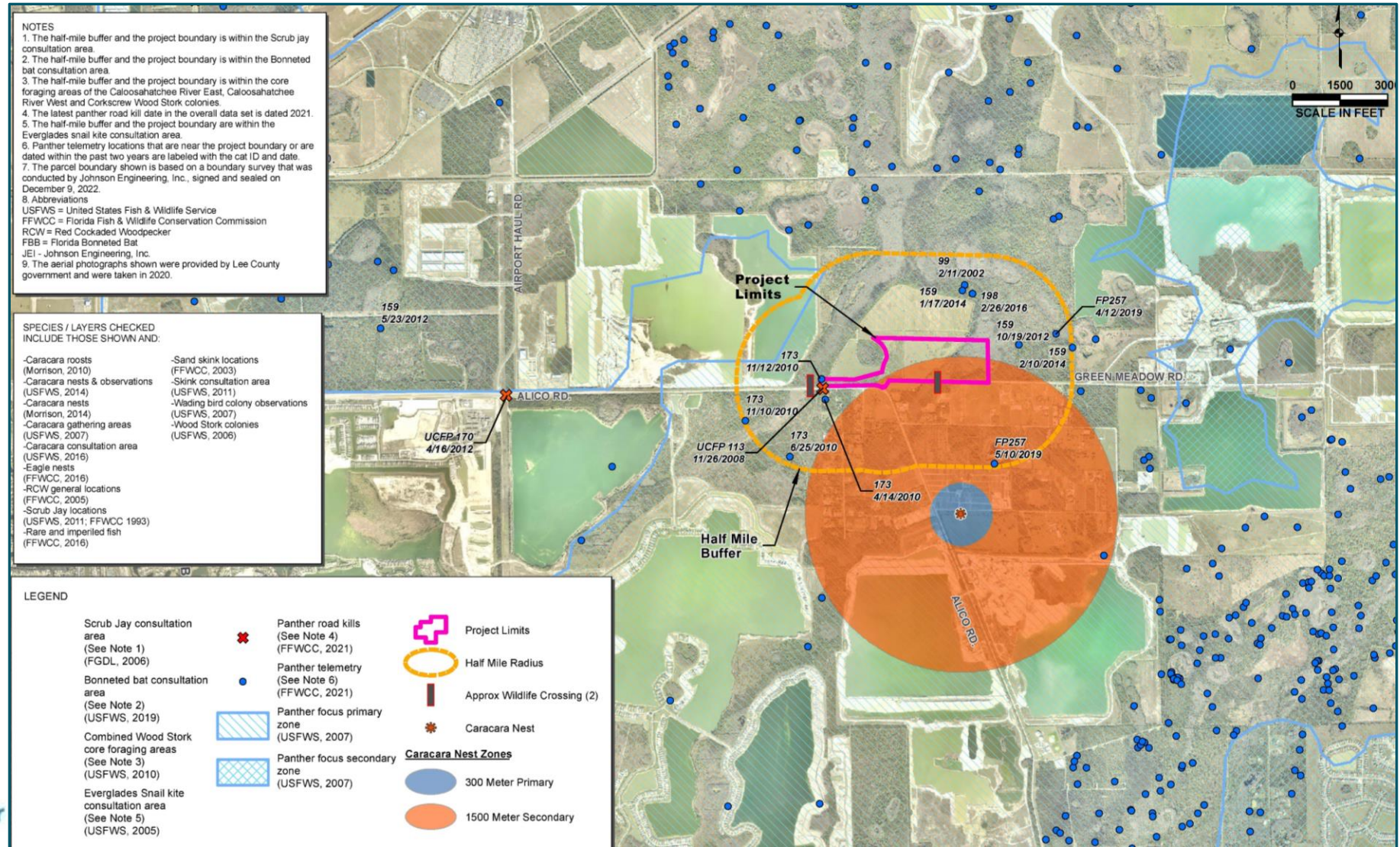


# Environmental Background

## Consultation Areas / Documented Occurrences of Listed Species

- Florida panther
- Florida bonneted bat
- Crested caracara

Review by FWC and USFWS during State and Federal project review for all listed species, during which the need for mitigation measures is assessed.

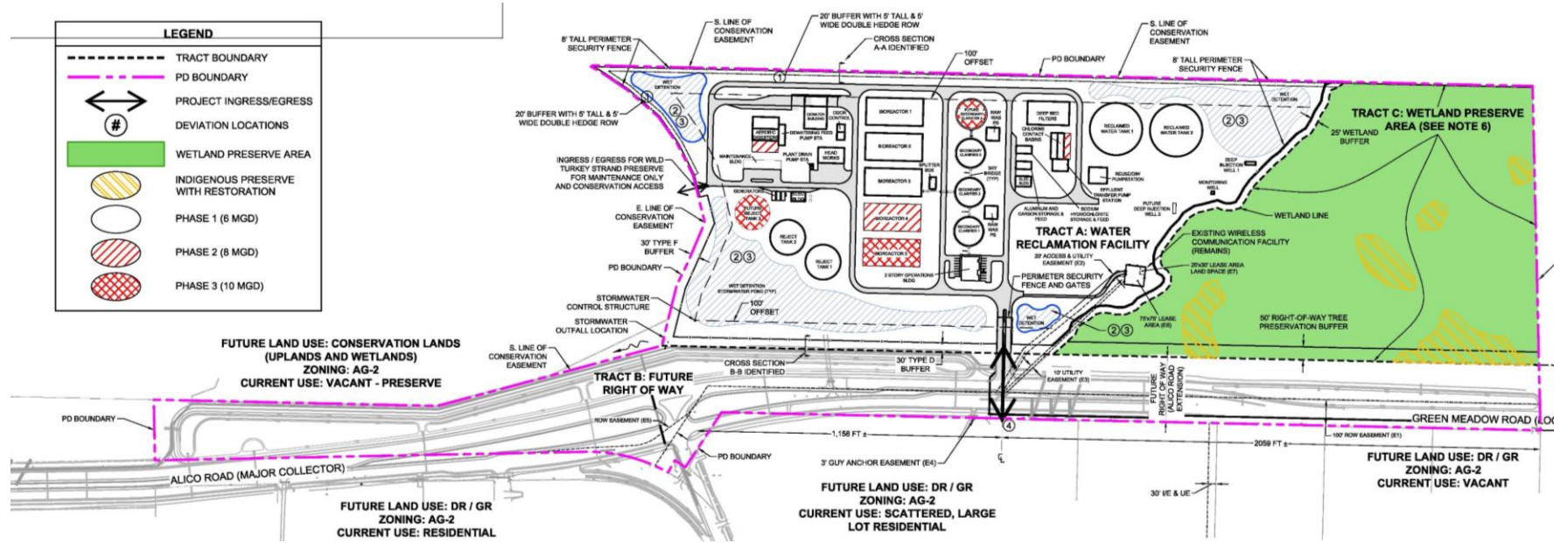


# Benefits of the Plan

Compact Development →

Increased Wetland Preserve →

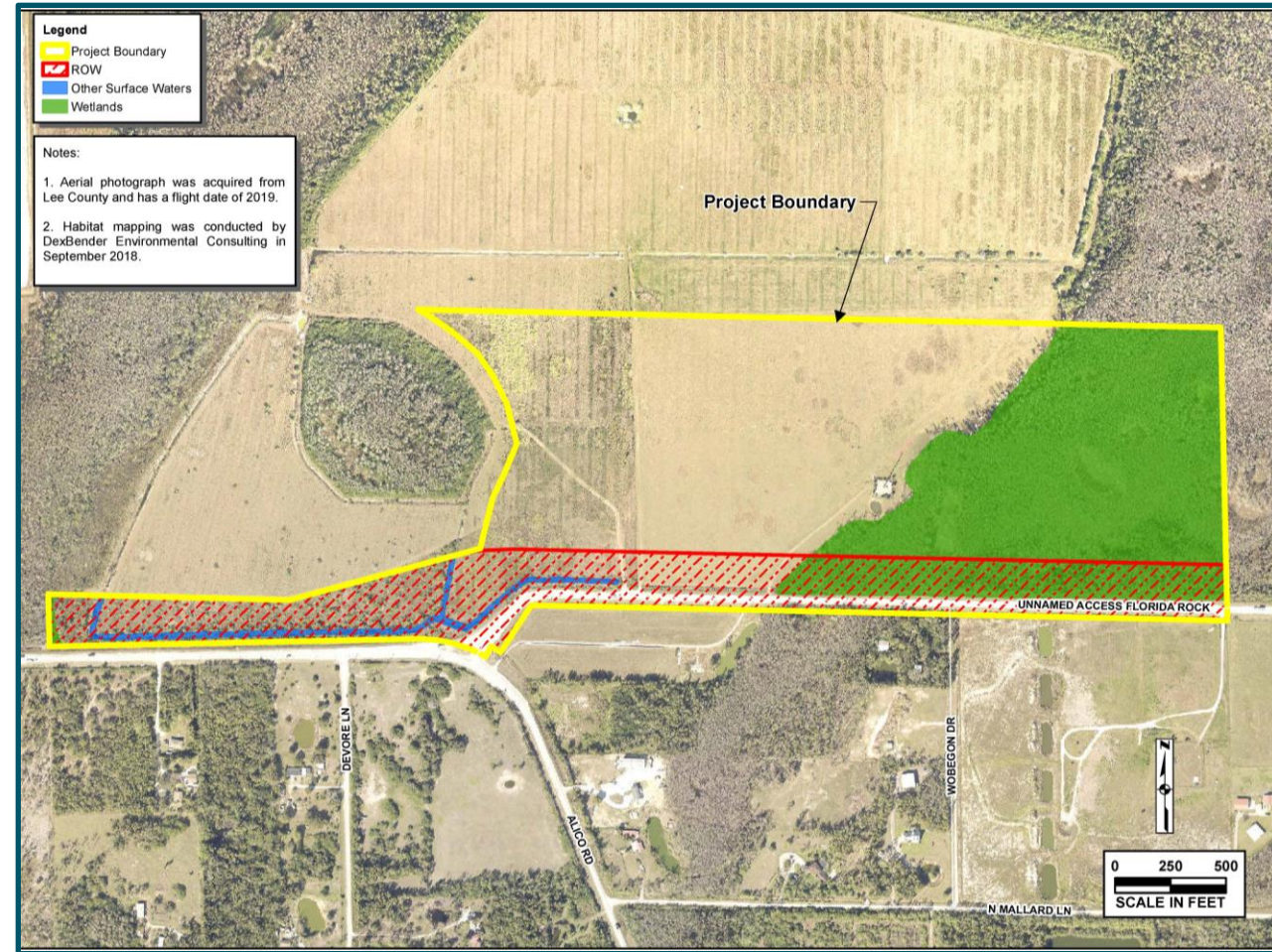
Enhanced Ecological Corridor →



Southeast Advanced Water Reclamation Facility

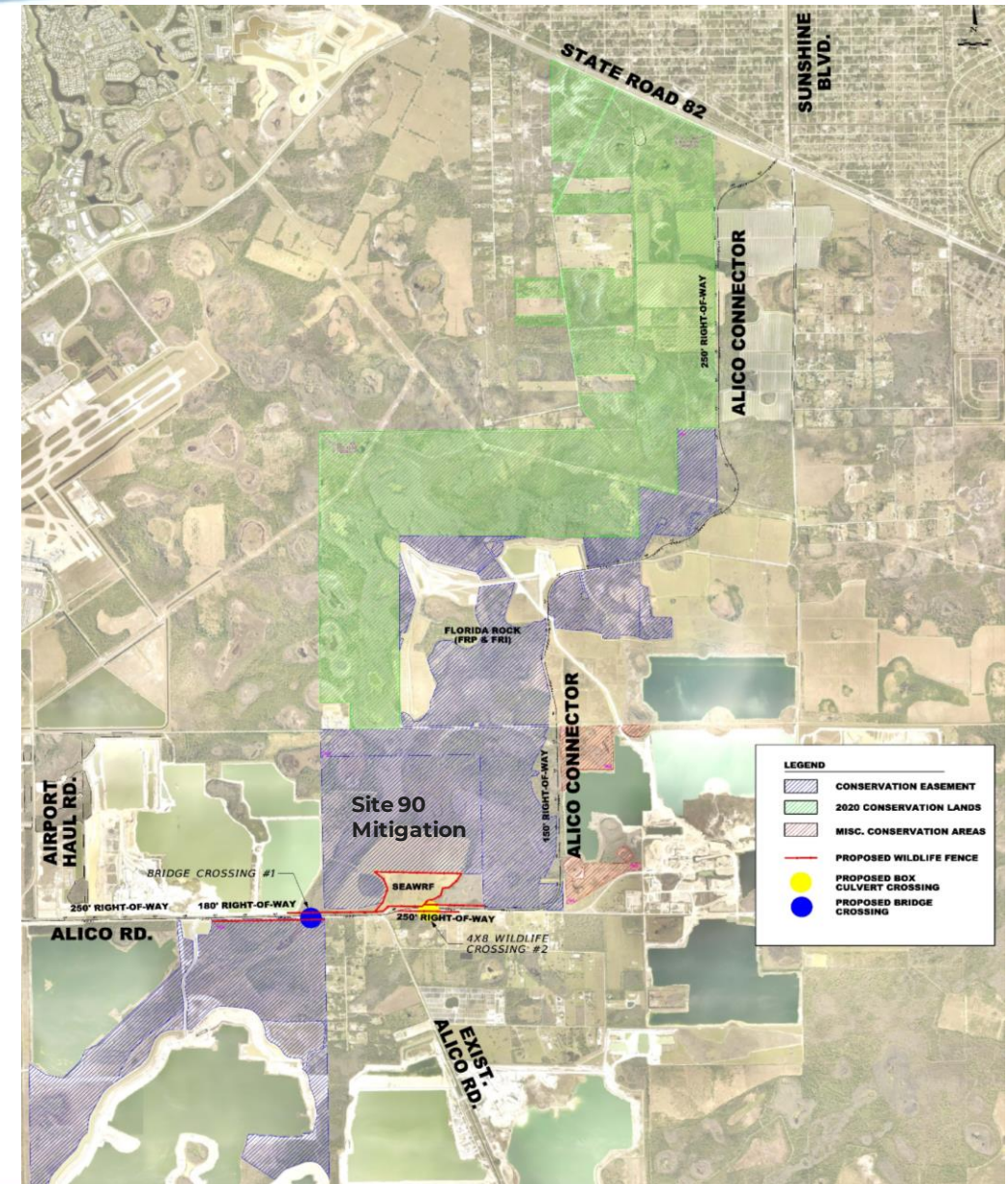
# Benefits of the Plan

- Development Area ±81 Ac.
  - Upland Infrastructure ± 50 Ac.
  - Preserve ± 31 Ac.  
(±30 Ac. wetland + 1.0 Ac. upland buffer)
- 37% of the Development Area retained as Native Preservation
- Opportunity for the Wetland Slough to be Enhanced and Protected in Perpetuity
- Promotes Policy 33.2.1: Restoring Large-Scale Ecosystem Integrity in SE Lee County



# Benefits of the Plan

- Enhancement of slough will improve habitat for listed species (panthers, bears, wading birds, etc.)
- Wildlife crossings installed with Alico Road widening (western and eastern sloughs)
- Wildlife fencing is being coordinated with roadway and adjacent mitigation projects, which are being reviewed by FWC and USFWS during State and Federal permitting for the roadway project.



# Lee Plan Compliance – Environment/Conservation

POLICY 123.2.3: Prevent altering or disrupting the natural water function

POLICY 123.2.4: Protection of sensitive or high-quality natural plant communities

POLICY 123.2.10: Protect natural character of preserves, wildlife refuges & recreation areas

POLICY 123.3.1: Upland preservation in and near wetlands

OBJECTIVE 123.11: Protect the Florida panther

POLICY 123.11.1: Maintain data on sightings and habitat for the Florida panther.

POLICY 123.11.2: State land acquisition programs of known panther corridors

POLICY 123.11.3: Regional coordination of wildlife movement





# Lee Plan Compliance – Environmental/Conservation

POLICY 123.11.4: Protect & expand Corkscrew Regional Ecosystem Watershed Greenway

POLICY 123.11.5: Plant species in restoration areas that provide forage prey for Florida panther

POLICY 123.11.6: Panther habitat needs incorporated into roadway projects

POLICY 123.11.7: Education and outreach of Florida panthers & conservation needs

POLICY 123.12.1: Connectivity within and among Florida black bear habitats

POLICY 123.12.2: Bearproof containers

POLICY 124.1.1: Compatibility of development with wetland functions.



**Leah Holmes, PE**

Johnson Engineering

# Traffic Circulation Analysis

- Trip Generation (ITE 11th Edition)
  - ITE Land Use Code – Wastewater Treatment Facility (LUC 170)
- 25,000-sqft
  - Trip Generation Summary
  - AM Peak Hour: 58 Trips
  - PM Peak Hour: 32 Trips

Land Use	Size (sqft)	Trip Generation <sup>(1)</sup>	A.M. Peak Hour			P.M. Peak Hour			Daily
			In	Out	Total	In	Out	Total	
Wastewater Treatment Facility (LUC 170 - Utility)	25,000	AM: 2.33	51	7	58	6	26	32	166
		PM: $\text{Ln}(T)=0.81\text{Ln}(X)+0.86$							
		Weekday: $\text{Ln}(T)=0.74\text{Ln}(X)+2.73$							
<b>Total</b>			<b>51</b>	<b>7</b>	<b>58</b>	<b>6</b>	<b>26</b>	<b>32</b>	<b>166</b>

# Trip Generation

- Wastewater Treatment Facility

## Land Use: 170 Utility

### Description

A utility is a free-standing building that can house office space, a storage area, and electromechanical or industrial equipment that support a local electrical, communication, water supply or control, or sewage treatment utility.

Institute of Transportation Engineers (ITE), 11<sup>th</sup> Edition, Land Use Code (LUC) 170



# Level of Service (LOS) – Alico Road

## LOS – 2028 Background Plus Project

Roadway	Segment	Performance Standard (Peak Hour Directional Volume) <sup>(2)</sup>		2026 Peak Hour Peak Direction from Lee County Concurrency <sup>(1)</sup>		2028 Estimated Roadway Peak Hour Peak Direction		2028 Estimated Roadway Peak Hour Peak Direction + Project	
		LOS	Capacity	LOS	Volume	LOS	Volume	LOS	Volume
Alico Road	Ben Hill Griffin Boulevard to Green Meadow Drive	E	3,180	C	808	C	841	C	889
Alico Road	Green Meadow Drive to Corkscrew Road	E	860	B	224	B	233	B	236

Notes:

- 1.) Directional volume obtained from Lee County 2022 Concurrency Report
- 2.) Estimated from Lee County Level of Service Tables

## LOS – 2045 Background Plus Project

Roadway	Segment	Performance Standard (Peak Hour Directional Volume) <sup>(1)</sup>		2045 Peak Hour Peak Direction <sup>(2)</sup>		2045 Peak Hour Peak Direction + Project	
		LOS	Capacity	LOS	Volume	LOS	Volume
Alico Road	Ben Hill Griffin Boulevard to Green Meadow Drive	E	3,180	E	2,400	E	2,448
Alico Road	Green Meadow Drive to Corkscrew Road	E	860	B	610	B	613

Notes:

- 1.) Estimated from Lee County Level of Service Tables
- 2.) Estimated from Alico Road Extension Traffic Technical Memorandum



# Lee Plan Compliance – Transportation

- POLICY 37.3.3: Availability of Roadway Capacity
- POLICY 39.3.2: Reduction of conflict points along roadways
- POLICY 95.1.3: Adequate Level of Service Standards (LOS)



# **ALEXIS CRESPO, AICP**

RVi Planning + Landscape Architecture

# Community Outreach

- Public Meeting for the SEAWRF project was held on January 31, 2023
  - Obtained in-person/direct community input
  - Obtained Comment Cards
  - Addressed community questions
  - Project Website <https://lcusewater.com/>
- Project updates & public hearing dates are posted within the project's website
- Hearing notices mailed, posted & advertised





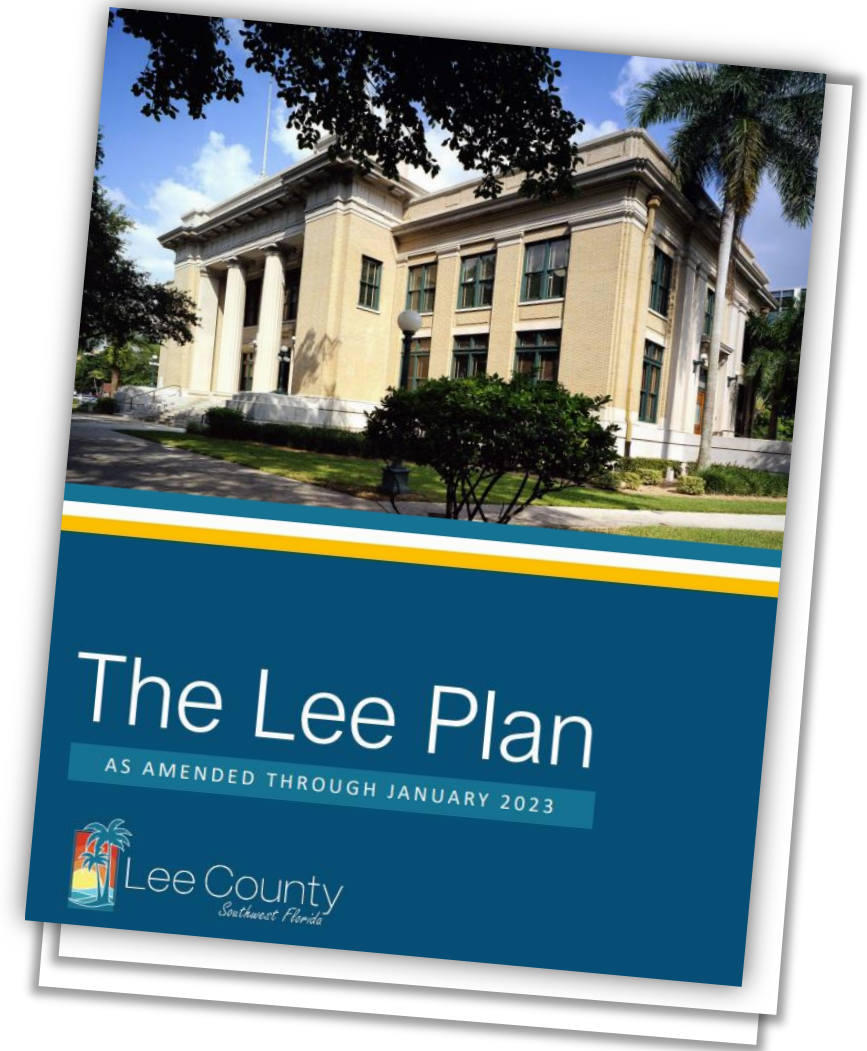
# Summary of Comments, Questions & Concerns

- Traffic Impacts?
- Environmental Impacts to Protected Species & Wetlands?
- Will a Solid Waste Transfer Facility be requested on this site in the future?
- What will facility look like and how will it visually impact Alico and surrounding residential uses?
- Will there be odors?
- How will groundwater & surface water quality be protected from spills?



# Lee Plan Compliance Summary

- ✓ Request **CONSISTENT** with Public Facilities, Wetlands & Southeast Lee County Planning Community GOPs
- ✓ Request **CONSISTENT** with Compatibility GOPs
- ✓ Request **CONSISTENT** with Infrastructure & Capital Improvements GOPs
- ✓ Request **CONSISTENT** with Stormwater & Water Quality GOPs
- ✓ Request **CONSISTENT** with Environmental GOPs
- ✓ Request **CONSISTENT** with Traffic/Transportation GOPs



- Staff recommendation of to ADOPT the proposed amendment
- Consistent with and furthers the intent of the Goals, Objectives and Polies in the Lee Plan
- Applicant has provided extensive data and analysis to support findings and has developed site-specific enhancements that benefit Lee County on a regional scale and uphold the intent of the Lee Plan.
- Proposed amendment is consistent with provisions of Chapter 163.3177, FS
- Proposed amendment will allow for needed centralized wastewater treatment facility to meet the projected population demands

## **CONCLUSION**

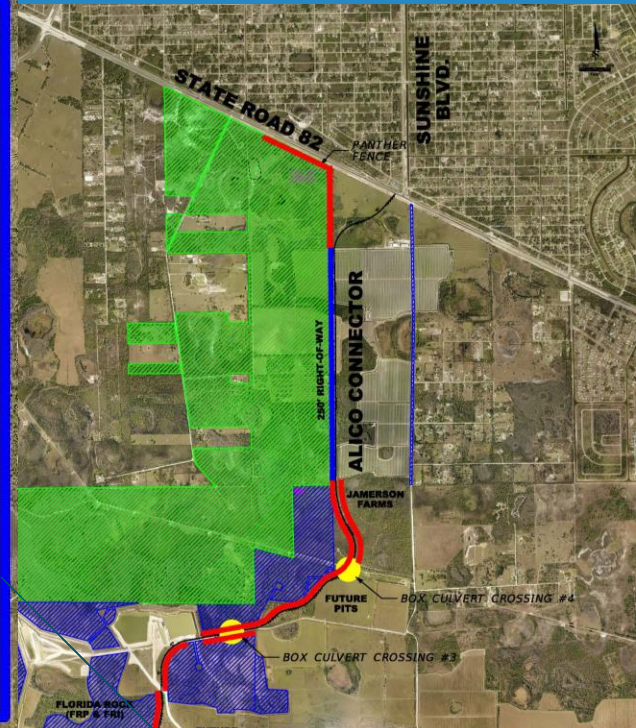
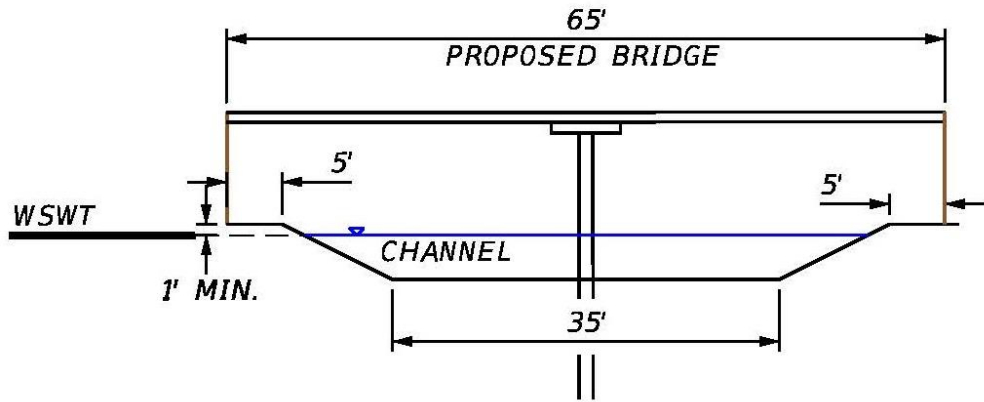
THANK YOU. ANY QUESTIONS?

# EXTRA SLIDES for Q&A

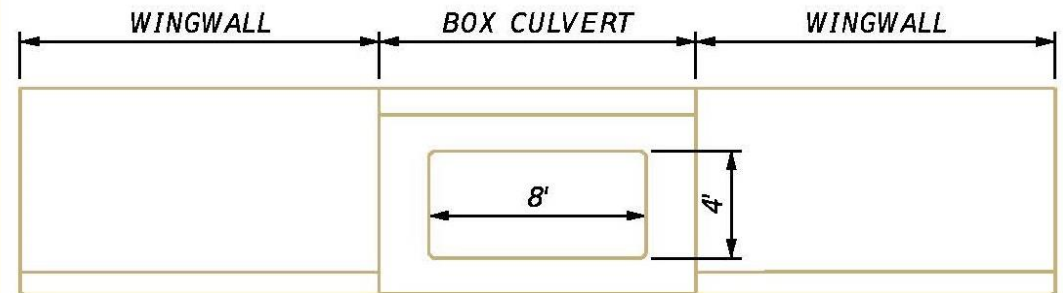


**Southeast Advanced Water  
Reclamation Facility**

# BRIDGE FLOW WAY / WILDLIFE CROSSING



## DEDICATED BOX CULVERT WILDLIFE CROSSING #2



Wildlife Crossings being Permitted / Constructed with the Alico Road Widening Project



Southeast Advanced Water Reclamation Facility