



Preparing the Intercontinental Airport WWTP for Future Expansion

Presented by:

Camille Sowell, P.E. and Megan Martin, P.E.

Texas Association of Clean Water Agencies

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Presentation Overview

Introduction

Improvements

Construction Sequencing

Q&A

Introduction

- IAH WWTP
- North Corridor Consolidation
- Scope
 - Develop Basis of Design
 - Identify Phased Improvements



Plant Improvements

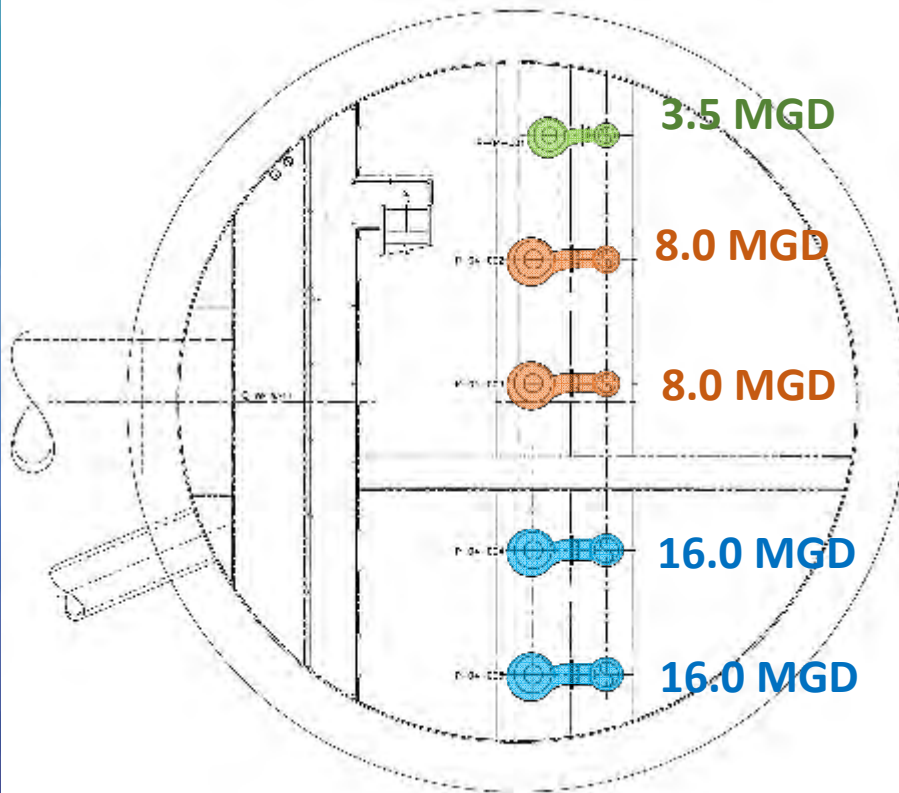
Influent Lift Station



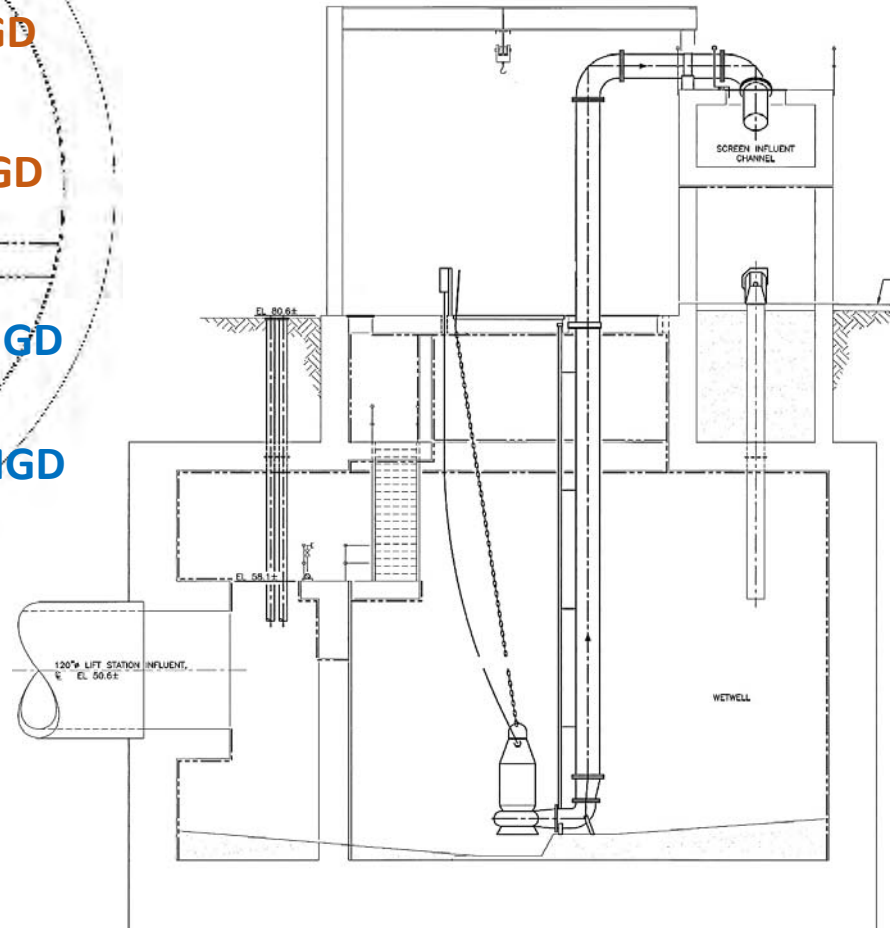
Existing Lift
Station



Influent Lift Station



Total Firm Capacity
35.5 MGD





Influent Lift Station

Existing Conditions



Ventilation Blowers



MCC and Controls

Influent Lift Station

Improvements

- Pumps
- Discharge Risers
- Hatches
- Concrete Coating
- Ventilation Blowers
- MCC and Controls



Influent Lift Station

Future Expansion



Headworks



Headworks

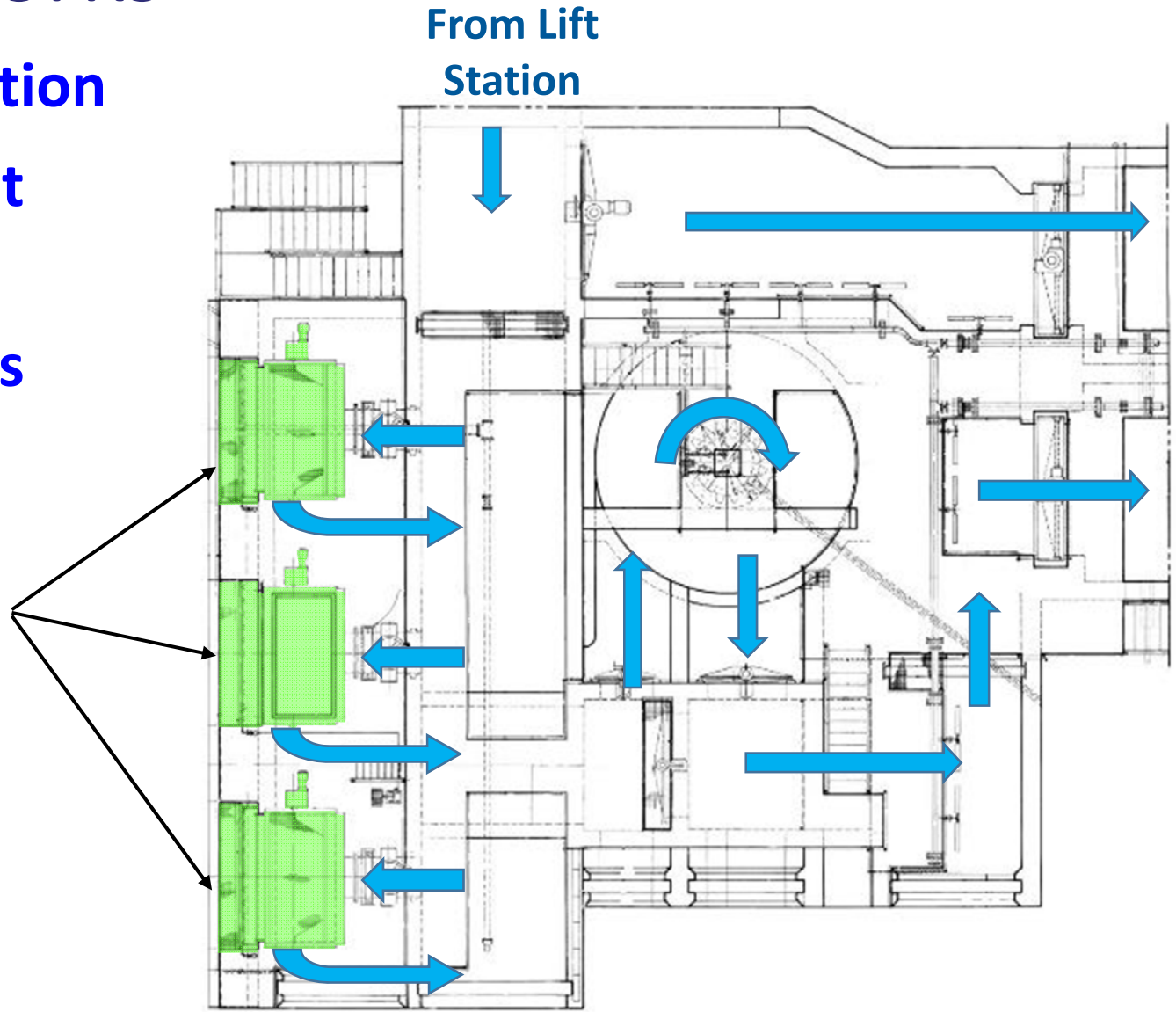
Full Operation

Bypass Grit

Bypass

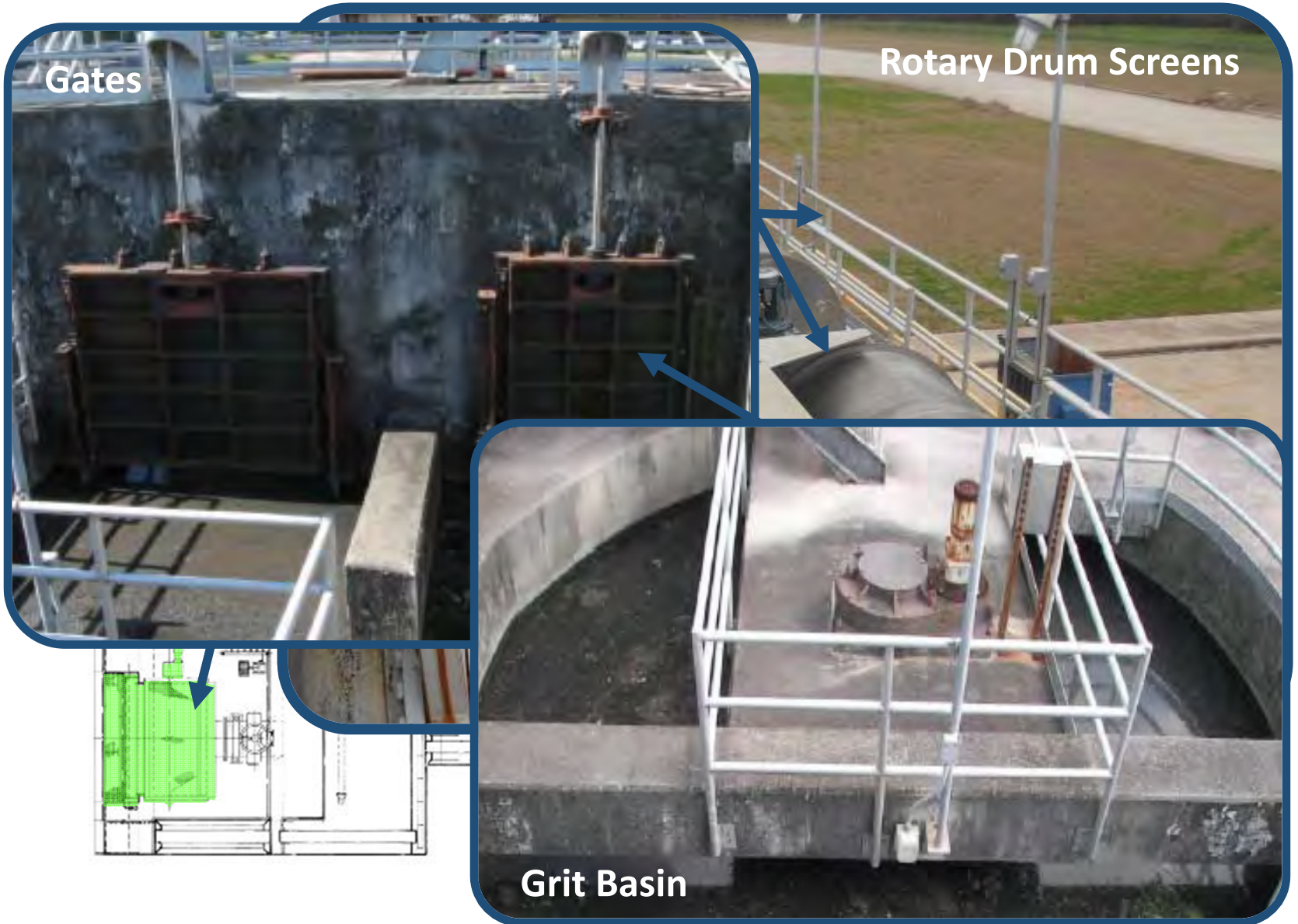
Headworks

Existing Rotary Screens

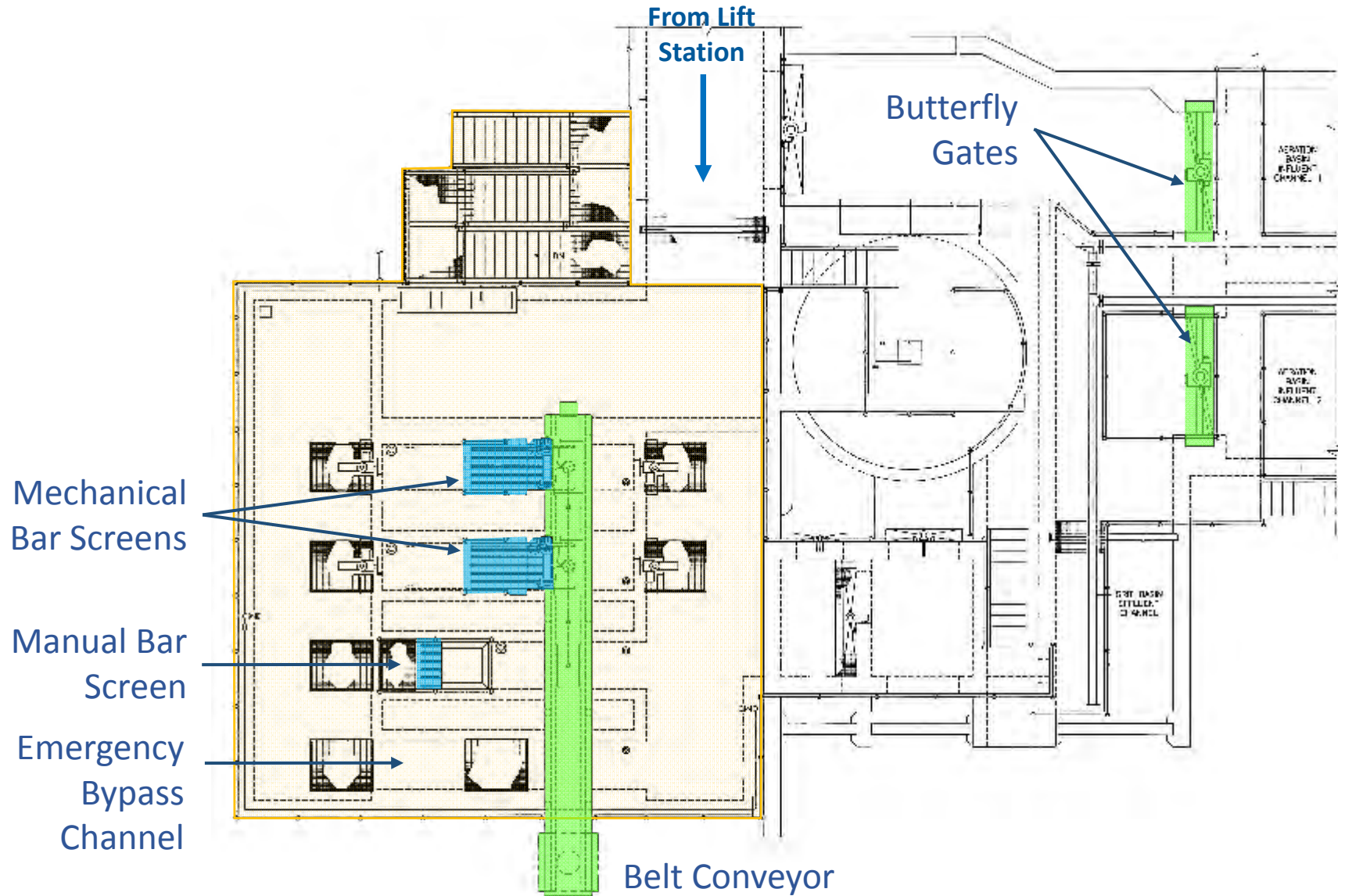


Headworks

Existing Conditions



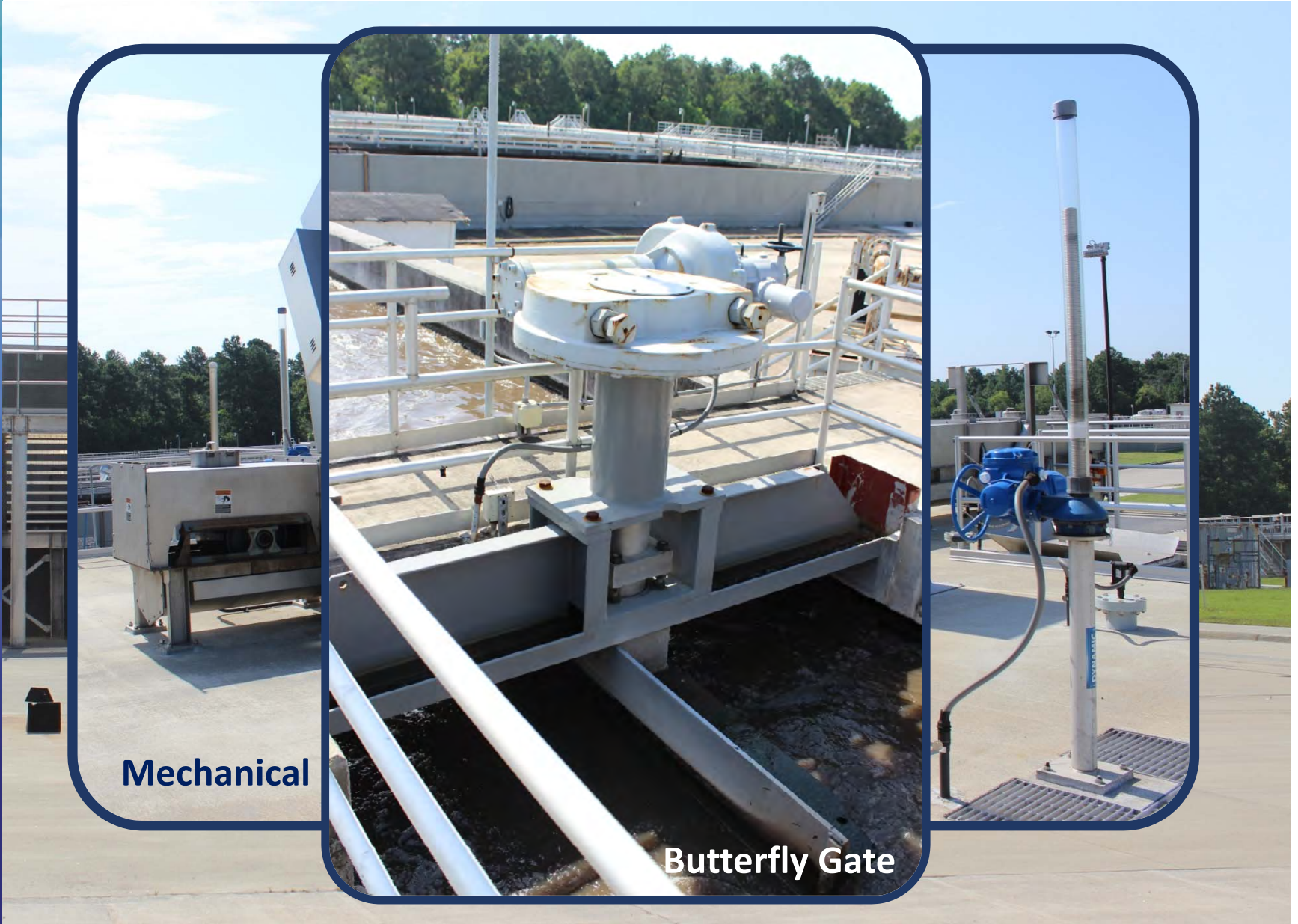
Headworks





Headworks

Improvements

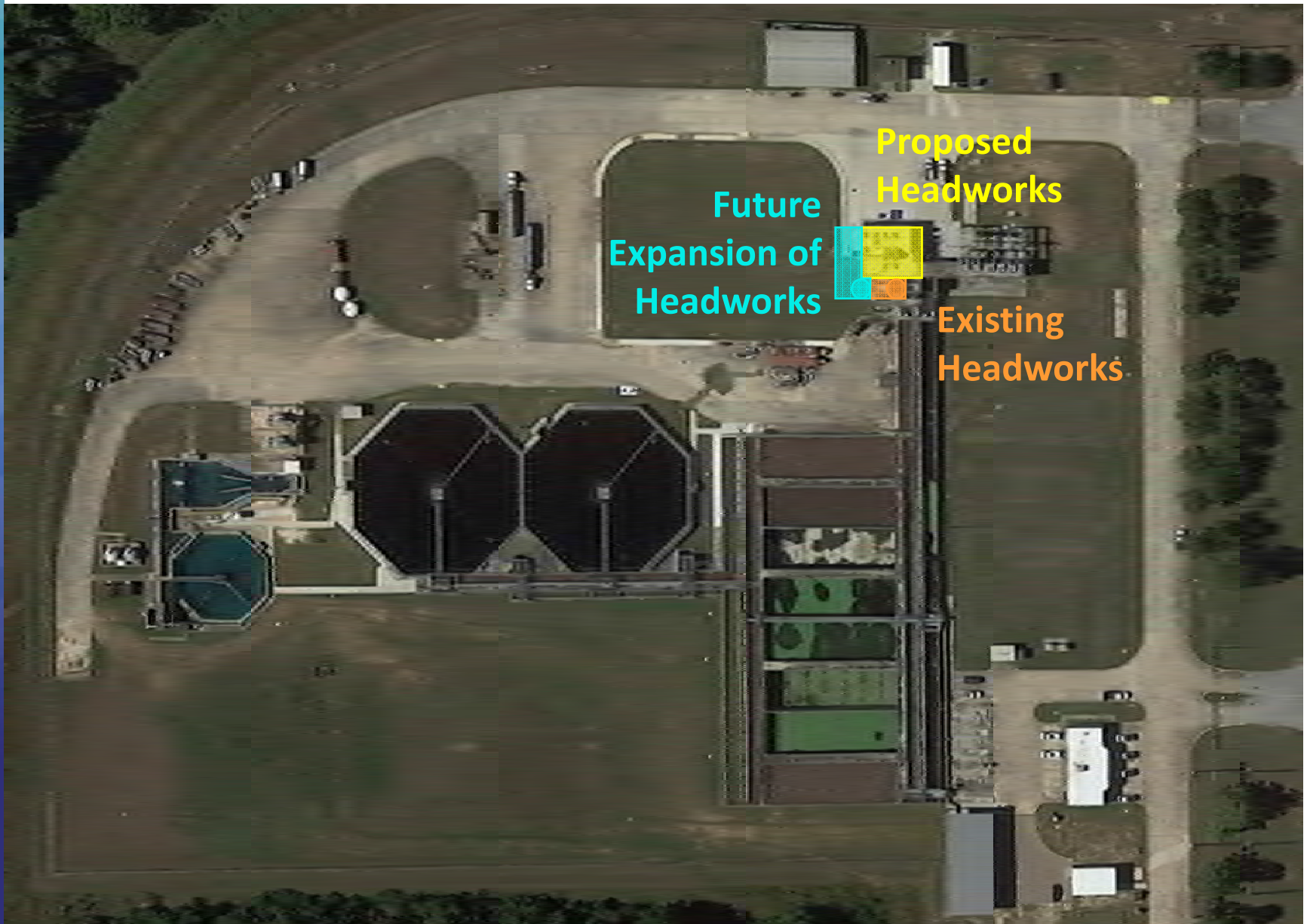


Mechanical

Butterfly Gate

Headworks

Future Expansion



Aeration System

Design Basis

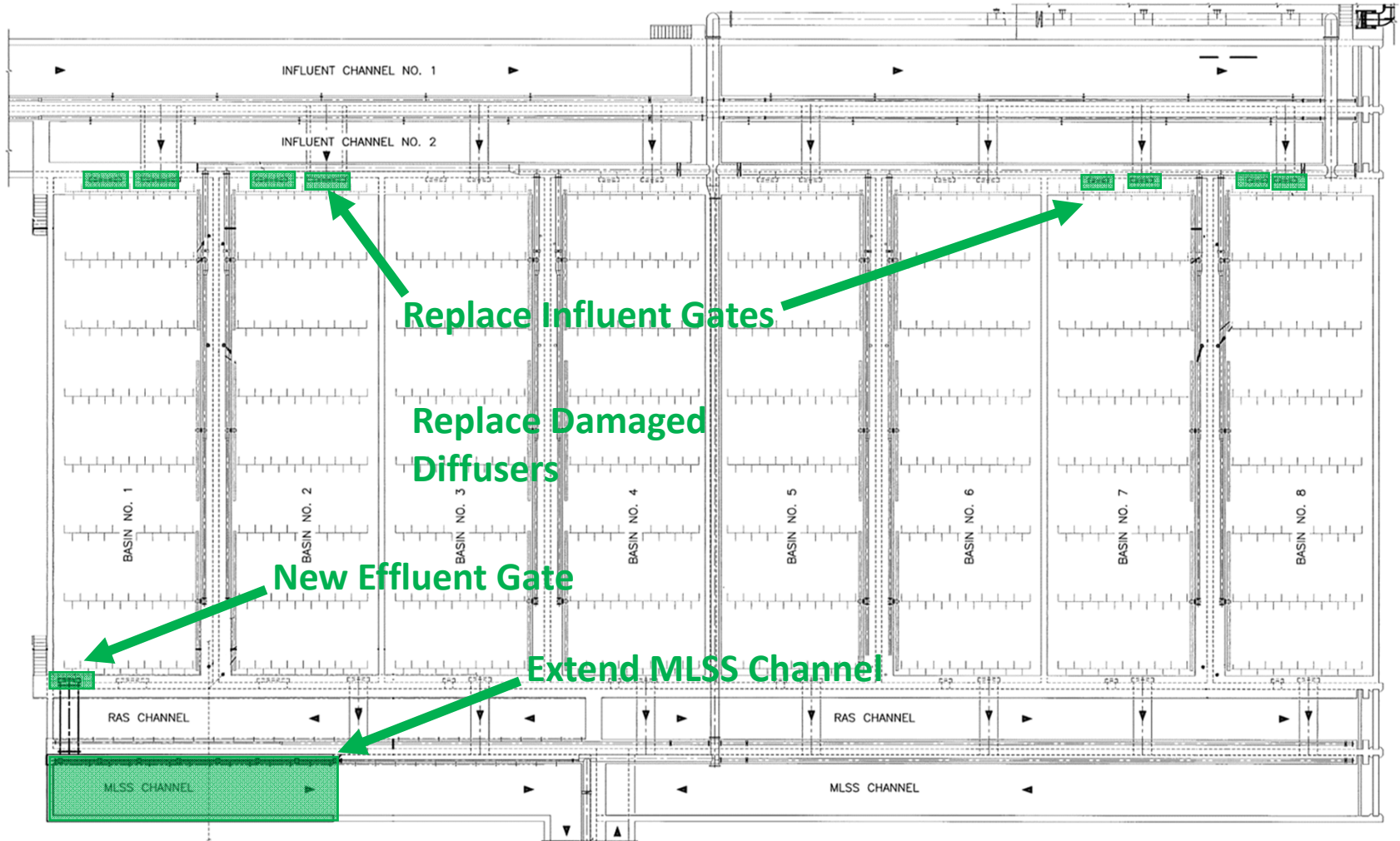


Aeration System - Basins

Existing Conditions



Aeration System - Basins



Aeration System - Blowers

Existing Conditions



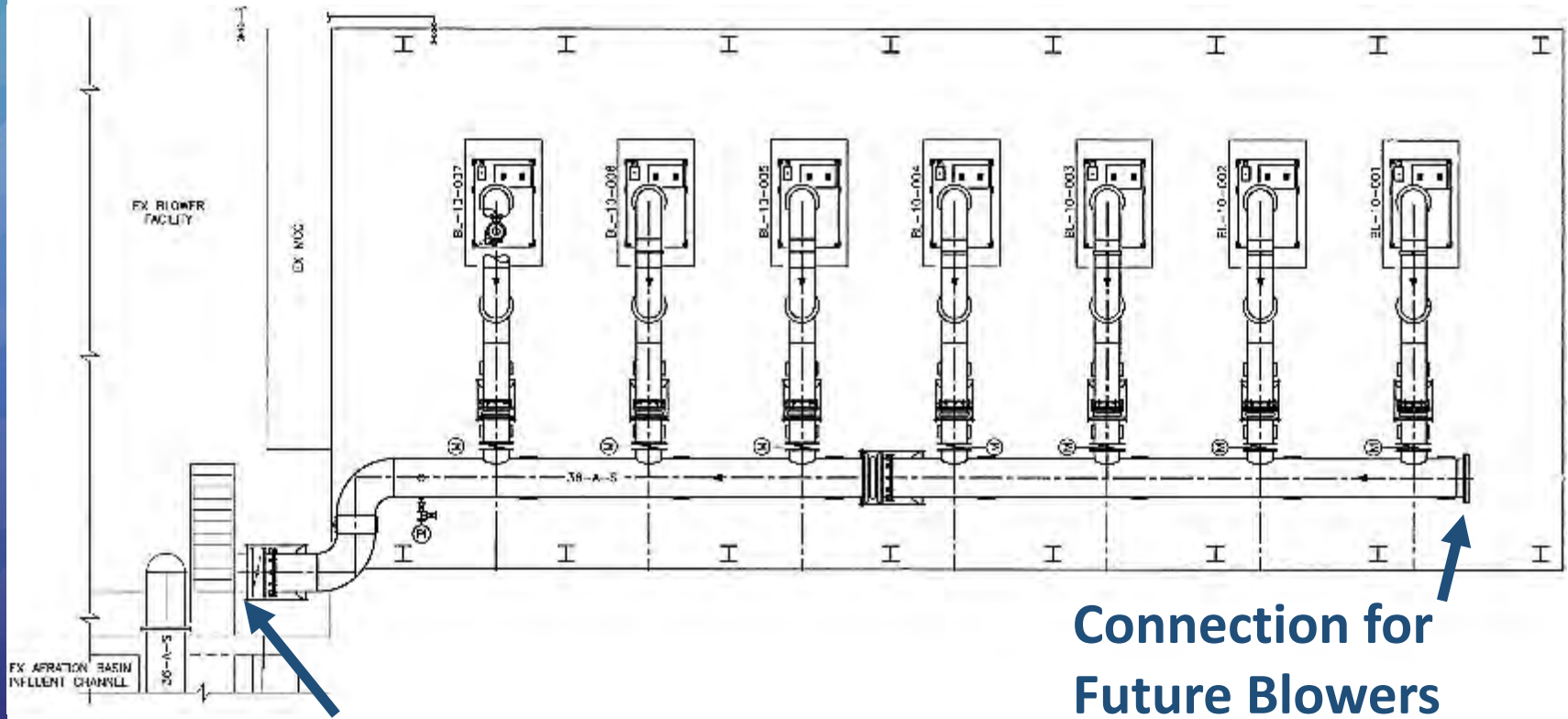
Aeration System - Blowers

High-Speed Turbo Blowers

- ❑ Relatively New Technology in Our Industry
- ❑ Considerations
 - Air vs. Magnetic Bearings
 - Maintenance Requirements (filters, controls)
 - Cooling Systems
 - Controls
 - VFDs built into unit
 - Harmonic filters
 - Built-in controls
- ❑ Vet Manufacturers

Aeration System - Blowers

Design Basis



Connect to Existing Air Header

Connection for Future Blowers

Aeration System - Blowers

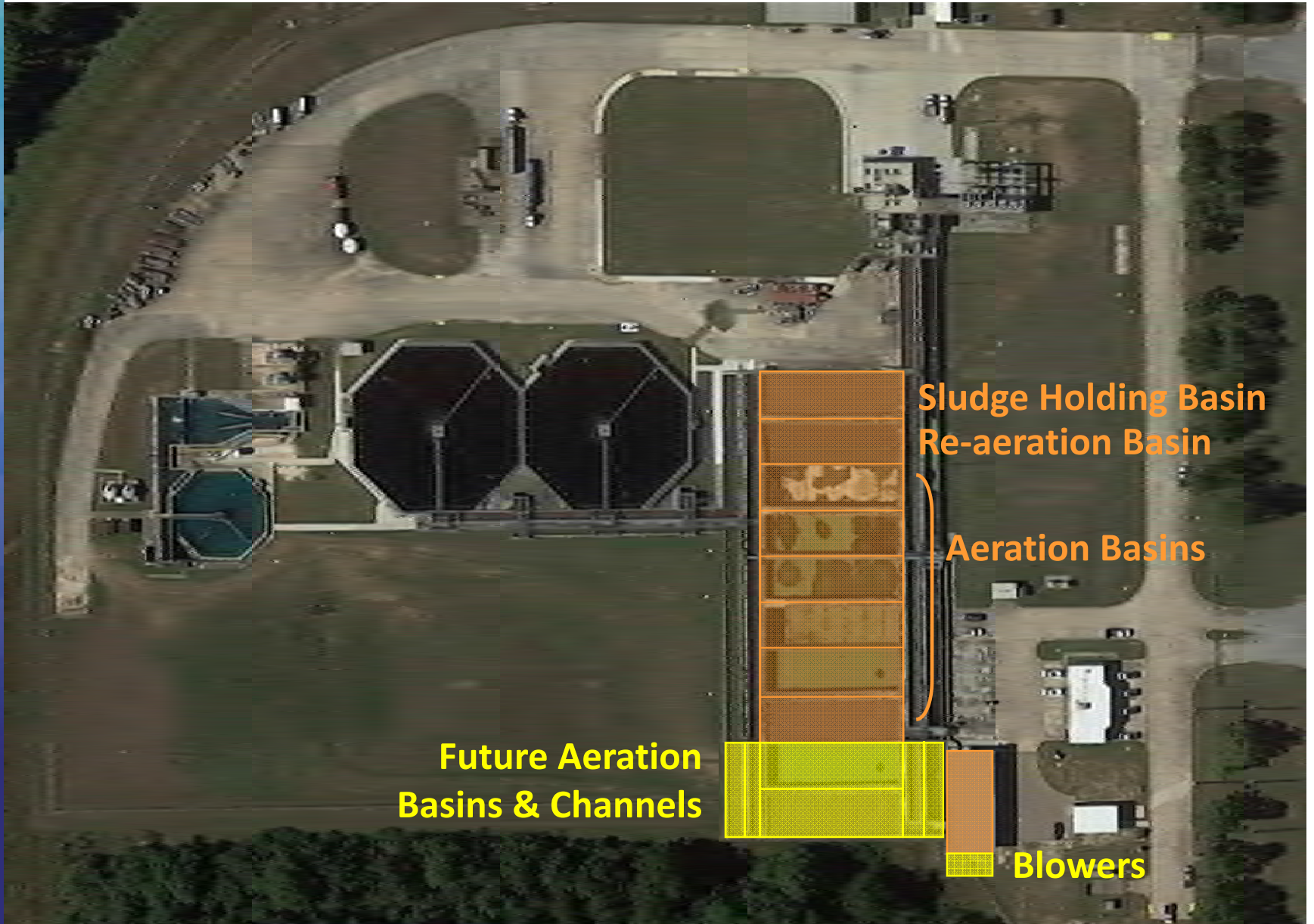
Improvements



- Seven 7,100-scfm blowers
- APG Neuros (Air Bearing)
- Master Control Panel (PLC)

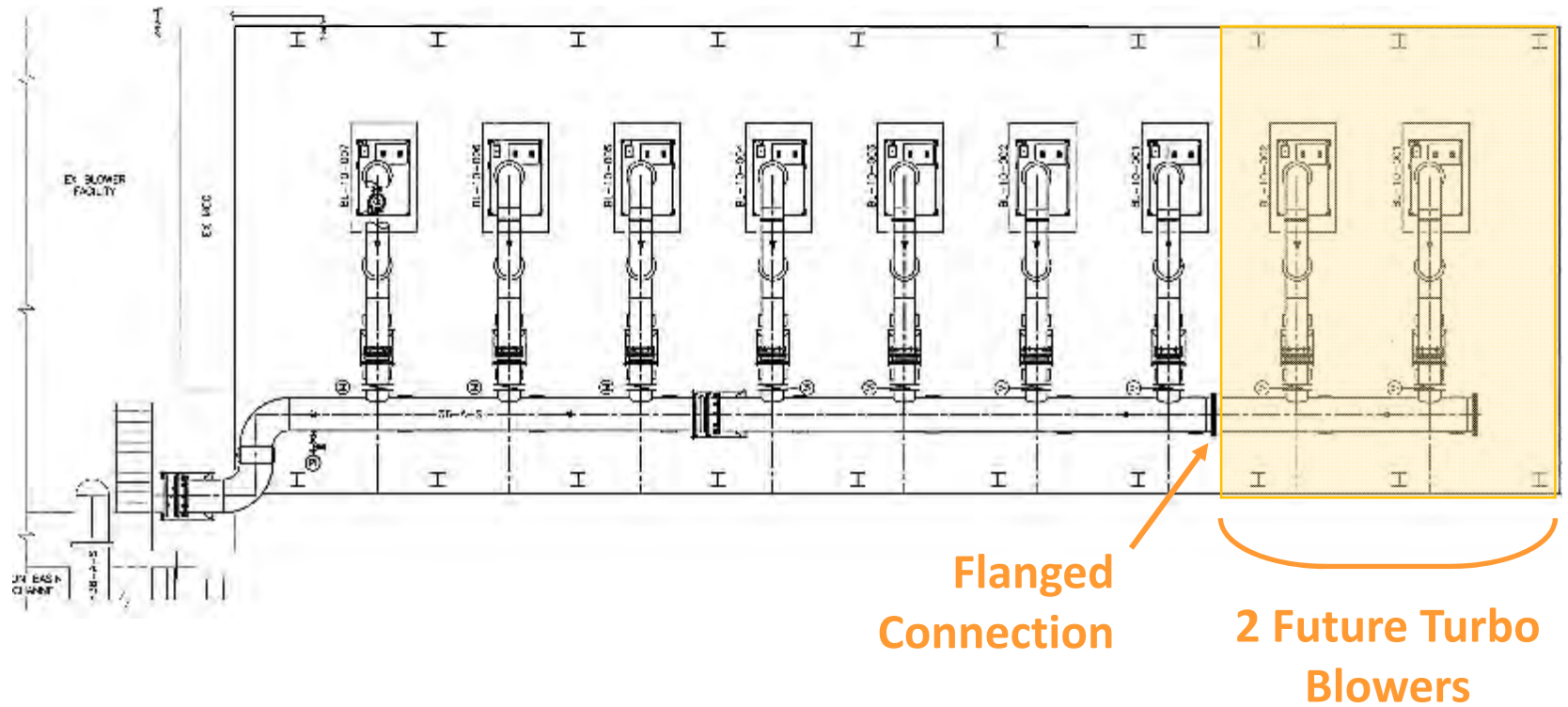
Aeration System

Future Expansion



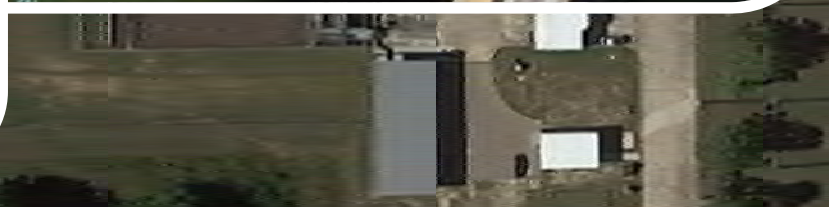
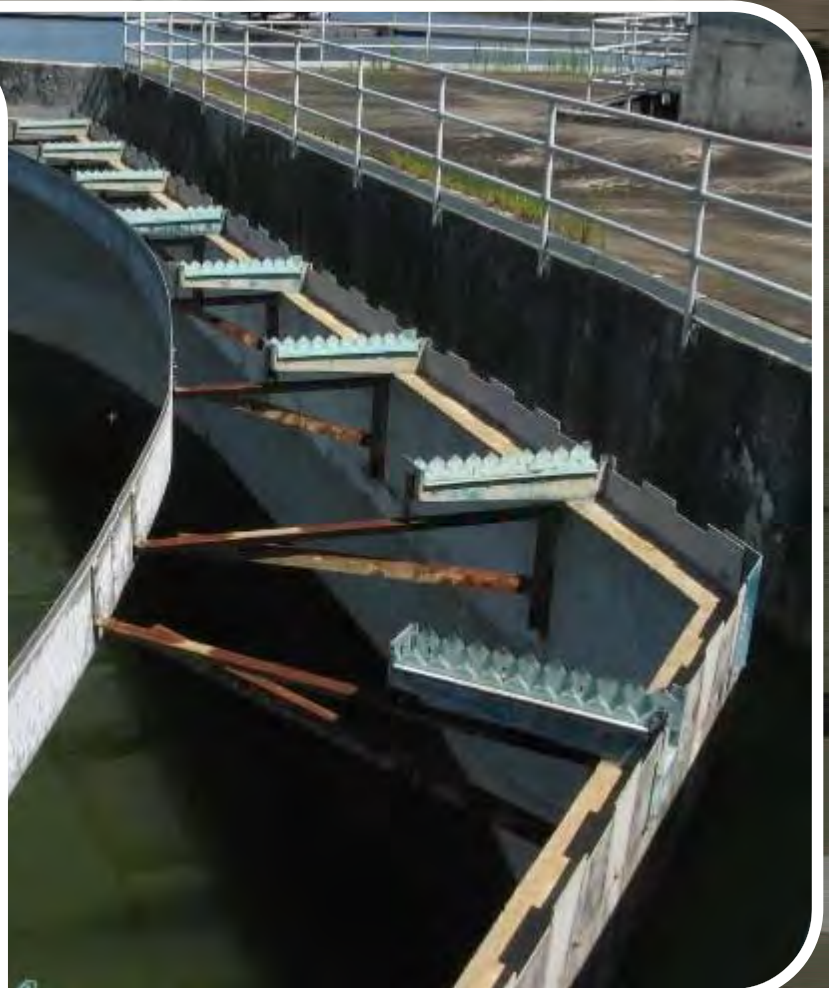
Aeration System - Blowers

Future Expansion



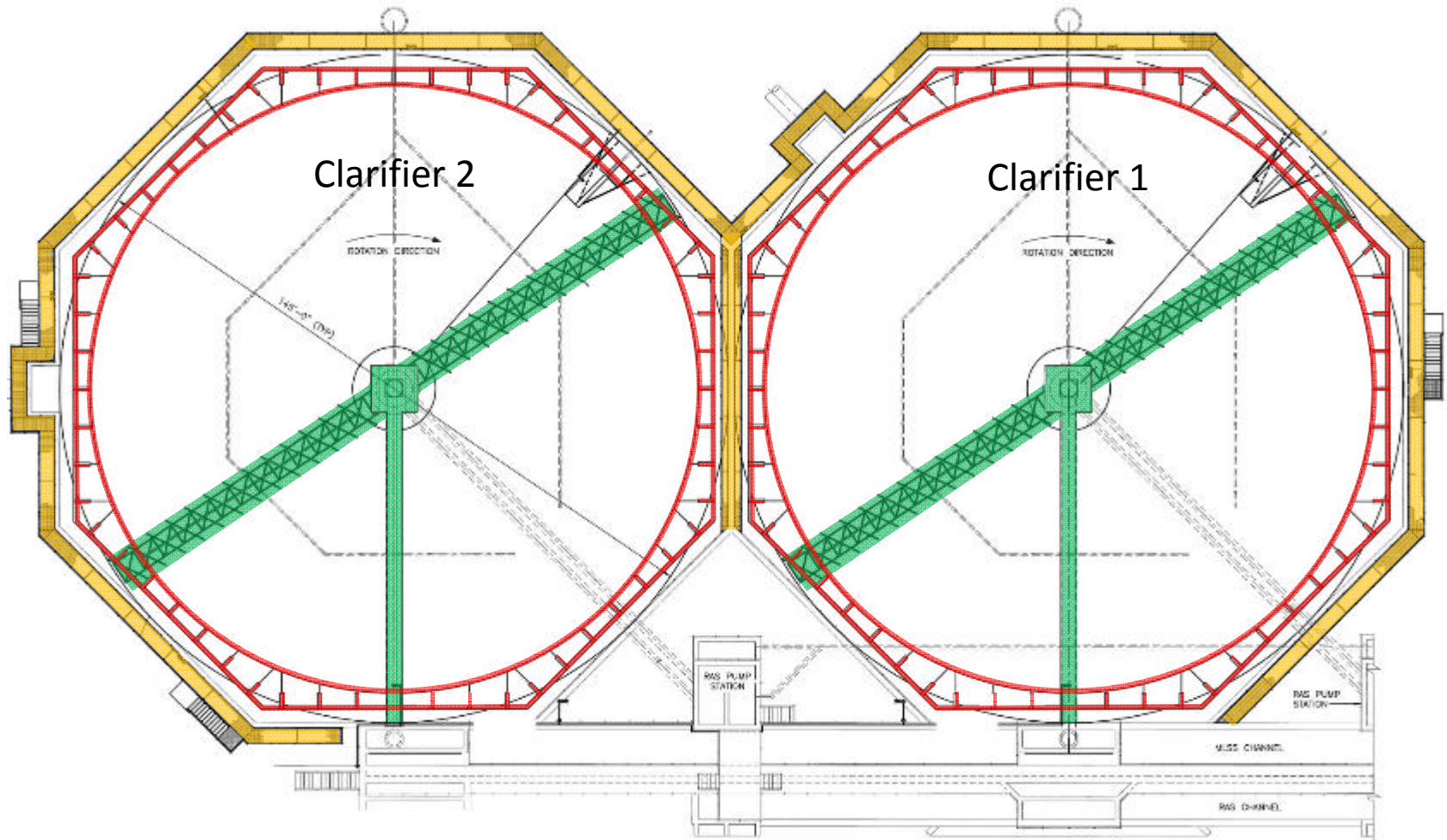
Clarifiers

Existing Conditions



Clarifiers

- Sludge Collection Mechanism
- Center Feed Column
- Bridge Walkway
- Weirs and Scum Baffles
- Perimeter Walkway





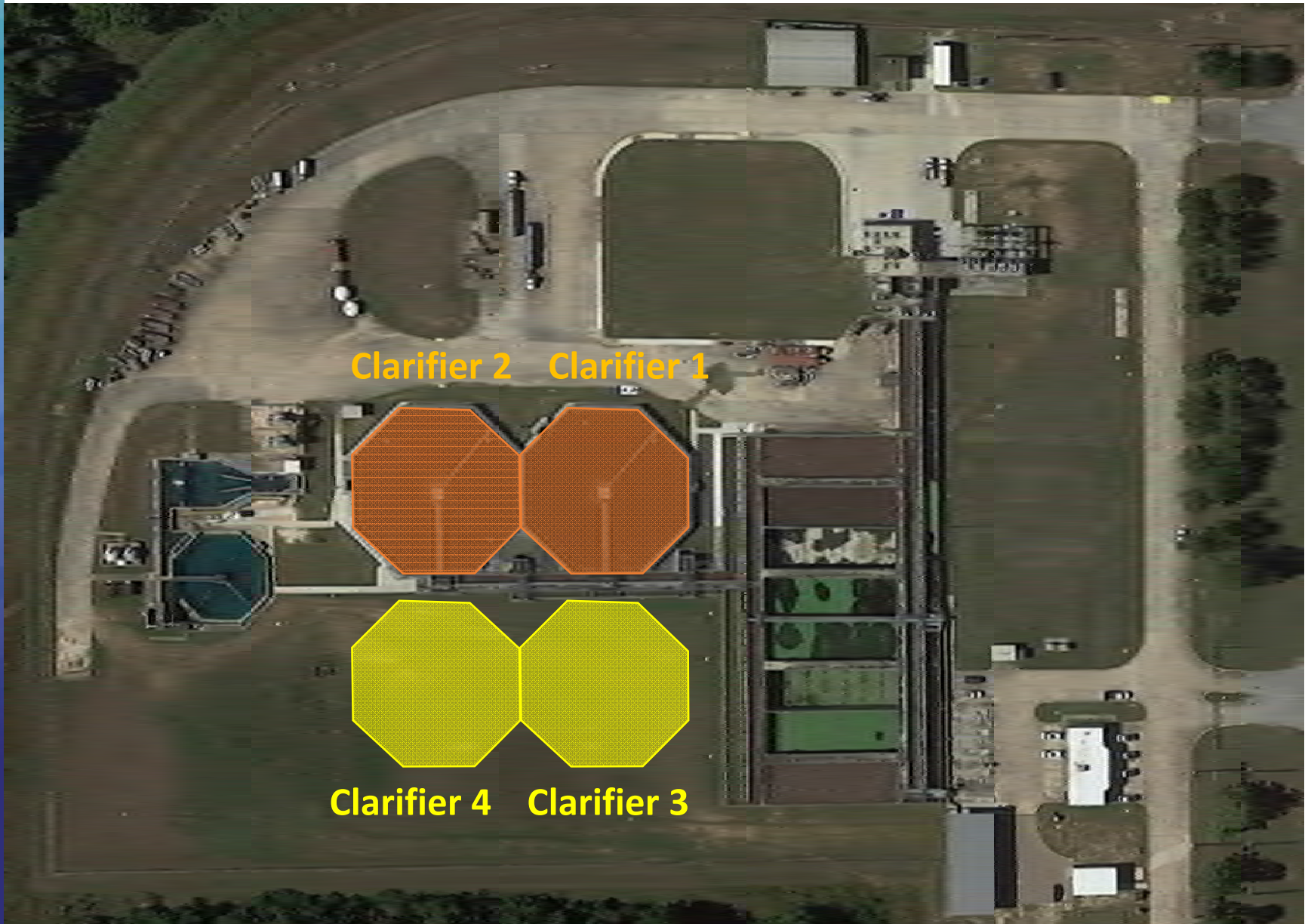
Clarifiers

Improvements



Clarifiers

Future Expansion

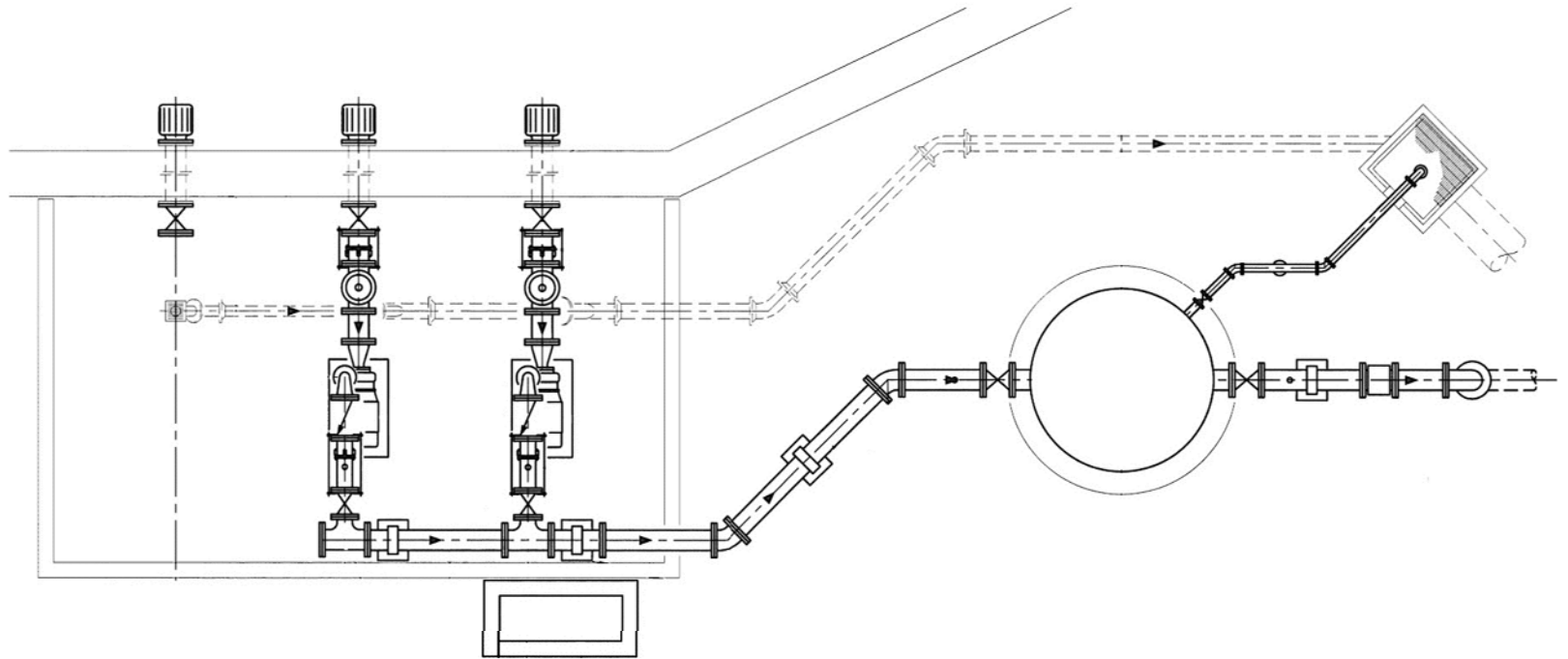


Non-Potable Water System

Existing Conditions



Non-Potable Water System



- **Pumps**
- **Piping, Valves, Strainers**
- **Tank**
- **Controls**

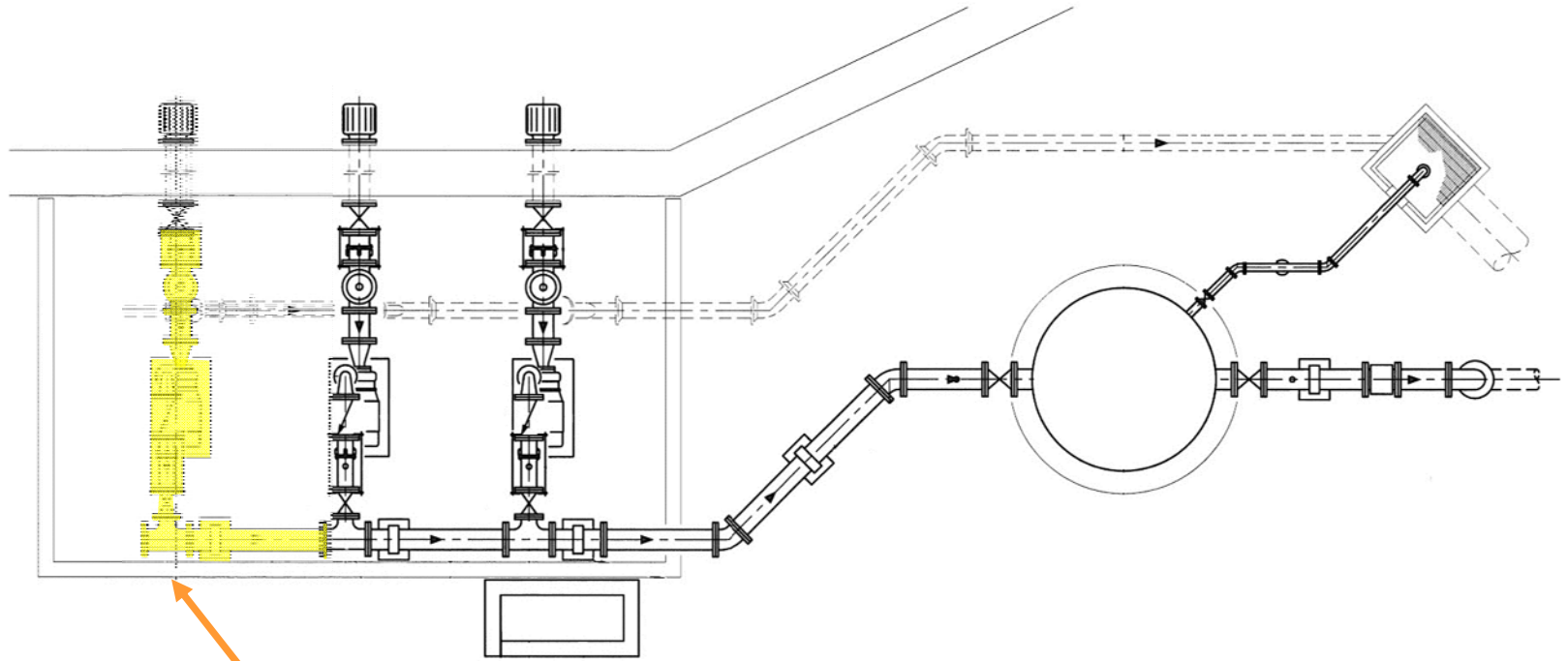
Non-Potable Water System

Improvements



Non-Potable Water System

Future Expansion



New NPW Pump

Construction Sequence

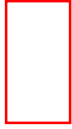


Construction Sequence

Upstream
Manhole



New Lift Station
Electrical Building



INFLUENT 120-RW-XX

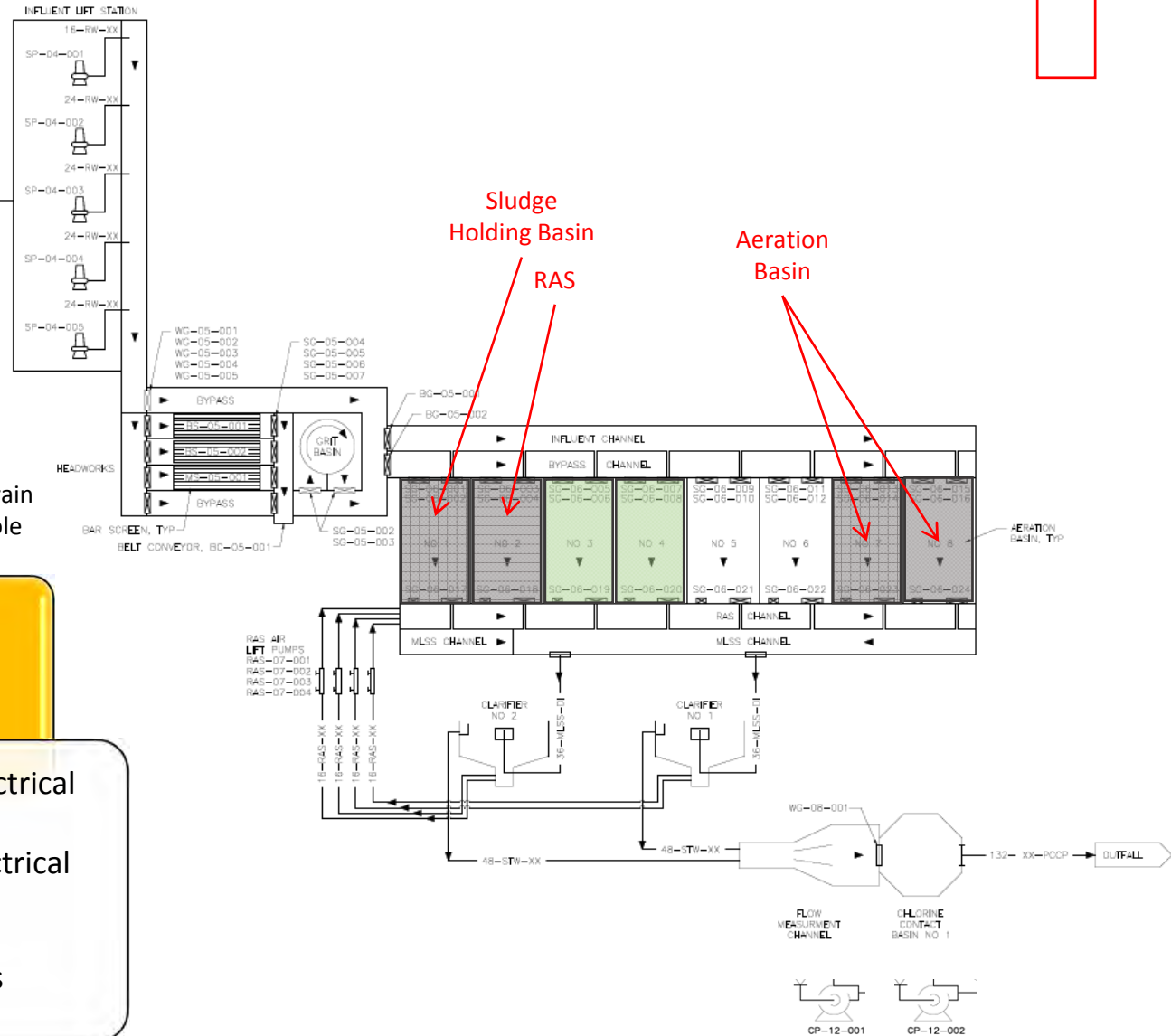
Plant Drain
Manhole



Phase 1

- Install new electrical service
- Begin new electrical buildings
- Begin rehab of aeration basins

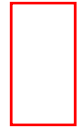
New Aeration Blower
Electrical Building



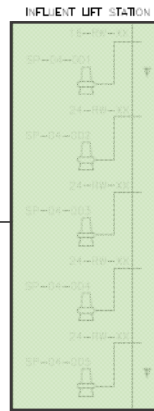
Construction Sequence

Upstream Manhole

New Lift Station Electrical Building



INFLUENT 120-RW-XX

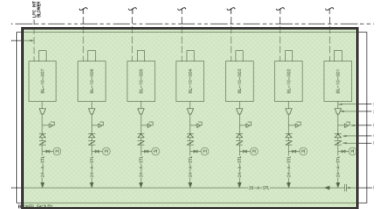
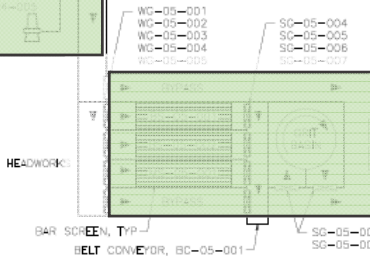


Plant Drain Manhole

Sludge Holding Basin

RAS

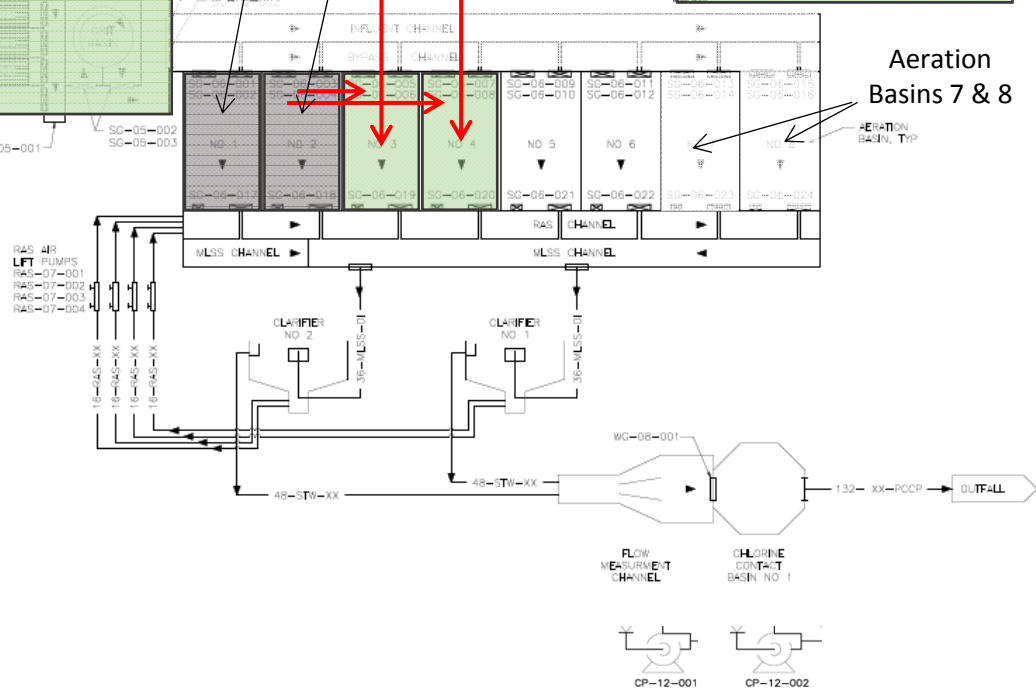
New Aeration Blower Electrical Building



Aeration Basins 7 & 8

Phase 2

- Bypassing pumping
- Influent lift station improvements
- Headworks improvements
- Begin aeration blowers





Construction Sequence

Upstream Manhole

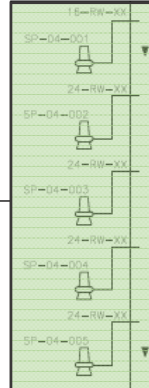


New Lift Station Electrical Building



INFLUENT 120-RW-XX

INFLUENT LIFT STATION



WG-05-001
WG-05-002
WG-05-003
WG-05-004
WG-05-005

SC-05-004
SC-05-005
SC-05-006
SC-05-007

BYPASS

WG-05-001
WG-05-002
WG-05-003
WG-05-004
WG-05-005

GRIT BASIN

HEADWORKS

BAR SCREEN, TYP

BELT CONVEYOR, BC-05-001

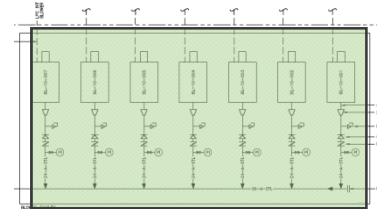
SC-05-002
SC-05-003

Plant Drain Manhole



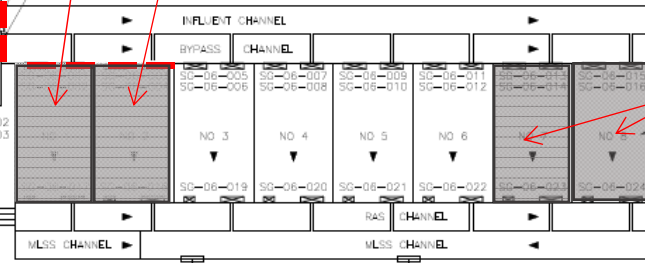
Sludge Holding Basin
RAS

New Aeration Blower Electrical Building

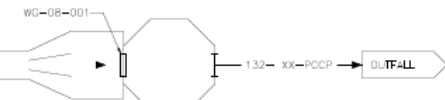
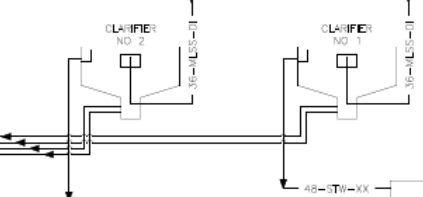


Aeration Basins 7 & 8

AERATION BASIN, TYP



RAS AIR LIFT PUMPS
RAS-07-001
RAS-07-002
RAS-07-003
RAS-07-004



FLOW MEASUREMENT CHANNEL

CHLORINE CONTACT BASIN NO 1



Phase 3

- Complete new electrical buildings
- Startup Influent Lift Station
- Discontinue bypass pumping
- Continue bypassing headworks
- Startup new aeration blowers



Construction Sequence

Upstream Manhole



New Lift Station Electrical Building

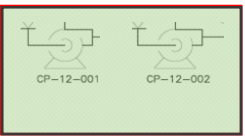
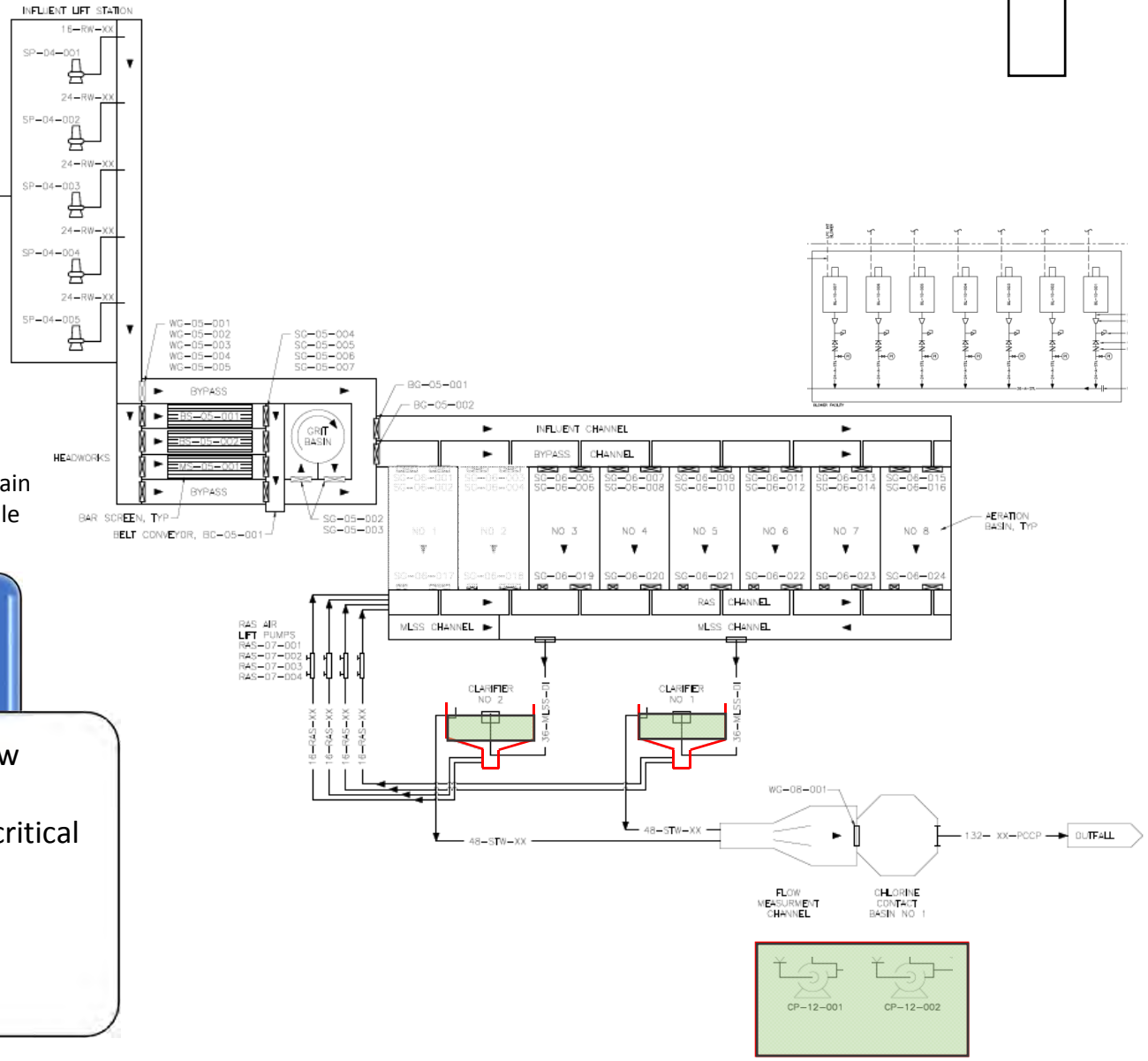


INFLUENT

Plant Drain Manhole

Phase 4

- Commission new headworks
- Complete non-critical path items:
 - Clarifier Mechanisms
 - NPW System





Q&A