

Restoration Strategies

Governing Board Project & Lands
Committee Meeting
March 13, 2013

Restoration Strategies Key Projects

Eastern Flow Path

- L8 FEB
- L8 Divide
- S-375 Structure expansion
- S-5AS Structure modifications
- STA-1W Expansion

Central Flow Path

- A-1 FEB

Western Flow Path

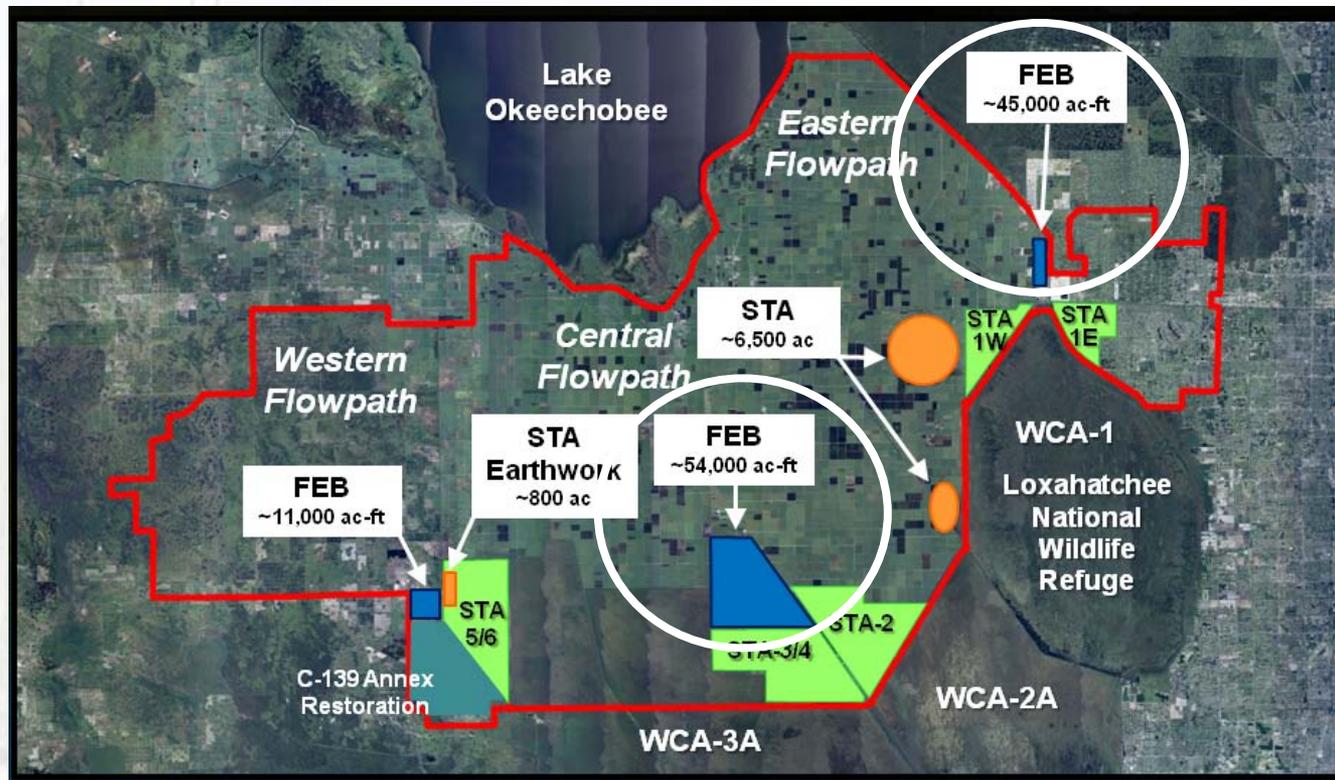
- STA-5 Earthwork
- C-139 FEB

Science Plan

- 10-year plan focused on STA treatment optimization

Source Controls

- Sub-Regional in S-5A Basin



L-8 Flow Equalization Basin (FEB)



L-8 Reservoir

SFWMD

Google earth



L-8 Flow Equalization Basin (FEB)

- Component of the Eastern Flow Path
 - Storage initially acquired in 2003
 - 950 acres, Excavated to -42 feet NAVD, 45,000 acre feet capacity
 - Divided into 6 hydraulically connected cells
 - Adjacent to and west of the L-8 Canal

L-8 Flow Equalization Basin

- Component Purpose
 - Part of Eastern Flow Path
 - Attenuates peak flows from S-5A and C-51W basins
 - Reduces impact of storm event inflows and optimizes STA inflow rates
 - Works in conjunction with other Eastern Flow Path Projects
 - L-8 Divide Structure, STA 1W Expansion, S-375 Structure, S-5A South Divide Structure

Unique Geology



Project Overview: L-8 FEB

- Executed Design/Build Contract in September 2012
 - Archer Western/Jacobs Engineering
 - \$64 M
 - Construction complete
 - 18-April-2015
 - Testing and Commissioning Complete
 - 15-Oct-2015

Project Description: L-8 FEB

- Design and Construct Infrastructure to Utilize Existing Storage
 - 450 cfs outflow pump station
 - 3,000 cfs inflow structure
 - Embankment revetment
 - Reservoir Improvements

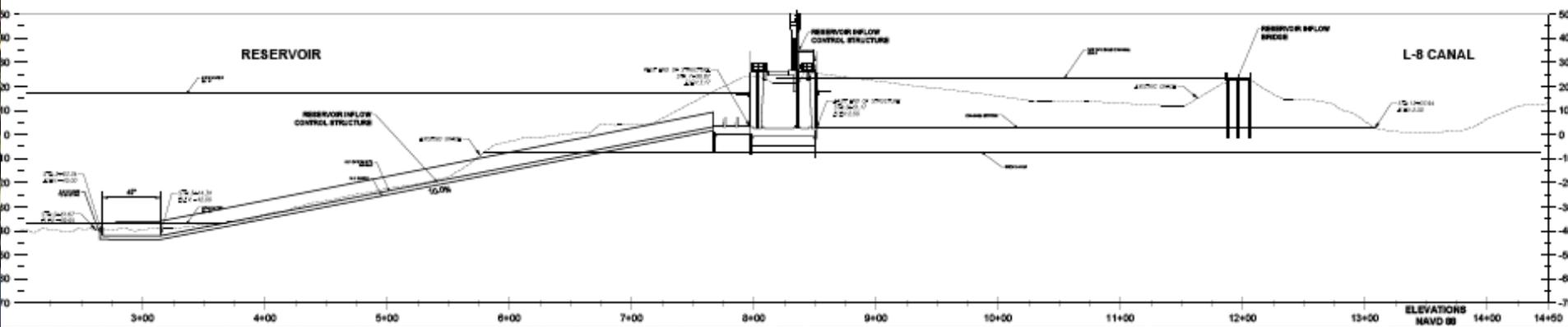
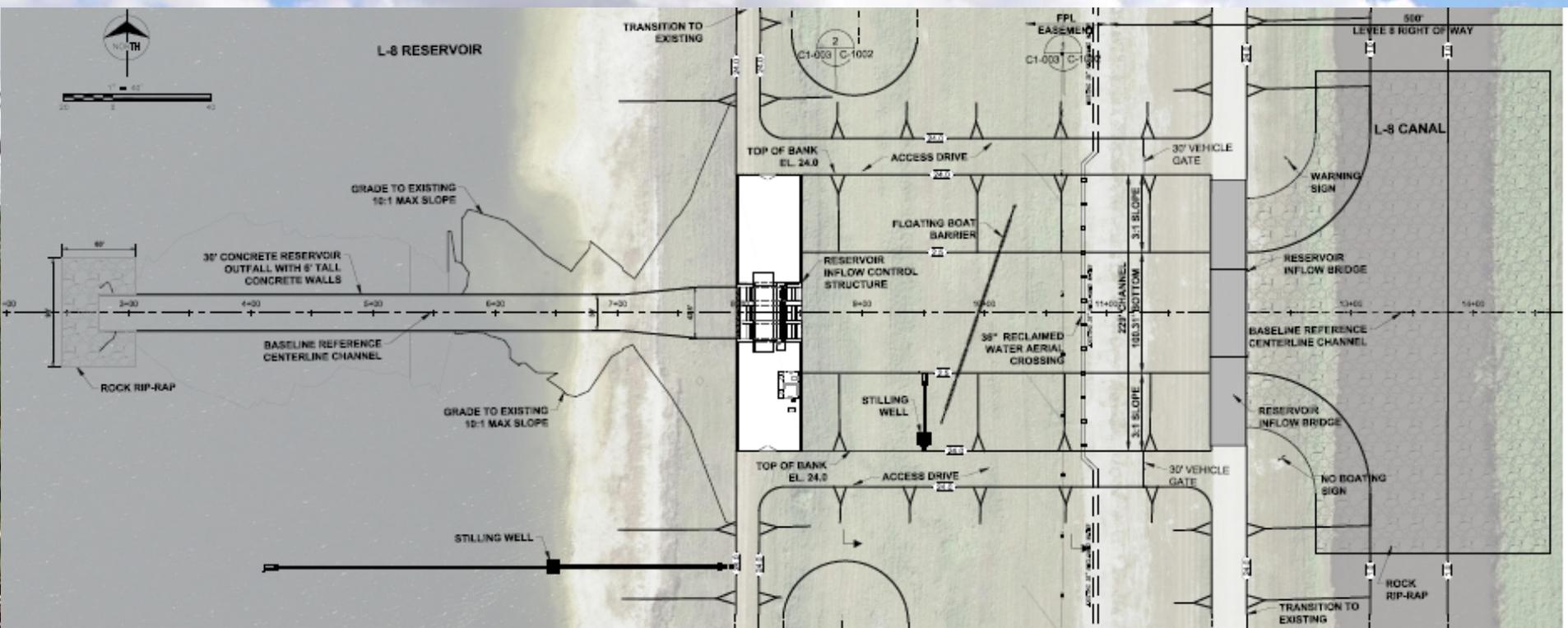
Project Overview: L-8 FEB



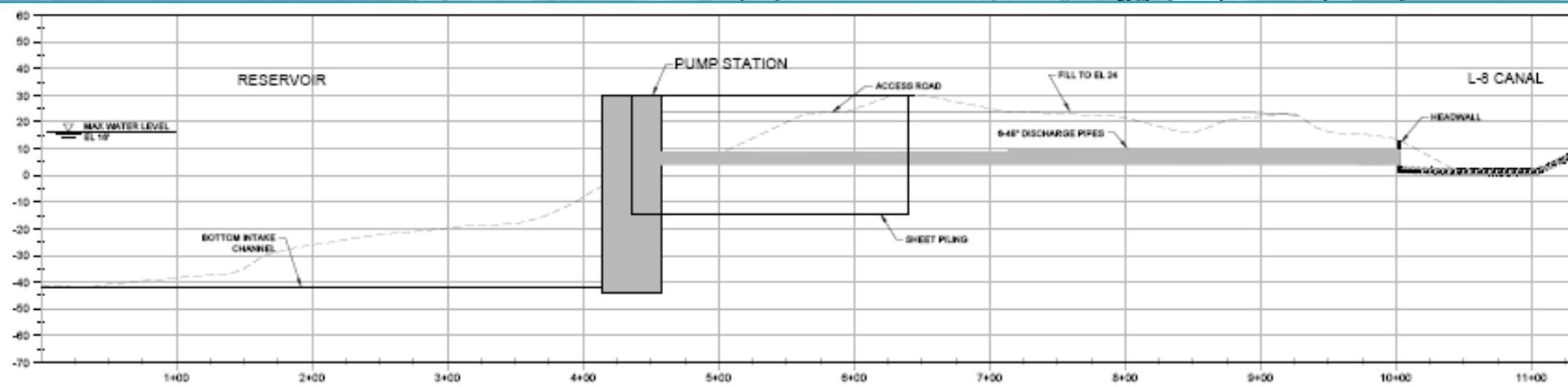
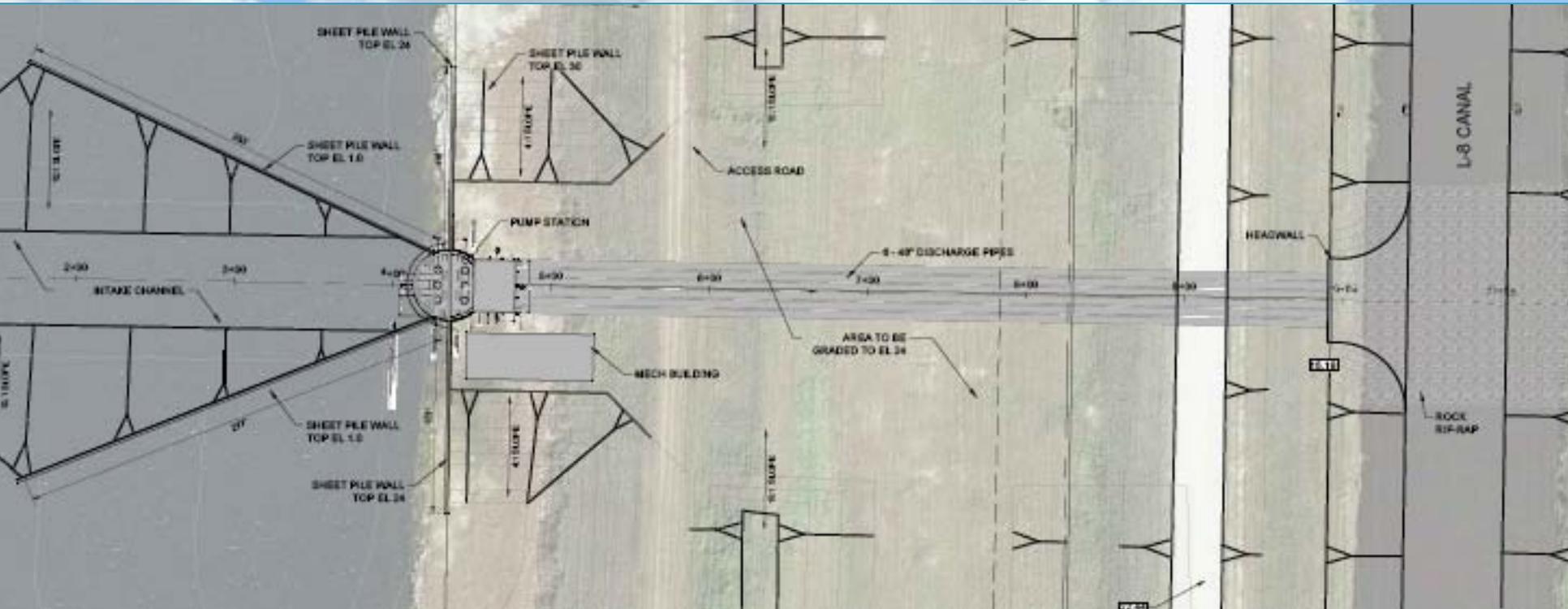
Design Schedule

- 100% Revetment Design – Complete
- 30% Pump Station, Inflow, and Modifications – Complete
- 100% Pump Station – May 29, 2013
- 100% Inflow Structure - June 16, 2013

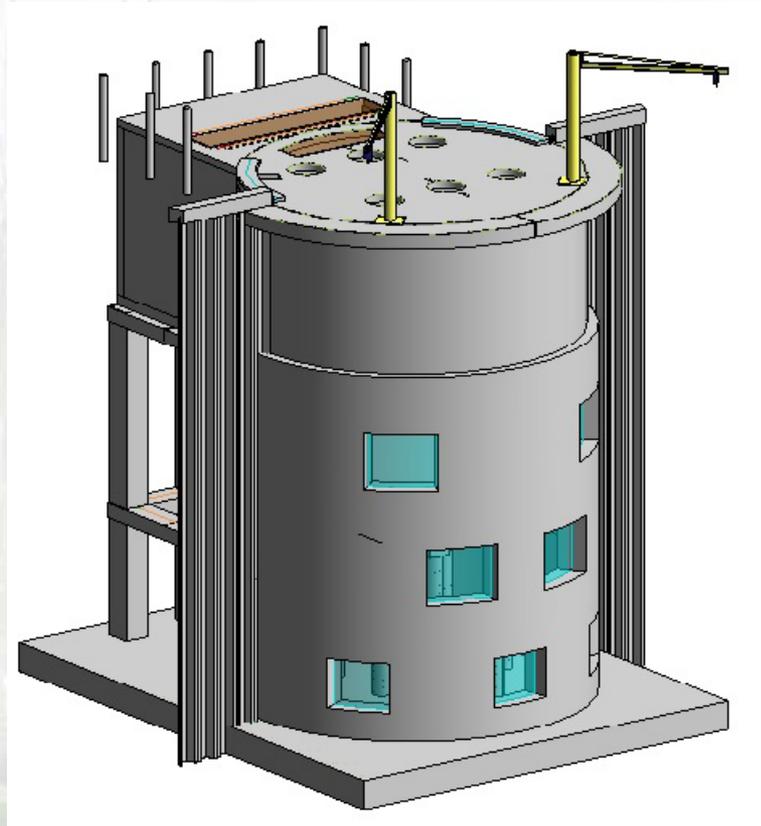
L-8 Inflow Control Structure Design



Pump Station Structure Design



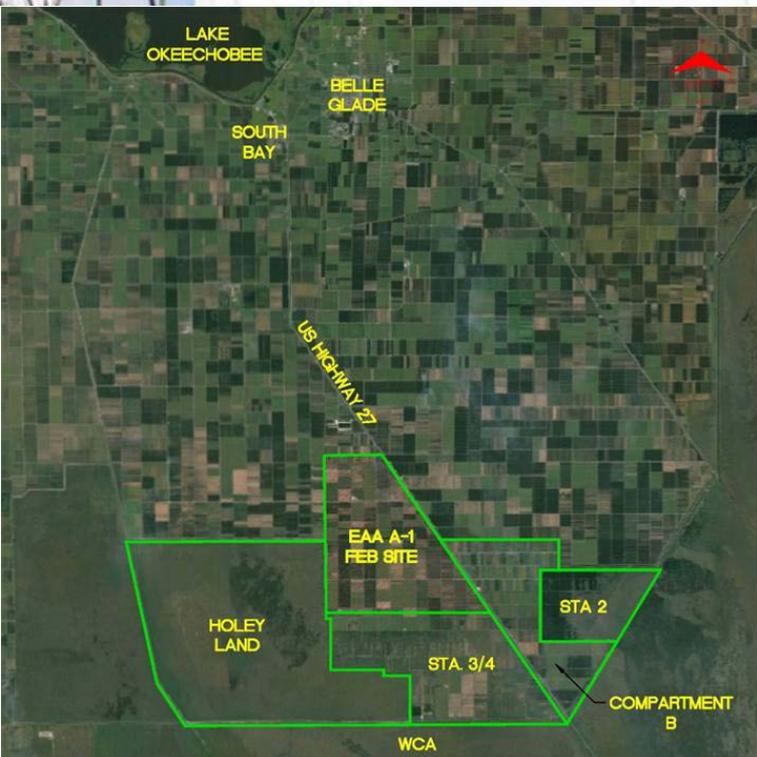
PumpStation24 Case3.mov



Construction Schedule

REVETMENT	30-Apr-13	2-Apr-14
INFLOW/OUTFLOW STRUCTURE	31-Oct-13	27-Mar-15
PUMP STATION	09-Jul-13	13-Apr-15
SUBSTANTIAL COMPLETION	18-Apr-15	
ACCEPTANCE TEST & COMMISSIONING	19-Apr-15	15-Oct-15

EAA A-1 Flow Equalization Basin



Project Objectives

- Improve STA Performance by Attenuating Peak Flows and Temporarily Storing Stormwater Runoff
- Assist in achieving 10 ppb geometric mean phosphorus criterion in the Everglades Protection Area
- Improve inflow delivery rates to STA-2, Compartment B and STA-3/4 providing enhanced operation and phosphorus treatment performance
 - Source of existing water is primarily from the central Everglades Agricultural Area
- Assist in maintaining minimum water levels and reducing the frequency of dryout conditions within STA-2 and STA-3/4
 - Sustains STA phosphorus treatment performance

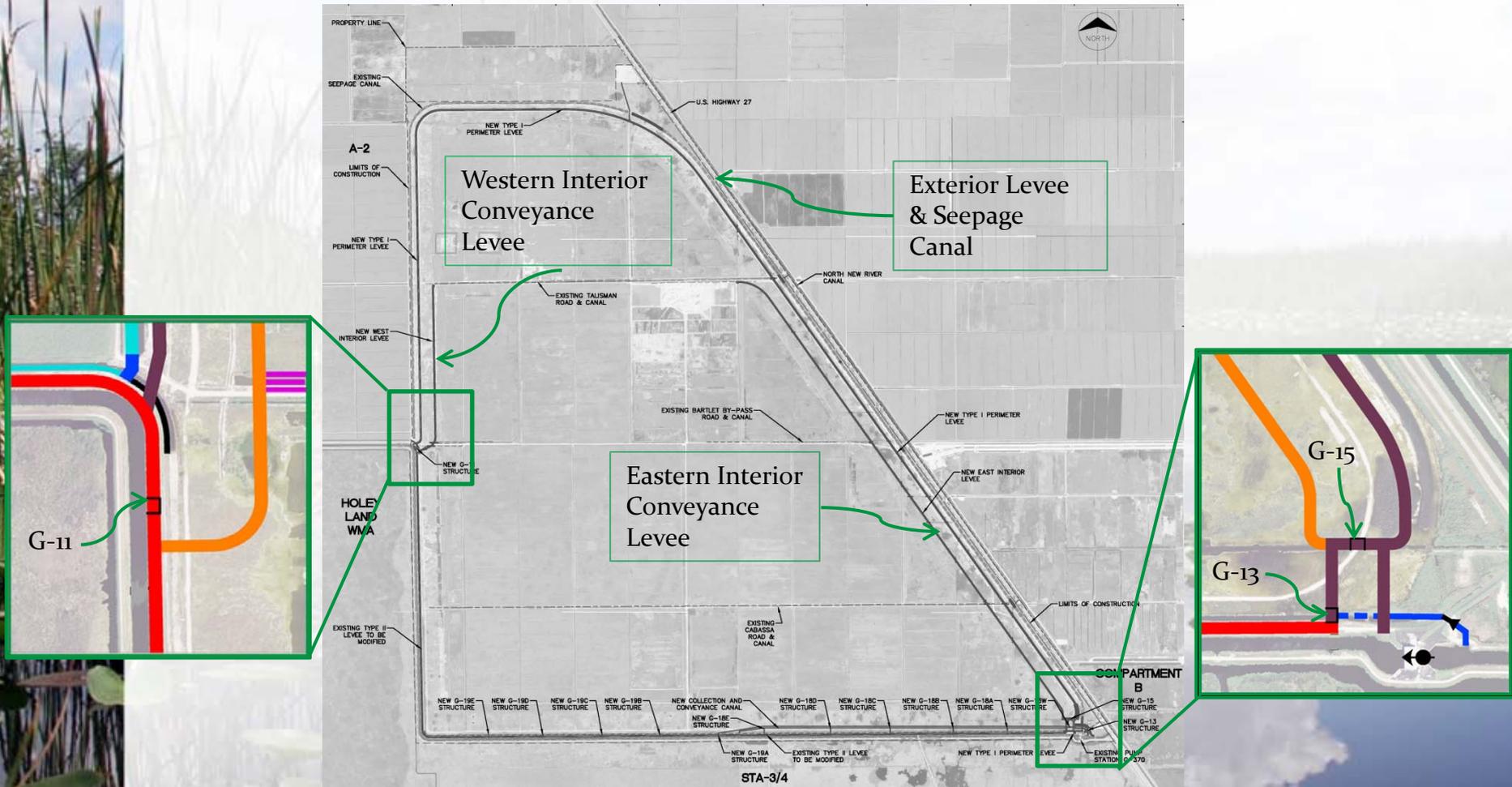
G-370 & G-372 Pump Station



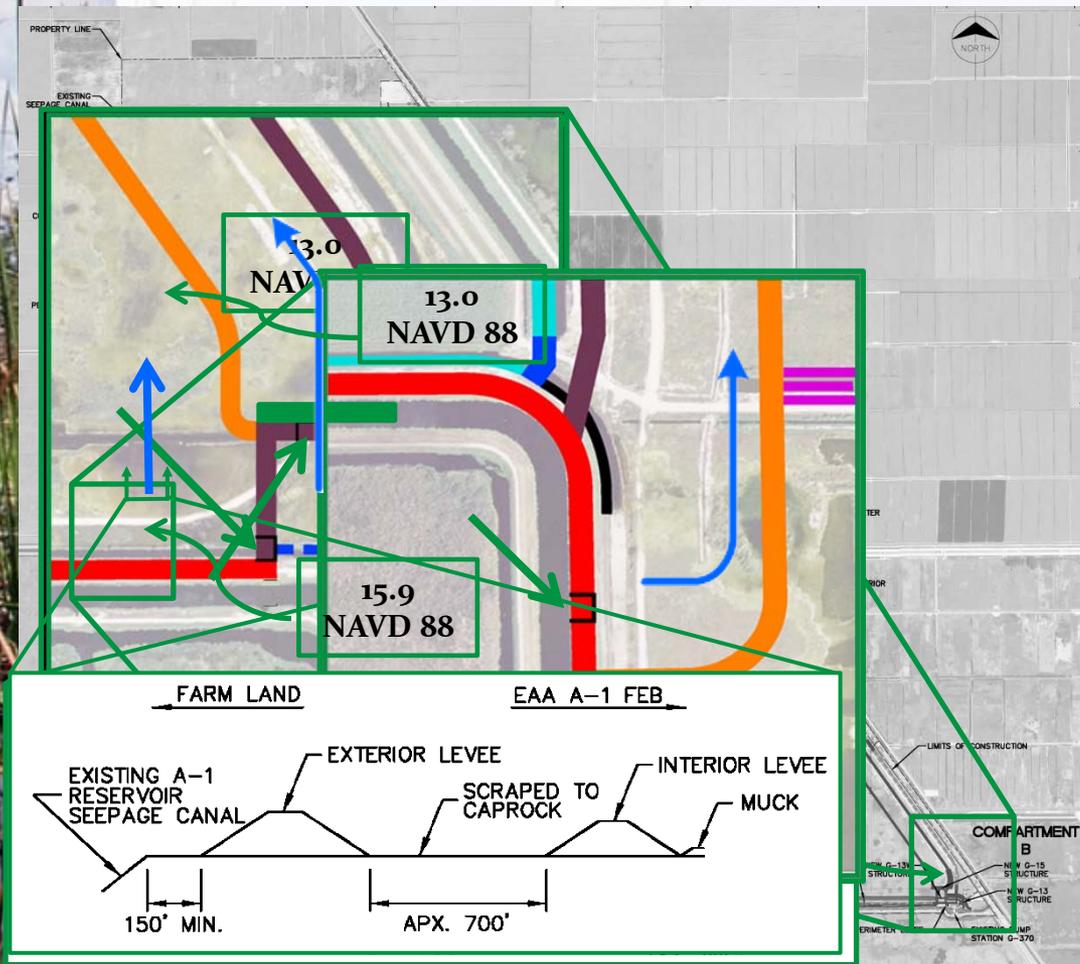
Existing Conditions



A1 FEB Plan View Drawing



Proposed Layout (Inflow)



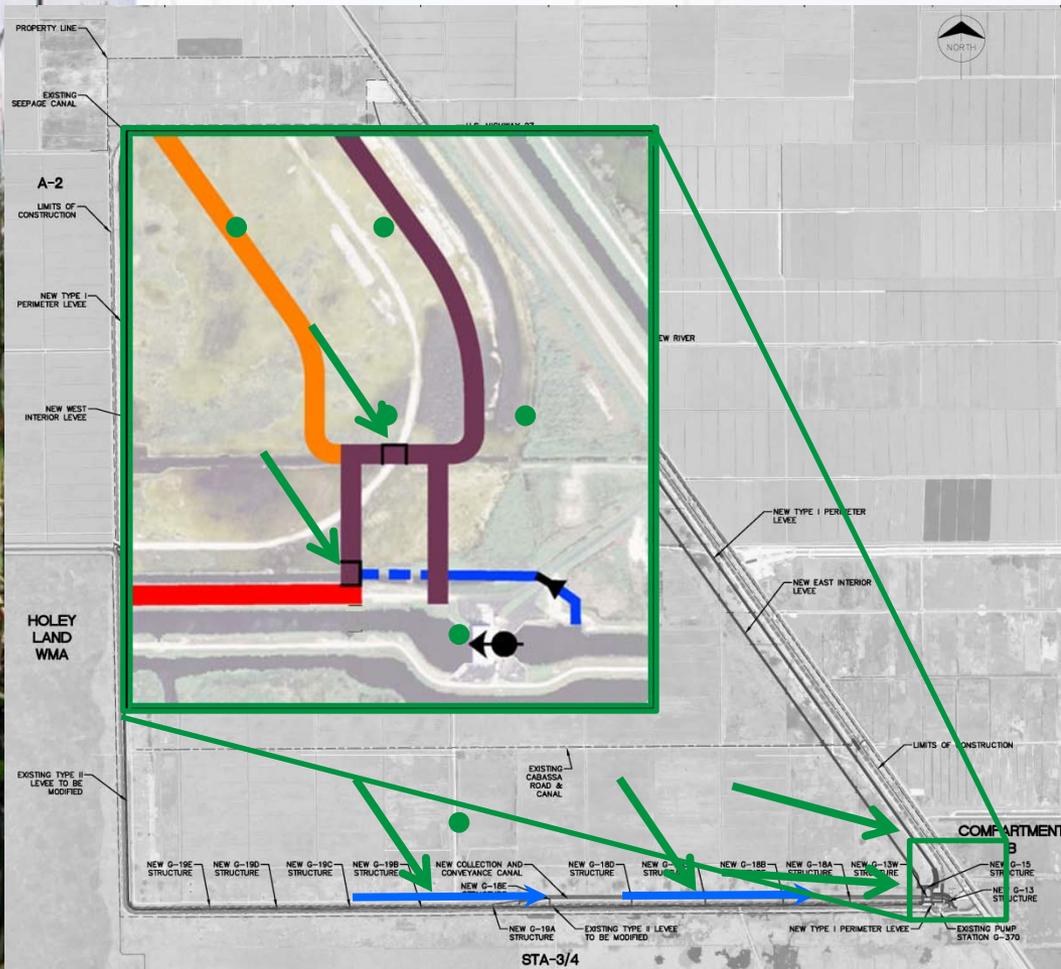
Inflow from G-370

- Outflow Control Structure G-13 (3 barrel 10 feet wide by 10 feet high gated box culvert) is Closed.
- Inflow Control Structure G-15 (2 bay 20 feet wide by 9.75 feet high gated spillway) Opens
- 2,340 cfs Conveyed North
- Inflow Stage Elevation = 14.8ft NAVD 88
- North Stage Elevation = 13.0ft NAVD 88

Inflow from G-372

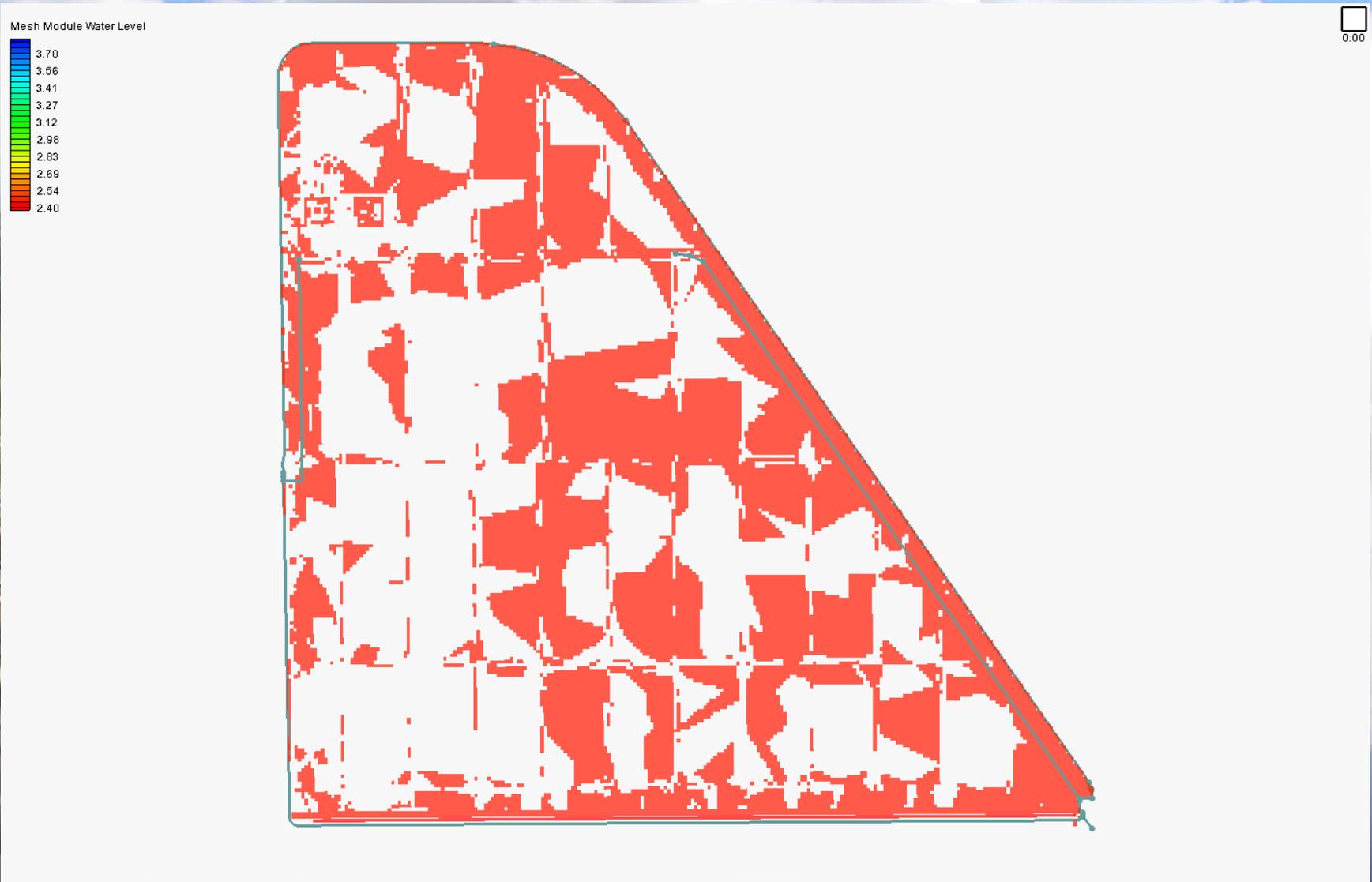
- Inflow Control Structure G-11 (3 bay 20 feet wide by 11.25 feet high gated spillway) Opens
- 3,120 cfs Conveyed North
- Inflow Stage Elevation = 15.9ft NAVD 88
- North Stage Elevation = 13.0ft NAVD 88

Proposed Layout (Outflow)



- Internal Flow
 - Existing Road/Levee degraded to adjacent grade
 - Plug Existing Agricultural Canals
- Outflow through Southeast
 - Control Structure G-15 already closed
 - Control Structure G-13 opens
 - Pump Station G-370, G-434 and/or G-435, Start
- Outflow Conveyed by Improved STA 3/4 Supply Canal North Seepage Canal
- Gravity Outflow to STA 3/4
- Outflow Range: 800 – 2000cfs

Stage vs. Time



A-1 FEB Schedule

- Design and Construction Schedule:
 - Preliminary Design – Completed
 - Intermediate Design Submittal – Completed
 - Final Design Submittal – May 6, 2013
 - Final Design TRB – June 6, 2013
 - Corrected Final/RTA Design Submittal – July 22, 2013
 - Governing Board – October 2013
 - NTP – November 1, 2013
 - Substantial Completion – December 31, 2014
 - Final Completion – March 31, 2015

Restoration Strategies

Science Plan Development

Governing Board Project & Lands
Committee Meeting
March 13, 2013

Linda Lindstrom, P.G.
Chief, Applied Sciences Bureau
Water Resources Division

Science Plan: Progress to Date

- Consent Orders and Framework Agreement require SFWMD to develop and implement a Science Plan
- Plan development initiated in August 2012
- SFWMD Science Plan Team consists of over 35 scientists and engineers
- Formulated 6 overarching key questions and detailed sub-questions to address information gaps and guide research needs
- Prioritized science questions and identified an initial suite of 8 studies for first phase of 5-year work plan
- Completed internal review of draft Science Plan document and detailed study plans

Science Plan: Key Questions

1. How can the FEBs be designed and operated to moderate and optimize **phosphorus concentrations, phosphorus loading rates and hydraulic loading rates entering the STAs**, possibly in combination with water treatment technologies, and/or inflow canal dredging/lining?
2. How can **internal loading of phosphorus** to the water column be reduced or controlled, especially in the lower reaches of the treatment trains?
3. What measures can be taken to enhance **vegetation-based treatment** in STAs and FEBs?

Science Plan: Key Questions (cont'd)

4. How can the biogeochemical and/or physical mechanisms be managed to further reduce **soluble reactive, particulate and dissolved organic phosphorus concentrations at the outflow?**
5. What **operational and/or design refinements** could be implemented at existing STAs and future features (i.e. STA expansions, Flow Equalization Basins) to improve and sustain treatment performance?
6. What is the influence of **wildlife and fisheries** on the reduction of phosphorus in the STAs?

Science Plan: External Input

- 3 workshops held with Technical Representatives and their consultants during **December 2012 - January 2013**
- Suggestions/comments from Technical Representatives incorporated into plan development
- Opportunity for public/stakeholder input provided at Long Term Plan Communications Meetings – **November 2012 and February 2013**

Science Plan: Path Forward

- Review of draft Science Plan documents by Technical Representatives (**March 2013**); workshop (**March 20, 2013**)
- Review of draft Science Plan documents by external stakeholders/public (**April 2013**)
- Provide status update at Long-Term Plan Quarterly Communication Meeting (**May 10, 2013**)
- Finalize Science Plan (on or before **June 10, 2013**)
- Implement Science Plan (by **September 10, 2013**)

Questions?

