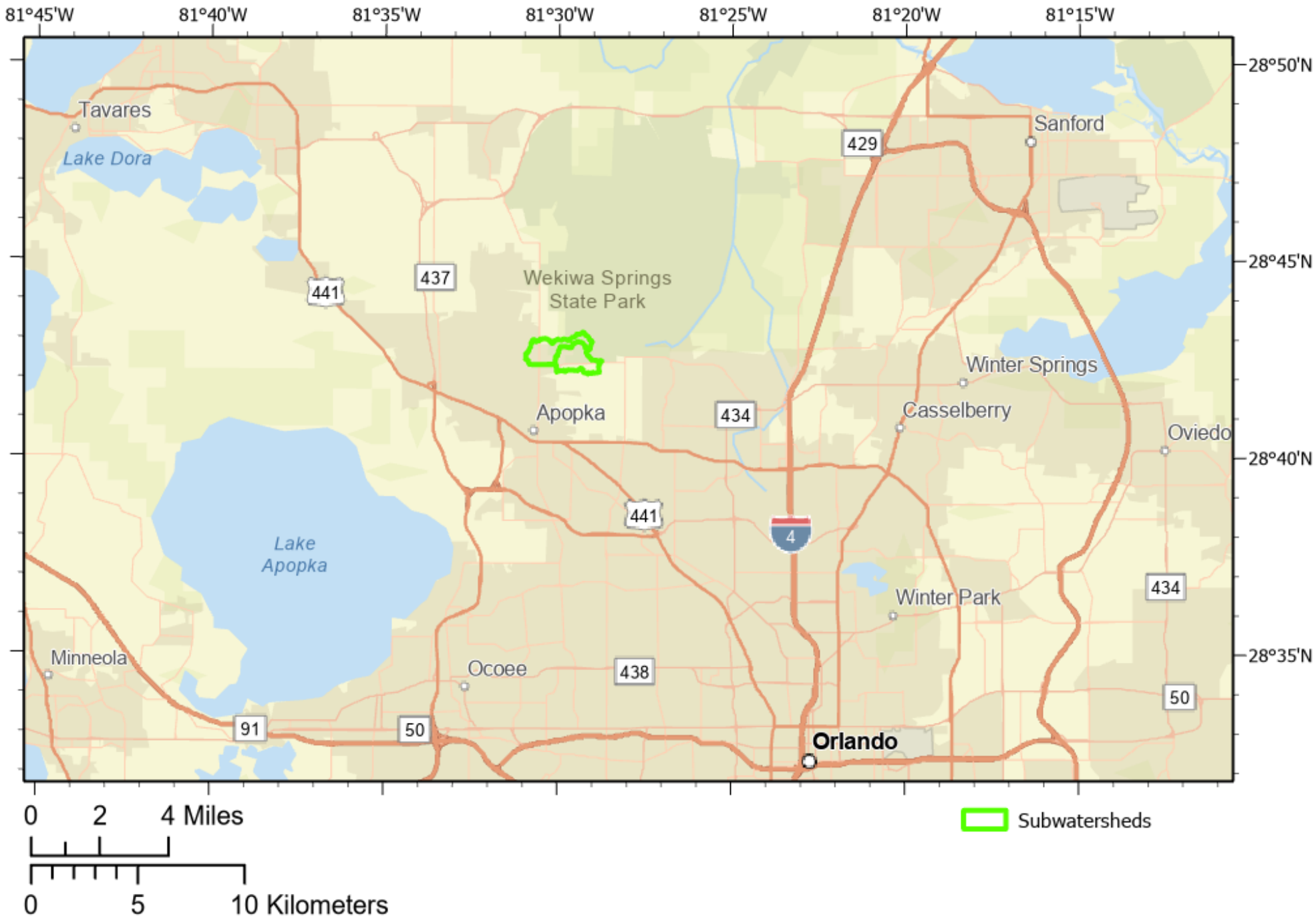
# Lake Prevatt

Minimum Flows and Levels

Independent Peer Review
Initial Comments
January 16, 2024

Dr. Jeffrey N. King, PhD PE CFM
Principal Engineer
Geosyntec consultants | ATM A Geosyntec Company

Jeffrey.King@AppliedTM.com
386.256.1022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Tavares
Lake Dora
Sanford
429
441
437
Wekiwa Springs
State Park
Winter Springs
Apopka
434
Casselberry
Oviedo
441
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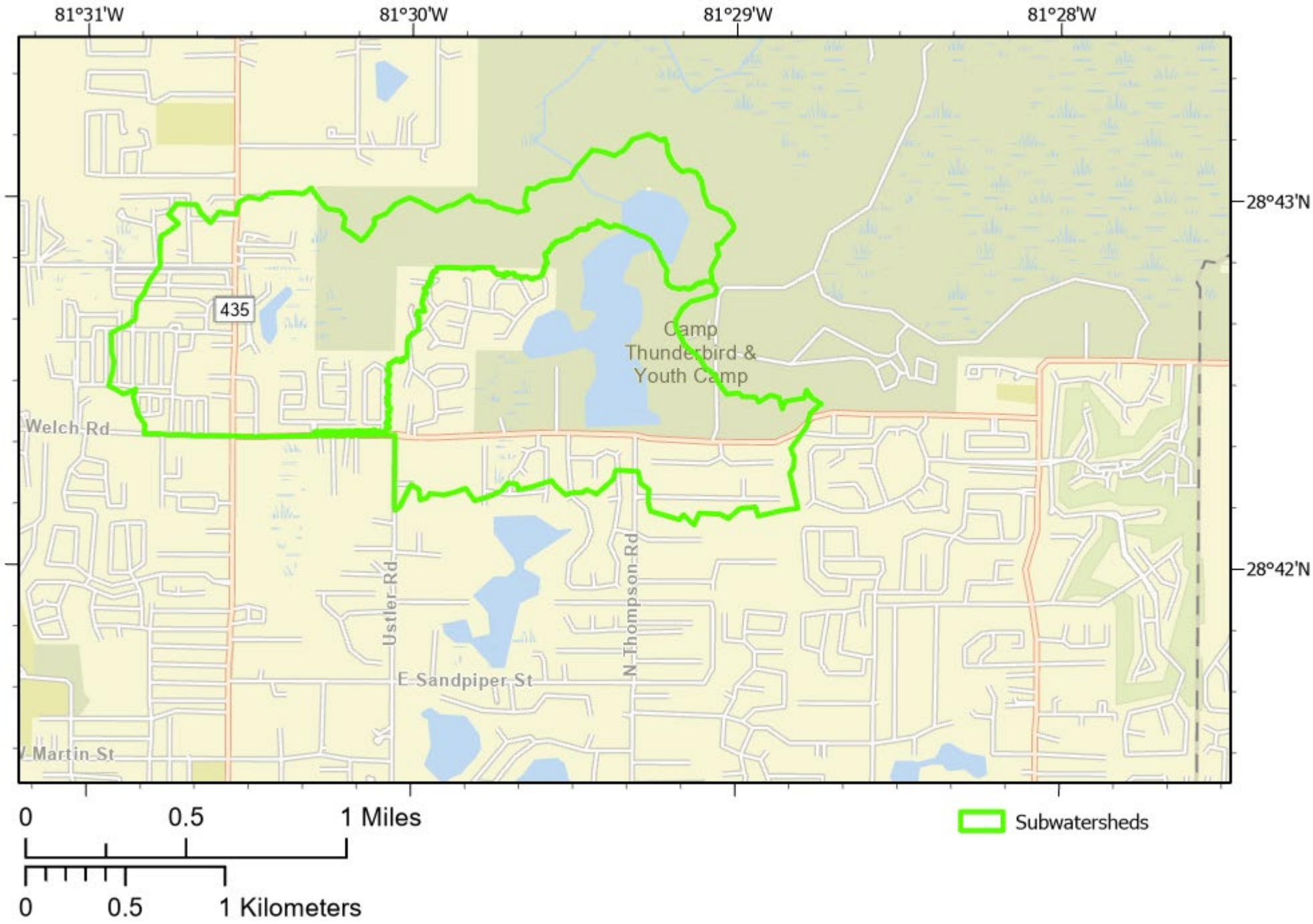
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435
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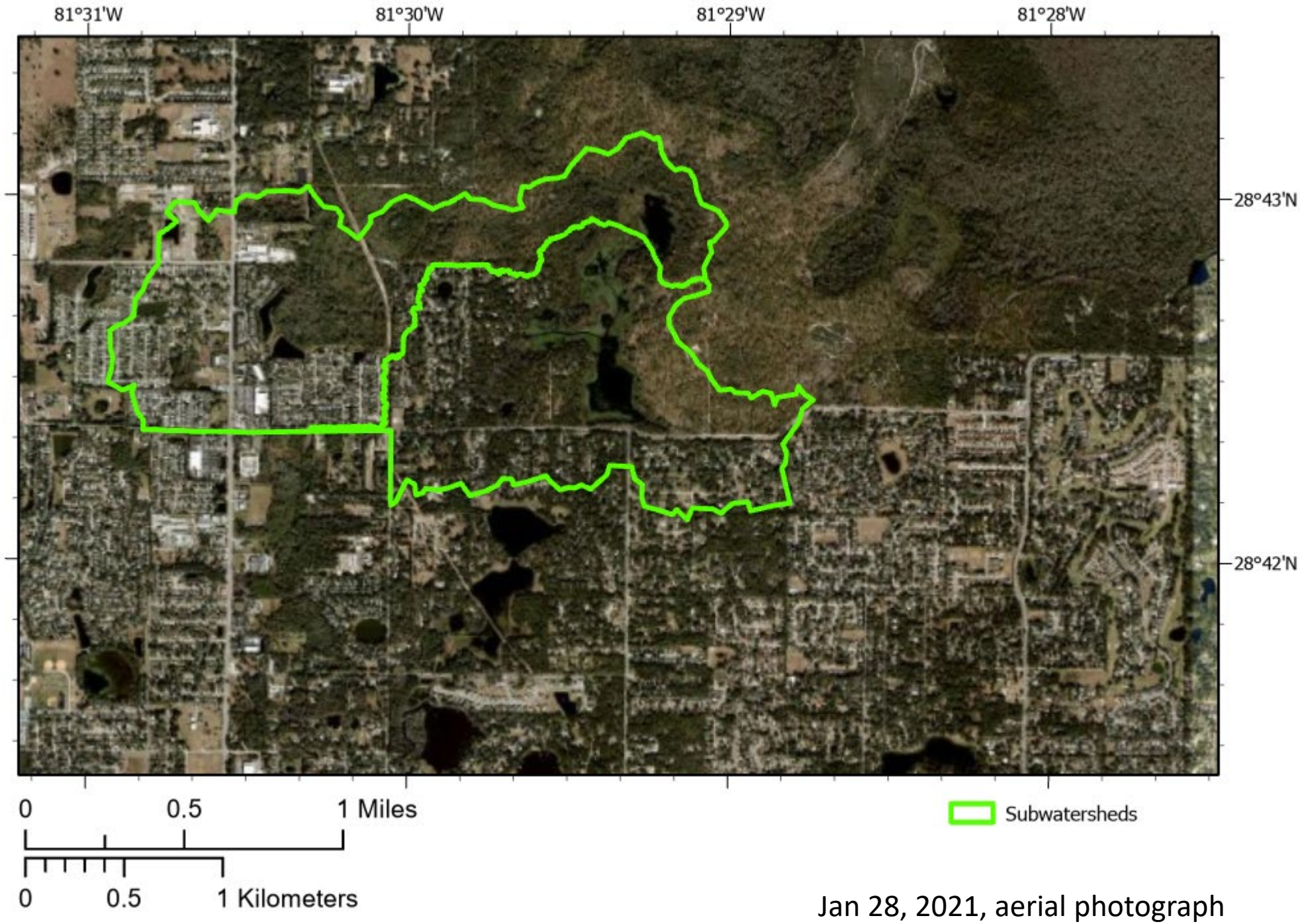
Subwatersheds




Jan 28, 2021, aerial photograph

# SJRWMD MFLs

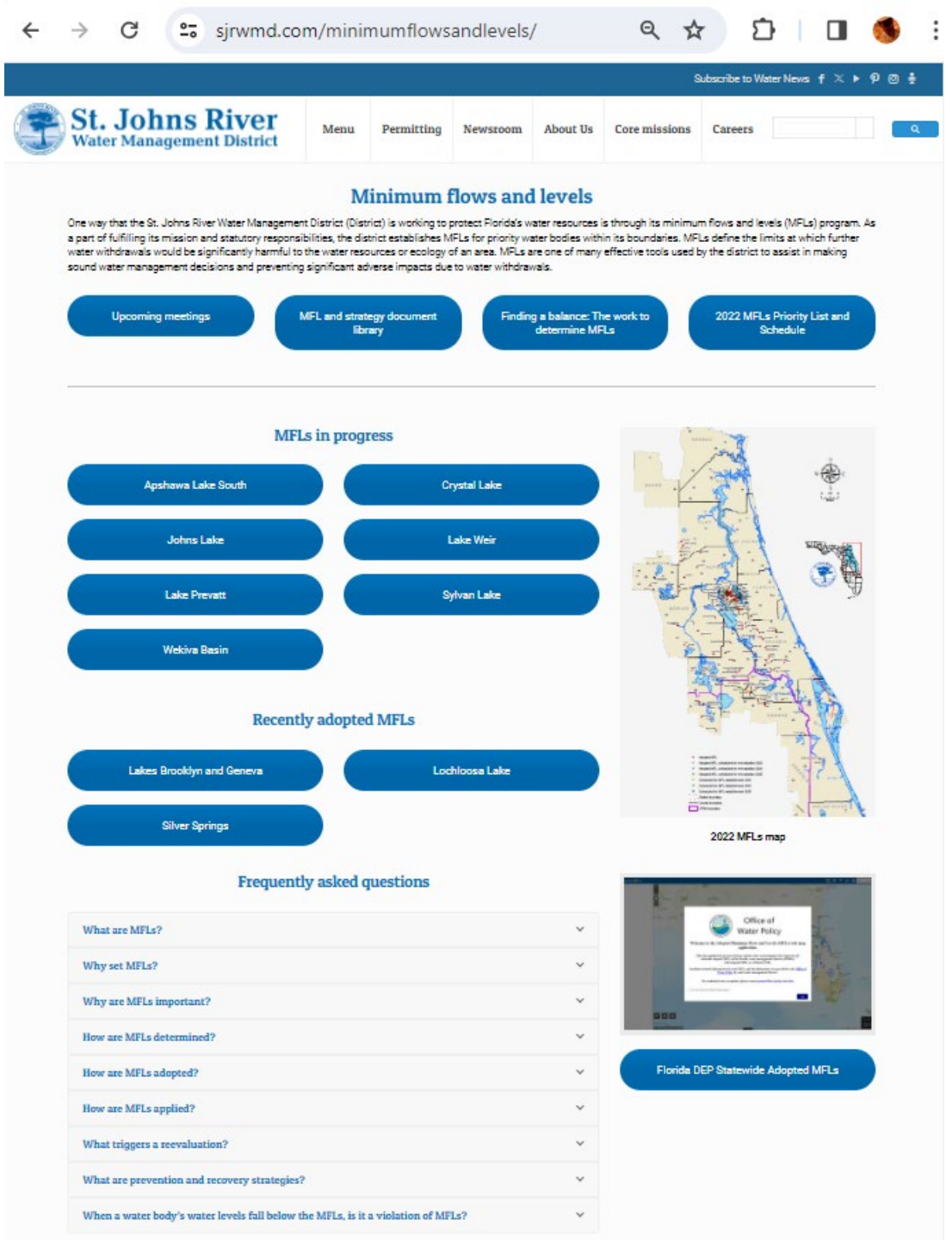
sjrwmd.com/minimumflowsandlevels/

Or

Web Search: “SJRWMD MFL”

MFLs define the limits at which further water withdrawals would be significantly harmful to the water resources or ecology of an area.

MFLs are one of many effective tools used by the district to assist in making sound water management decisions and preventing significant adverse impacts due to water withdrawals.

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Water Management District

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# Minimum flows and levels

One way that the St. Johns River Water Management District (District) is working to protect Florida's water resources is through its minimum flows and levels (MFLs) program. As a part of fulfilling its mission and statutory responsibilities, the district establishes MFLs for priority water bodies within its boundaries. MFLs define the limits at which further water withdrawals would be significantly harmful to the water resources or ecology of an area. MFLs are one of many effective tools used by the district to assist in making sound water management decisions and preventing significant adverse impacts due to water withdrawals.

Upcoming meetings

MFL and strategy document library

Finding a balance: The work to determine MFLs

2022 MFLs Priority List and Schedule

## MFLs in progress

Apshawa Lake South

Crystal Lake

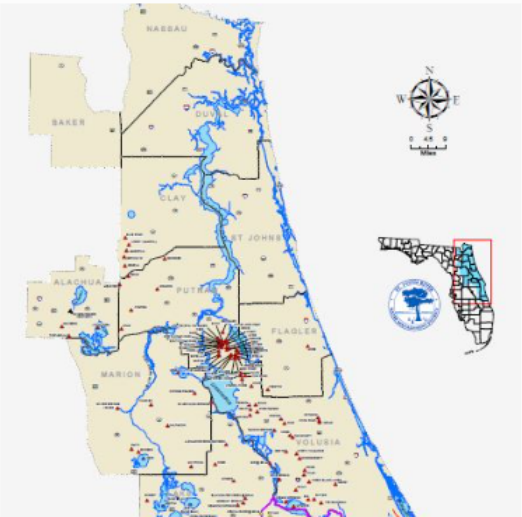
Johns Lake

Lake Weir

Lake Prevatt

Sylvan Lake

Wekiva Basin



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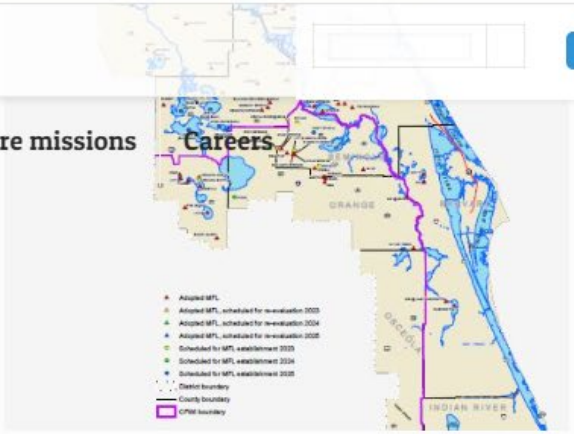
## Recently adopted MFLs

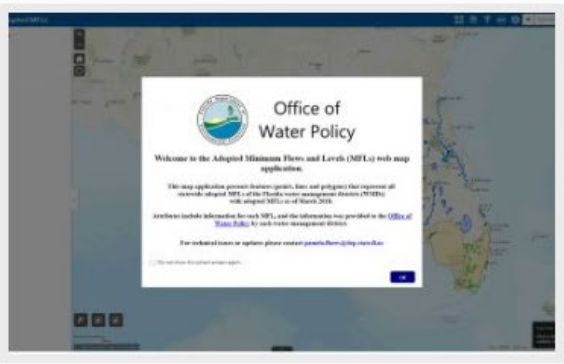
- Lakes Brooklyn and Geneva
- Lochloosa Lake
- Silver Springs



2022 MFLs map

## Frequently asked questions

- What are MFLs?
- Why set MFLs?
- Why are MFLs important?
- How are MFLs determined?
- How are MFLs adopted?
- How are MFLs applied?
- What triggers a reevaluation?
- What are prevention and recovery strategies?
- When a water body's water levels fall below the MFLs, is it a violation of MFLs?




Florida DEP Statewide Adopted MFLs

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# Independent Peer Review of a Model to Support the Lake Prevatt MFL

| | | |
|---|---|---|
| • Task A: | Project Introduction Meeting | December 11, 2023 |
| | Watershed Visit | December 11, 2023 |
| • Task B1: | Public Presentation of | |
| | Initial Peer Review Comments | January 16, 2024 |
| | Public Comment | January 16, 2024 |
| • Task B2: | Draft Technical Memorandum | January 29, 2024 |
| • Task C1: | Public Presentation of | |
| | Final Peer Review Comments | February 5, 2024 |
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| • Task C2: | Final Technical Memorandum | February 14, 2024 |

# Independent Peer Review of a Model to Support the Lake Prevatt MFL

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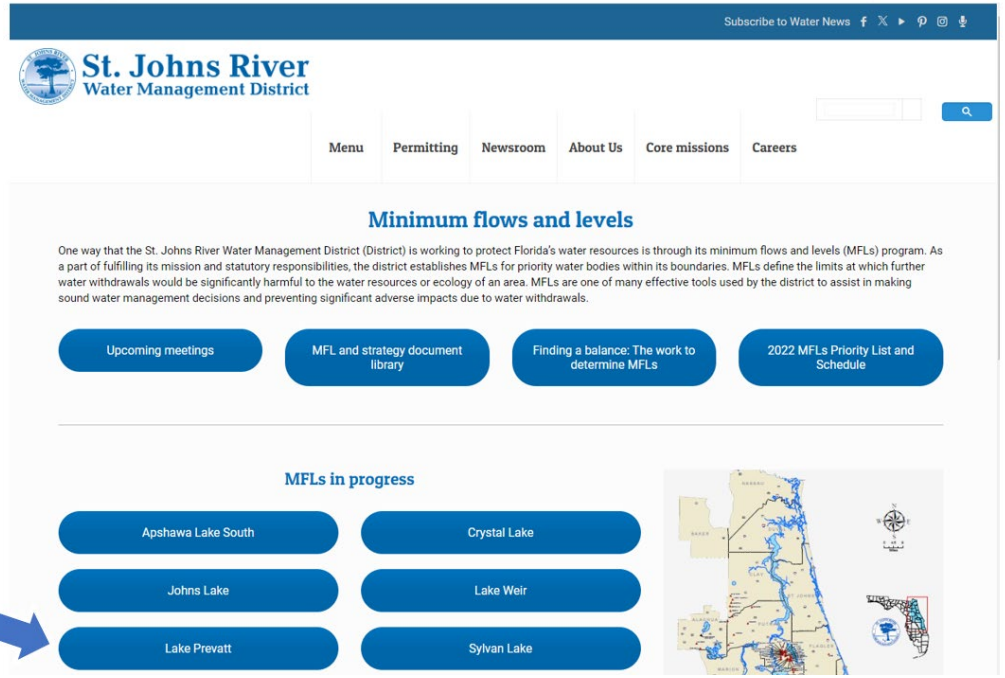




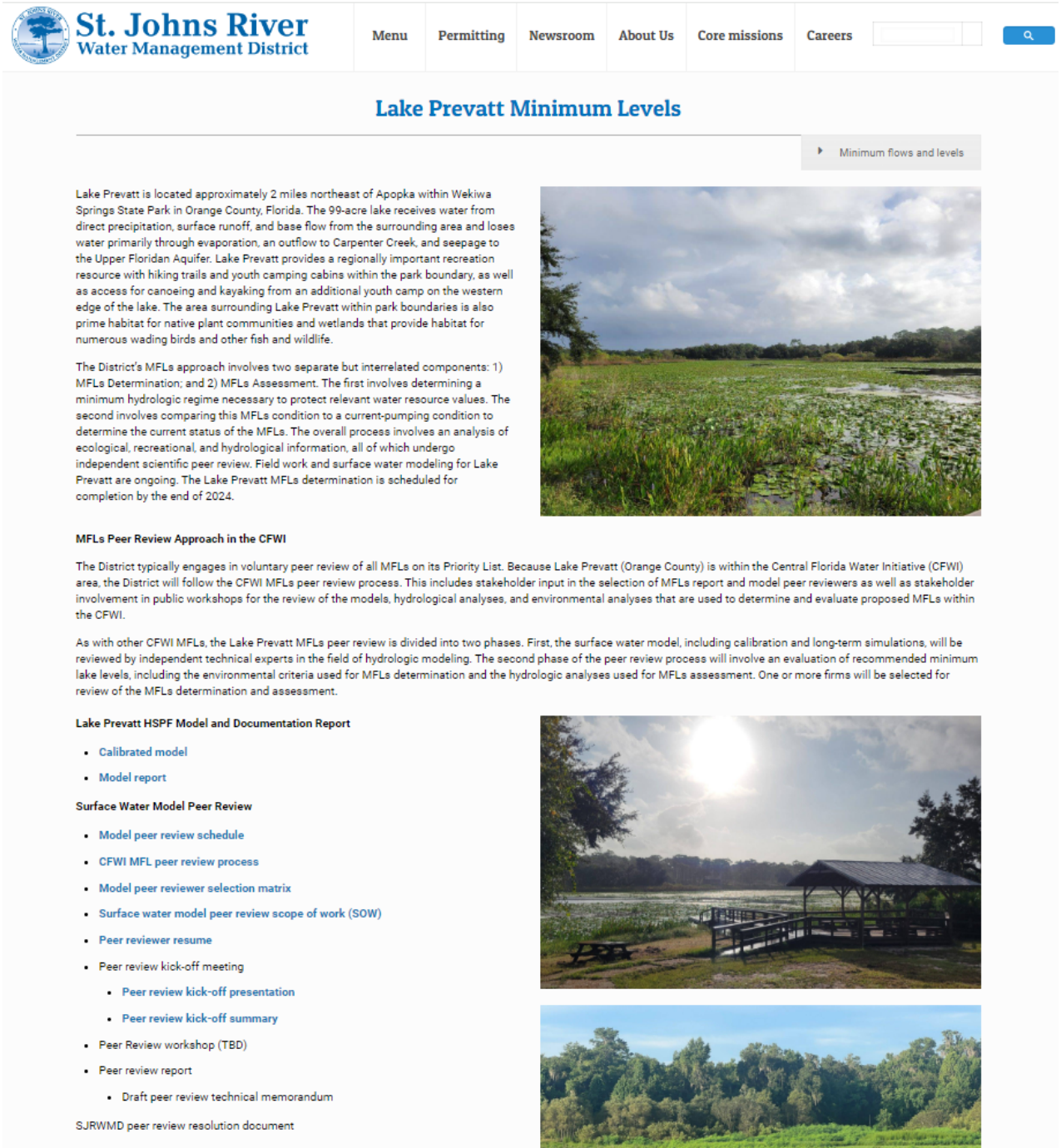


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Prevatt (Orange County) is within the Central Florida Water Initiative (CFWI) area, the District will follow the CFWI MFL peer review process. This includes stakeholder input in the selection of MFLs report and model peer reviewers as well as stakeholder involvement in public workshops for the review of the models, hydrological analyses, and environmental analyses that are used to determine and evaluate proposed MFLs within the CFWI.

As with other CFWI MFLs, the Lake Prevatt MFLs peer review is divided into two phases. First, the surface water model, including calibration and long-term simulations, will be reviewed by independent technical experts in the field of hydrologic modeling. The second phase of the peer review process will involve an evaluation of recommended minimum lake levels, including the environmental criteria used for MFLs determination and the hydrologic analyses used for MFLs assessment. One or more firms will be selected for review of the MFLs determination and assessment.

**Lake Prevatt HSPF Model and Documentation Report**

- Calibrated model
- Model report

**Surface Water Model Peer Review**

- Model peer review schedule
- CFWI MFL peer review process
- Model peer reviewer selection matrix
- Surface water model peer review scope of work (SOW)
- Peer reviewer resume
- Peer review kick-off meeting
  - Peer review kick-off presentation
  - Peer review kick-off summary
- Peer Review workshop (TBD)
- Peer review report
  - Draft peer review technical memorandum

SJRWMD peer review resolution document

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# Lake Prevatt MFLs

## HSPF Model Peer Review
## Kick-off Meeting

12/11/2023

St. Johns River
Water Management District

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Geosyntec consultants

## MEMORANDUM

Date: December 13, 2023

From: Jeffrey N. King, PhD PE CFM
Principal Engineer, Geosyntec Consultants, Inc.

Subject: Lake Prevatt Minimum Levels Peer Review
Task A: Kick-Off Meeting and Site-Visit Summary

This memorandum summarizes the December 11, 2023, kick-off meeting and lake and watershed visit for engineering and environmental services contract 39104, work order 1: an independent scientific peer review of St. Johns River Water Management District's (SJRWMD) Hydrologic Simulation Program FORTRAN (HSPF) numerical simulation of water levels in Lake Prevatt, in Orange County, Florida (fig. 1). This meeting was public and part of a Central Florida Water Initiative peer review. The kick-off meeting and site visit are task A of work order 1.

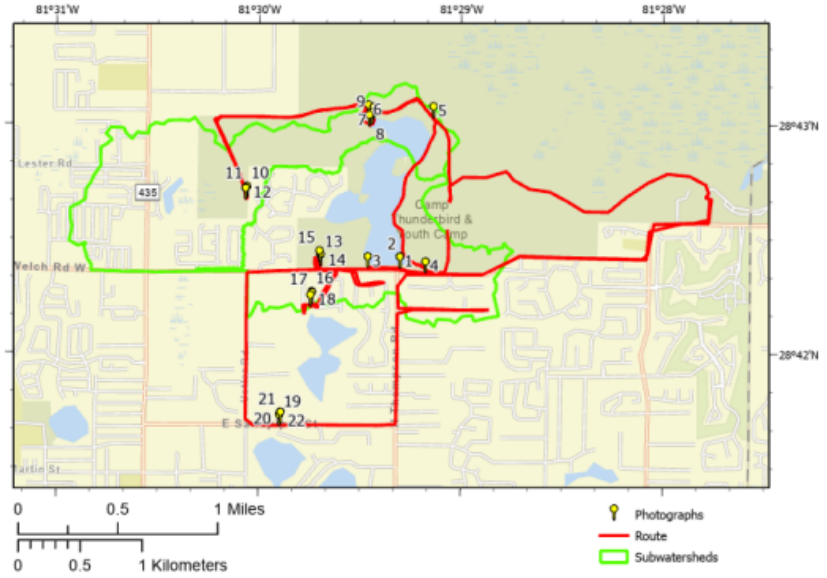


**Figure 1.** Lake Prevatt sub-watersheds (green polygons); route for the December 11, 2023 (red polyline) lake and watershed field visit; and photograph locations (yellow pins) over the ESRI World Street Map basemap.

SJRWMD, as mandated by state water policy, is engaged in a district-wide effort to establish Minimum Flows and Levels (MFLs) for priority lakes, streams and rivers, wetlands, springs, and groundwater aquifers. MFLs designate the minimum hydrologic conditions that must be maintained in these water resources to prevent significant harm resulting from permitted water withdrawals.

# Comments

**From:** Dan Schmutz <dschmutz@gpinet.com>
**Sent:** Tuesday, December 26, 2023 9:00 AM
**To:** Andrew Sutherland <asutherl@sjrwmd.com>
**Cc:** Chris Russell (crussell@ouc.com) <crussell@ouc.com>
**Subject:** Lake Prevatt HSPF model kick-off comments/questions

Hello Andrew,

Thank you for the opportunity to attend the Lake Prevatt HSPF model kick-off meeting on December 11, 2023 and review the site in the field with District staff. I also appreciated the opportunity to provide a few verbal comments during the meeting. I wanted to follow up to provide my comments in writing, in case these questions/comments will be of benefit to the process of the MFL establishment. Most of these questions I raised in the meeting:

1. One of the slides presented showed a possible downtrend in Potential Evapotranspiration (PET) over the studied period (from the Lisbon station). I was curious if this represents some statistical nonstationarity over time (i.e., trend in a statistical property such as the mean) in this component of the hydrologic budget, and if so how that potential change is being considered in the MFL process.
2. There was mention of some missing data from the north end of the Lake Prevatt system, and I mentioned that Orange County Public Works may have monthly data to fill in the gap. (As a follow up I was able to coordinate with Orange County Public Works and transmit that data to Nate this week.)
3. Regarding the plot showing how well the calibrated model output for the north lobe matched the validation period (1995-2008), I noted that the discrepancy between the calibrated model predictions and the actual (sparse) data for the earlier part of the validation period (e.g., 1997) appeared quite large, in some cases more than 5 feet. Similarly, when the model output was extended back to 1953, we see extended periods of discrepancies occurring before 1978. Also, during those earlier periods, prior to 1978, the actual Floridan aquifer levels were quite high, while the sparse observed lake levels tended to be much lower than the model prediction. During the presentation, we learned that leakance was the most sensitive of the model parameters investigated. I was wondering if some aspect of the physics had changed resulting in the earliest period having relatively poor validation, despite the more recent part of the validation period being acceptable. Perhaps there was a change in outfall or a change in leakance? On a related note, the validation period model evaluation statistics were presented as generally within or near the District's acceptable ranges for the north lobe, but was there any control for sampling density? In other words, if the early poorly-fitting data in the validation period had relatively little weight in the validation period statistics due to their sparsity in relation to a recent validation period of temporally dense data, then the entire validation period could "pass the tests" without necessarily being expected to perform well in certain future scenarios (including perhaps periods where the Upper Floridan potentiometric surface is as high as it was prior to 1978).
4. I noticed that there was no tabular presentation of the model performance for the south lobe of Lake Prevatt for the validation time period. I understand that the water level data had to be estimated from other data sources due to a lack of lake level data from some time periods. My concern here is that if there are relatively higher uncertainties about the water level data quality for the south lobe, should we have concerns about the quality of the inferences obtained with respect to the south lobe?

I hope these questions will provide food for thought during the peer review process.

Thank you,

Dan

Dan Schmutz, M.S.
*Vice President / Chief Environmental Scientist*
*(He/Him/His)*
3051 E. Livingston Street, Suite 300, Orlando, FL 32803
d 407.937.1537 | c 813.765.0874
dschmutz@gpinet.com | www.gpinet.com

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# Comments

## MEMORANDUM

Date: December 13, 2023

From: Jeffrey N. King, PhD PE CFM
Principal Engineer, Geosyntec Consultants, Inc.

Subject: Lake Prevatt Minimum Levels Peer Review
Task A: Kick-Off Meeting and Site-Visit Summary

During the lake and watershed field visit, I participated in conversations with various lake and watershed field visit attendees. Various sub-sets of the field group and I made the following observations:

- Wekiva Springs State Park Manager Robert Brooks asserted discharge from Lake Coroni inundates from the south, the pond near the park manager's residence (fig. 6, photo. 15), one-to-three days after relatively large episodic rainfall events, such as rainfall events associated with 2010s and 2020s era hurricanes and tropical depressions. Manager Brooks stated that the maximum pond stage in response to this episodic discharge inundates the pond adjacent to the park manger's residence (photo. 15) to a point that is equidistant between the normal pond shoreline and the park manager's residence. Manager Brooks asserted that a governmental entity controlled and managed this discharge, with water management actions such as the opening of a water control gate.
- Manager Brooks stated that during extreme events, the water surface exceeds the northeastern banks of the small pond in front of his residence, and that this lake pops off across an overland flow path toward Lake Prevatt.
- Manager Brooks stated that Lake Prevatt has dried during relatively dry periods.

# Comments

## MEMORANDUM

Date: December 13, 2023

From: Jeffrey N. King, PhD PE CFM
Principal Engineer, Geosyntec Consultants, Inc.

Subject: Lake Prevatt Minimum Levels Peer Review
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I asked:

- Is Lake Prevatt meteorological forcing statistically stationary?

# Summary of Relevant December Comments

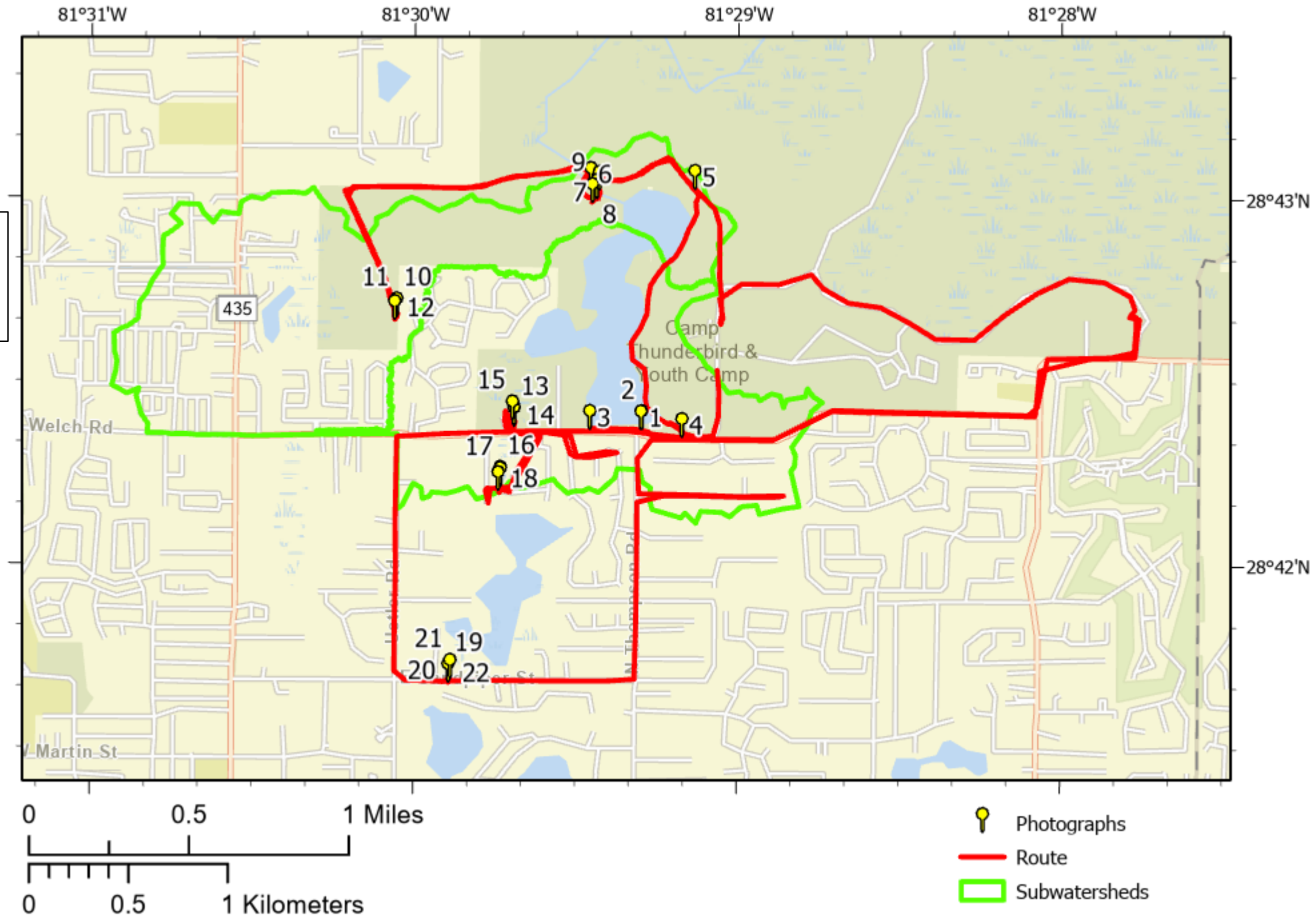
SJRWMD may wish to revise the report that describes the HSPF simulation to answer the following questions:

- Regardless of SJRWMD's use of adaptive management and regardless of downscaling challenges associated with use of global-climate models at a regional scale, is Lake Prevatt meteorological forcing statistically stationary? (Schmutz and King)
- Did Orange County measure Lake Prevatt water-surface elevation from May 7, 2017, to December 8, 2023? Are these measurements during a period in which other organizations did not measure water-surface elevation? Should these measurements also be used for calibration or validation? (Schmutz)
- Are calibration measurements weighed uniformly as a function of time? Are measured lake water-surface elevations during periods of relative less frequency---such as monthly---weighed equivalently to measured elevations during periods of relative more frequency---such as daily? Should less frequent elevations be weighed greater than more frequent elevations? Will non-uniform weighting of calibration or validation measurements change calibration quality metrics or validation quality metrics, such as the normalized root-mean square difference? (Schmutz)

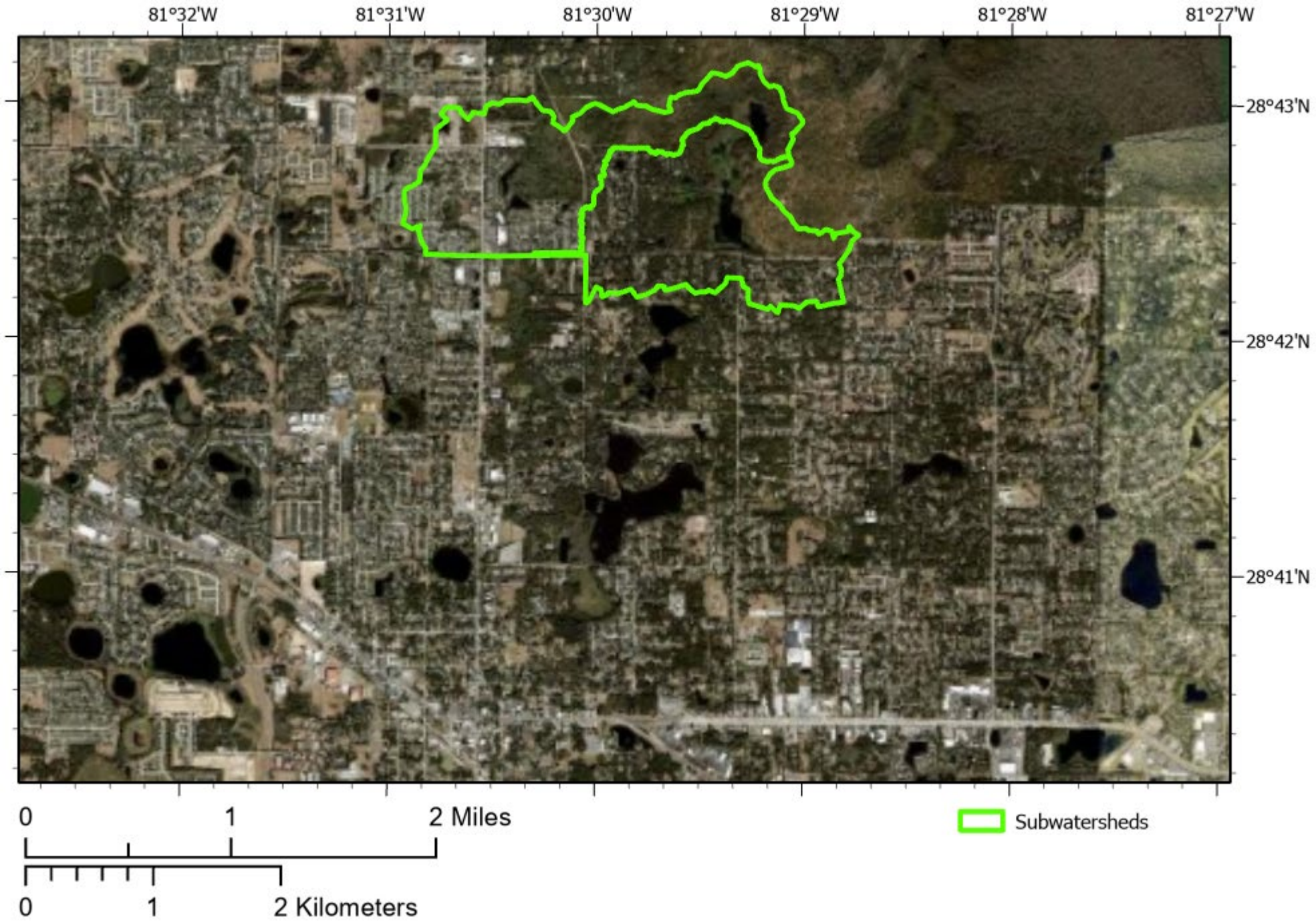
# Summary of Relevant December Comments

- If statistically inferred water-surface elevations of the south lobe of Lake Prevatt are not useful, are simulated water-surface elevations of the south lobe of Lake Prevatt useful for determining an MFL for Lake Prevatt? (Schmutz)
- Does surface water from Lake Coroni periodically flow into Lake Prevatt? (Brooks)
- Does SJRWMD simulation of Lake Prevatt show periods of zero water depth in Lake Prevatt?  Does Lake Prevatt dry completely in the simulation, during relatively rare periods of episodic drought? Should Lake Prevatt dry completely in the simulation, during relatively rare periods of episodic drought? (Brooks)

December 11 watershed visit



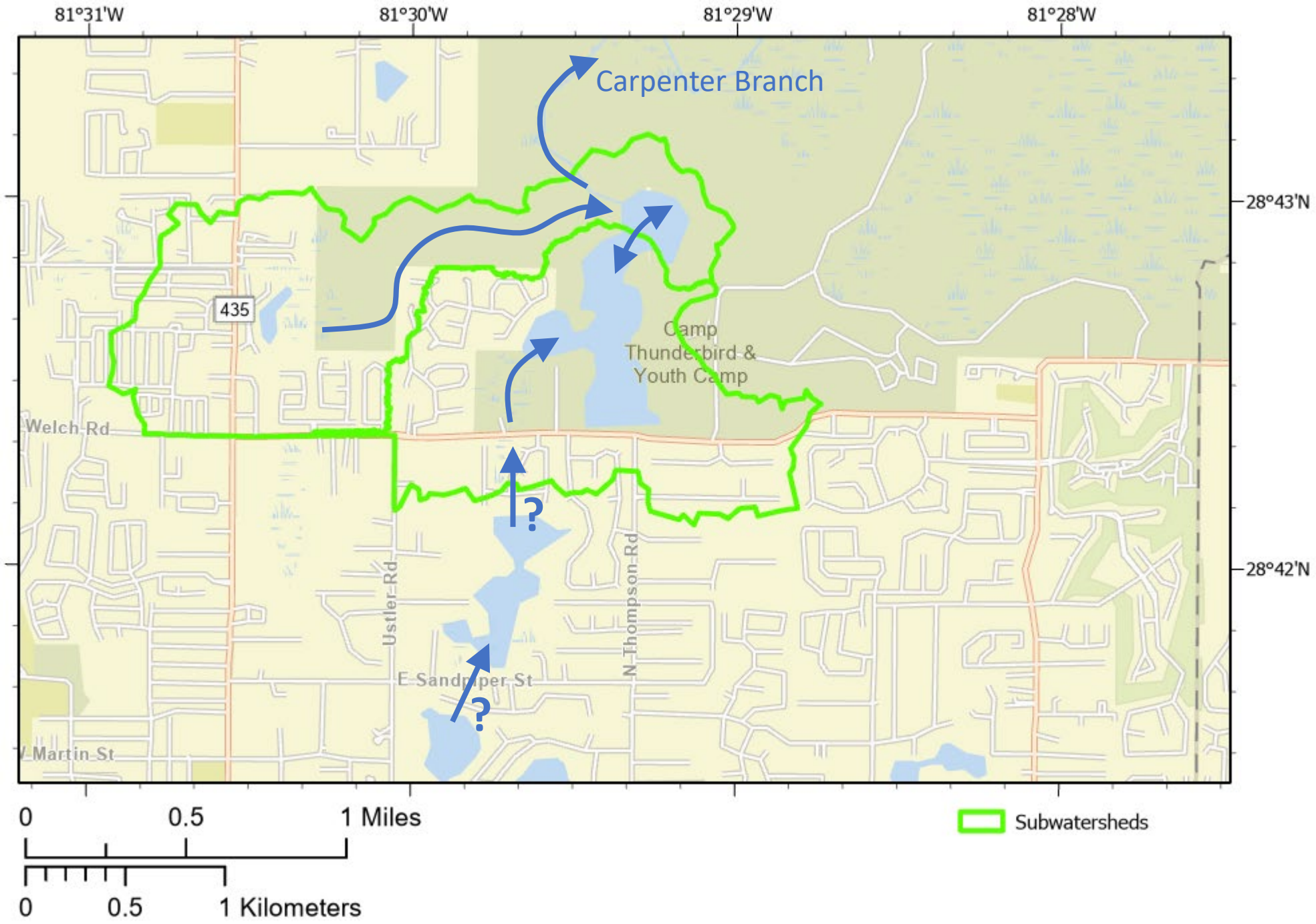
December 11 watershed visit



December 11 watershed visit

December 11 watershed visit

Synthesis of December 11 watershed visit



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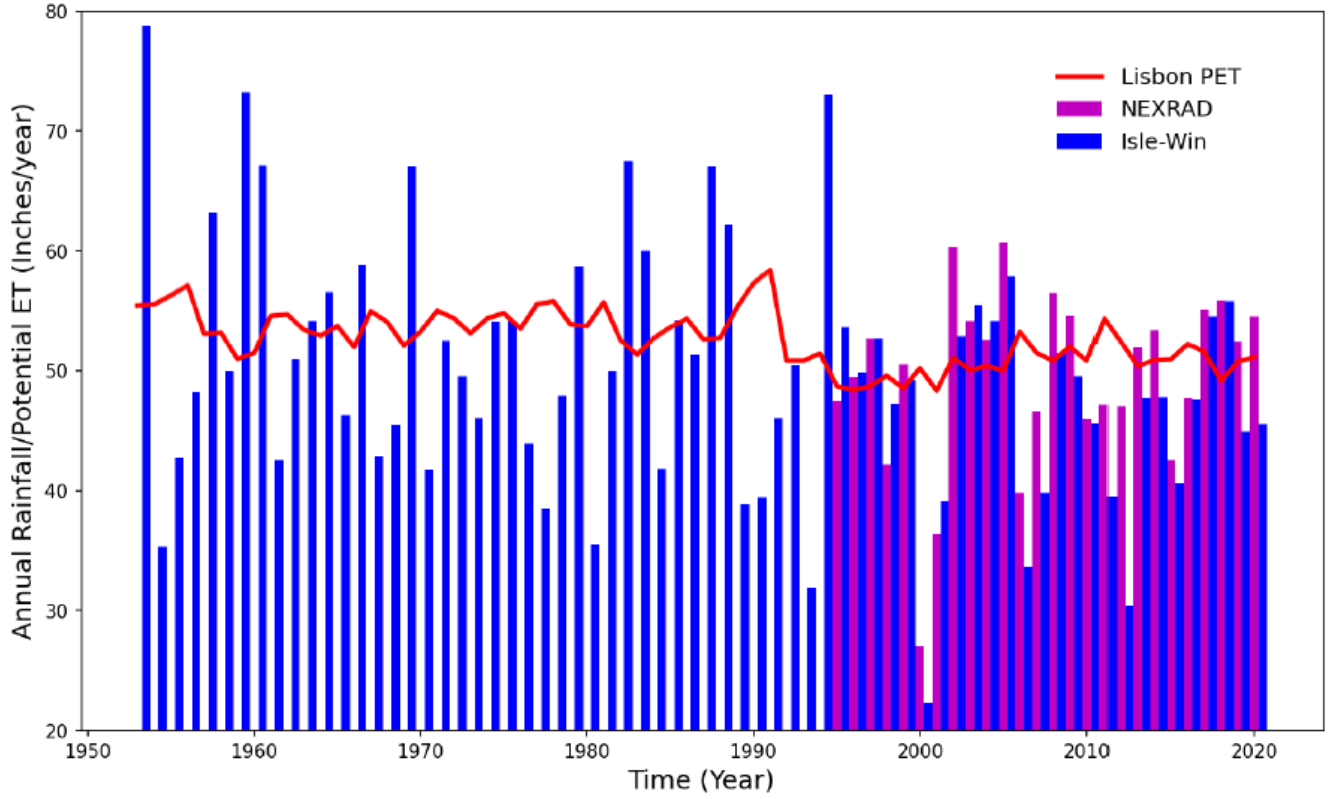
# SJRWMD Simulation of Flow and Water-Surface Elevation in Lake Prevatt Watershed

- Simulated with Hydrologic Simulation Program FORTRAN (HSPF)
- Forced by rainfall & evapotranspiration

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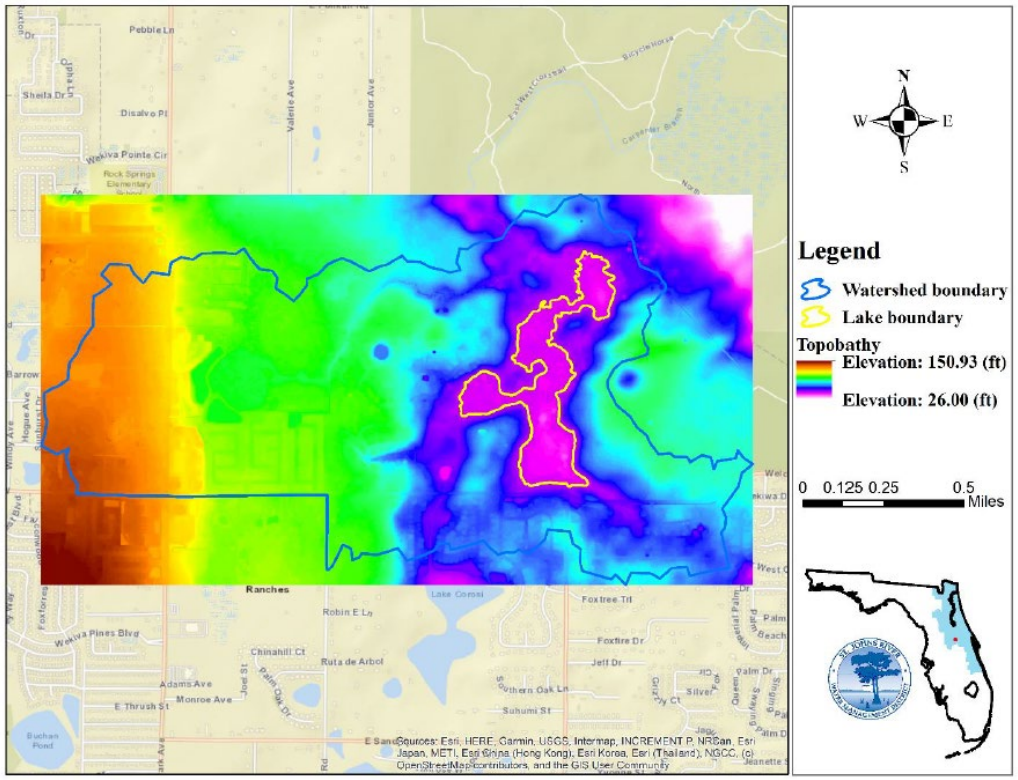
# SJRWMD Simulation of Flow and Water-Surface Elevation in Lake Prevatt Watershed

- Simulated with HSPF
- Based on topography and bathymetry

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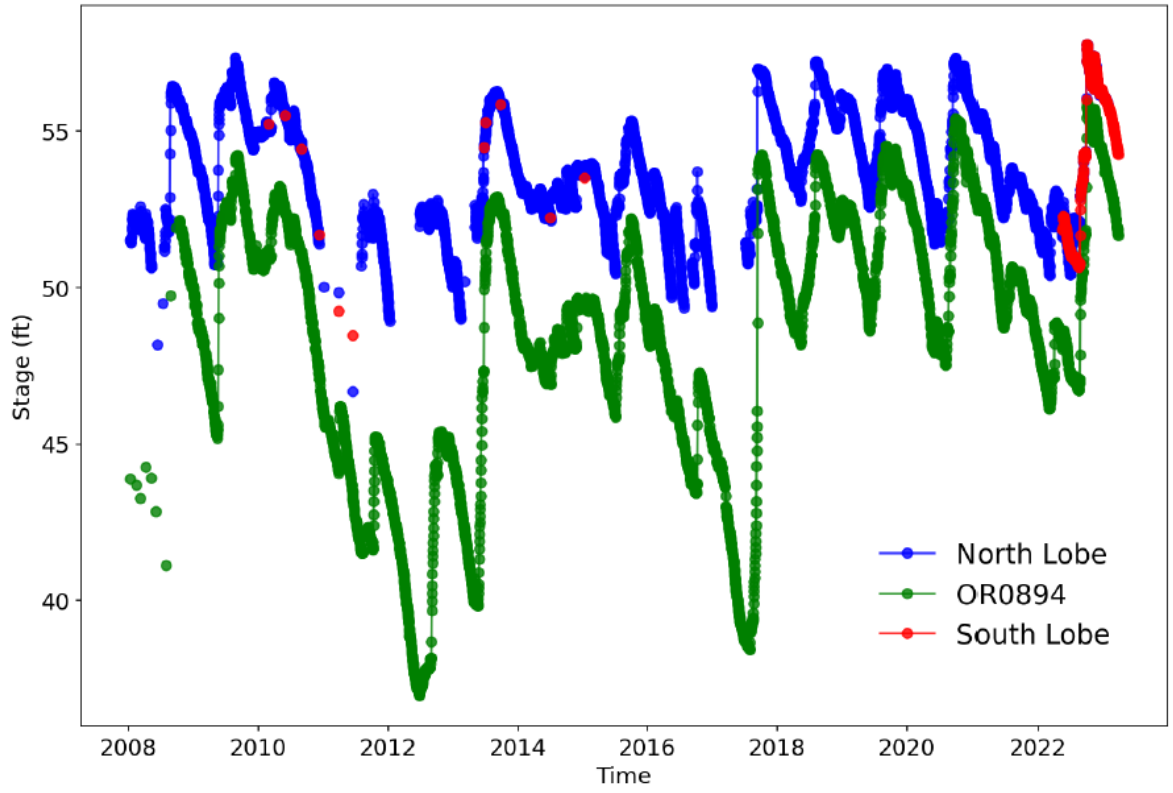
# SJRWMD Simulation of Flow and Water-Surface Elevation in Lake Prevatt Watershed

- Simulated HSPF
- Forced by Groundwater flux

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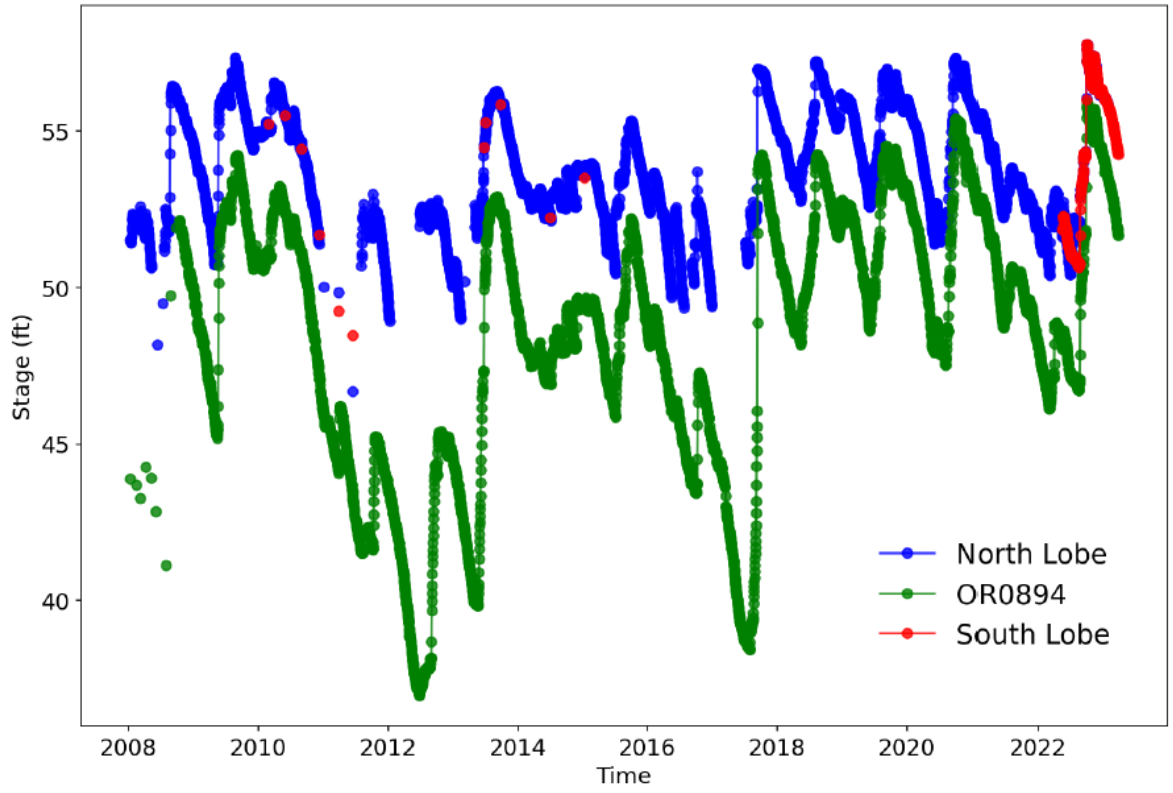
# SJRWMD Simulation of Flow and Water-Surface Elevation in Lake Prevatt Watershed

- Simulated HSPF
- Calibrated to measured water surface elevation in Lake Prevatt

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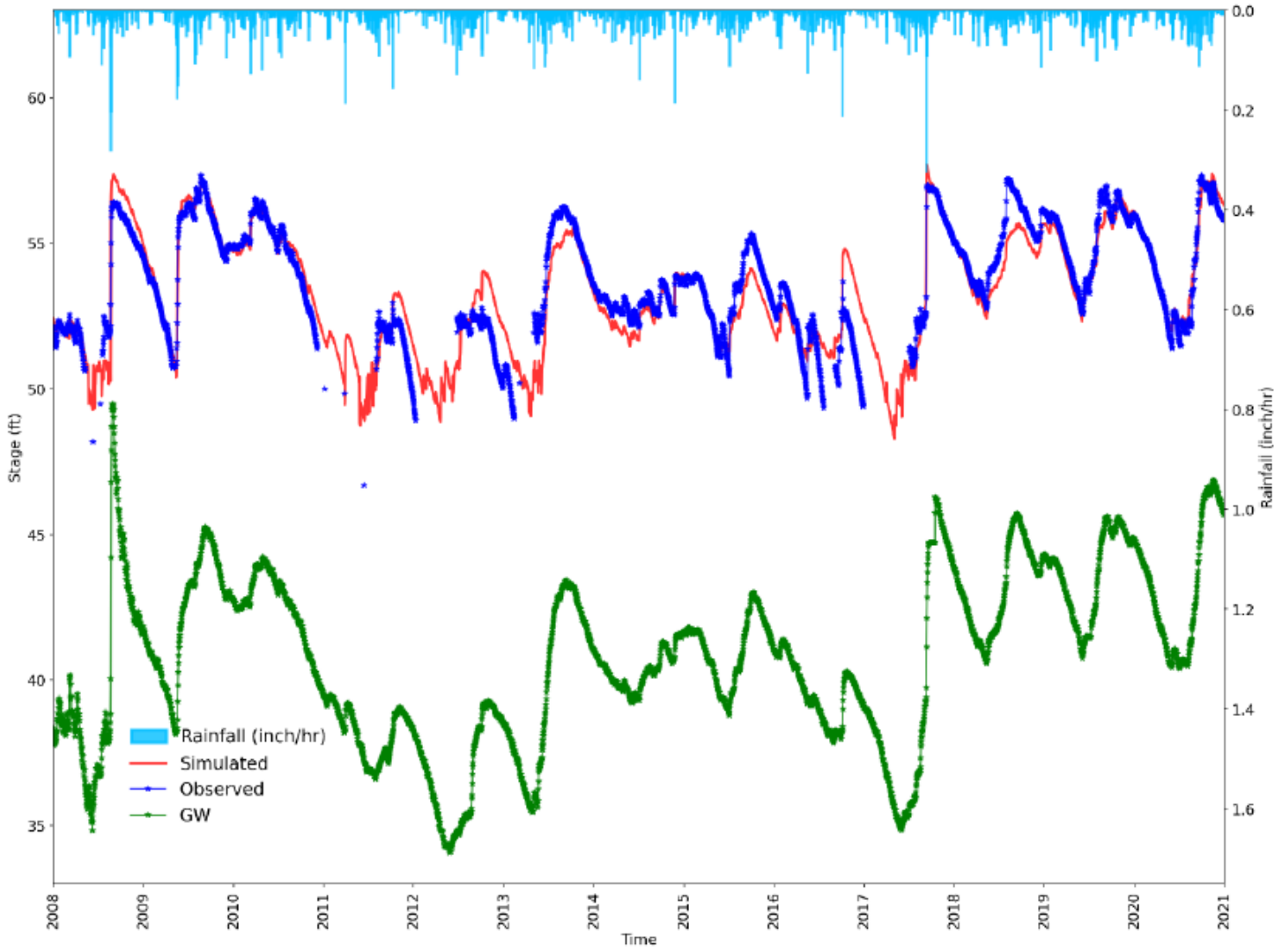
# SJRWMD Simulation of Lake Prevatt Watershed

- Simulated with HSPF
- Calibrated to measured water surface elevation in North Lobe Lake Prevatt

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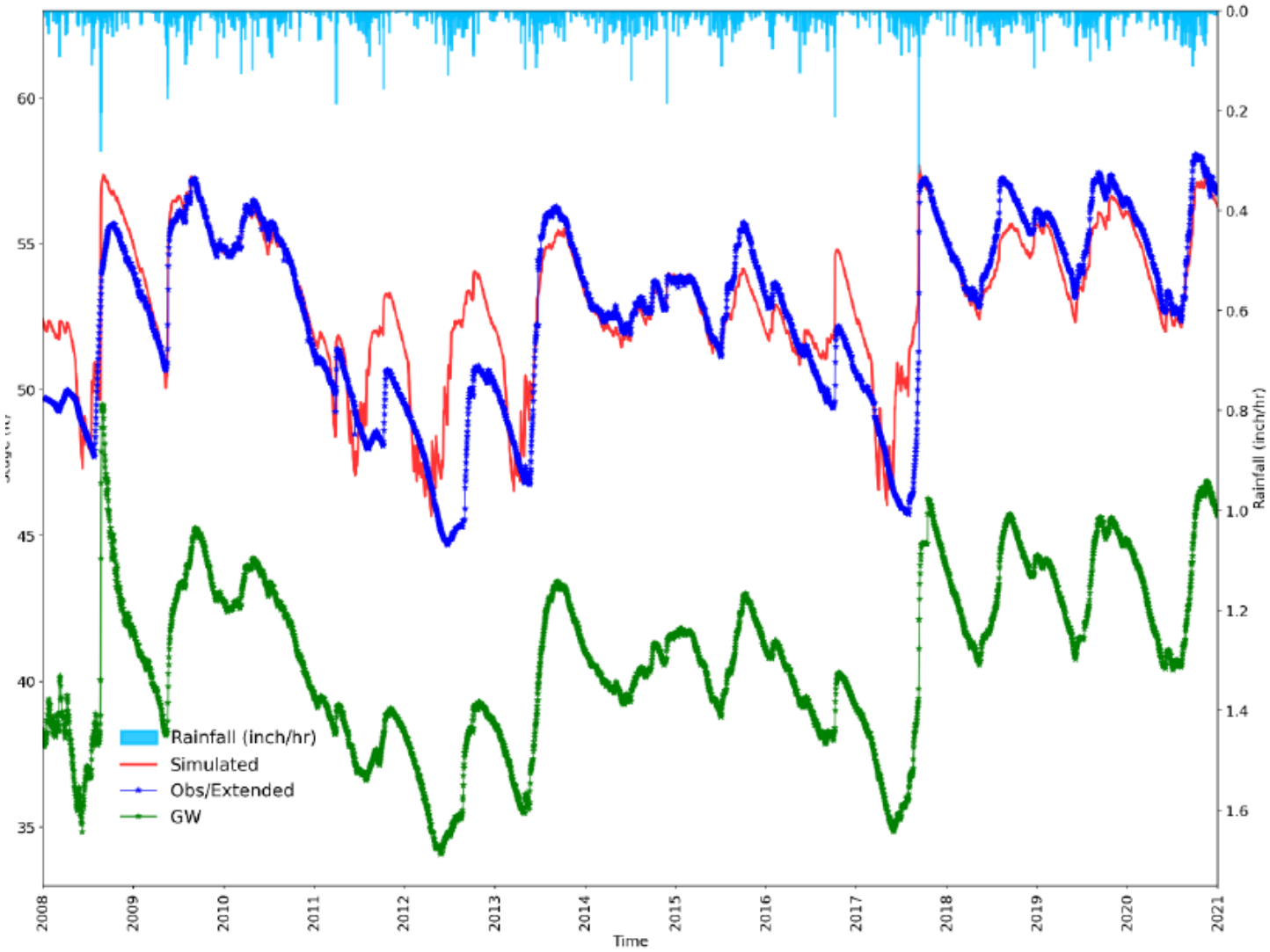
- Calibrated to measured water surface elevation in South Lobe Lake Prevatt

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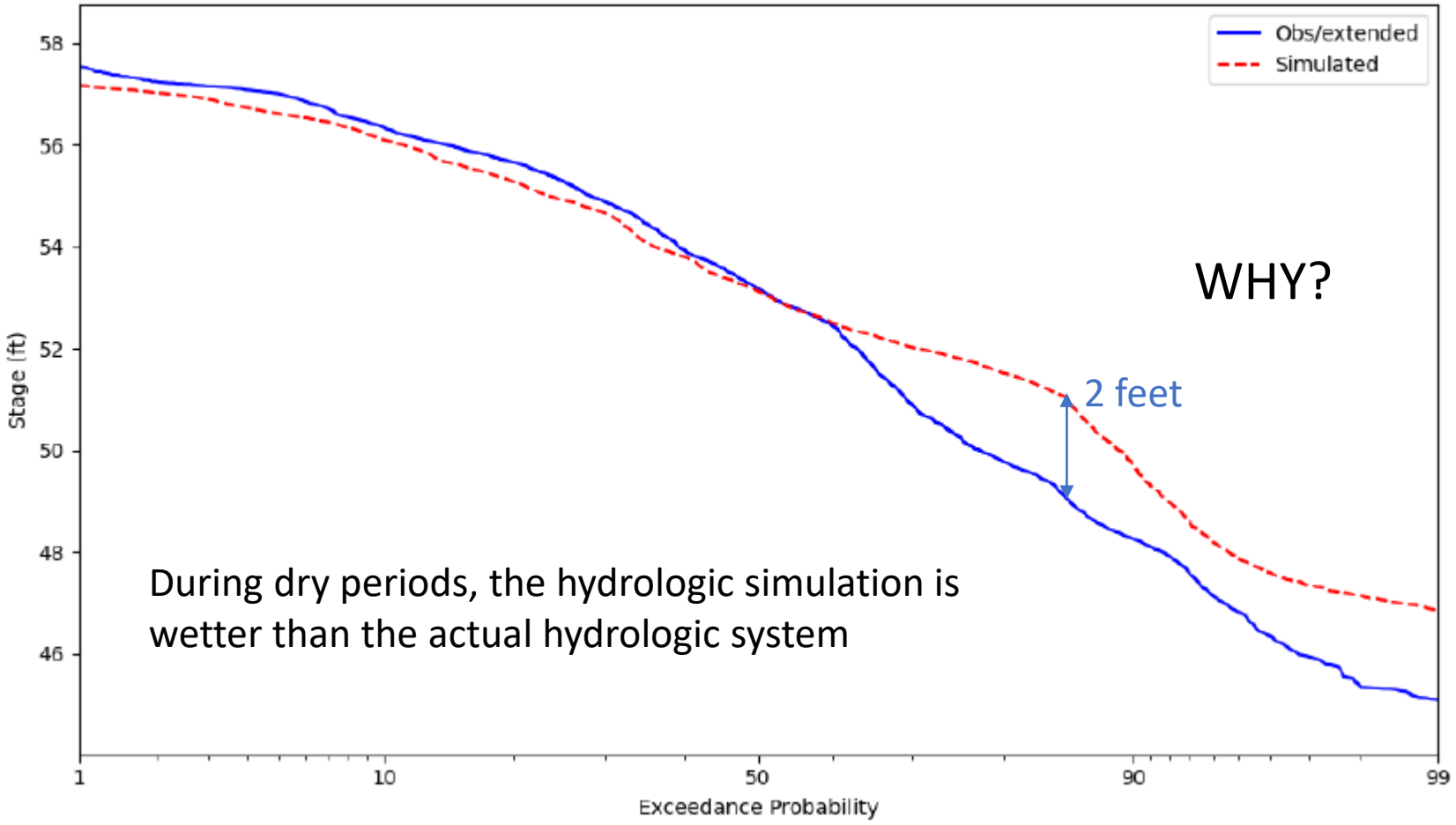

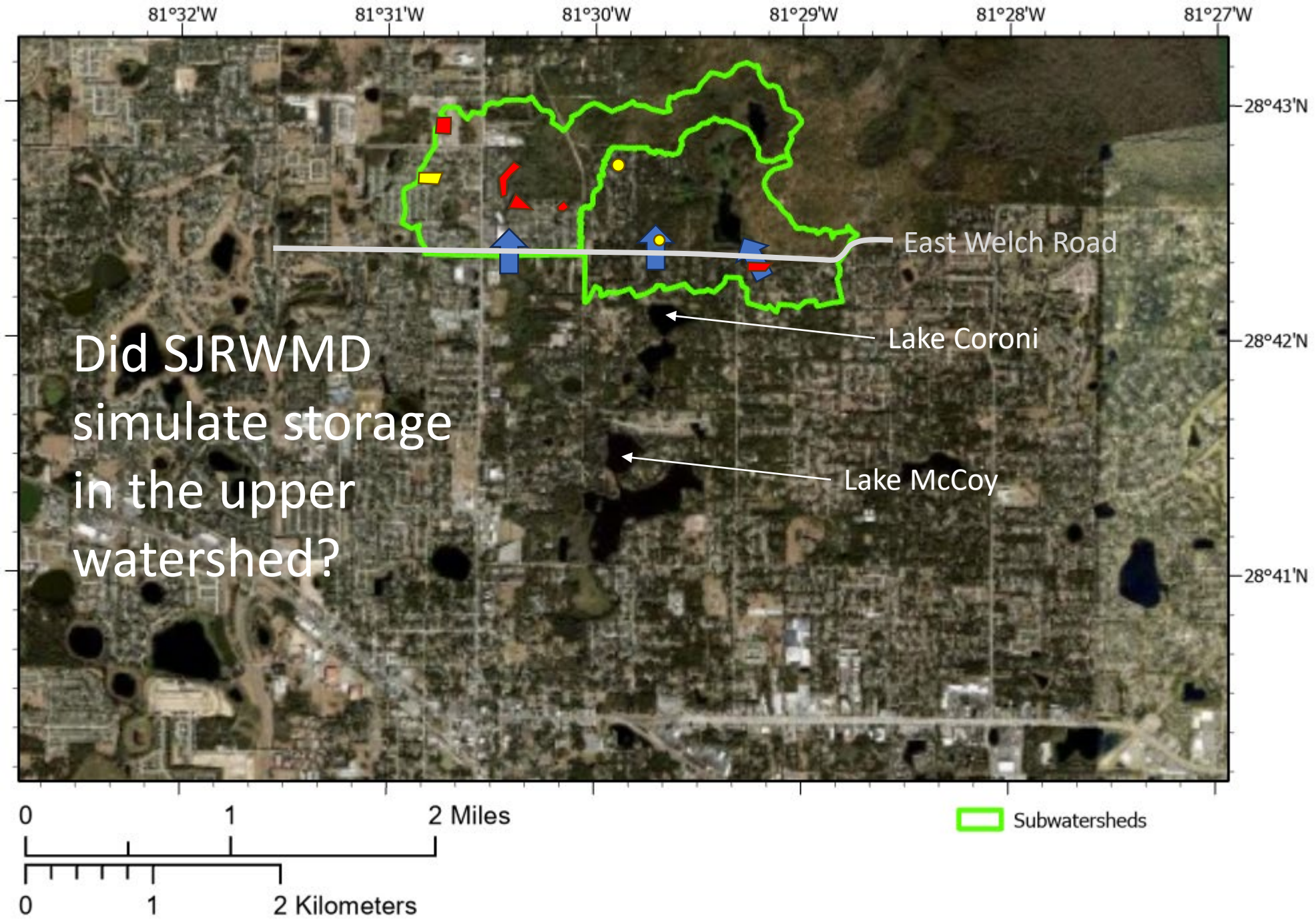
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28°42'N
28°41'N
East Welch Road
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Lake McCoy
Did SJRWMD simulate storage in the upper watershed?
0
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2 Miles
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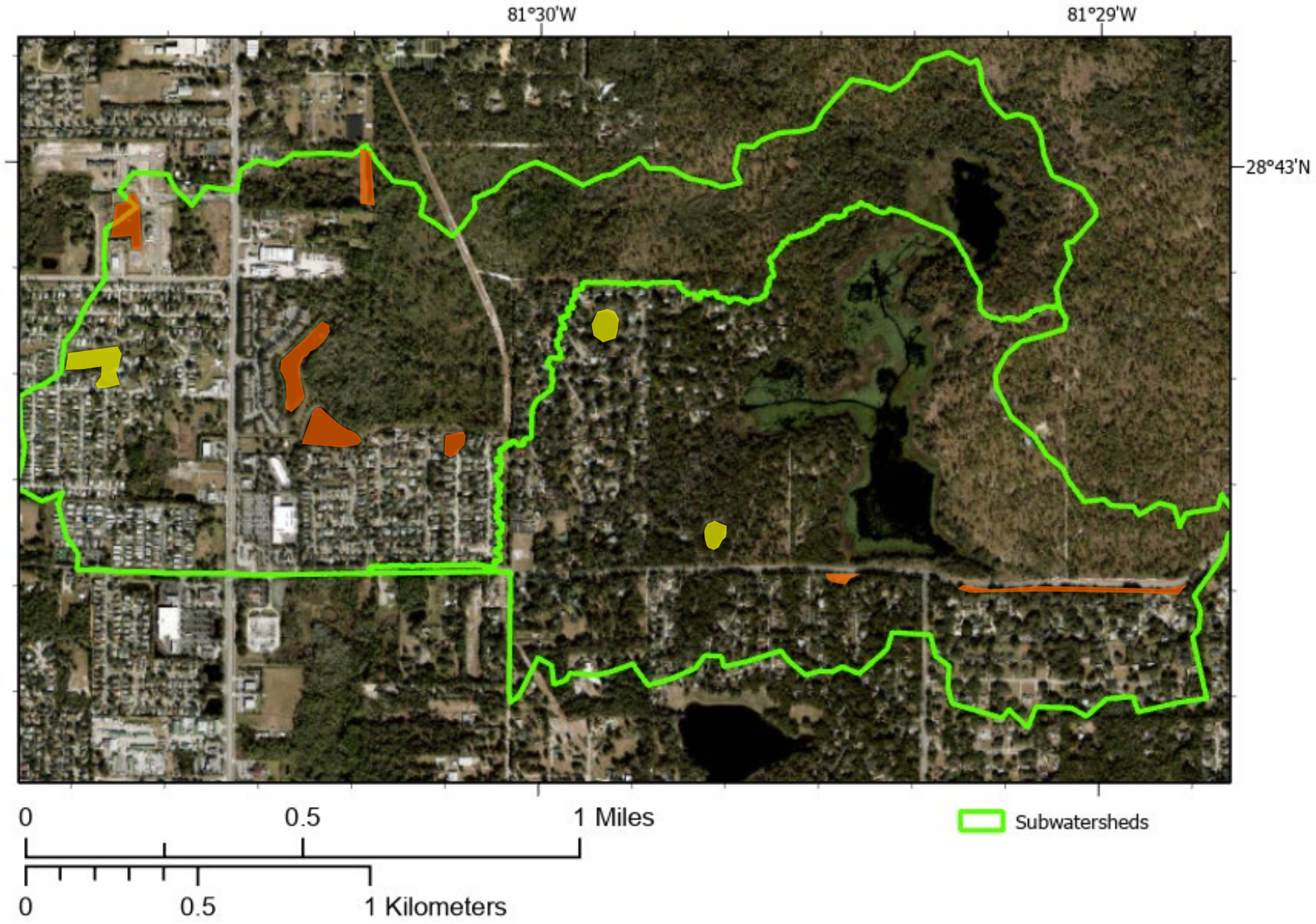
2 Kilometers
Subwatersheds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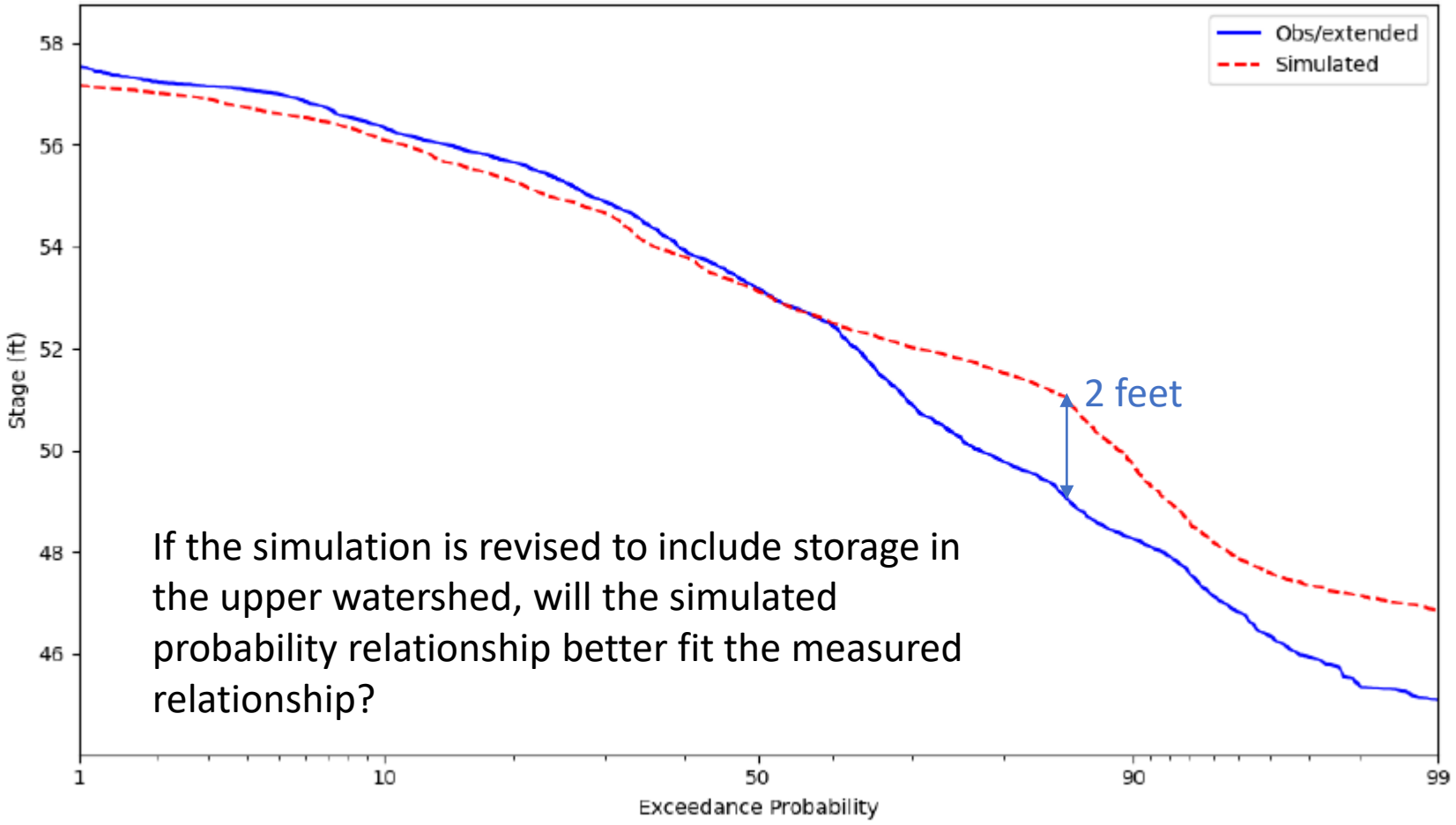
1 Kilometers
Subwatersheds

# SJRWMD Simulation of Lake Prevatt Watershed

- Simulated with HSPF
- Calibrated to measured water surface elevation in South Lobe Lake Prevatt

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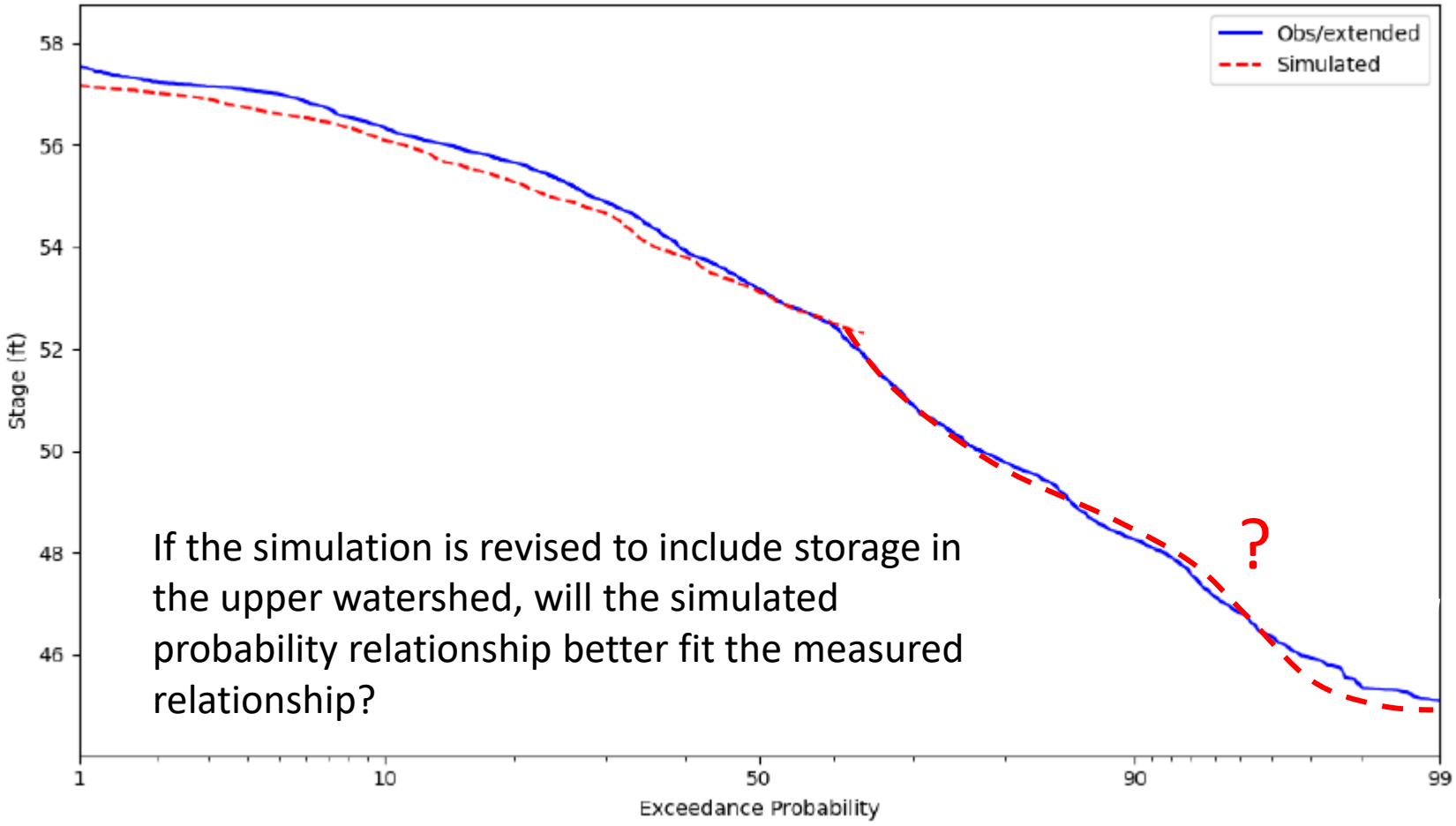


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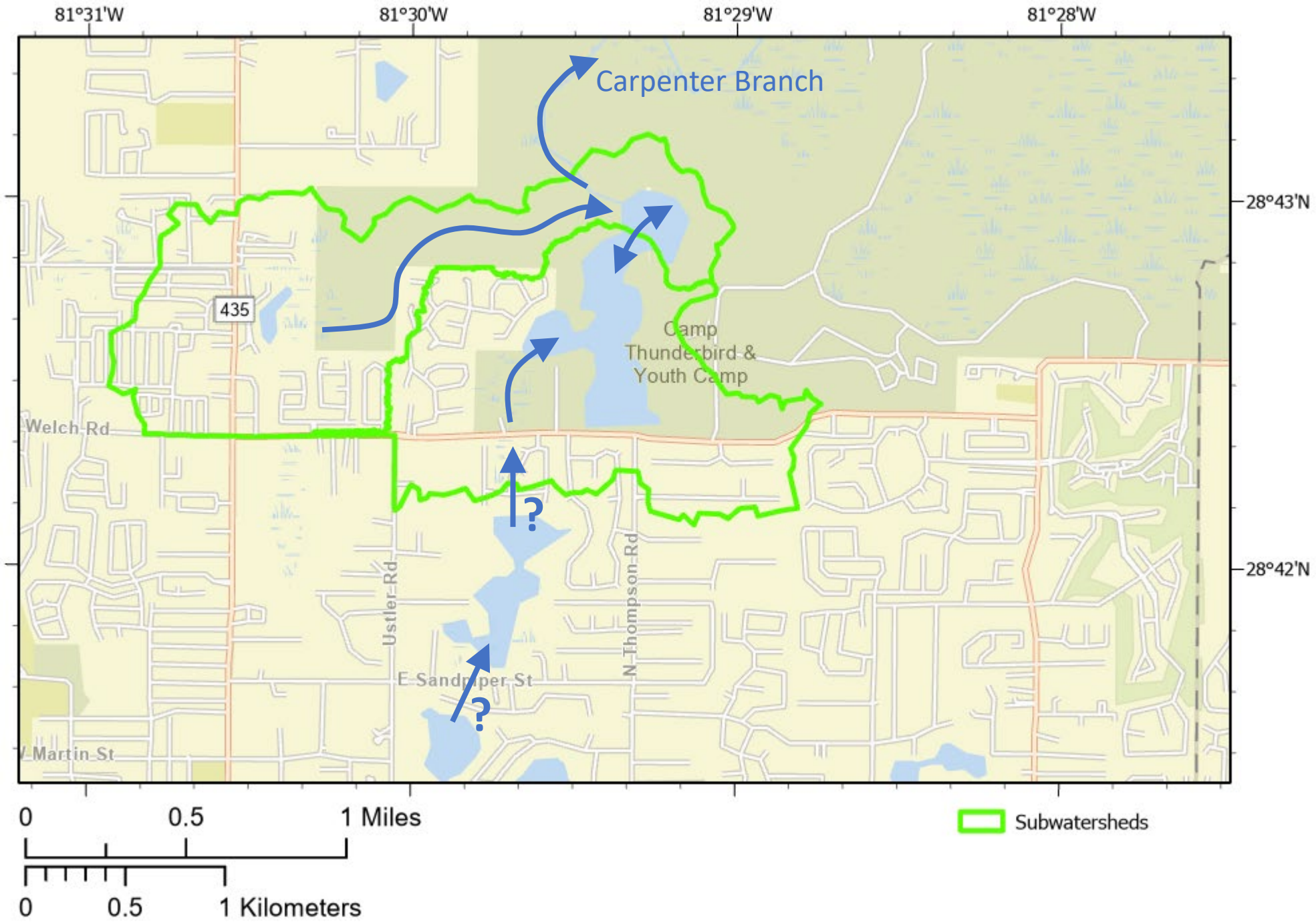
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Welch Rd
Ustler Rd
N Thompson Rd
E Sandpiper St
Martin St
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0.5
1 Miles
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0.5
1 Kilometers
Subwatersheds

# LAKES McCOY, CORONI AND PREVATT

## DRAINAGE BASIN STUDY

## ORANGE COUNTY, FLORIDA

PREPARED FOR:

BOARD OF COUNTY COMMISSIONERS ORANGE COUNTY FLORIDA

CITY OF APOPKA FLORIDA

ST. JOHNS RIVER WATER MANAGEMENT DISTRICT SJR

# ENGINEERING REPORT

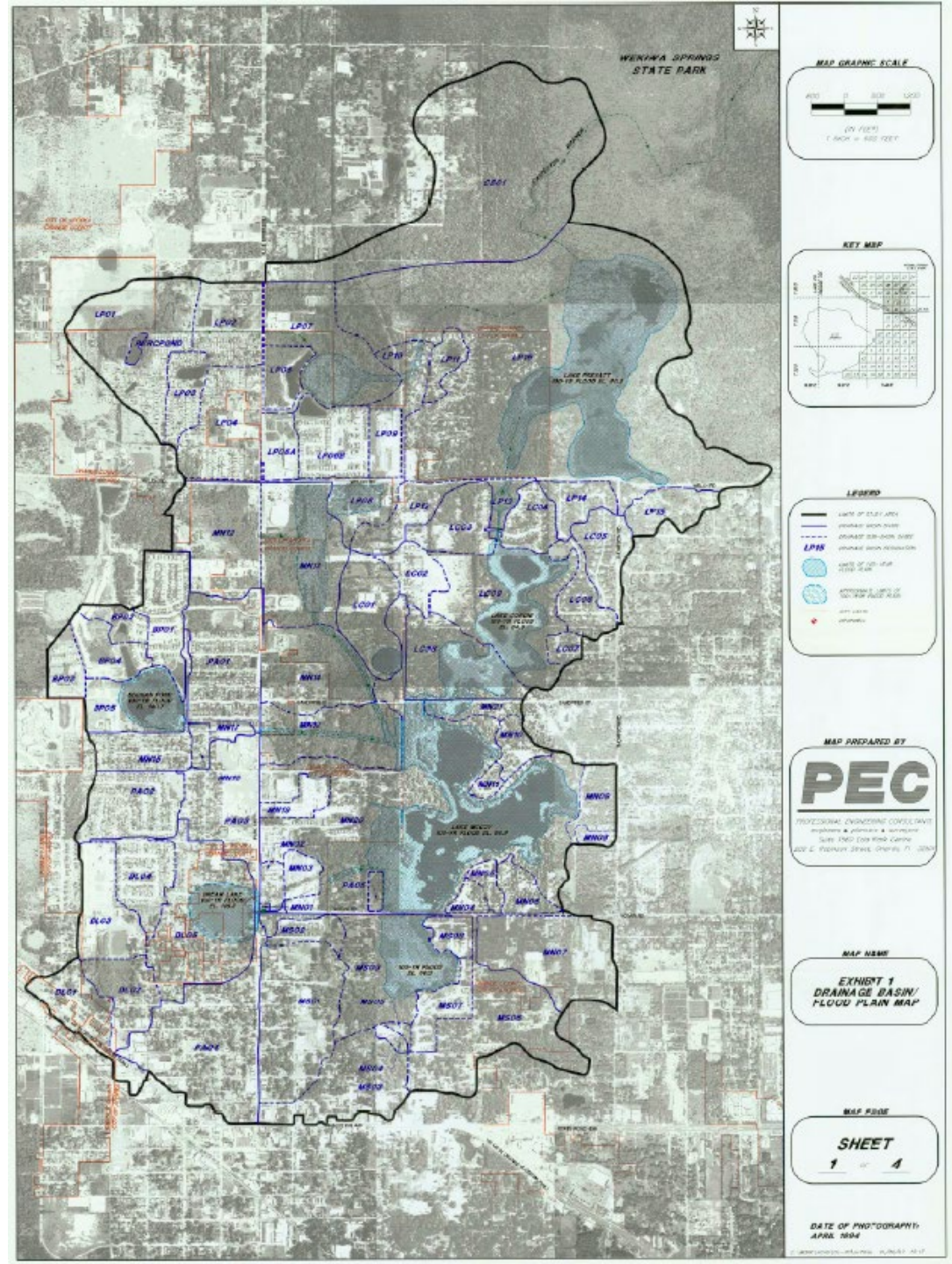
## VOLUME I

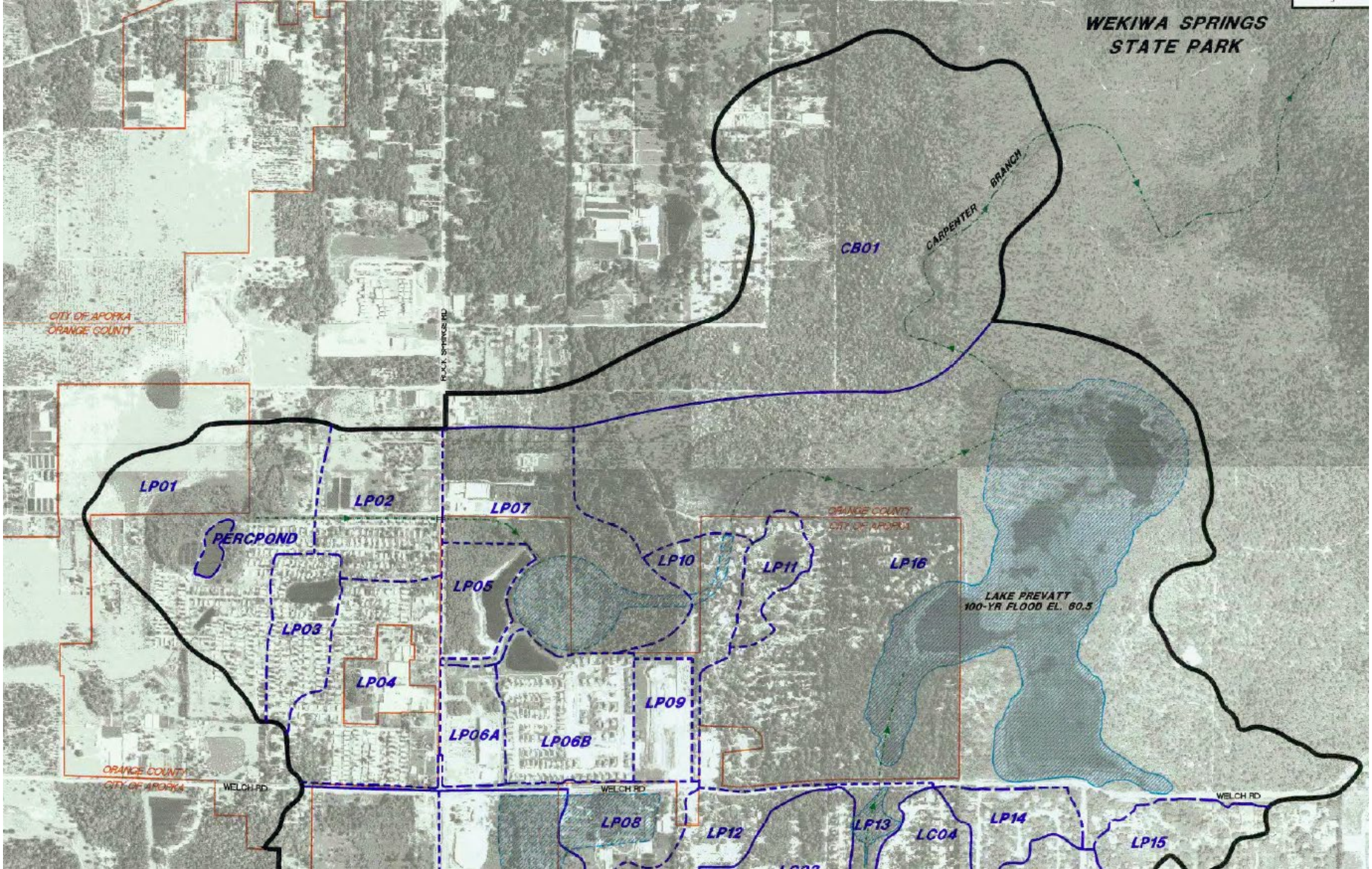
## MARCH 1997

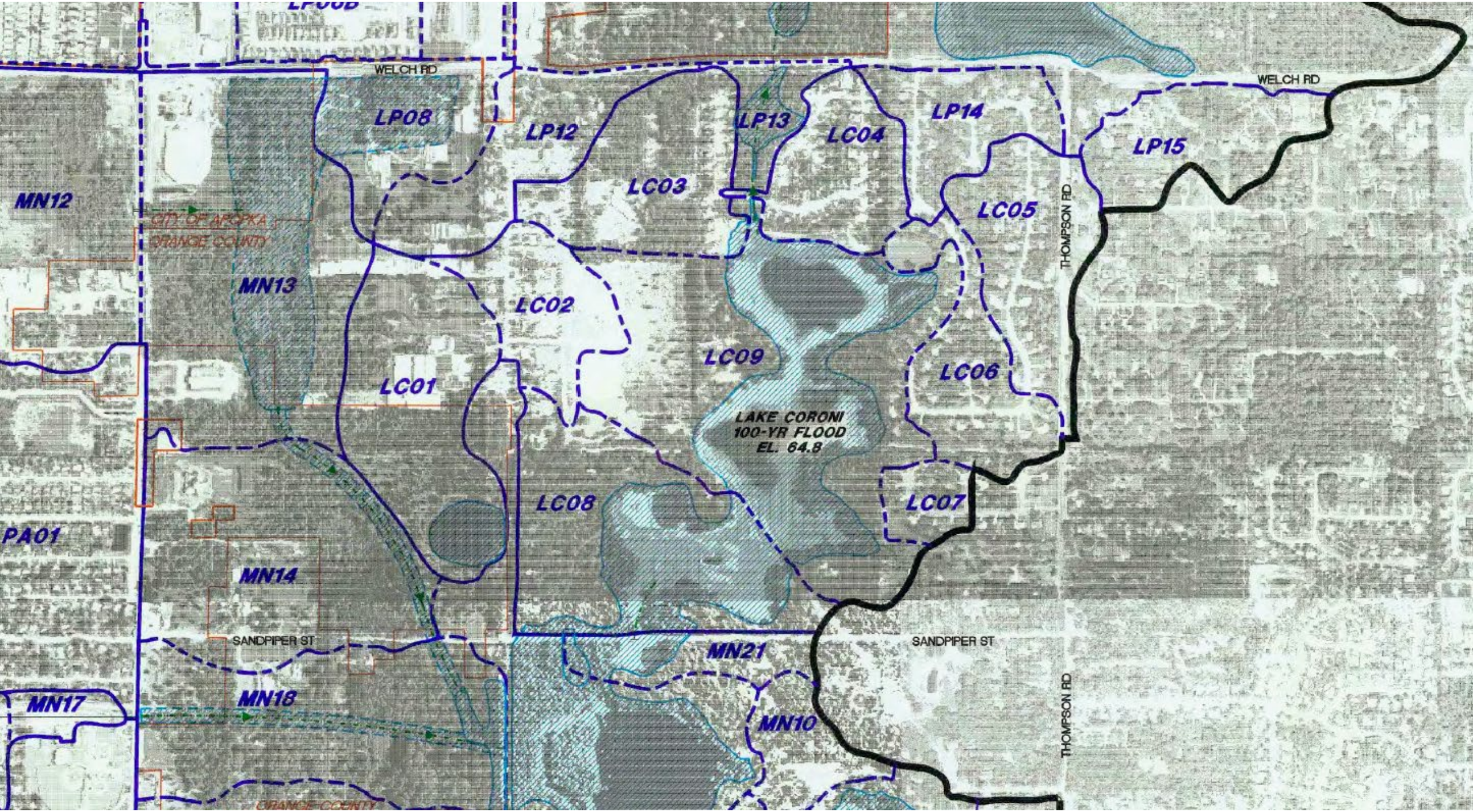
PREPARED BY:


PEC PROFESSIONAL ENGINEERING CONSULTANTS, INC.
engineers planners surveyors
Suite 1560 Exlo Park Centre 200 East Robinson Street, Orlando, Florida 32801 407/422-8063


Geosyntec consultants | ATM A Geosyntec Company




WEKIWA SPRINGS
STATE PARK
CB01
CARPENTER BRANCH
CITY OF APOPKA
ORANGE COUNTY
BLACK SPRINGS RD
LP01
LP02
LP07
PERCPOND
LP10
LP11
LP16
LP05
LP03
LP04
LP09
LP06A
LP06B
LAKE PREVATT
100-YR FLOOD EL. 60.5
ORANGE COUNTY
CITY OF APOPKA
WELCH RD
WELCH RD
WELCH RD
LP08
LP12
LP13
LC04
LP14
LP15


WELCH RD
LP08
LP12
LP13
LC04
LP14
LP15
WELCH RD
MN12
LC03
LC05
CITY OF APOPKA
ORANGE COUNTY
THOMPSON RD
MN13
LC02
LC09
LC06
LC01
LAKE CORONI
100-YR FLOOD
EL. 64.8
LC08
LC07
PA01
MN14
SANDPIPER ST
SANDPIPER ST
MN21
MN17
MN18
MN10
THOMPSON RD
ORANGE COUNTY

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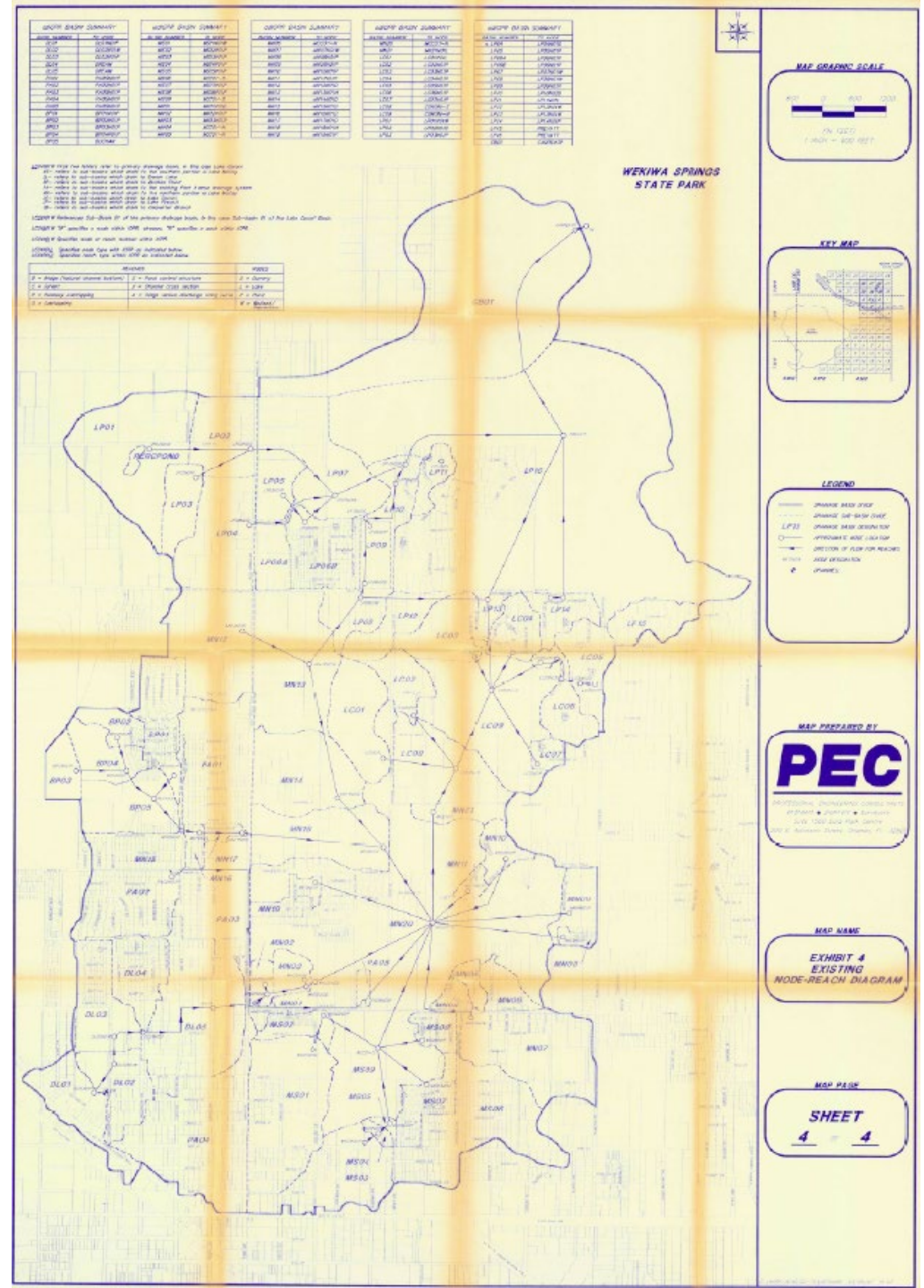
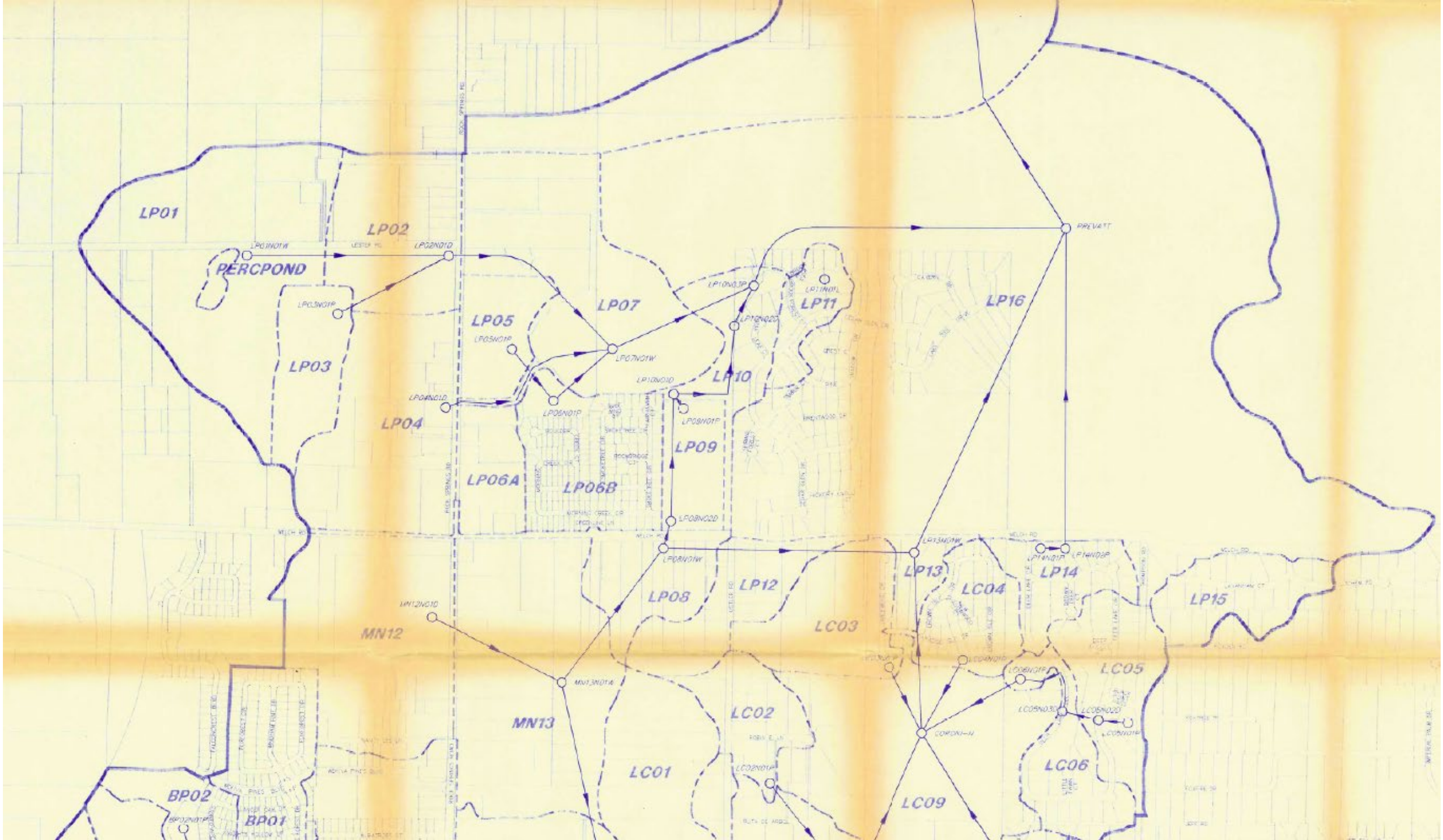
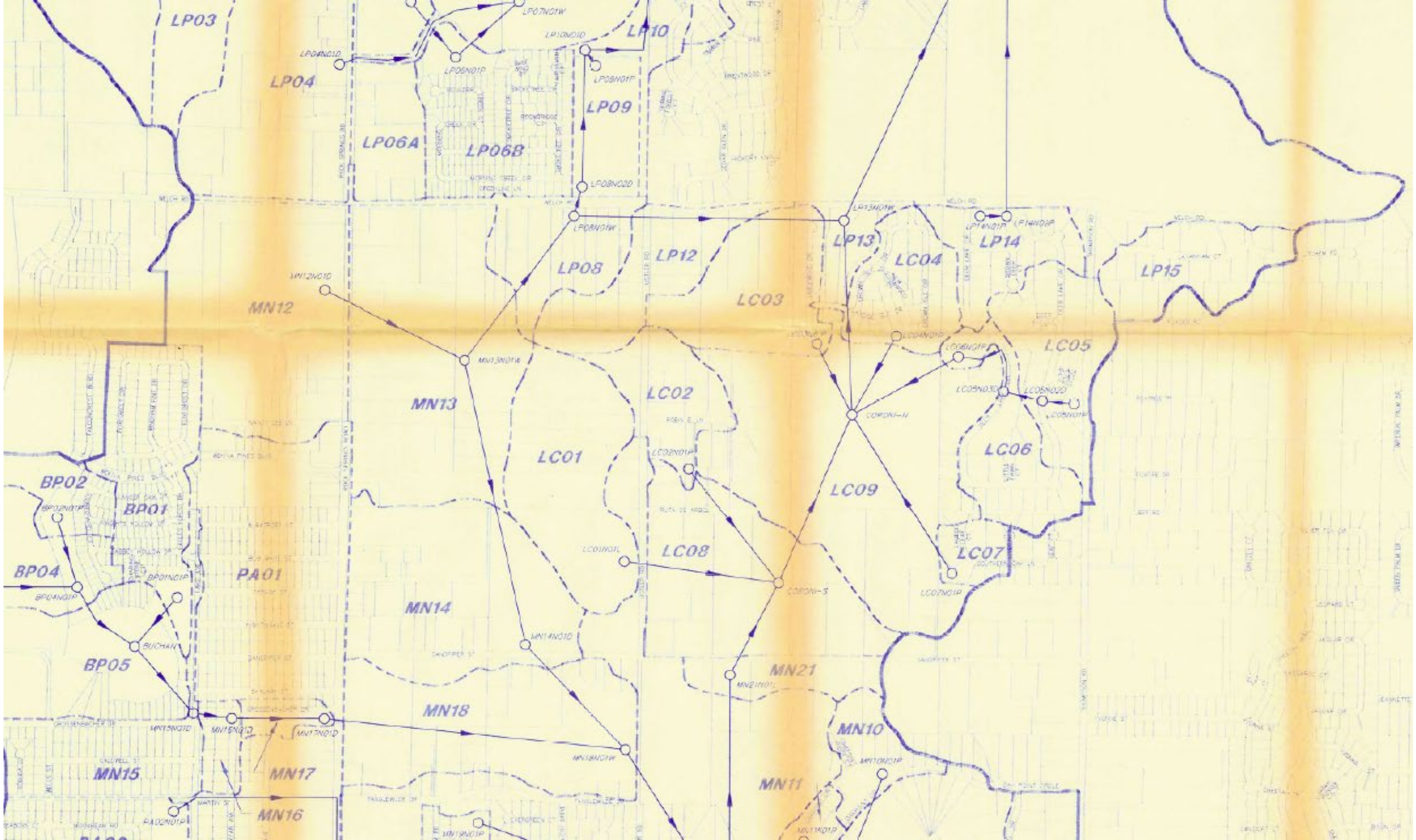
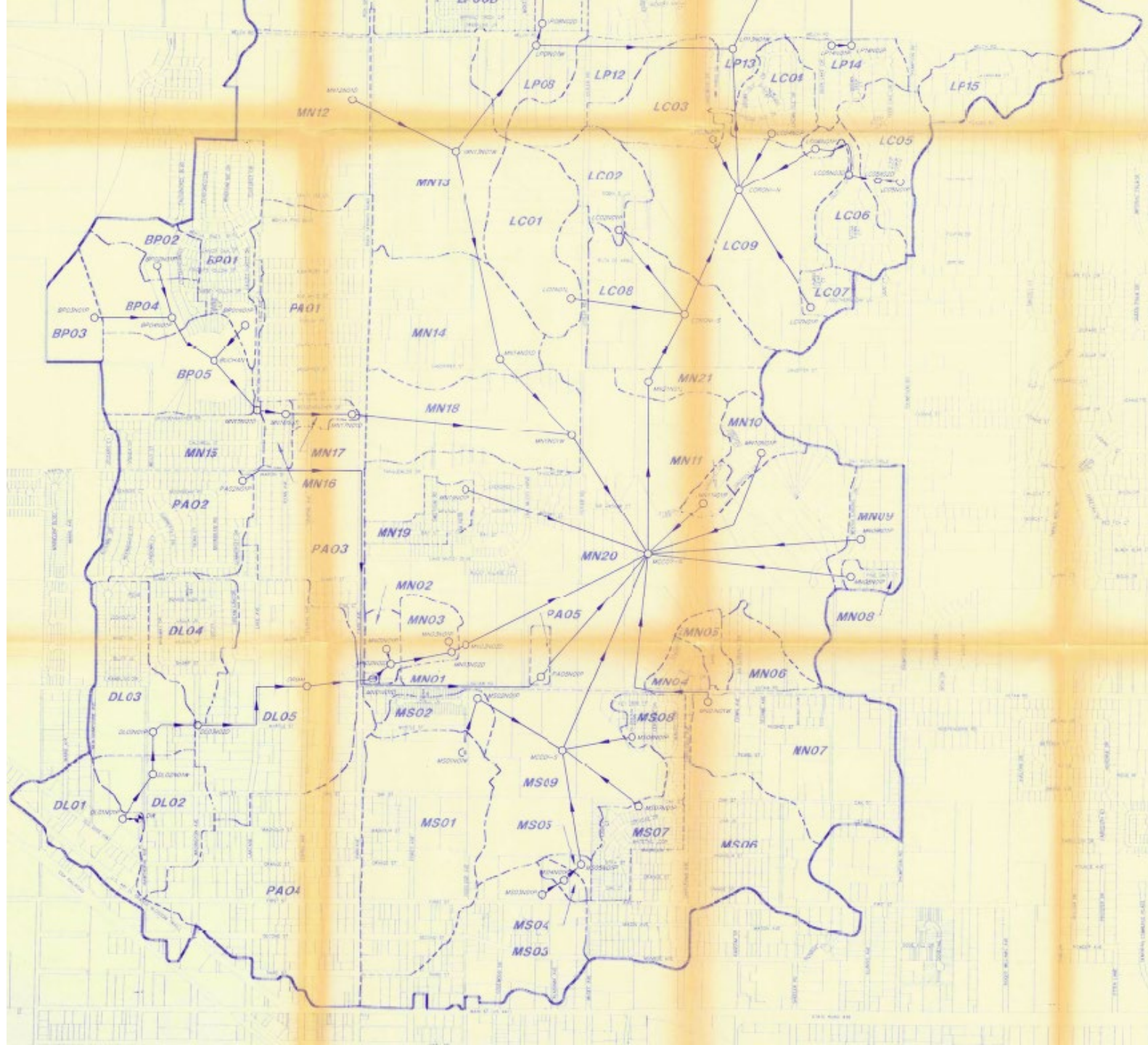



LP01
LP02
LP03
LP04
LP05
LP06A
LP06B
LP07
LP08
LP09
LP10
LP11
LP12
LP13
LP14
LP15
LP16
PERCPOND
PREVATT
MN12
MN13
LC01
LC02
LC03
LC04
LC05
LC06
LC09
BP01
BP02


LP03
LP04
LP06A
LP06B
LP07N01W
LP10N01D
LP10
LP04N01D
LP06N01P
LP08N01P
LP09
LP08N02D
LP08N01W
LP08
LP12
LP13M01W
LP13
LP14N01P
LP14N02P
LP14
LC04
LP15
MN12
MN12N01D
MN13N01W
MN13
LC03
LC02
LC01
LC05
LC05N03D
LC05N02D
LC05N01W
LC06
LC09
LC08
LC01N01L
LC02N01W
LC07
LC07N01P
CORONI-5
BP02
BP02N01P
BP01
BP04
BP04N01P
BP01N01P
PA01
BP05
BUCHAN
MN14
MN14N01D
MN21
MN21N01L
MN18
MN15N01D
MN16N01D
MN17N01D
MN18N01W
MN15
MN17
MN16
PA02N01P
MN10
MN10N01P
MN11
MN11N01P
MN19N01P

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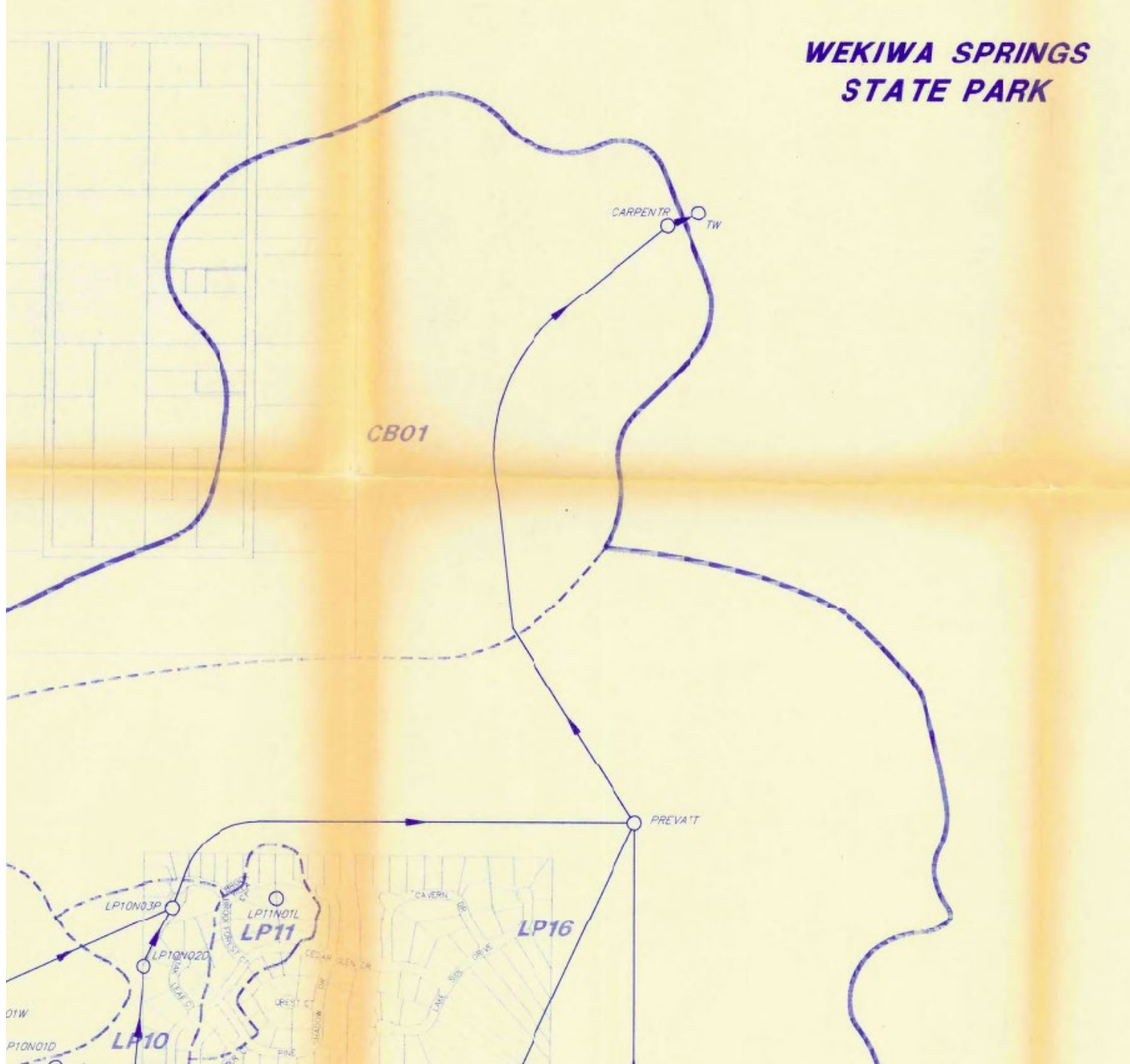


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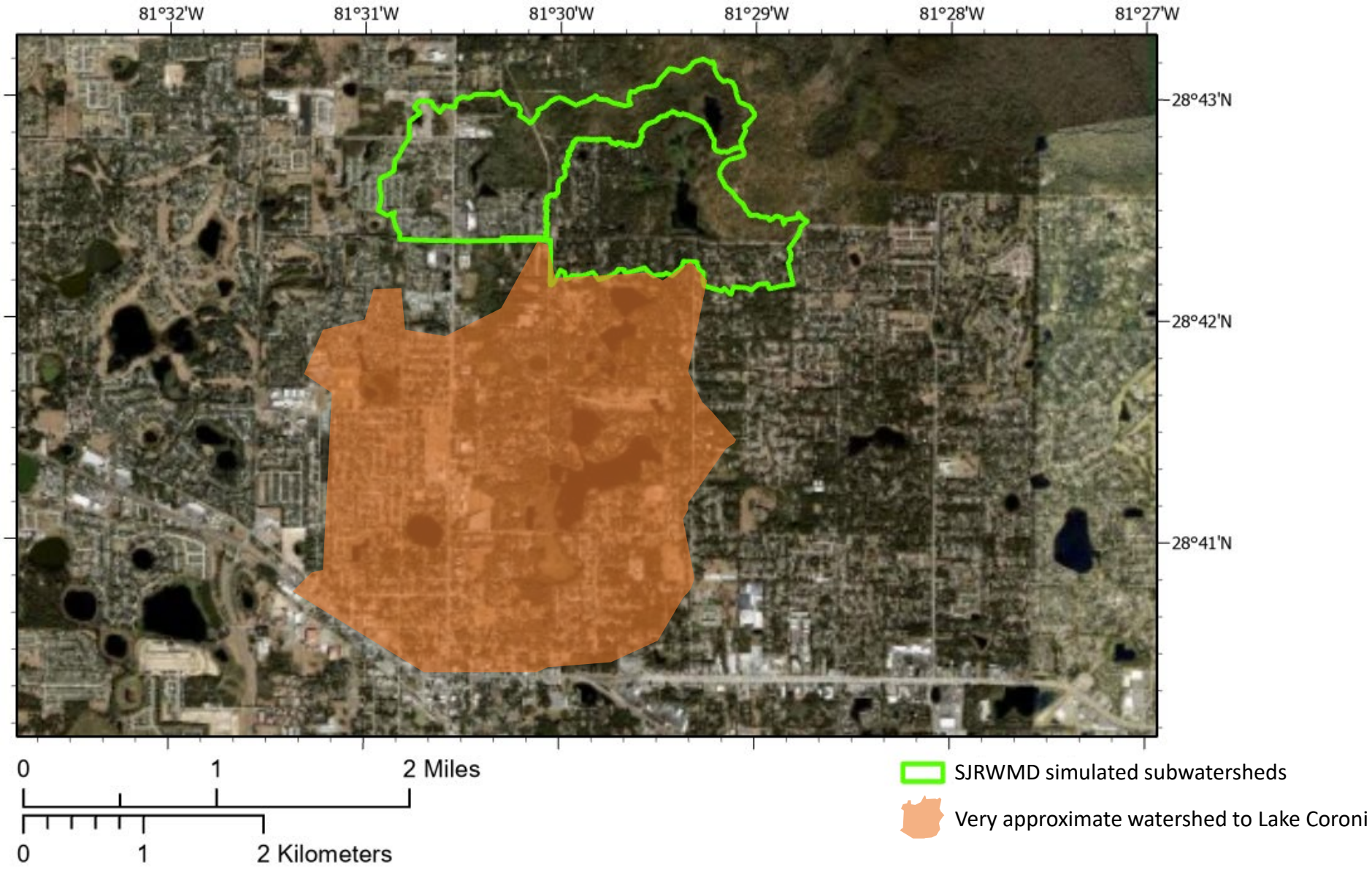


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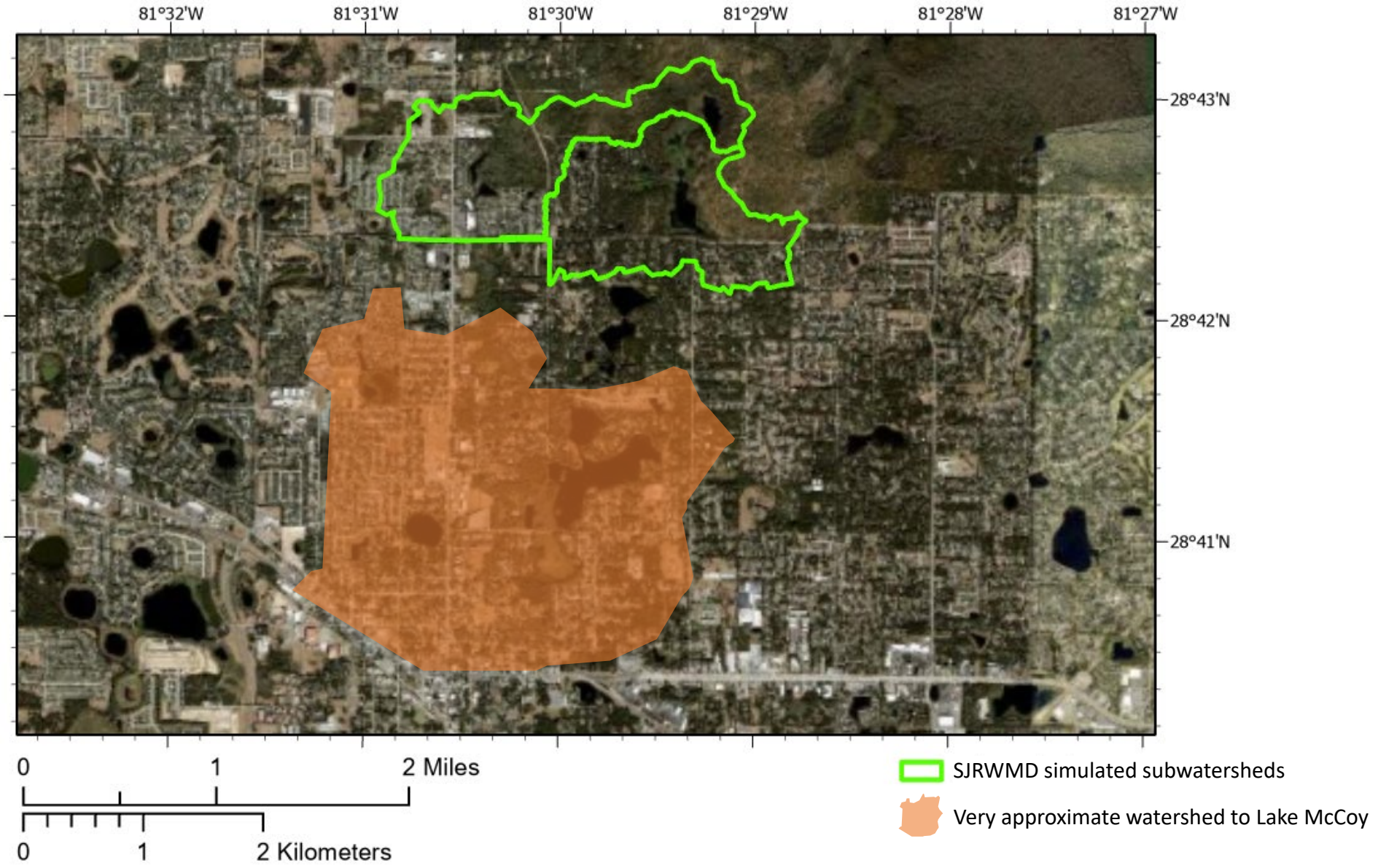


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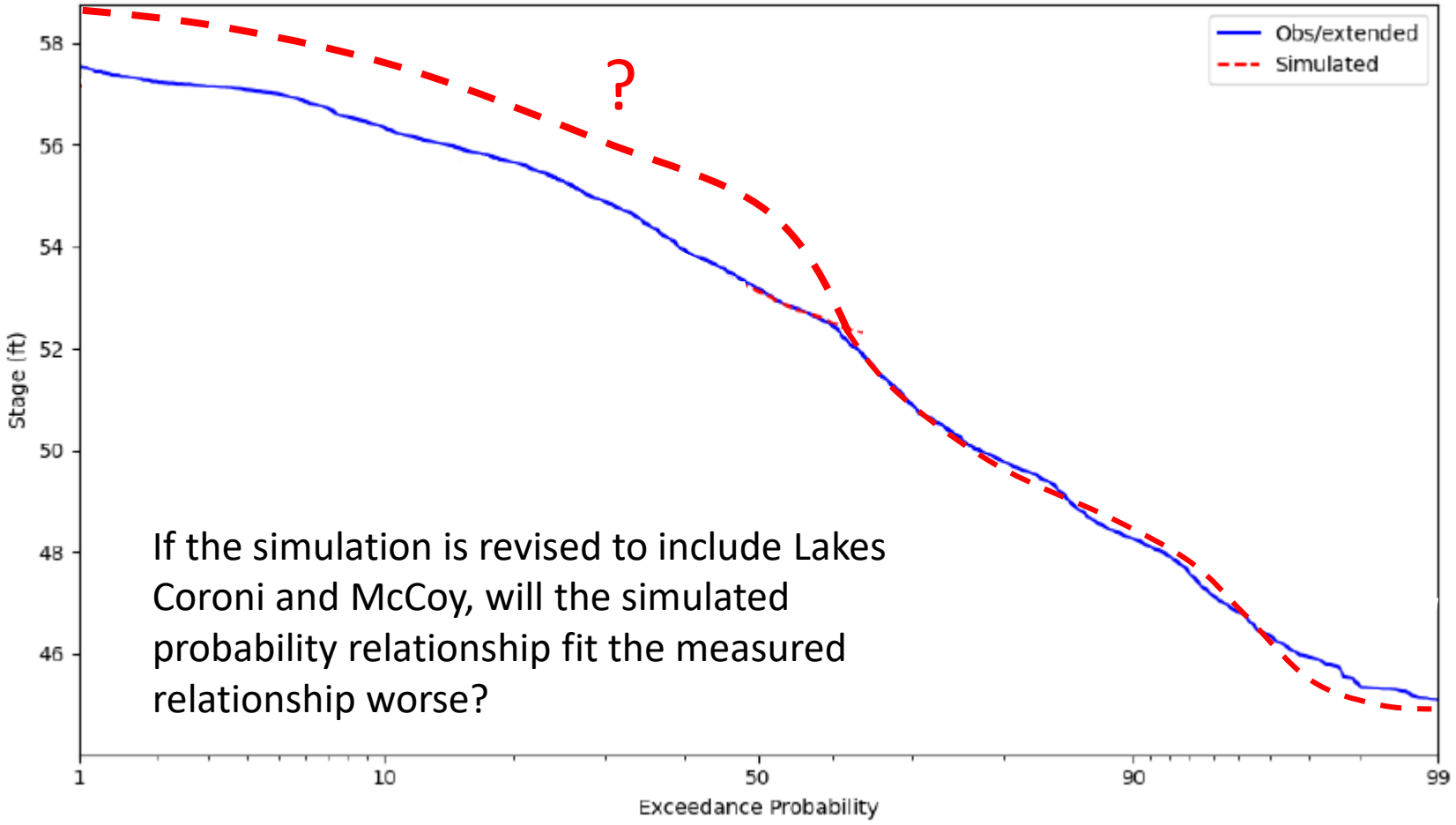
# SJRWMD Simulation of Lake Prevatt Watershed

- Simulated with Hydrologic Simulation Program FORTRAN (HSPF)
- Calibrated to measured water surface elevation in South Lobe Lake Prevatt

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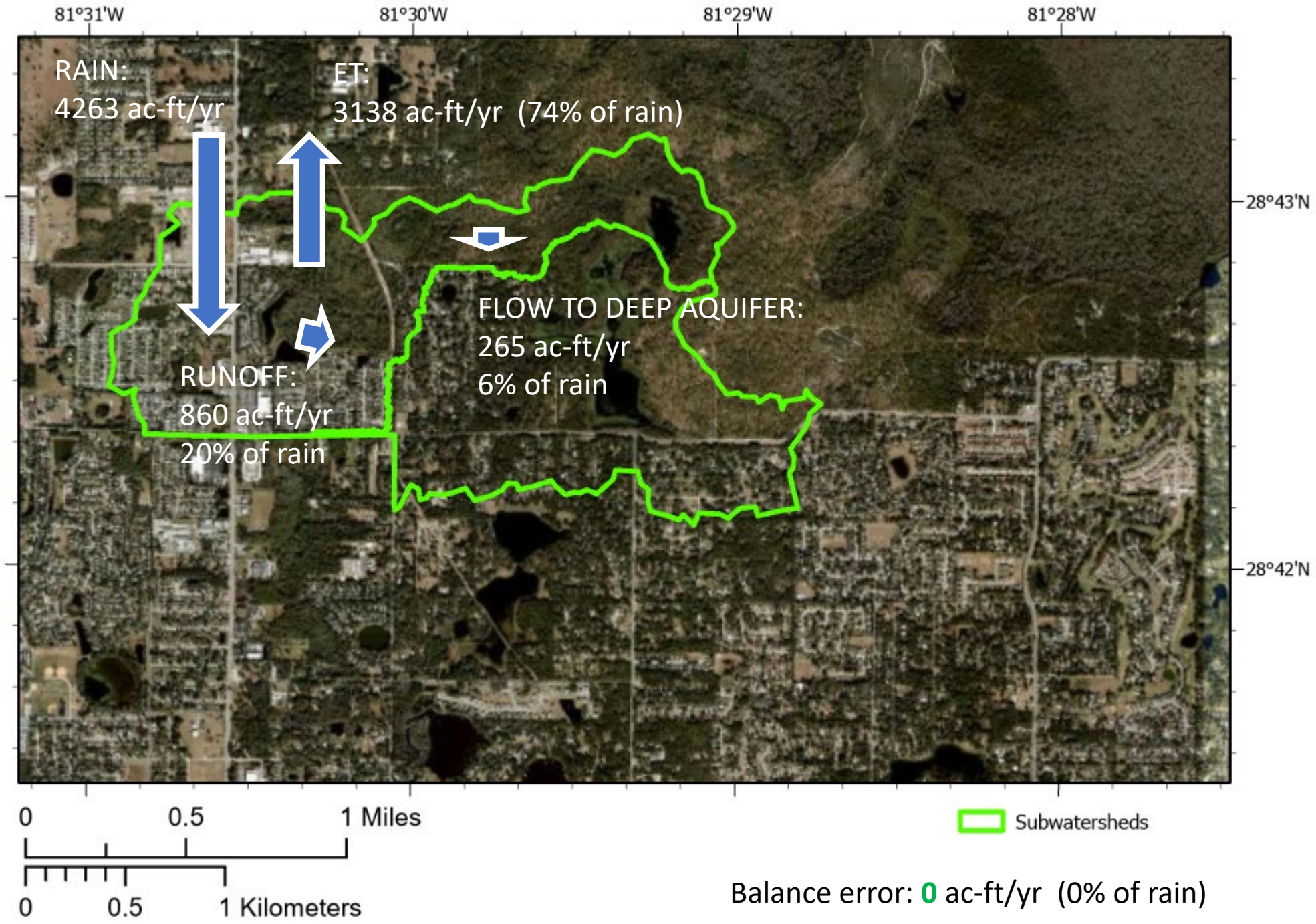
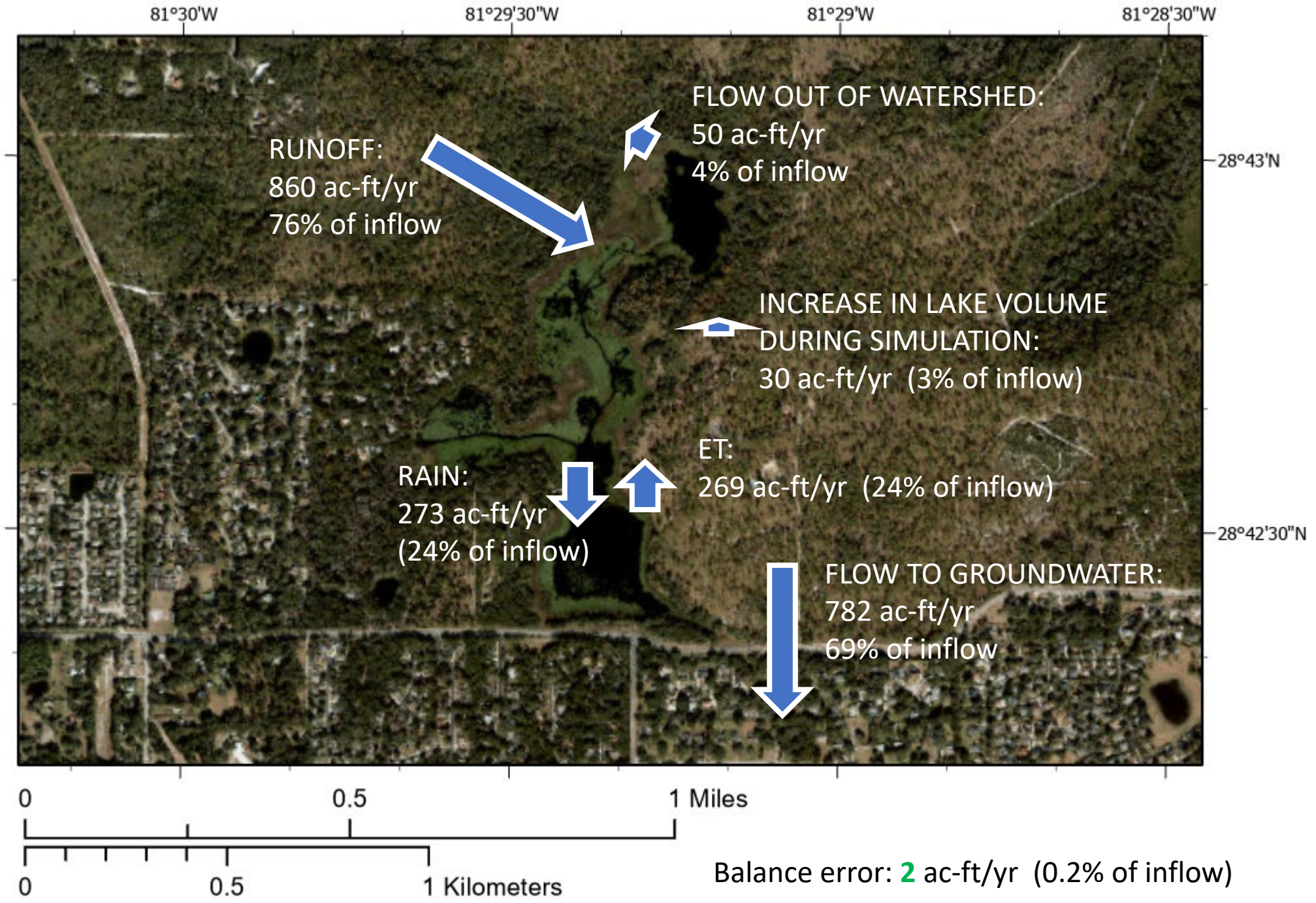
SIMULATED WATER BALANCE ON LAND SURFACE




Balance error: **0** ac-ft/yr (0% of rain)

SIMULATED WATER BALANCE ON LAKE PREVATT




Balance error: **2** ac-ft/yr (0.2% of inflow)

# Independent Peer Review

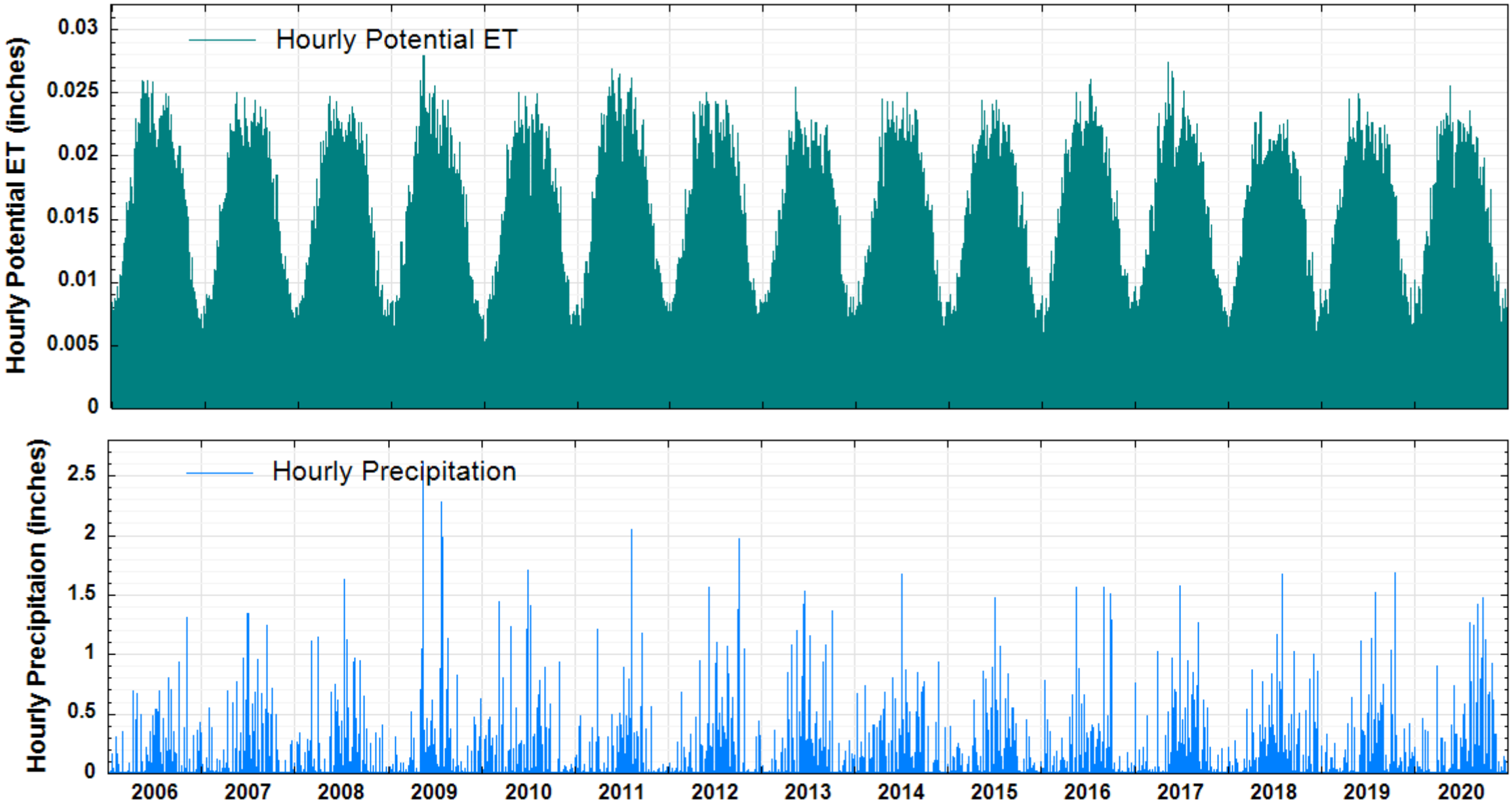
<u>Review Focus Areas:</u>

A. Data

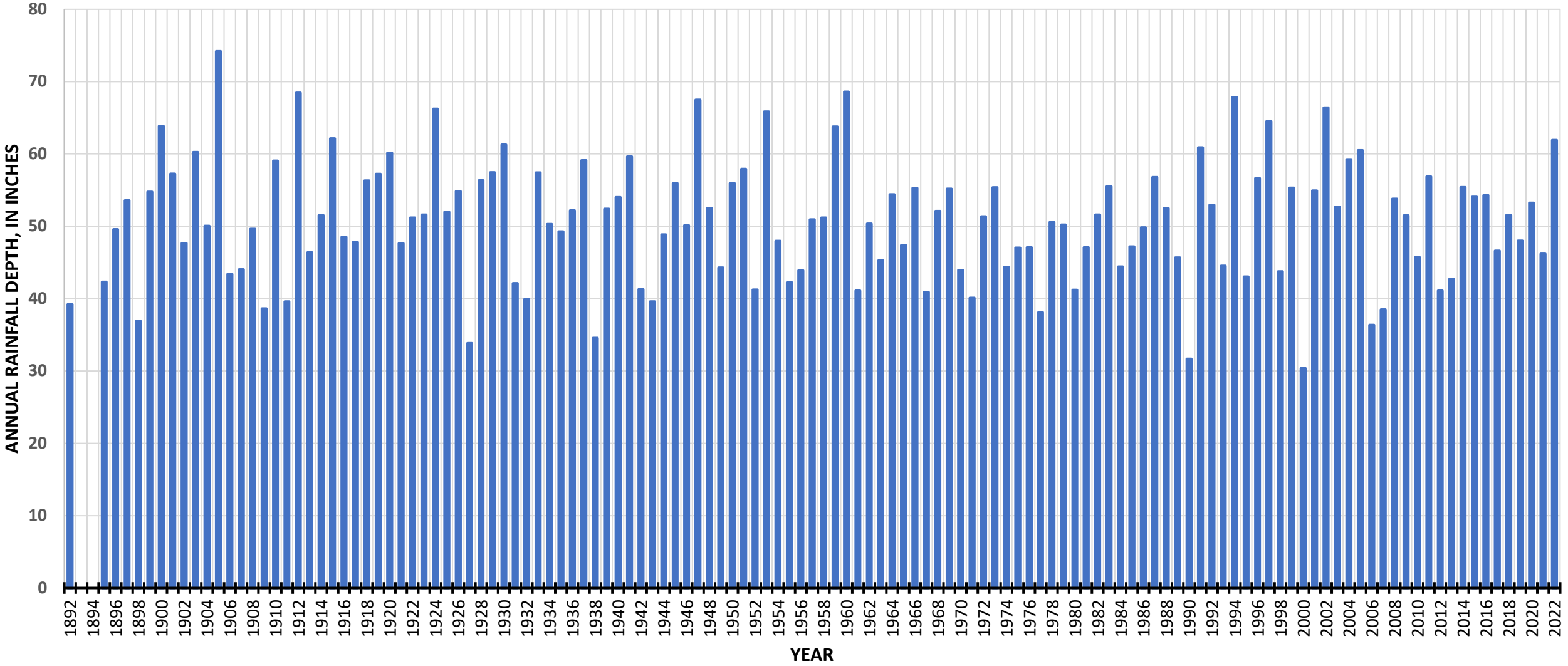
B. Simulation
   1) Model
   2) Simulation Development
   3) Simulation Calibration
   4) Simulation Verification

# A. Data

- Are all necessary data available? Did SJRWMD use the best available data?
  - Rainfall: yes, available
  - ET: yes, available
  - Groundwater levels: yes, available
  - Lake levels: yes, best available


Hourly Potential ET
Hourly Potential ET (inches)
0.03
0.025
0.02
0.015
0.01
0.005
0
Hourly Precipitation
Hourly Precipitaion (inches)
2.5
2
1.5
1
0.5
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020

# Annual Rainfall Depth in Orlando from 1892 to 2022

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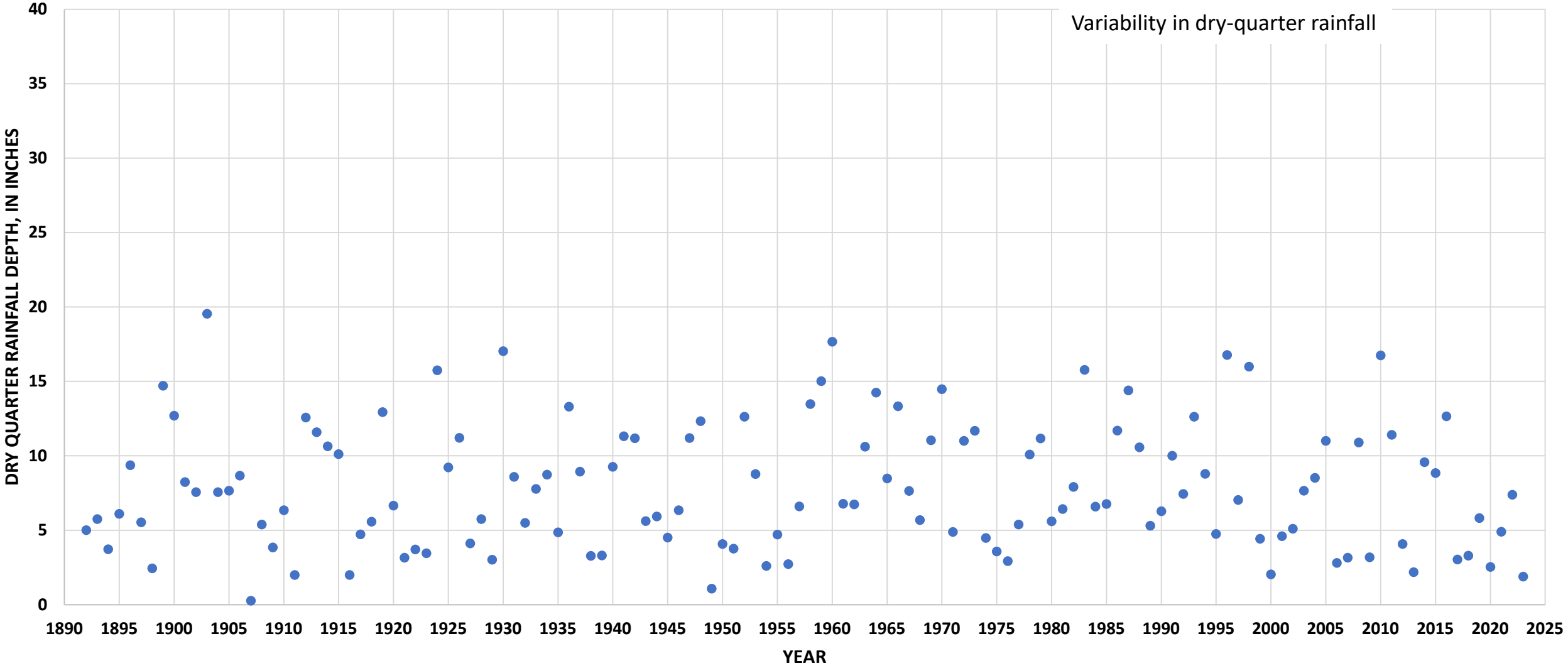
Florida Climate Center
https://climatecenter.fsu.edu/products-services/data/precipitation/orlando

# Dry-Quarter (Jan, Feb, Mar) Rainfall Depth in Orlando from 1892 to 2023

8-inch mean
4-inch standard deviation
(about 2/3 of measurements between 4 and 12 inches)

Variability in dry-quarter rainfall

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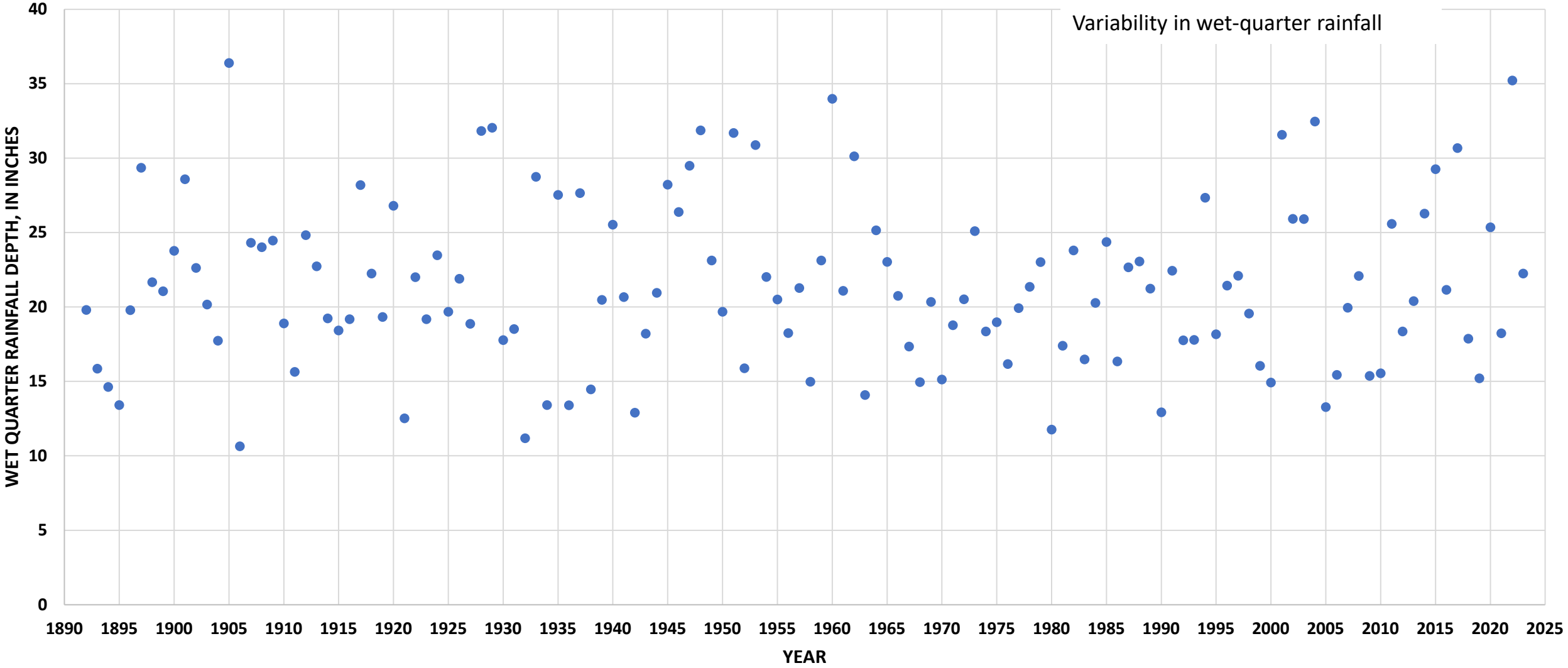
21-inch mean
5.5-inch standard deviation
(about 2/3 of measurements
between 16 and 27 inches)

Variability in wet-quarter rainfall

# Wet-Quarter (Jul, Aug, Sep) Rainfall Depth in Orlando: 1892 to 2023

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Florida Climate Center
https://climatecenter.fsu.edu/products-services/data/precipitation/orlando

# A. Data

- Are all necessary data available? Did SJRWMD use the best available data?
  - Periodic Inflows not simulated:
    - Lake Coroni inflow to unnamed pond east of Ranger's residence, not simulated
    - Lake McCoy inflow to Lake Coroni not simulated
    - Surface water detention and retention infrastructure not explicitly simulated

# A. Data

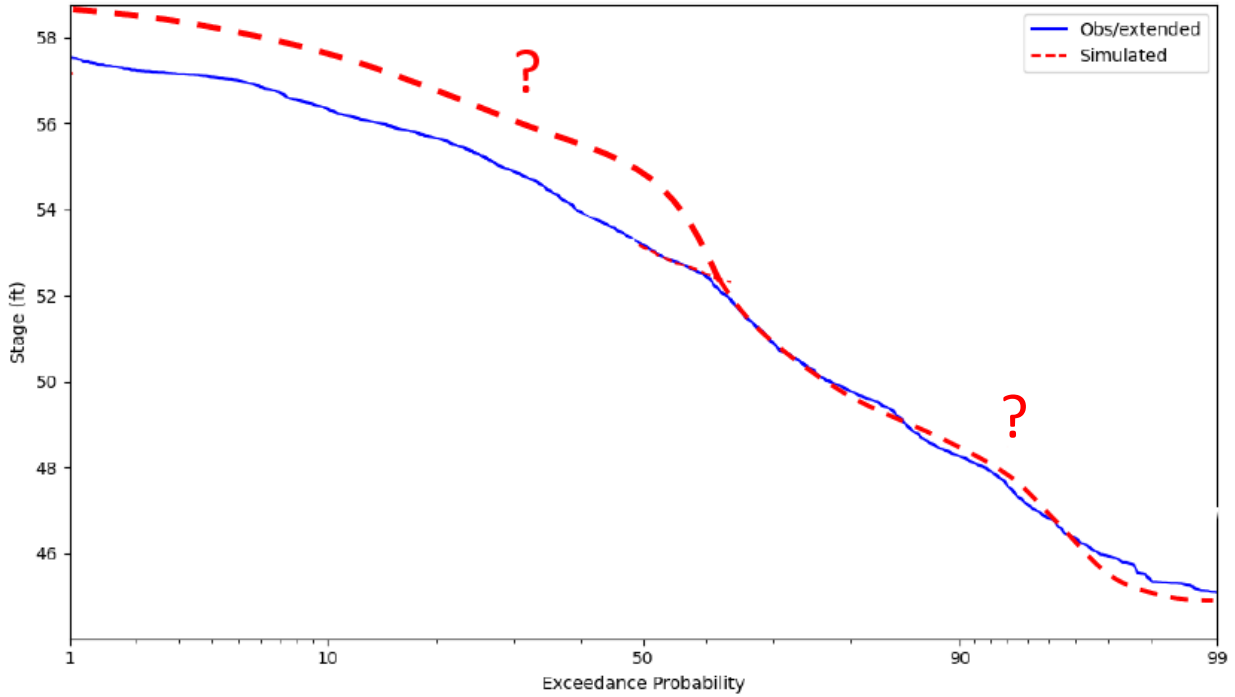
- Are all necessary data available? Did SJRWMD use the best available data?
  - Periodic Inflows:
    - Apopka Ranches wetland flow under Welch Road to unnamed channel between Smoketree Circle and Parkglen Circle not simulated
    - Unnamed canal flows to channel west of Wekiwa Glen

# A. Data

- Are all necessary data available? Did SJRWMD use the best available data?
  - Published studies exist that detail hydrologic infrastructure and the regional surface-water conveyance system
    - Orange County stormwater management program
    - Municipal stormwater management programs
    - SJRWMD ERPs (several dozen)

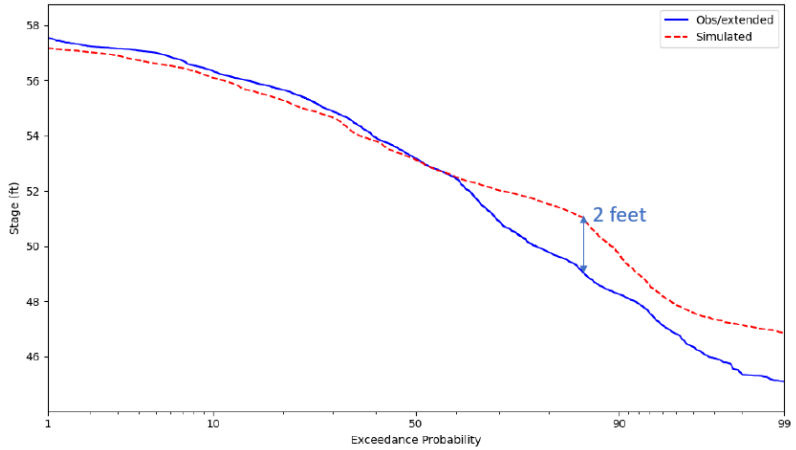
# A. Data

- Did SJRWMD discard relevant data?
  - Would use of discarded data significantly affect results?



# B. Simulation Development

- Is HSPF an appropriate model? Yes. Open source. Well Documented. Widely used.
- Does HSPF satisfy MFL approach? Yes
- Is the simulation
  - Appropriate?
  - Defensible?
  - Valid?




Seeking a minimum lake level:

- Simulated 10th and 20th percentile lake levels do not compare well to measured 10th and 20th percentile lake levels

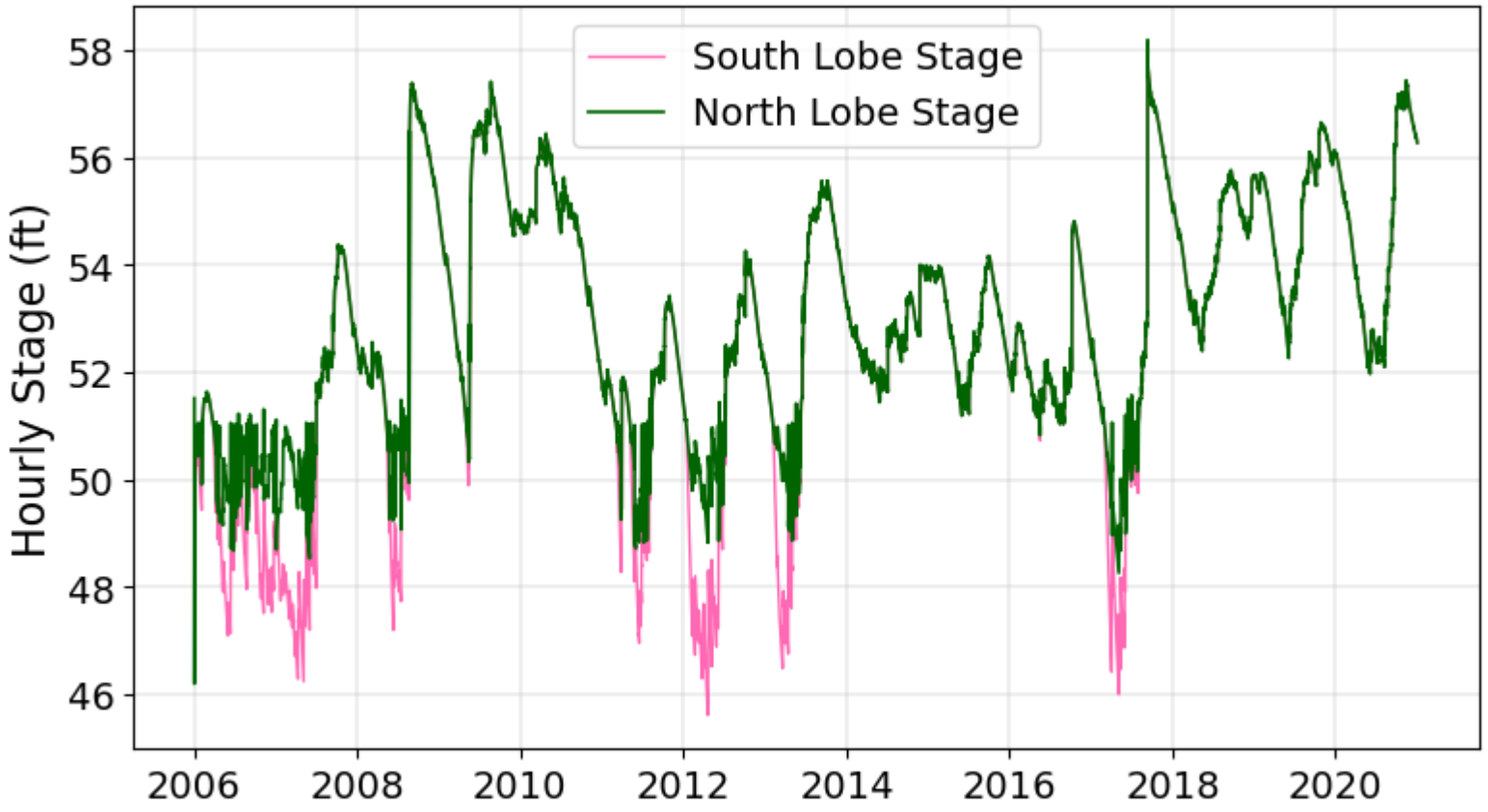
# B. Simulation Development

- Are assumptions
  - Reasonable?
  - Consistent?
  - Necessary?
    - Can use of available data eliminate or minimize any assumption?
    - If yes, do simulated water-surface elevations or simulate flow rates change?

Assumptions not systematically presented in report

- Are simulation inputs referenced to the same datum?
  - NAVD88 is referenced 2 times in report.
  - All elevations not explicitly referenced to a datum

# Instabilities in Stage plots?




The hourly stage for both lobes typically match above 51 feet: inter-lobe flow functions as intuitively expected

# Output file for model warnings

The HSPF echo file (Prevatt_LT.ech) did not report model errors or warnings.

# Continuity error and convergence data

The HSPF echo (Prevatt_LT.ech) did not report continuity or convergence errors, or continuity or convergence warnings.

# Reasonable parameters

USEPA (2006) recommends a typical limit of 3 – 8, and possible limits of 1-10.

| Parameter | Description | Units | Calibrated Value | Geosyntec Comments |
|---|---|---|---|---|
| LZSN | Lower zone nominal soil moisture storage | inches | 2.0 to 6.0 for uplands, 0.50 for wetlands. | Within limits by Jobes (2022), and USEPA (2006)[1] |
| INFILT | Index to infiltration capacity | in/hr | 0.21 to 0.44 for uplands, 0.001 for wetlands. | Within limits by Jobes (2022), and USEPA (2006) for all except Wetlands[2] |
| DEEPFR | Fraction of groundwater inflow to deep recharge | none | 0.35 | Within limits by Jobes (2022), and USEPA (2006) |
| AGWETP | Fraction of remaining ET from active groundwater | none | 0.0 for uplands, 0.9 for wetlands. | Within limits by Jobes (2022), and USEPA (2006) |
| UZSN | Upper zone nominal soil moisture storage | inches | 0.20 to 0.60 for uplands. 0.10 for wetlands. | Within limits by Jobes (2022), and USEPA (2006) |
| LZETP | Lower zone ET parameter | none | 0.33 to 0.89 for uplands, 0.90 for wetlands. | Within limits by Jobes (2022), and USEPA (2006) |
| L | Leakance parameter | /day | 0.0023 to 0.0032 | Within limits by Jobes (2022)** |

# Reasonable parameters

USEPA (2006) recommends a typical limit of 0.01 – 0.25, and possible limits of 0.001 – 0.5. The parameters for wetlands enforces a run-off limit.

| Parameter | Description | Units | Calibrated Value | Geosyntec Comments |
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# Reasonable parameters

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| AGWETP | | | | Within limits by Jobes (2022), and USEPA (2006) |
| UZSN | moisture storage | inches | 0.10 for wetlands. | Within limits by Jobes (2022), and USEPA (2006) |
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| L | Leakance parameter | /day | 0.0023 to 0.0032 | Within limits by Jobes (2022)** |

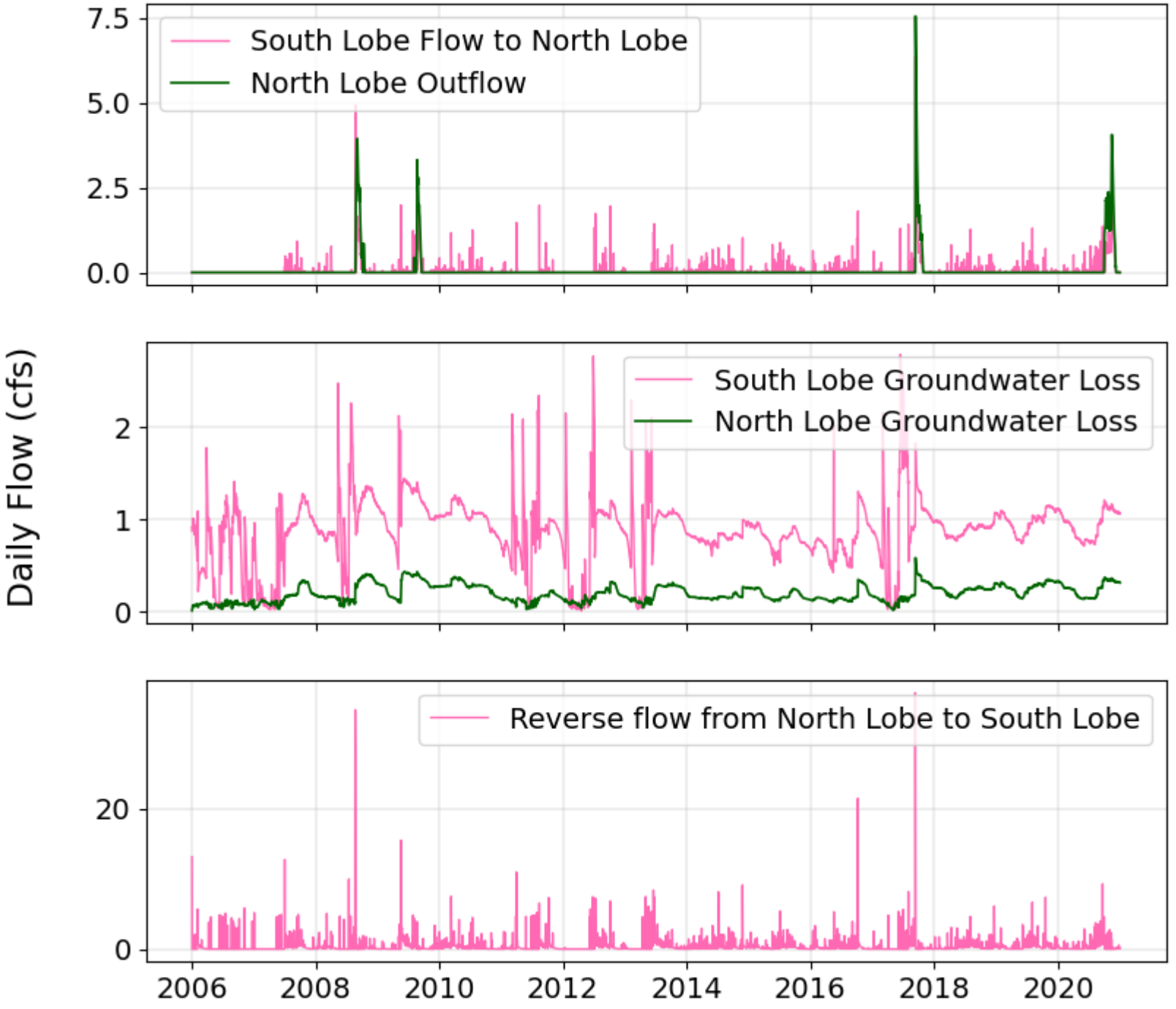
Leakance concept is specific to Florida, described in Jobes (2022), and described in the simulation report.

This application of leakance follows the guidance in Jobes (2022).

Neither report describes or refer to peer-reviewed applications of this concept in HSPF.

*Sufficient information may not exist to inform appropriateness of the calibrated range of leakance.*

# Reasonableness of simulated flow

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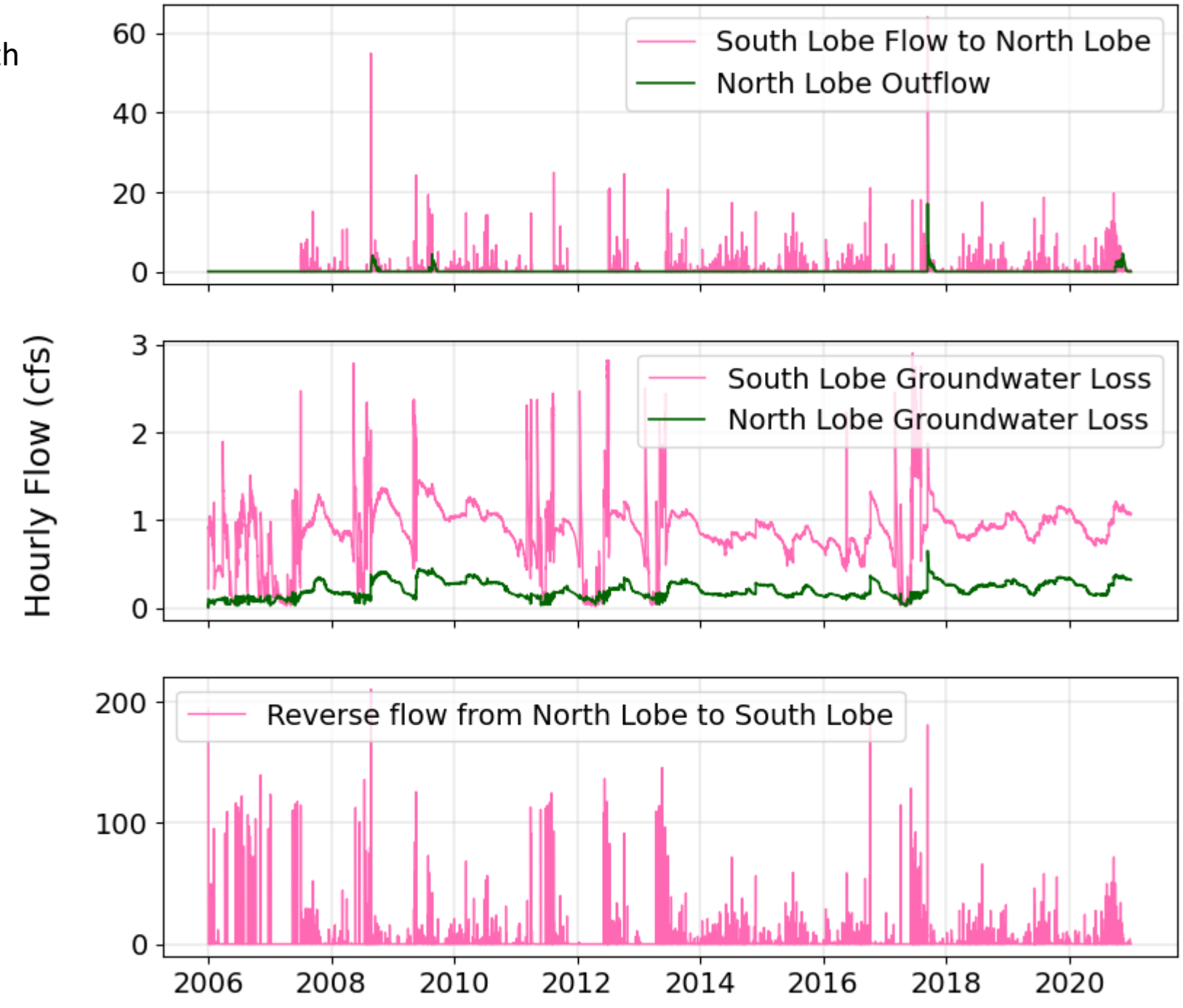
Hourly South Lobe to North Lobe flow rate may be too great??

# Reasonableness of simulated flow

Hourly North Lobe to South Lobe flow rate may be too great??

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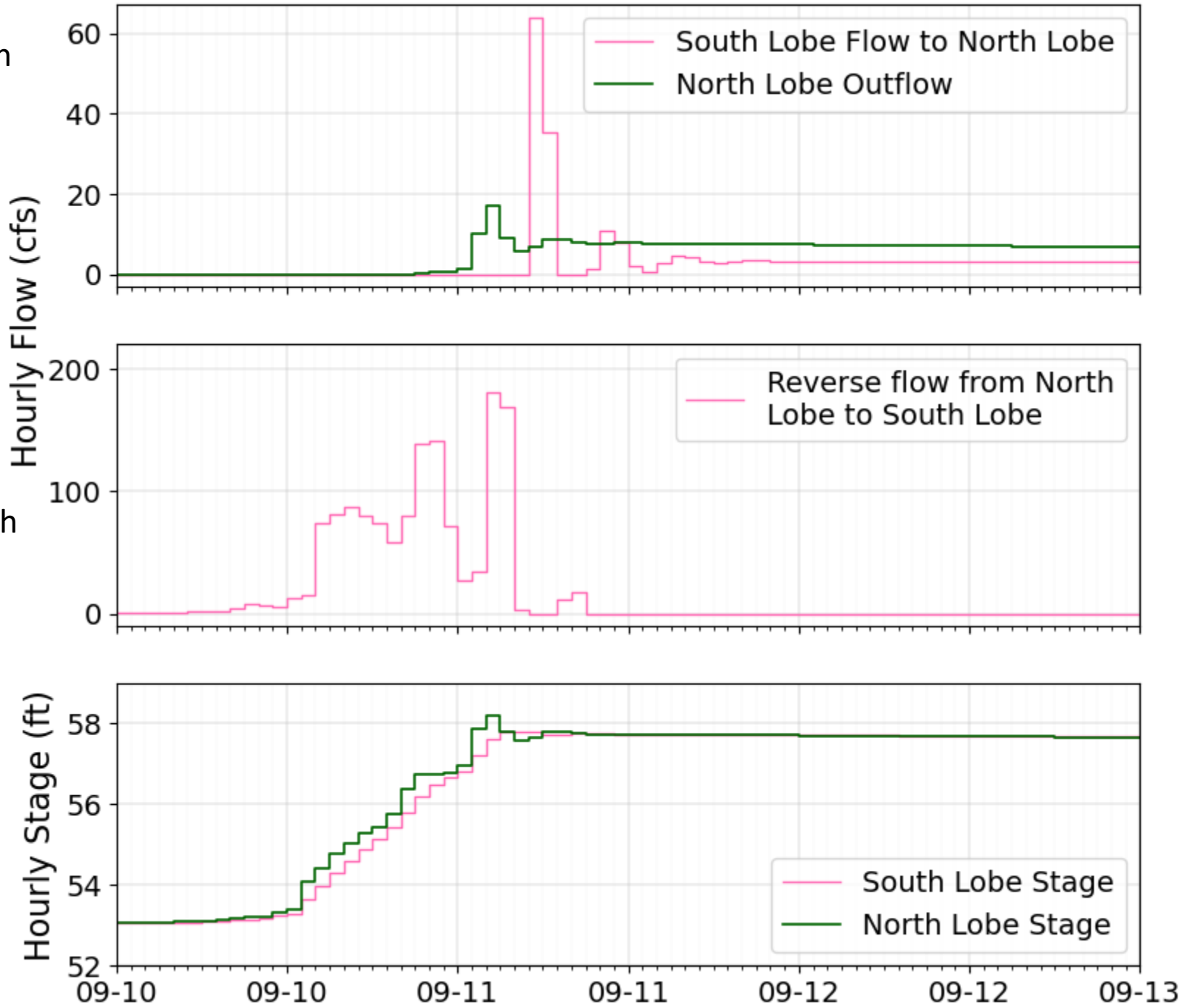
# Reasonableness of simulated flow

Hourly South Lobe to North Lobe flow rate may be too great??

Hourly North Lobe to South Lobe flow rate may be too great??

Perhaps use a 15-minute time step??

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# Major, Initial (Preliminary) Peer Review Comments

SJRWMD may wish to:

- Revisit watershed delineation
- Refine surface-water conveyance system delineation
- Publish link-node diagram
- Explicitly document mass conservation
- Formally discuss adaptive management
- Simulate climate uncertainty
- Use 15-minute time step
- Justify leakance with literature reference