Proposed Mosaic DeSoto Mine and Potential Impacts on Surface Waters Flowing to the City of North Port

City of North Port

Presented February 2, 2018

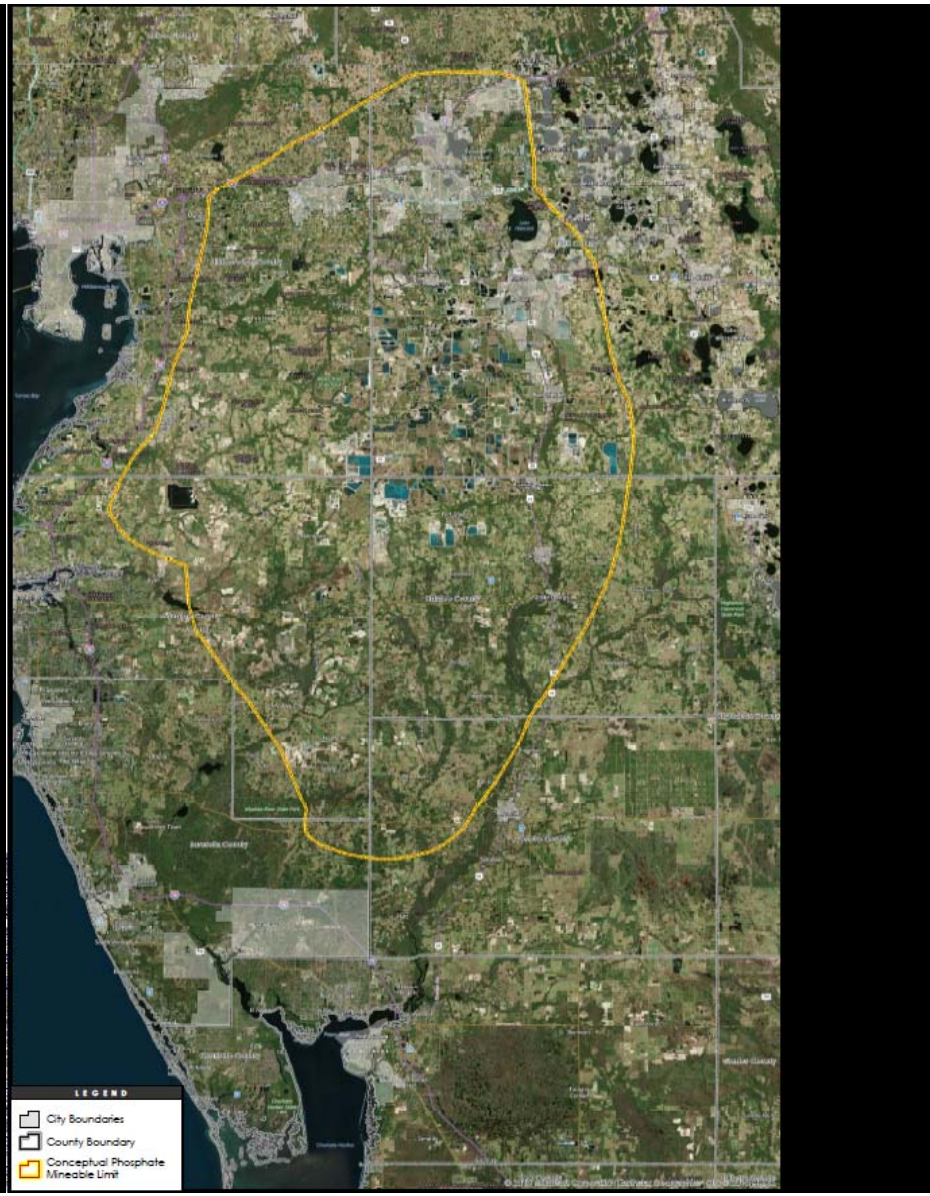
Stantec

OVERVIEW

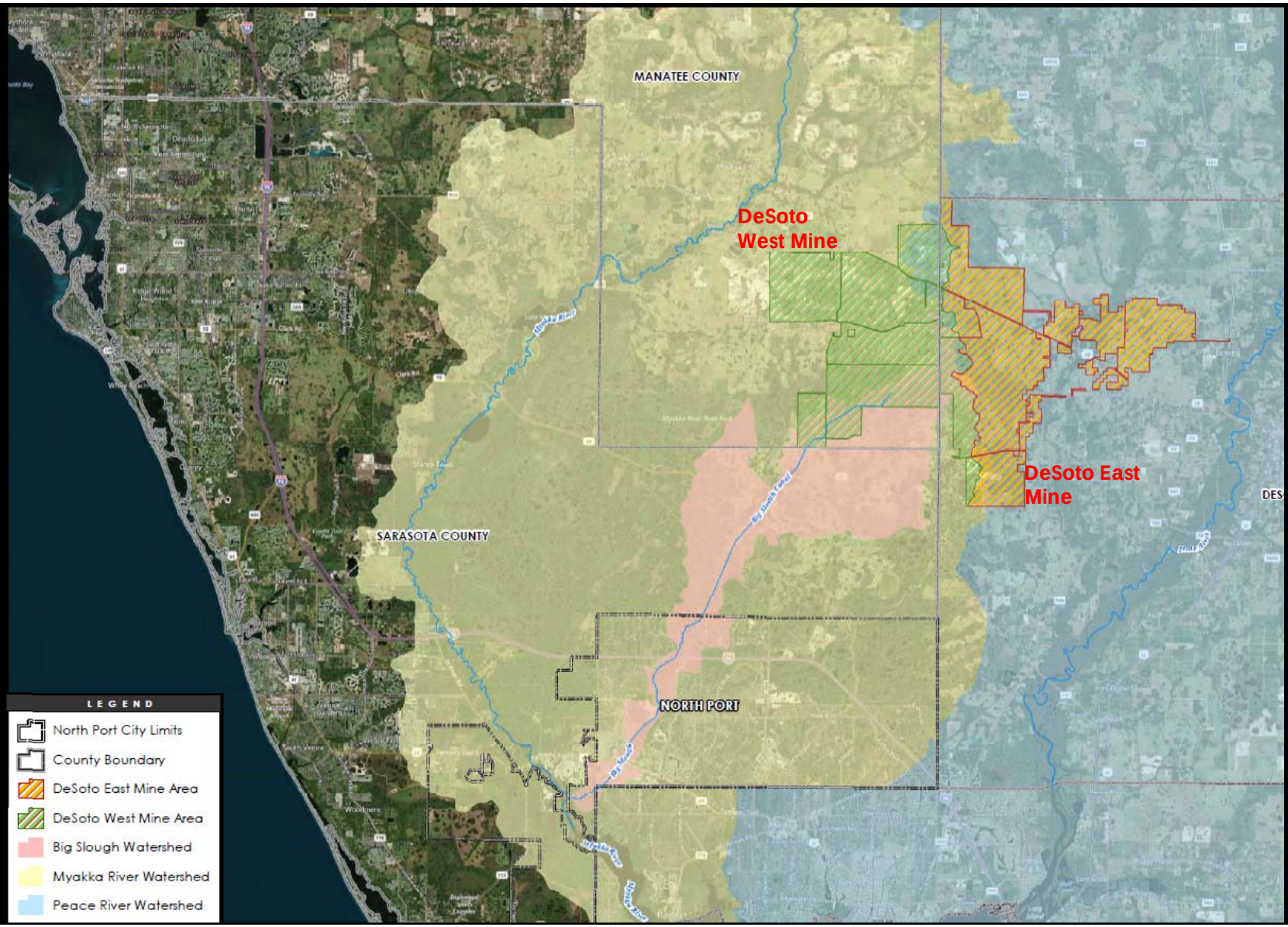
- Area overview
- Mining processes
- Permits required and permit status
- Potential water quantity impacts
- Potential water quality impacts
- Phosphate mine incident overview
- Summary of risks
- recommendations

CENTRAL FLORIDA PHOSPHATE DISTRICT (CFPD)

(SOURCE: AEIS, 2012)



REGIONAL MAP AND PROPOSED PHOSPHATE MINING AREAS – DESOTO MINE

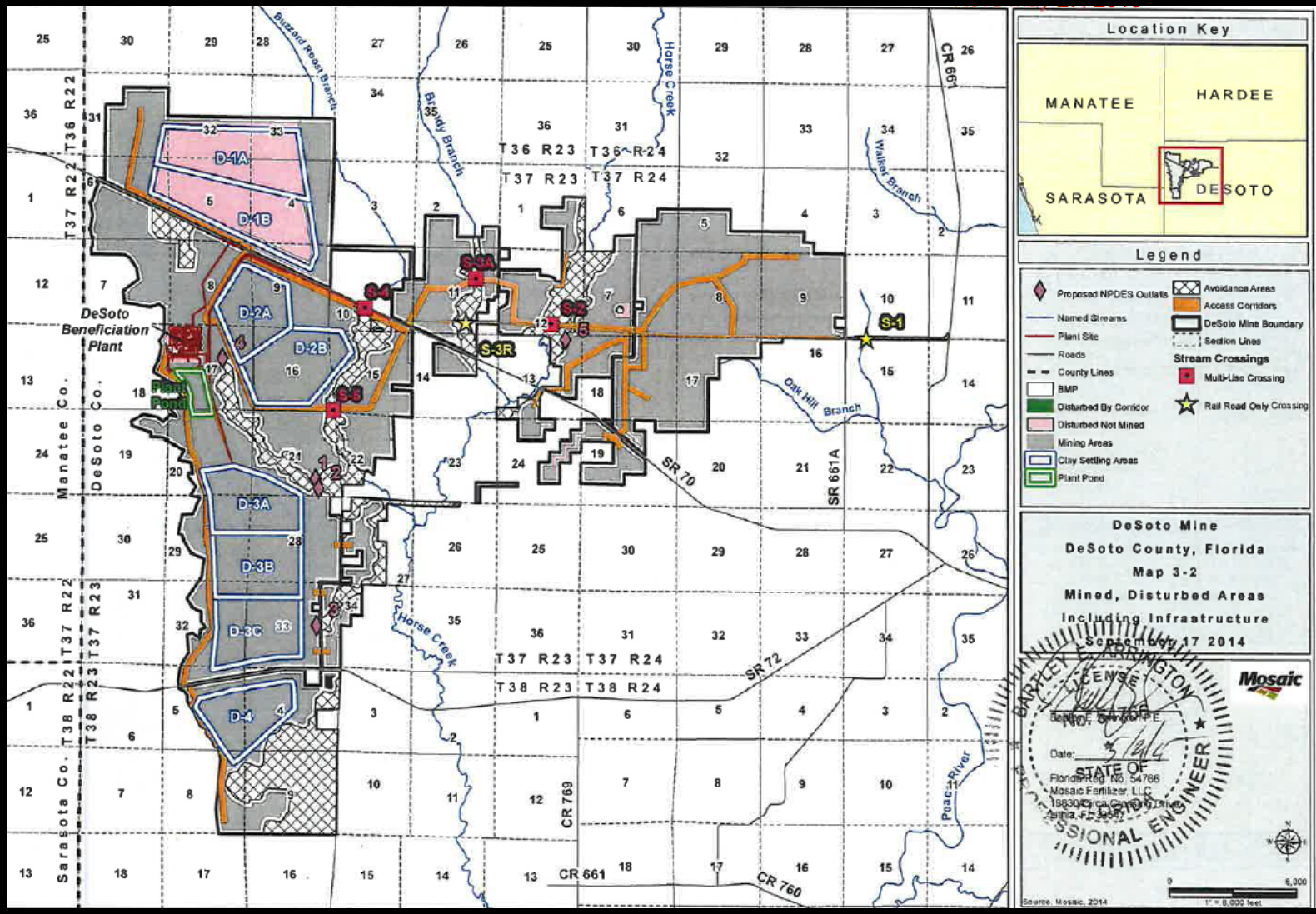


MINING PROCESSES

- EXTRACTION – REMOVAL OF OVERBURDEN AND EXCAVATION OF UNDERLYING PHOSPHATE DEPOSIT USING A DRAGLINE
- EXTRACTED MATERIAL IS TURNED INTO A SLURRY AND PIPED TO BENEFICIATION PLANT
- BENEFICIATION – SAND AND CLAYS ARE SEPARATED FROM THE ORE
- SAND RETURNED TO MINED AREAS VIA SLURRY TO FILL IN EXCAVATION LATER
- CLAYS ARE PIPED AS SLURRY TO CLAY SETTLING AREAS
- ORE IS SHIPPED TO FERTILIZER PLANT FOR PROCESSING

Source: www.railroadforums.com

DESOTO EAST MINE LAYOUT (FDEP PERMIT EXHIBIT)

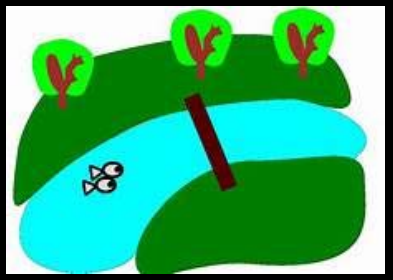


PERMITS REQUIRED – DESOTO EAST MINE PERMIT STATUS

- COMPLETE
  - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (FDEP) ENVIRONMENTAL RESOURCE PERMIT (ERP) AND CONCEPTUAL RECLAMATION PLAN
  - SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (SWFWMD) WATER USE PERMIT
- INCOMPLETE
  - DESOTO COUNTY PERMITS (MINE OVERLAY INCLUDES MINE AREA)
  - NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT (FDEP)
  - FEDERAL – USACE SECTION 404 PERMIT

POTENTIAL WATER QUANTITY IMPACTS

- SURFICIAL FLOW
  - WILL BE HELD BACK DURING MINING (NPDES/DESIGN STORM EVENT)
  - EFFECTS VARY WITH MINED AREA SIZE AND LOCATION
  - AFTER MINING – DEPENDS ON SITE PLAN
- WATER USE
  - MAJORITY SUPPLIED FROM WELL AT FT. GREEN MINE IN HARDEE COUNTY
  - FOR USE IN SLURRY TRANSPORT/BENEFICIATION



POTENTIAL WATER QUALITY IMPACTS

- During mining - minimal
  - Possible small increase in fluoride, Phosphorus
  - Possible small decrease in nitrogen
  - Stormwater detention
- Post mining
  - Changes in the landscape
  - Lakes
  - Wetland mitigation areas
- Beneficiation
  - Clay settling areas
- phosphate processing
  - Gyp stacks

PHOSPHATE MINE INCIDENT SUMMARY - CSAS

- Clay settling areas
  - 26 incidents 1940-67
  - 1971 – Discharge to Peace River, fish kill – resulted in adoption of design rule
  - 1994 – 2 spills, including spill to Alafia river – design rule amended
  - No incidents since 1994

PHOSPHATE MINE INCIDENT SUMMARY - OTHER

- GYP STACKS, SINKHOLES, OTHER INCIDENTS
  - 1962, 1988, 1993, 1997, 2001, 2004, 2011 – GYP STACK SPILLS
    - DUE TO DIKE BREACHES AND/OR HURRICANES
    - RELEASES OF HIGHLY ACIDIC WATER
    - FISH KILLS
    - MITIGATED WITH ADDITION OF LIME
  - 1994, 2016 – SINKHOLES OPENED UNDER GYP STACKS
  - ***<u>*NO FERTILIZER PROCESSING PLANT OR GYP STACKS PROPOSED FOR THE DESOTO MINE SITE*</u>

RISK SUMMARY

- Water quantity – low risk
  - Possible 6% annual/7% dry season reduction in flows during mining
  - Groundwater from ft. green
- Water quality
  - Active mining – low risk
  - clay settling areas – low risk but potentially catastrophic
  - Gyp stacks – no risk at this time

RECOMMENDATIONS

- *Collaboratively work with Mosaic and permitting agencies to*:
  - Remain fully informed about proposed plan and permit status
  - Review and comment on proposed plans
  - Evaluate possibility of using excavated pits as reservoirs to reduce flooding during wet season and release water during dry season

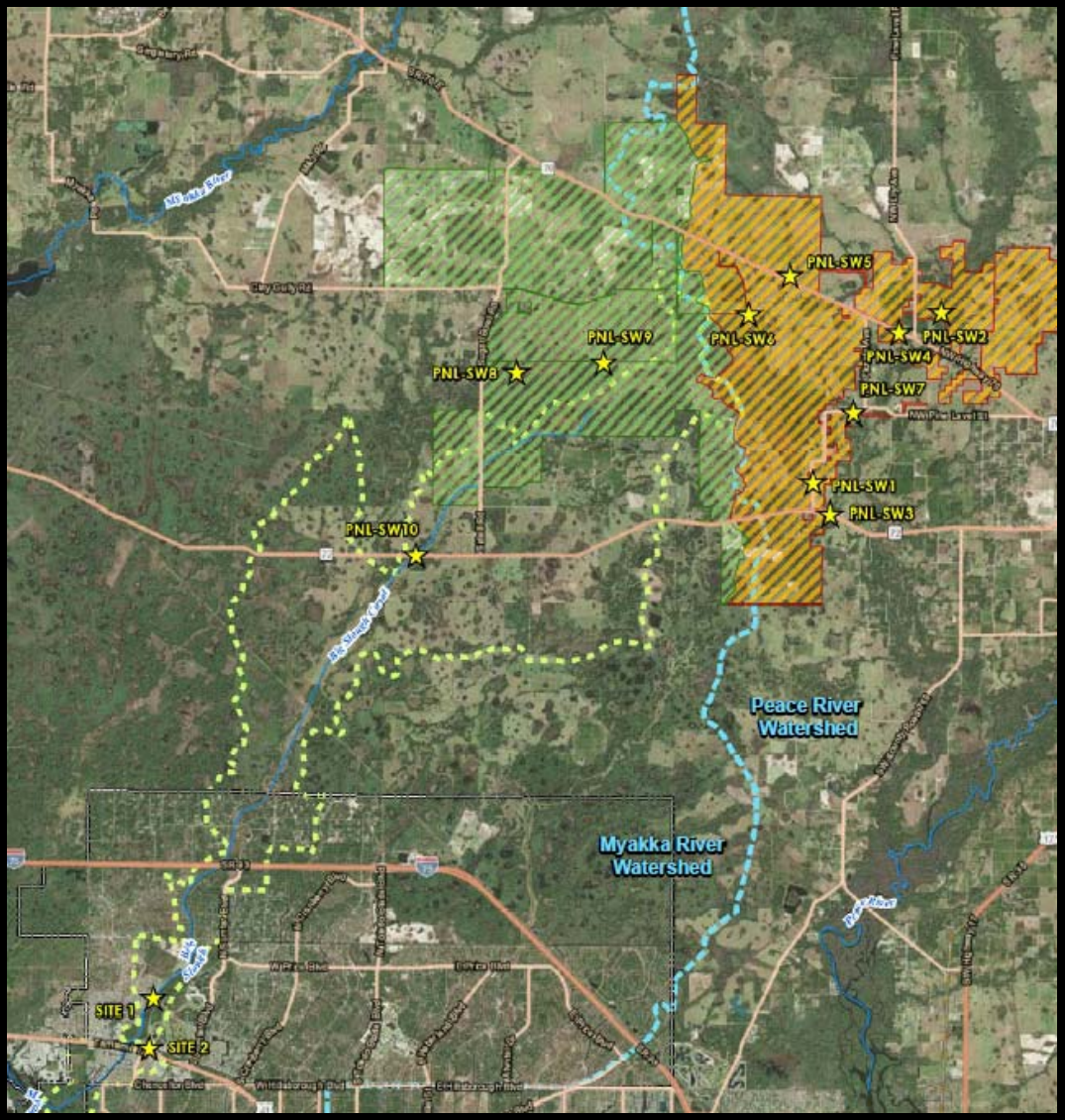
RECOMMENDATIONS - CONTINUED

- *COLLABORATIVELY WORK WITH MOSAIC AND PERMITTING AGENCIES TO*:
  - LOCATE CLAY SETTLING AREAS AWAY FROM BIG SLOUGH
  - REQUEST THAT EXTRA PROTECTIONS FOR BIG SLOUGH BE INCLUDED IN DESIGN, AS APPROPRIATE
  - ENSURE BASELINE MONITORING INCLUDES PARAMETERS OF INTEREST TO THE CITY

RECOMMENDATIONS - CONTINUED

- *COLLABORATIVELY WORK WITH MOSAIC AND PERMITTING AGENCIES TO*:
  - REQUEST WATER QUANTITY MODELING DESIGN REVIEW, PROVIDE INPUT
  - REQUEST THAT MINING OCCUR IN THE SMALLEST POSSIBLE FOOTPRINT AT ANY GIVEN TIME
  - REQUEST BASELINE SURFICIAL AQUIFER WATER LEVEL MONITORING DATA COLLECTED FOR THE WUP
  - MONITOR FLOW DATA COLLECTED FOR BIG SLOUGH AT SR72 AND AT A SITE WITHIN THE CITY
  - REQUEST BASELINE WATER QUALITY MONITORING DATA

EXISTING DATA COLLECTION SITES



RECOMMENDATIONS - CONTINUED

- City to begin monitoring for fluoride at Myakkahatchee Creek Appomattox site
- Review baseline water quality data to determine if additional parameters will be of concern for Big Slough

QUESTIONS?