

**A RIVER RUNS THROUGH IT**

**Vancouver's  
Water Station 1  
Upgrade Project**

**Electrical, Pump Station, Treatment, and  
Controls**

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City of Vancouver  
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**2019 PNWS-AWWA CONFERENCE  
VANCOUVER, WASHINGTON**

# Vancouver's Water System

- 72-square-mile service area
- 253,000 customers
- Over 1,000 miles of distribution pipe
- 40 wells at nine water stations
- 9.8 billion gallons pumped in 2018
- 3rd largest water utility in Washington State

# Project Location



# WATER STATION 1 - SITE & VICINITY

- ◆ NON-WATER FACILITIES
- ⊗ WELL HOUSE
- ▼ RESERVOIR/TOWER
- ◆ BOOSTER PS



NORTH

# Water Station 1 Project

Phase 1 - Electrical Upgrades, Booster Pump Station, Treatment, and Control System (2016-2019)

Phase 2 - Reservoir and Security Upgrades (2019 - 2021)

Phase 3 - Well Replacement of three wells (2022)

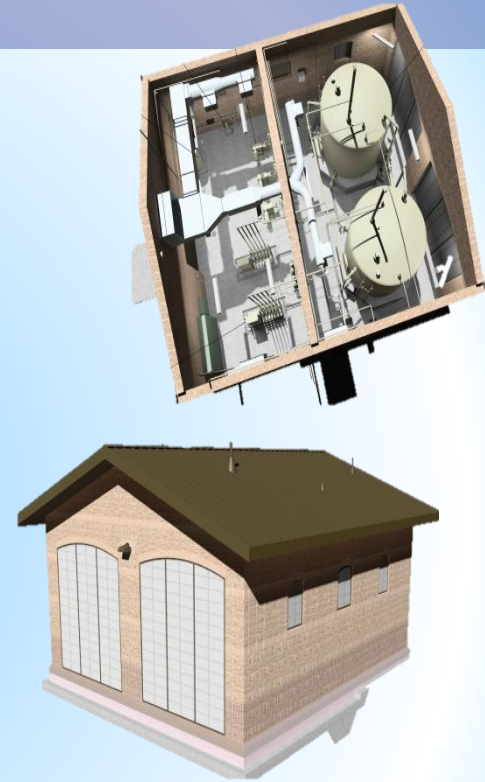
# Water Station 1 Project

Phase 1 - Electrical Upgrades,  
Booster Pump Station,  
Treatment, and Control System  
(2016-2019)

# Phase 1 Overview

JACOBS

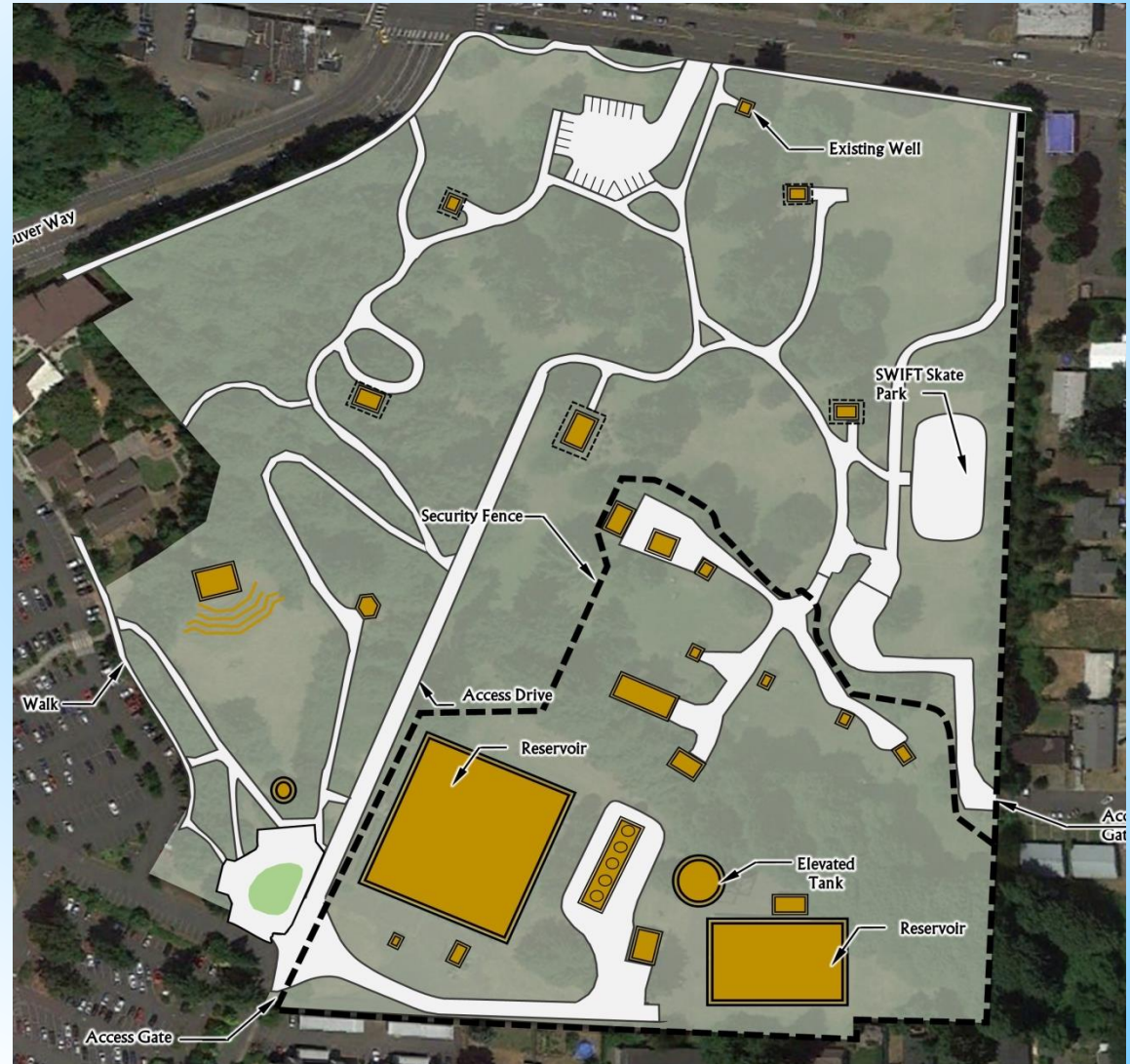
- Electrical Upgrades
- Tower Booster Pump Station
- Operations Support Facilities
- SHC Treatment System
- Control System Upgrades
- Site Security and Facility Access Improvements



# Water Station 1 – 25 Acre Site

## Existing Facilities

- 12 Wells
- 4 BPS
- 4 MG Reservoir
- 1 MG Reservoir
- .25 MG Water Tower
- Stripping Towers
- Chlorine Gas
- Fluoride





# Water Station 1 – 25 Acre Site

## New Facilities (red)

- Tower BPS with Electrical Room, Electrical Shop, and Emergency Operations Center
- 2.5 MW Generator
- Sodium Hypochlorite Generation System
- Lighting

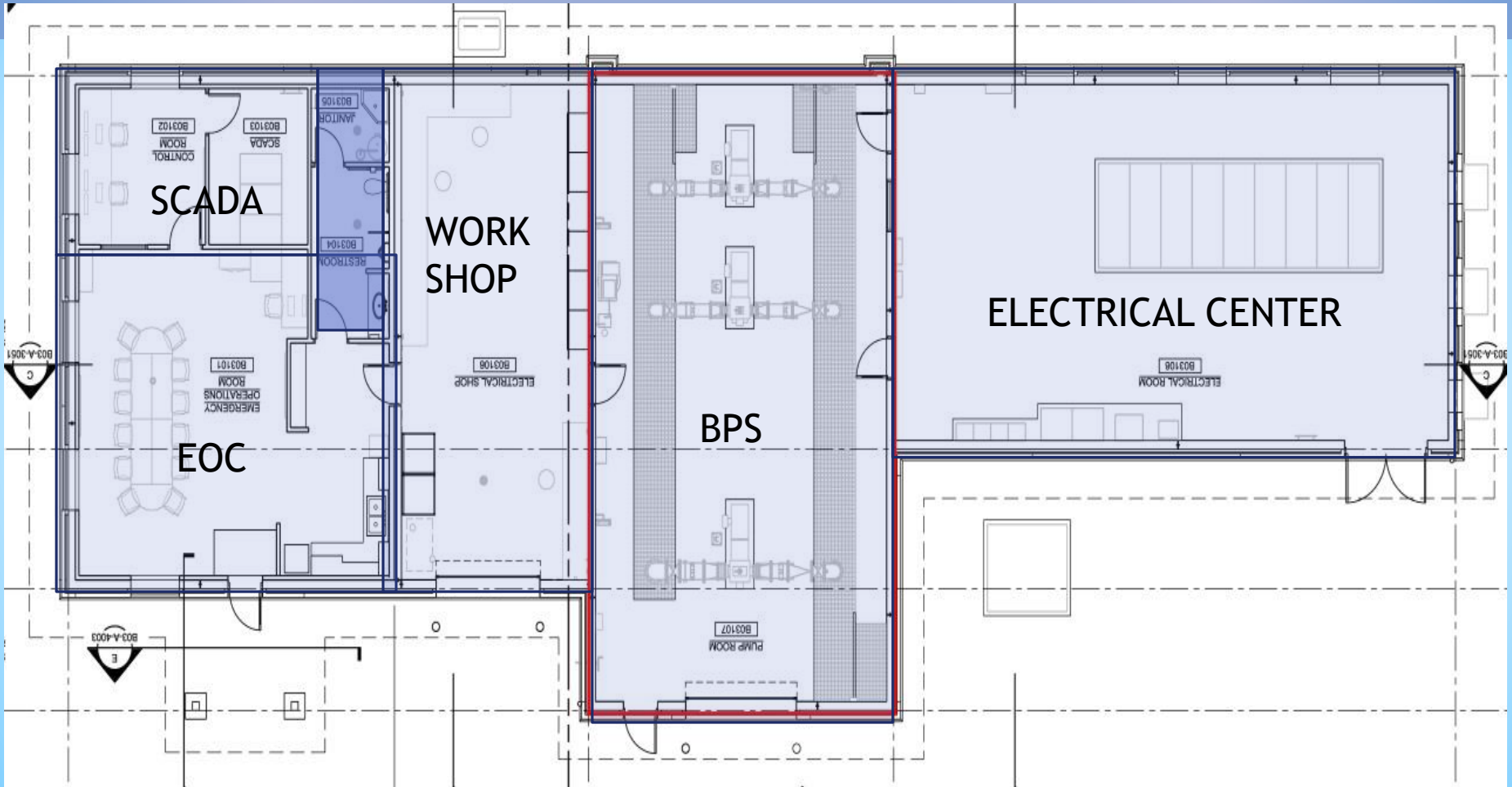


# Tower Booster Pump Station



MORE THAN JUST A BOOSTER PUMP STATION

# Tower Booster Pump Station



# Tower Booster Pump Station



# Tower Booster Pump Station



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# Tower Booster Pump Station





# Tower Booster Pump Station



# Emergency Operations Center



# Emergency Operations Center

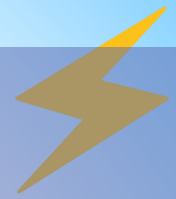


# Emergency Operations Center



Redundant Server Room, Control Room, SCADA Shop

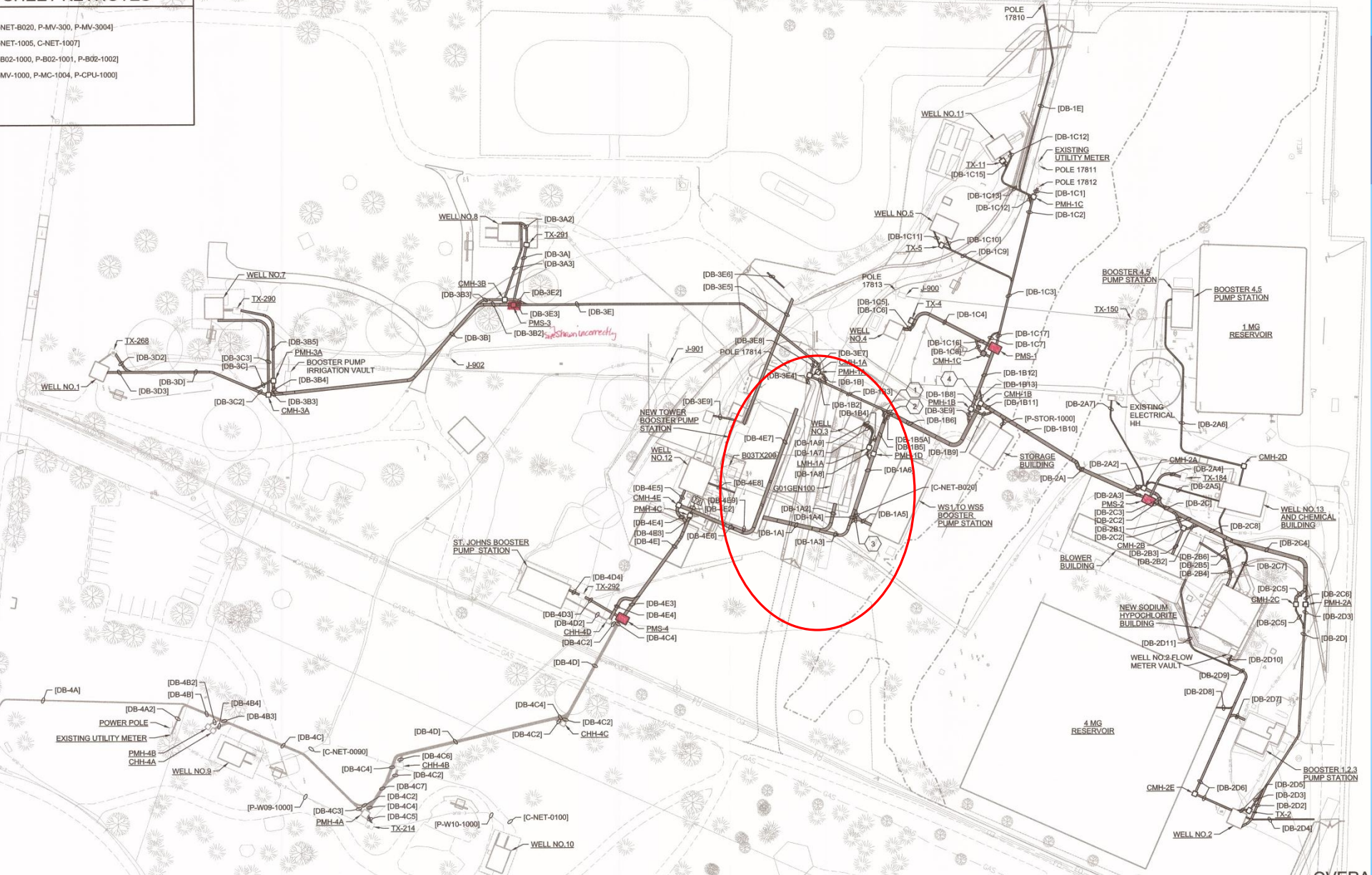
# Electrical Upgrades



Electrical Center -HUB of Site Power Distribution

# MEET KEYNOTES

- NET-8020, P-MV-300, P-MV-300(4)
- NET-1005, C-NET-1007
- B02-1000, P-B02-1001, P-B02-1002
- MV-1000, P-MC-1004, P-CPU-1000



# ELECTRICAL UPGRADES



- 2.5 MW Generator
- Two PUD Feeds
- Paralleling Switchgear
- Site Distribution – 480 V to 12.5 kV
- Master Control System
- Pad Mounted Switches - Isolation
- Concrete Ductbanks for Power and Telemetry

# ELECTRICAL UPGRADES





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Fuel Conditioning System

# ELECTRICAL UPGRADES





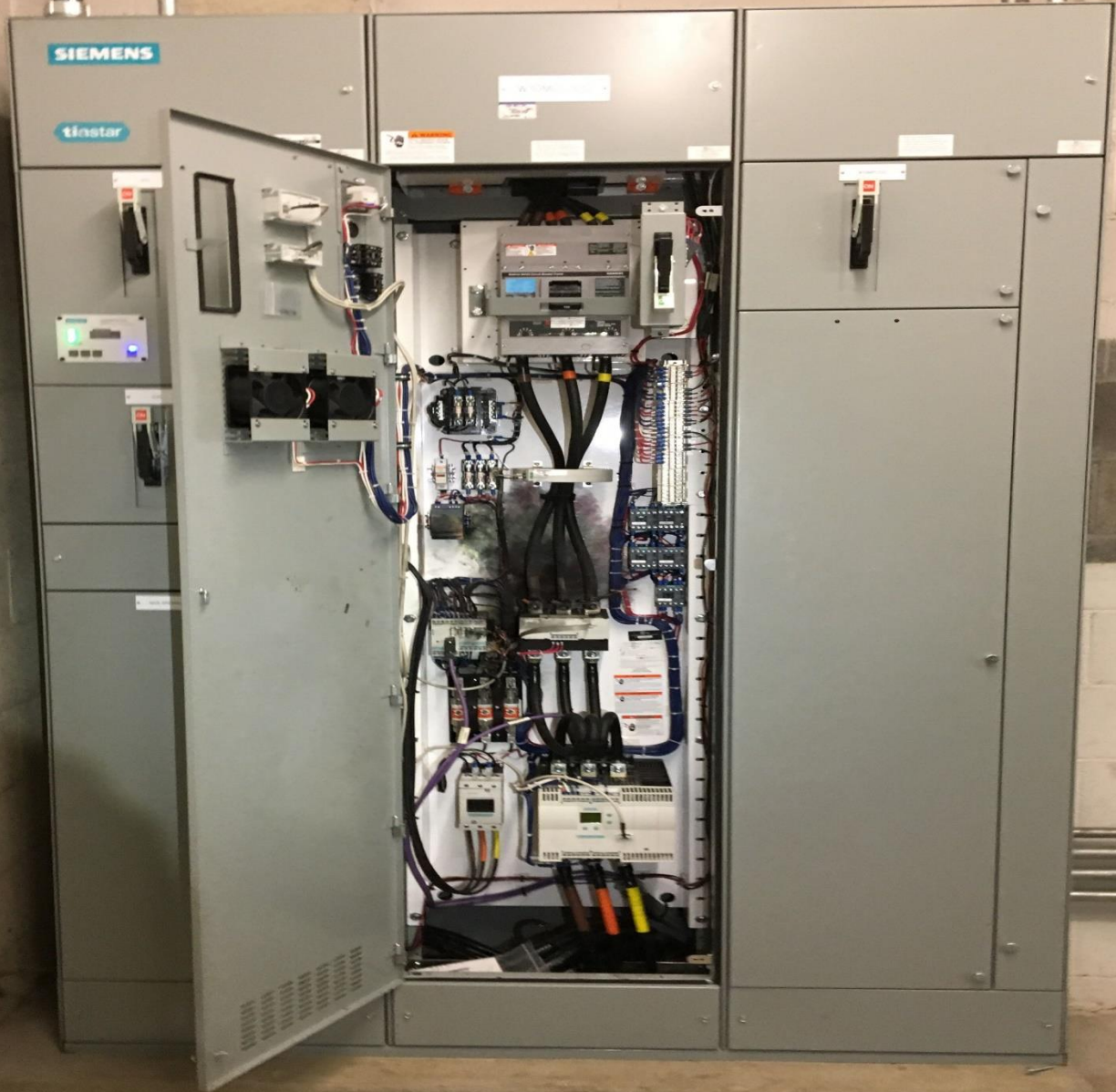
# Electrical Upgrades



## Motor Control Centers





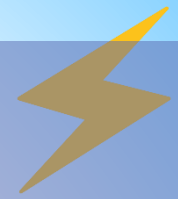


# Phase 1 - Construction

New 24" DIP to Existing 16" CI



# Control System Upgrades



Wireless Access Points

# Electrical Upgrades



Inside Well House 3

# Sodium Hypochlorite Generation Building



# Sodium Hypochlorite System



SWITCHING FROM CL GAS TO SHC GENERATION

# Sodium Hypochlorite System



BRINE TANK

# Sodium Hypochlorite System



Sodium Hypochlorite Generators



# Chemical Metering Pumps



# Sodium Hypochlorite System





Translucent Panels



Sodium Hypochlorite Solution

# Water Station 1 – Next Phases

## Phase 2:

- Two 4 MG Reservoirs
- 1 MG Standpipe
- Site Security

## Phase 3:

- Replace 3 Wells



# Simulated Graphic of Phase 2 Reservoirs and Security Upgrades



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**QUESTIONS?**



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