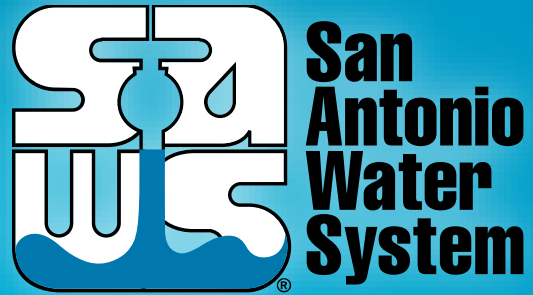


Project Update: Mitchell Lake Constructed Wetlands

Gregg Eckhardt
Senior Analyst, Operations



Peggy Glass, Ph.D.
Principal, Plummer

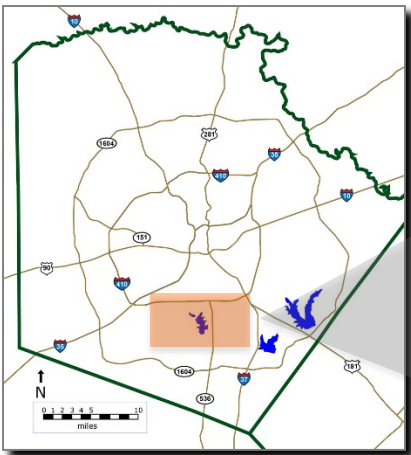


September 18, 2020

MAKING SAN ANTONIO
WATERFUL



Location of Mitchell Lake

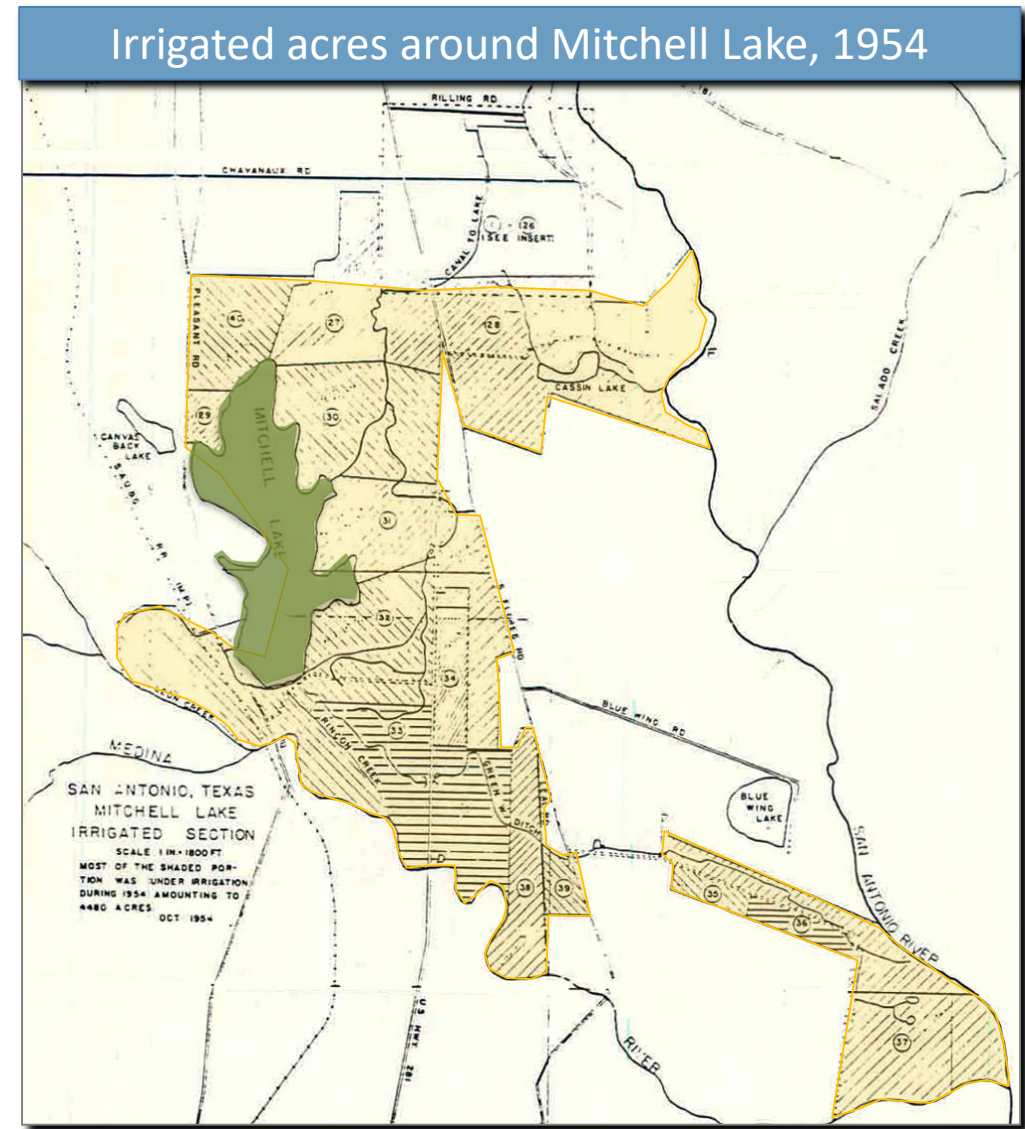


Bexar county



Report of 1899 City Council Sewer Committee

- *"All of this vast volume of water is going to waste, doing nobody any good, and should be taken care of by renting it for irrigation."* - Committee on Sewers, Wm. Davis, Chairman
- Committee identified "natural basin" south of city
- Mitchell Lake Dam built in 1901



Irrigation Ditches around Mitchell Lake



Bexar County's Mitchell Lake Termed 585-Acre Cesspool

By **BOB HEATON**

San Antonio might be the only city in Texas with "a 585-acre cesspool."

The reference to Mitchell Lake was made by State Rep. Bill Finck Friday at a meeting between the Bexar County legislative delegation and the Greater San Antonio Chamber of Commerce Legislative Affairs Committee.

In addition to committee members, Reps. Finck, Paul Silber, Frank Lombardino and Nelson Wolff attended, as did City

Councilman Ed Hill.

Finck outlined the water quality bill now in the legislature, saying it would require water flowing into lakes of more than one acre size be of the same quality as that flowing into state streams.

Asked if the Texas Water Quality Board would be in charge of enforcement, Finck said it would not.

"The water quality board is not very good at acting on anything," he charged.

"There is raw sewage in the

Cibolo and in the San Antonio, and they've done nothing, except for a small fine on San Antonio when we failed to come up with a hurricane last year."

Finck was referring to the dumping of 12 million gallons of raw sewage into the San Antonio River in anticipation of heavy rains from Hurricane Celia which failed to materialize.

Enforcement, he said, would be in the hands of the Attorney General's office, if the law is passed.

Heavy penalties are provided,

he added—up to \$10,000 per day.

An objection was voiced from the committee. Finck rapped, "If you don't think Mitchell Lake is offensive, why don't we have a meeting there next time?"

It was pointed out by committeeman Frank Manupelli that tertiary treatment of sewage—required when a plant has no detention pond—costs at least 50 per cent more, and often doesn't work better than ordinary methods.

Silber asked committeemen if

San Antonio Light, March 13, 1971

1974 Permit

Citizens Seek Immediate Mitchell Lake Action

By SHARON WATKINS
South San Antonians and their legislators made it clear Monday they haven't forgotten about Mitchell Lake.

The odiferous sludge pond south of the city was the subject of a "progress report" made at a breakfast meeting of the Southeast Chamber of Commerce at Southeast Baptist Hospital.

Although City Waste Water Engineer William Wells predicted Mitchell's odors will be virtually gone by 1975, the 60 businessmen and women attending the breakfast indicated they prefer to "dry up" the lake or have it transformed into a pure-water recreational facility.

CITY HALTED

Wells said he believes either of those possibilities can be accomplished in the future.

The city is temporarily halted in its \$3.5 million improvements program designed to deodorize the lake, Wells reported. He said heavy rains last year brought dredging operations to a halt, but the work is to be resumed "shortly."

Meanwhile, Wells said work completed has reduced the "sludge load" from Rilling Road treatment plant from 57,665 pounds of pollutants per day in 1972 to 18,043 pounds this year.

Future work will remove all the odor-causing organic input by early 1975, he said, and within one or two years of that time "recreational possibilities will begin to appear."

LITTLE CREDIT

State Rep. Ron Bird told Wells his staff should prepare

for legislation which would require Mitchell Lake to be eliminated within two years, and State Rep. Tony Dramberger said he gives the city little credit for the improvements now under way.

"If it hadn't been for the EPA and the state legislature, I don't believe the city would have done one thing about Mitchell Lake," he said.


Also at Monday's meeting, attorney James N. Martin was elected first president of the Southeast Chamber of Commerce. East Central High School principal Pat Holmes and realtor W. P. Brown were elected vice presidents.

G. S. McCreless, Harry Curnutt, Hayden Grona, Tom Vickers, Robert Durr, Joseph A. Pott and Pat Holmes were elected to the chamber's executive committee.

San Antonio Light, Dec. 3, 1973

WASTE CONTROL ORDER
NO. 10137 PAGE NO. 4

This permit supersedes and replaces Page 4 (issued December 20, 1962) of Permit No. 10137.


TEXAS WATER QUALITY BOARD
P.O. Box 13246, Capitol Station
Austin, Texas 78711
PERMIT to dispose of wastes under provisions of Article 7621d-1, Vernon's Texas Civil Statutes

I. Name of Permittee
A. Name City of San Antonio (Mitchell Lake Plant)
B. Address City Hall - P. O. Box 9066
San Antonio, Texas 78204

II. Type of Permit: Regular _____ Amended XXX

III. Nature of Business Producing Waste
Holding Lake for Treated Effluent

IV. General Description and Location of Waste Disposal System
Description: Mitchell Lake is an 850 acre lake which receives wastes from the City of San Antonio, Leon Creek and Rilling Road sewage treatment plants. Stormwater runoff is also discharged to Mitchell Lake. At times as many as 4,000 acres of agricultural land has been irrigated from Mitchell Lake.
Location: Mitchell Lake is located south of the City of San Antonio about one mile south of Loop 410 and east of Pleasanton Road in Bexar County, Texas.

V. CONDITIONS OF THE PERMIT: No discharge. (See Special Provision No. 3)
Character: Treated Domestic Sewage Effluent
Volume: (See Special Provision No. 3)
Quality:
A. Each pollutant concentration in a grab sample in excess of the value shown for such pollutant in Column 2 of Table 1 constitutes a violation of the permit.
When three, four, or five consecutive grab samples have been collected at various times at intervals of 12 or more hours by the same entity, the existence of concentrations of any specific pollutant in more than two samples in excess of the value shown for the specific pollutant in Column 1 of Table 1 is a violation.

CONTINUED ON CONTINUATION SHEETS I, II & III

APPROVED this 26th day of November, 1974

Dick Whittington
Executive Director
Deputy

J. Douglas Zoole
For the Board

WQB-7 (Rev. 1/73)
Var





Texas Largest and Oldest National Audubon Society

- National network of community-based nature centers and chapters
- Partner with SAWS to make site available for the public and provide environmental education



Community Events



Citizen Science



Education Programs

Flow from Leon Creek WRC





Discharge to Lake from Leon Creek WRC



Discharge from Mitchell Lake

2016 Administrative Order for Mitchell Lake



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202-2733

AUG 12 2016

CERTIFIED MAIL - RETURN RECEIPT REQUESTED: 7015 1520 0003 3989 8450

Mr. Steve Clouse
Chief Operating Officer & Senior Vice-President
San Antonio Water System
2100 U.S. Highway 281 North
San Antonio, TX 78212

Re: Administrative Order; Docket Number: CWA-06-2016-1770
NPDES Permit Number: TX0065641

Dear Mr. Clouse:

Enclosed is an Administrative Order (AO) issued to the San Antonio Water System (SAWS) for violation of Section 301 of the Clean Water Act (CWA) (33 U.S.C. §§ 1251-1387). Violations were identified during a review of the permit file and Discharge Monitoring Reports submitted to the Environmental Protection Agency, Region 6 (EPA). The violation alleged is for failure to meet effluent limits as required by the permit.

The AO does not assess a monetary penalty; however, it does require compliance with the permit requirements and applicable federal regulations. The first compliance deadline is within thirty days of receipt of the AO. The AO also contains other compliance deadlines and information demands. EPA is committed to ensuring compliance with the requirements of the National Pollutant Discharge Elimination System (NPDES) program and my staff will assist you in any way possible. Please reference AO Docket Number CWA-06-2016-1770 and NPDES Permit Number TX0065641 on your response.

If you have any questions, please contact Mr. Ted Palit, P.E., of my staff, at (214) 665-8061.

Sincerely,

John Blevins
Director
Compliance Assurance and
Enforcement Division

Enclosures

cc: Mr. Sandy Van Cleave (MC 169)
Enforcement Section I
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

Constructed
Wetlands Below
Lake

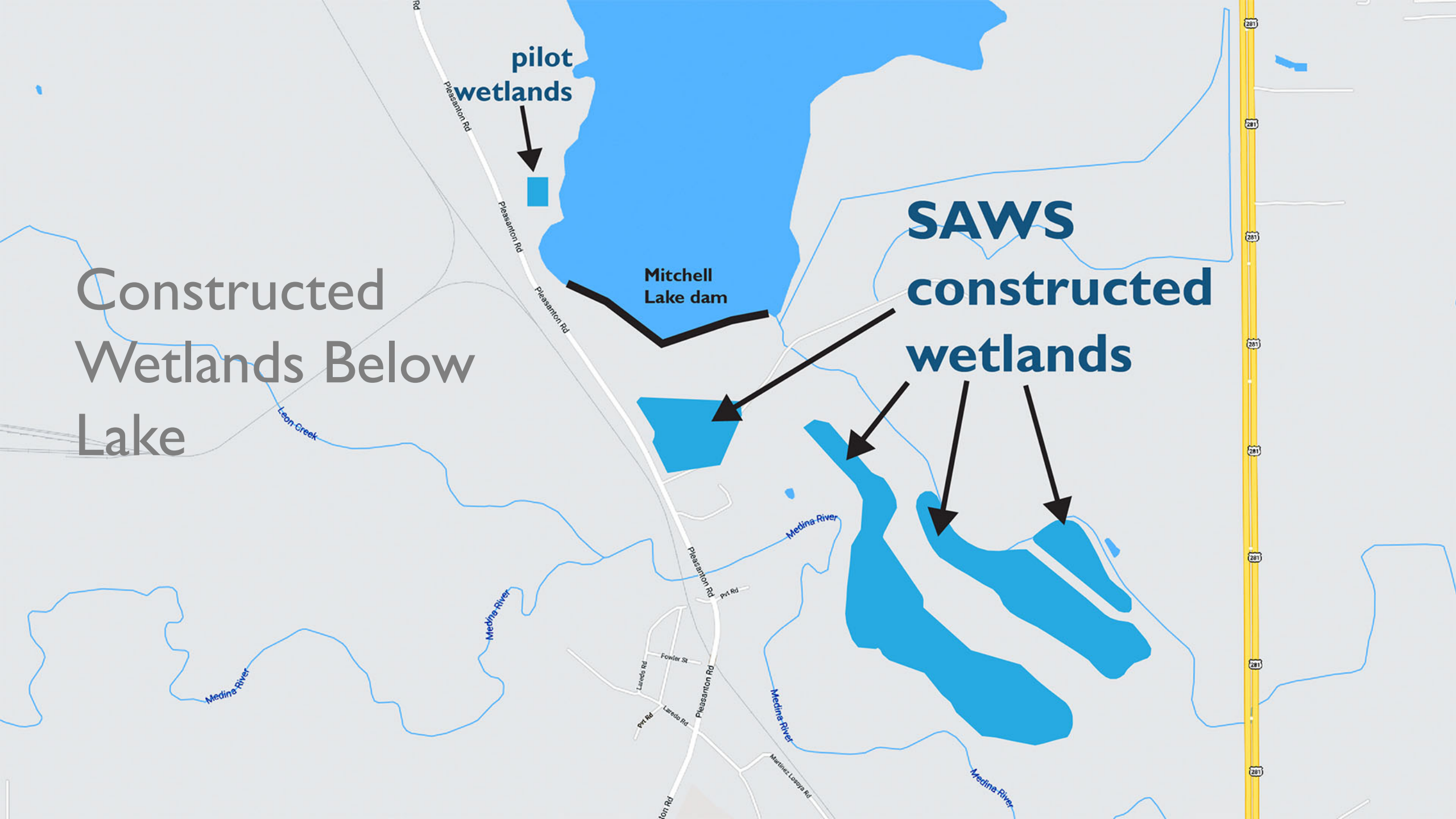
pilot
wetlands



Mitchell
Lake dam



SAWS
constructed
wetlands



EPA Phase 2 Schedule Order for Constructed Wetlands

	2021												2022												2023												2024																
Major Work Activities	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S										
Engage Phase 2 Consultants	█																																																				
Phase 2 Wetland Design		█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█																																		
Advertise/Bid/Award																			█	█	█																																
Phase 2 Construction																							█	█	█	█	█	█	█	█	█	█	█	█	█																		
Operation/Contingencies																																													█	█	█	█					

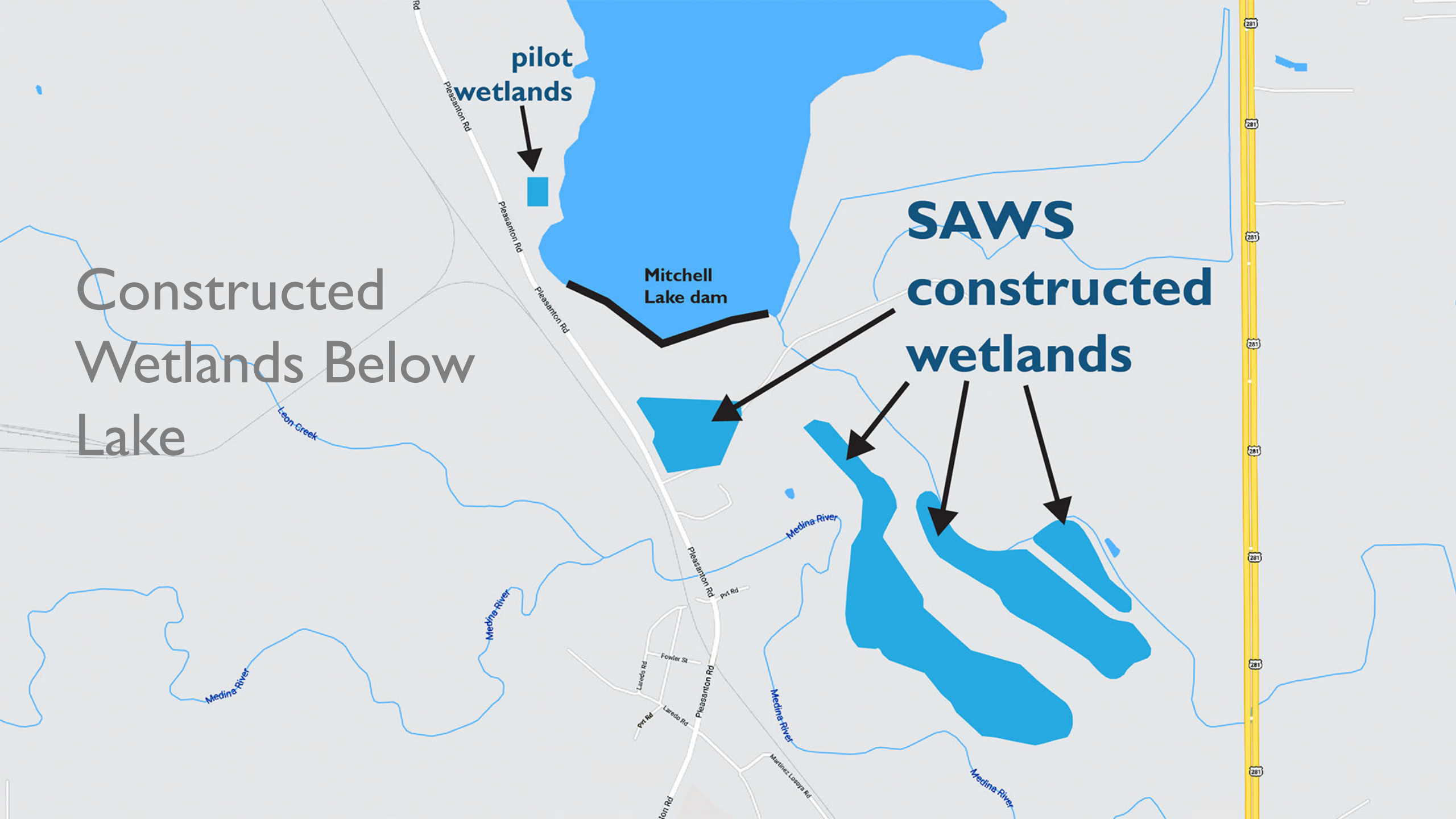


Constructed
Wetlands Below
Lake

pilot
wetlands

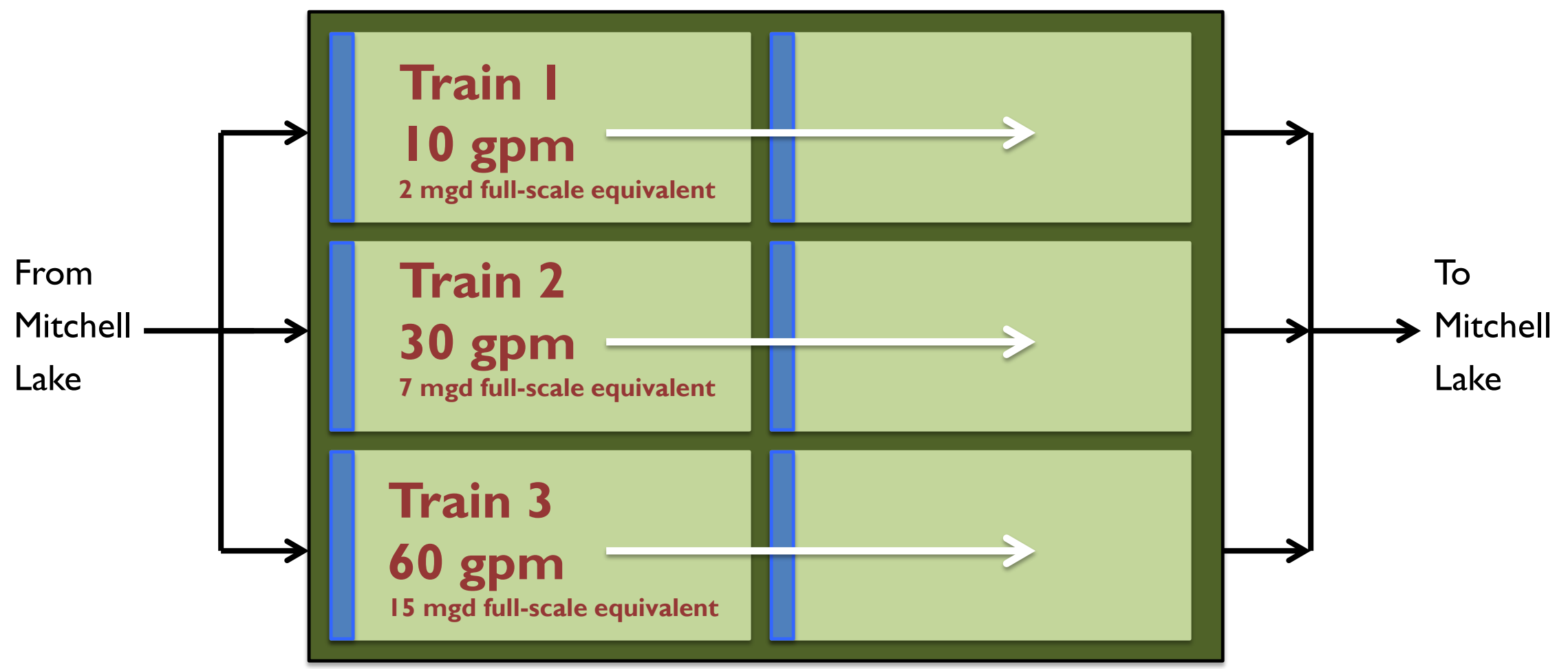
Mitchell
Lake dam

SAWS
constructed
wetlands



Phase I Pilot Wetlands

1.3 wetted acres





Pilot Wetlands

Mitchell
Lake
influent



Train 3
15 mgd
equivalent



Train 2
7 mgd
equivalent

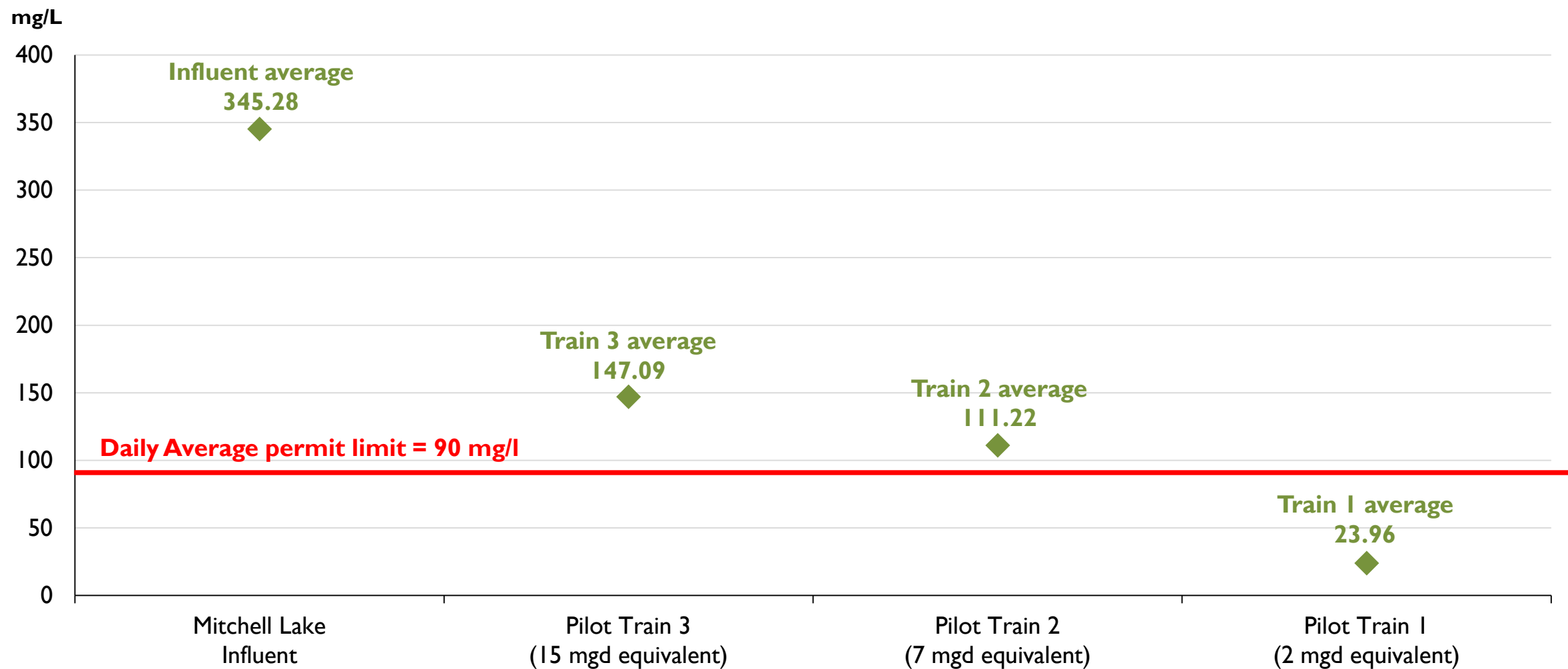


Train 1
2 mgd
equivalent

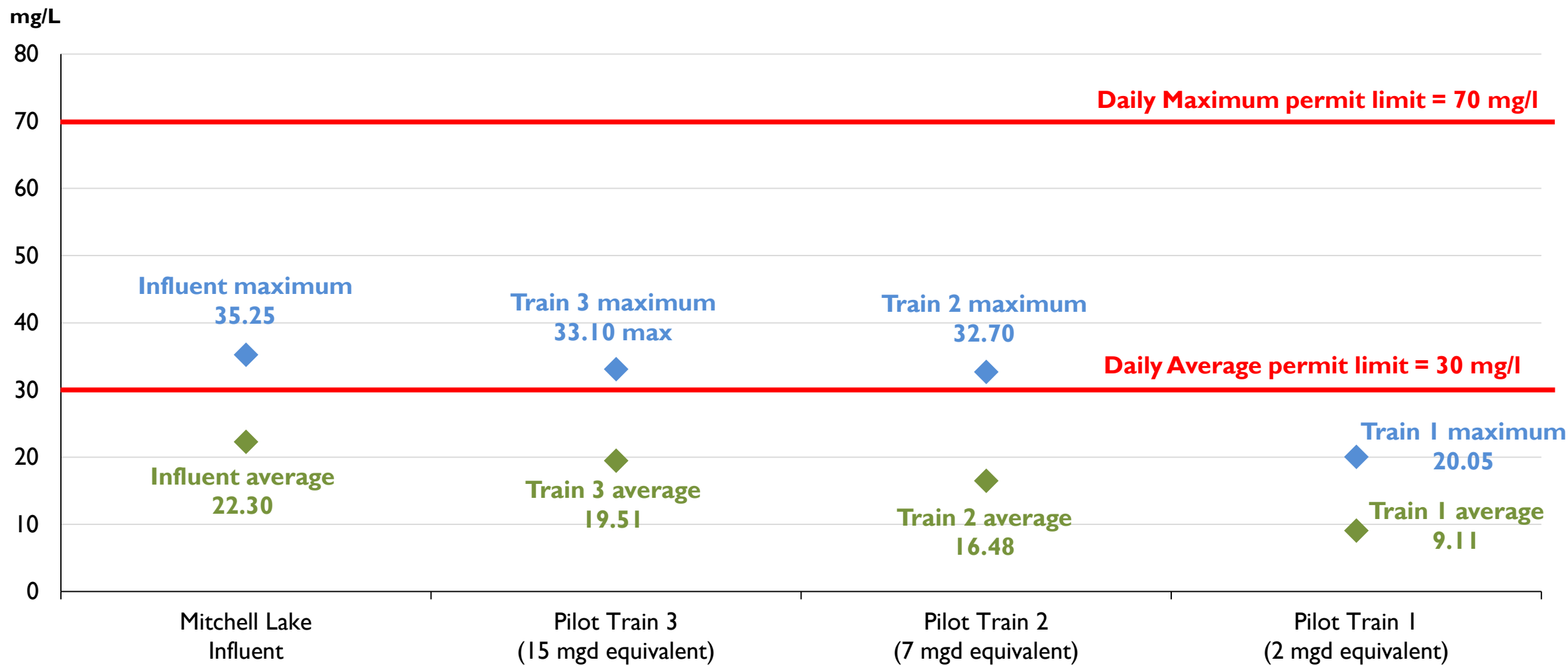


October 3, 2019

Pilot Results – Total Suspended Solids



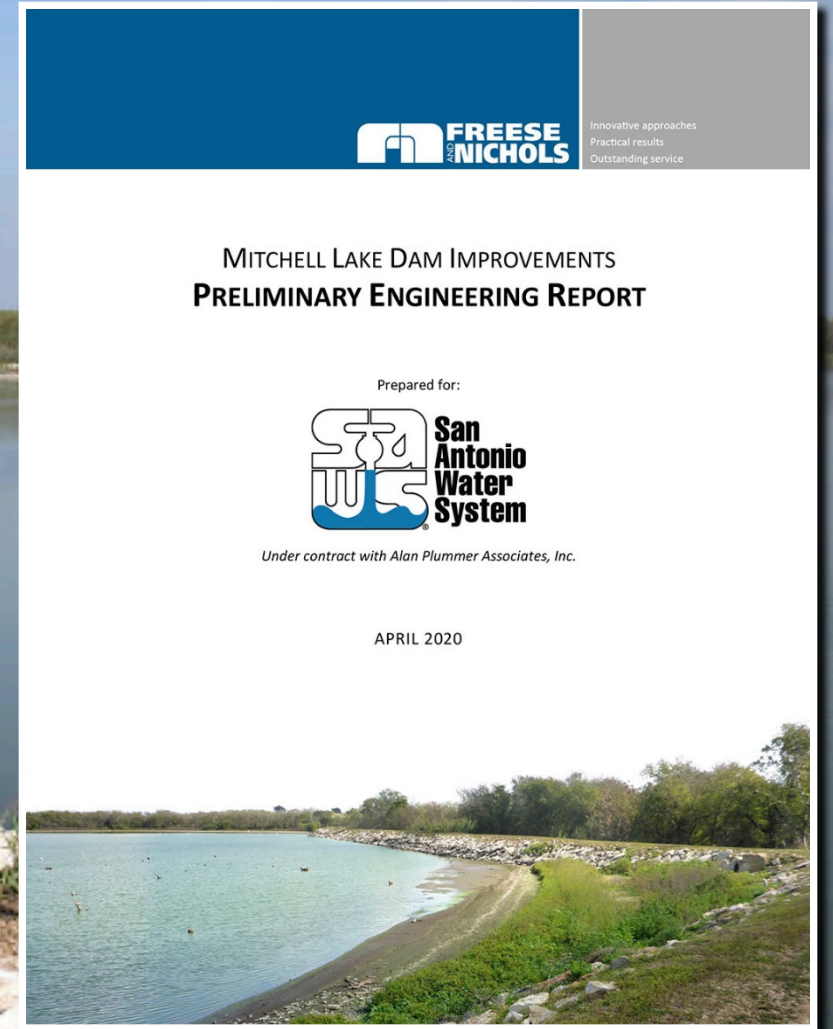
Pilot Results – BOD

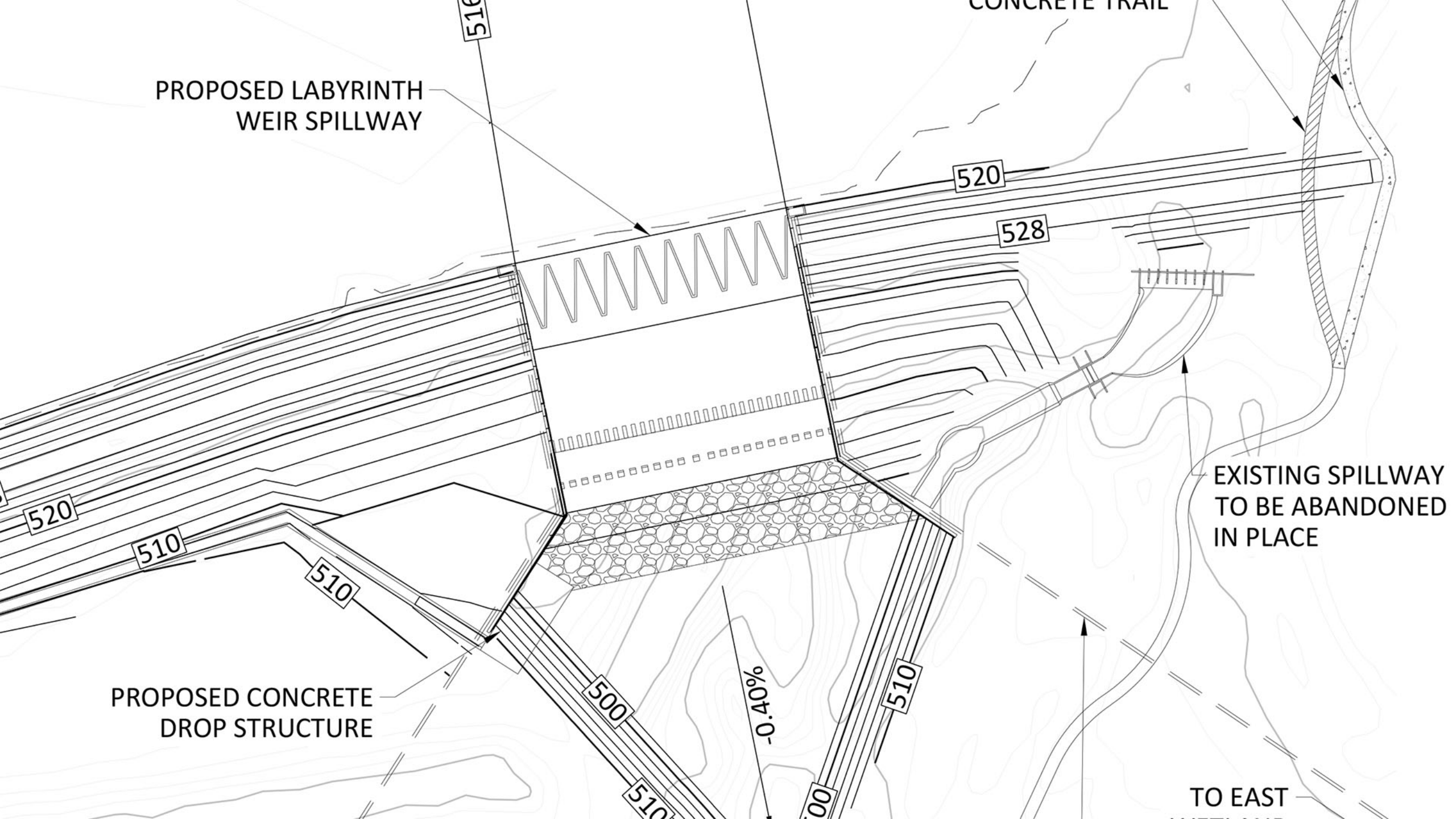


Pilot Results – pH



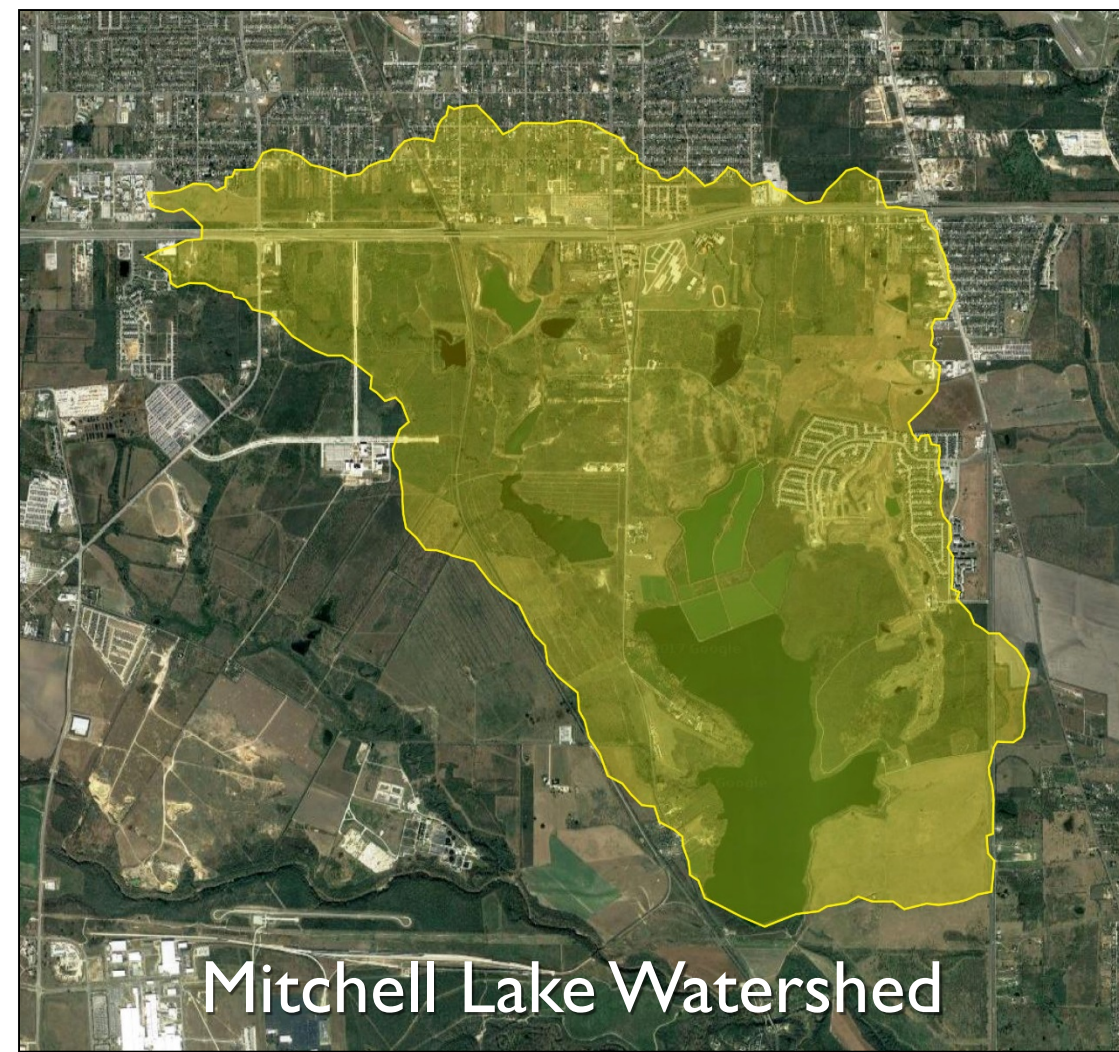
- Regrading and raising embankment
- Wave action protection
- Toe drainage
- Conduits to divert water to wetlands



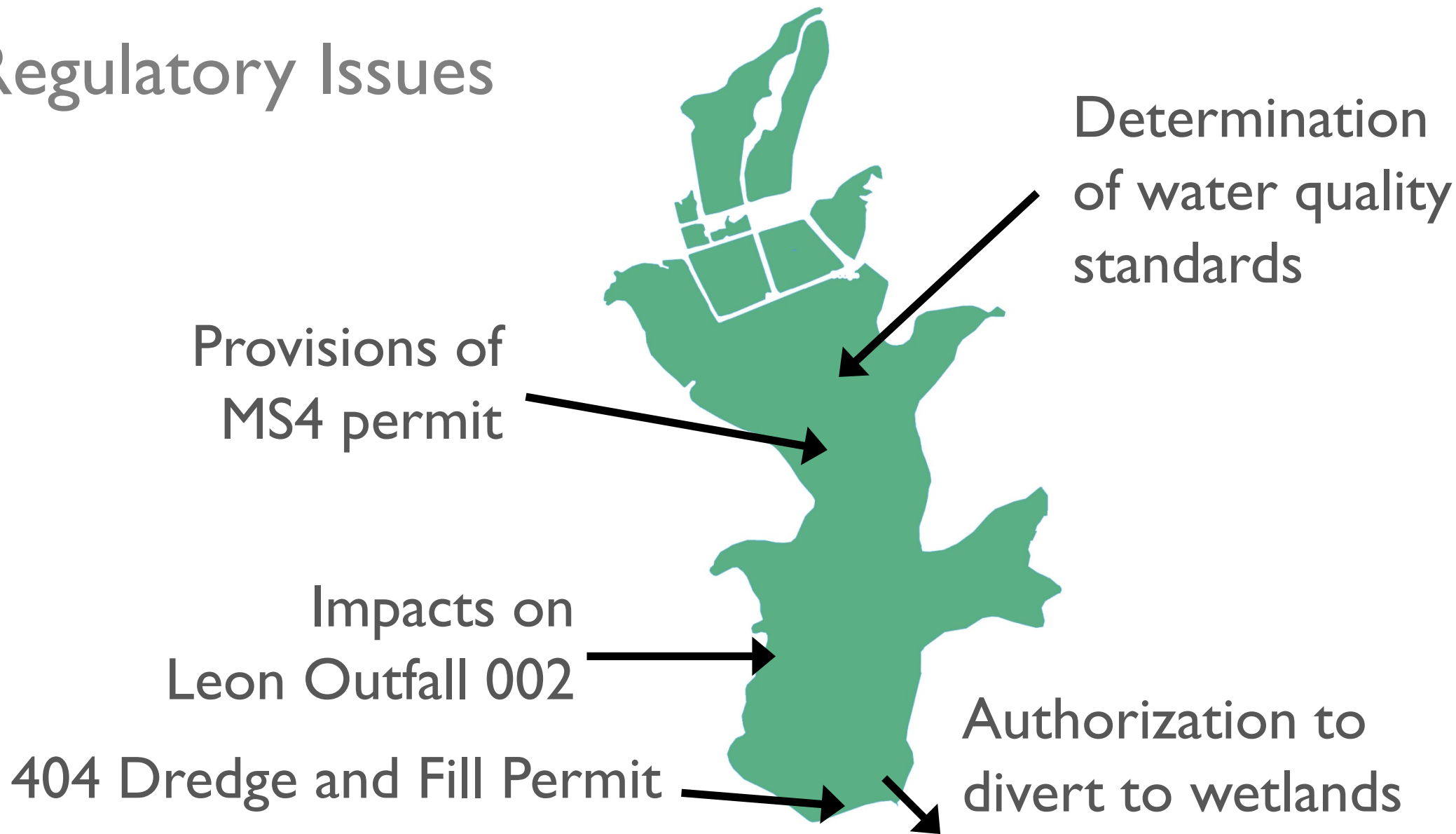


Conversion from WWTP to Stormwater Basin

- Suggested by EPA
 - Convert from TPDES discharge permit to MS4 stormwater permit
 - A more appropriate type of permit
 - Allows facility to function as stormwater basin



Regulatory Issues



Regulatory Activities

MS4 Permit--Monitoring

Locations

- Inflow to wetlands
- Discharges from wetlands: two outfalls; one on each side of Cottonmouth Creek
- Releases over auxiliary spillway

Parameters

- Those in existing TPDES permit
- Typical MS4 parameters

Regulatory Activities

MS4 Permit--Quality Limits on Wetland Discharges

- Limits take effect after one year of operation.
- Limits are consistent with existing TPDES permit.



Regulatory Activities

MS4 Permit--Lake Operations

- Release rate to wetlands will typically be approximately 2 MGD but may increase to as much as 7 MGD if water elevation in reservoir increases substantially due to runoff.
- Supplemental discharges from Leon Creek Water Recycling Center will maintain a minimum elevation of 518.5 feet mean sea level for the purpose of maintaining the avian and aquatic habitat.

Regulatory Activities

MS4 Permit--Status

- Published notice of availability of draft permit should be out this month (September).
- Target having MS4 permit issued before the end of the year.

Regulatory Activities

Leon Creek Water Recycling Center TPDES Permit

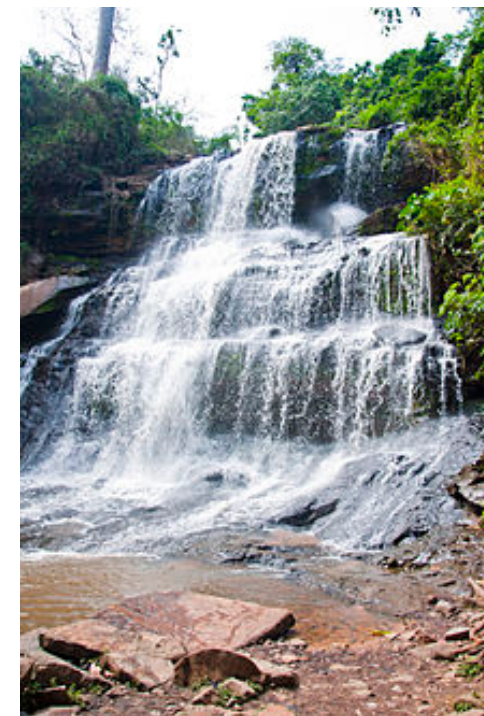
- When MS4 permit is issued, Mitchell Lake becomes surface water in the State.



- Leon Creek WRC Outfall 002 to Mitchell Lake needs to be modeled to confirm water quality is maintained.



- A water quality criteria for dissolved oxygen is needed.



Regulatory Activities

Water Quality Standards--Hydrology

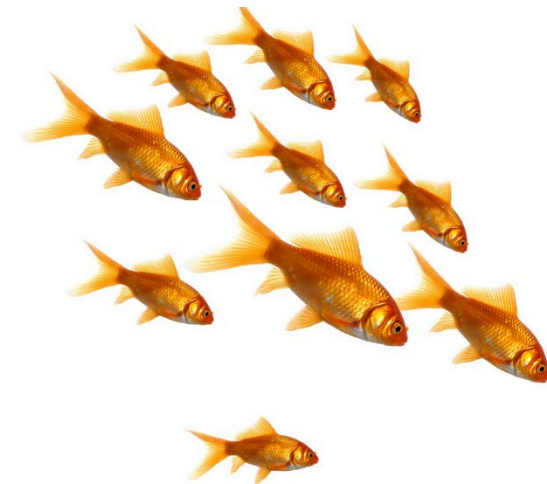
Mitchell Lake and Polders in 1980's



Regulatory Activities

Water Quality Standards--Uses

- Limited Aquatic Life Use based on hydrology.
- Intermittent without discharge from Leon Creek WRC.



Regulatory Activities

Dissolved Oxygen Water Quality Criteria

Limited Aquatic Life Use  3 mg/L DO criterion

Status: Being considered by TCEQ



Regulatory Activities

Mitchell Lake Water Quality Model

- Shallow nature and high density of algae results in need for an atypical model.
- A WASP model has been developed in accordance with TCEQ protocols to account for unique conditions.
- Model shows existing Leon Creek WRC Outfall 002 effluent quality limits maintain anticipated dissolved oxygen standard.
- Detailed review of model by TCEQ should begin this month (September)

Regulatory Activities

Water Rights

Existing water right—Impoundment of 2,640 acre-feet of water

Requested amendments

- Part of impounded water (127 acre-feet) will be in constructed wetland.
- Adding use authorizations: water quality enhancement and wildlife management.

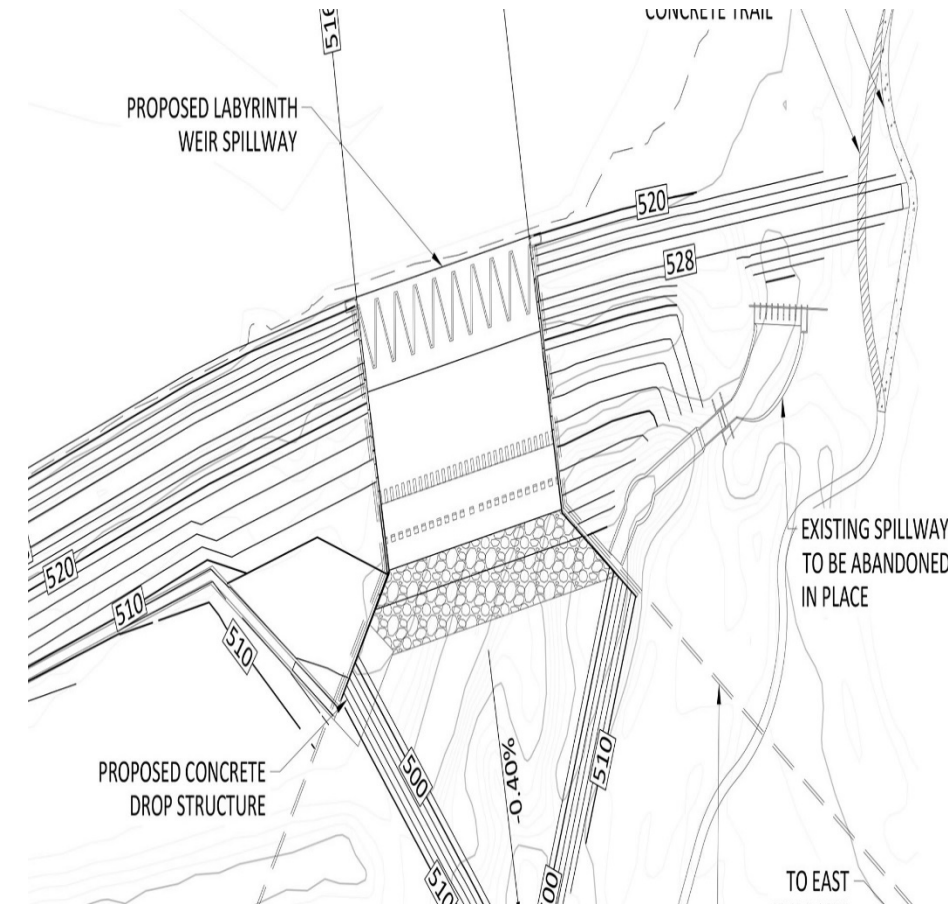
Status—Being reviewed by TCEQ



Regulatory Activities

Section 404 Dredge and Fill Permit

- Dredging Locations
 - New spillway
 - Outlet structure
 - Reworking dam face
- Estimated Volume—Approximately 3,800 cubic yards



Regulatory Activities—404 Dredge and Fill Permit Cultural Studies

- Dam area: Studies complete and submitted to US Army Corps of Engineers.
- Existing spillway eligible for listing in National Registry of Historic Places.
- Study of full project area scheduled for Fall 2020.
- Permit application to be prepared when impacts to jurisdictional waters can be identified based on design.



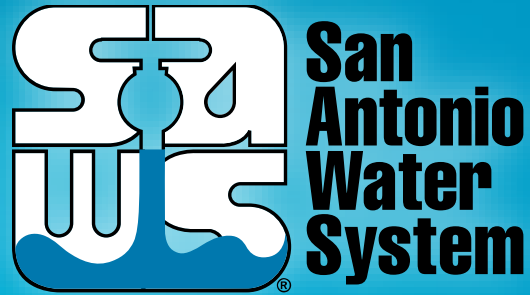
Mitchell Lake Constructed Wetlands
San Antonio Water System Initiative
Expands an Environmental Resource

Not Your Grandfather's Mitchell Lake!

Effective
Practical
Achievable

Project Update: Mitchell Lake Constructed Wetlands

Gregg Eckhardt
Senior Analyst, Operations



Peggy Glass, Ph.D.
Principal, Plummer



September 18, 2020

MAKING SAN ANTONIO
WATERFUL

