

# Mountaire Farms of Delaware, Inc.



## Wastewater Treatment System Upgrade

By Reid Engineering Company, Inc.

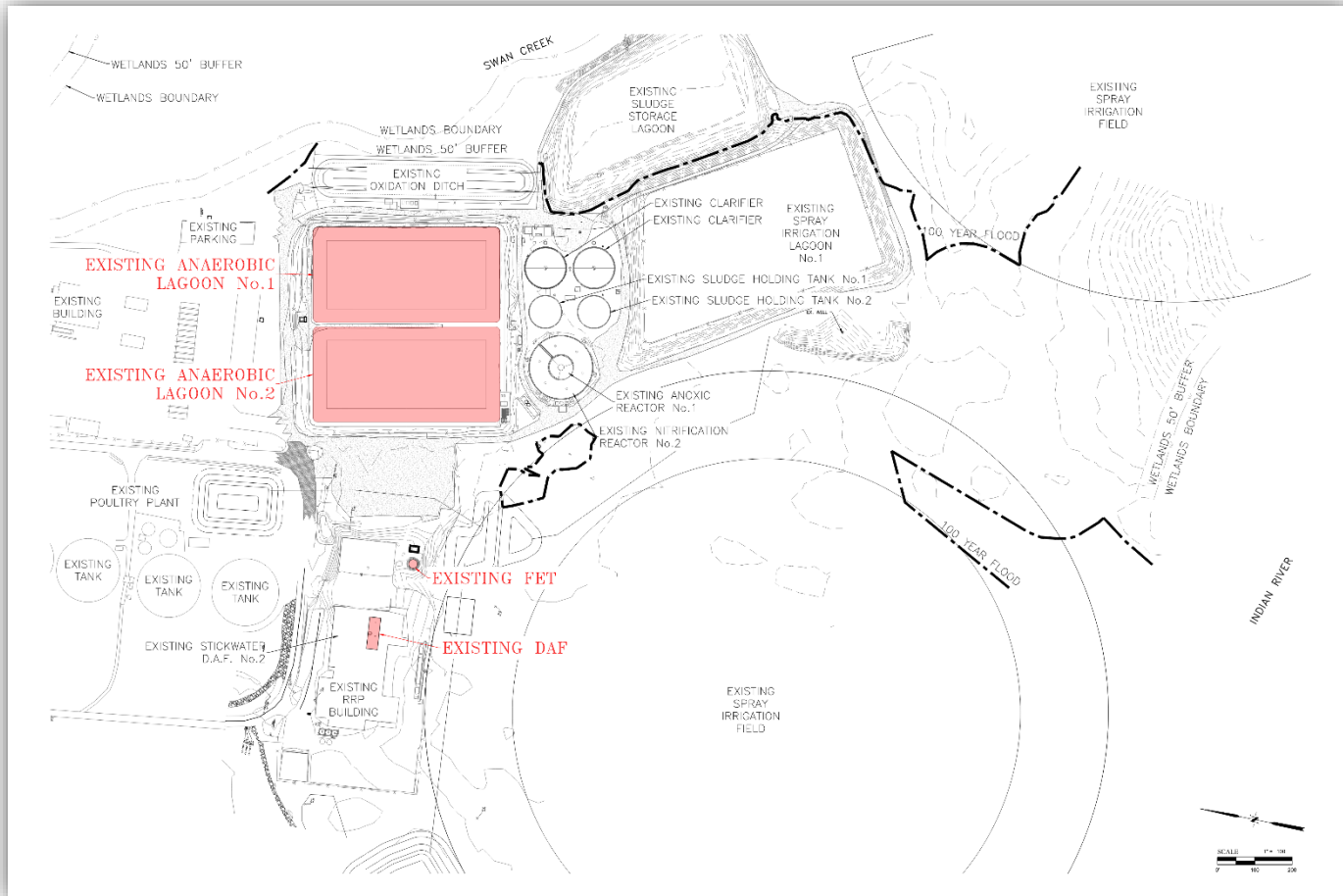


# **Purpose of Project**

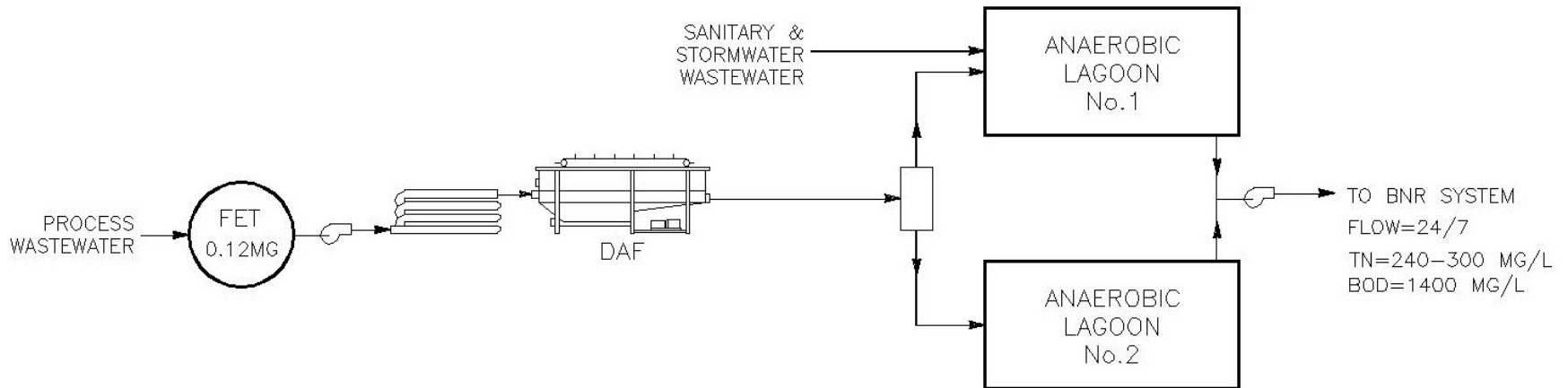
## **Nitrogen Removal Upgrade**

- Current WWTS provides approximately 75%-85% Nitrogen removal efficiency
- Upgraded WWTS to provide over 96% Nitrogen removal efficiency
- Current WWTS final effluent average Total Nitrogen concentration = 21.3 mg/L
- Upgraded WWTS final effluent Total Nitrogen concentration = 10 mg/L

# Current Pretreatment

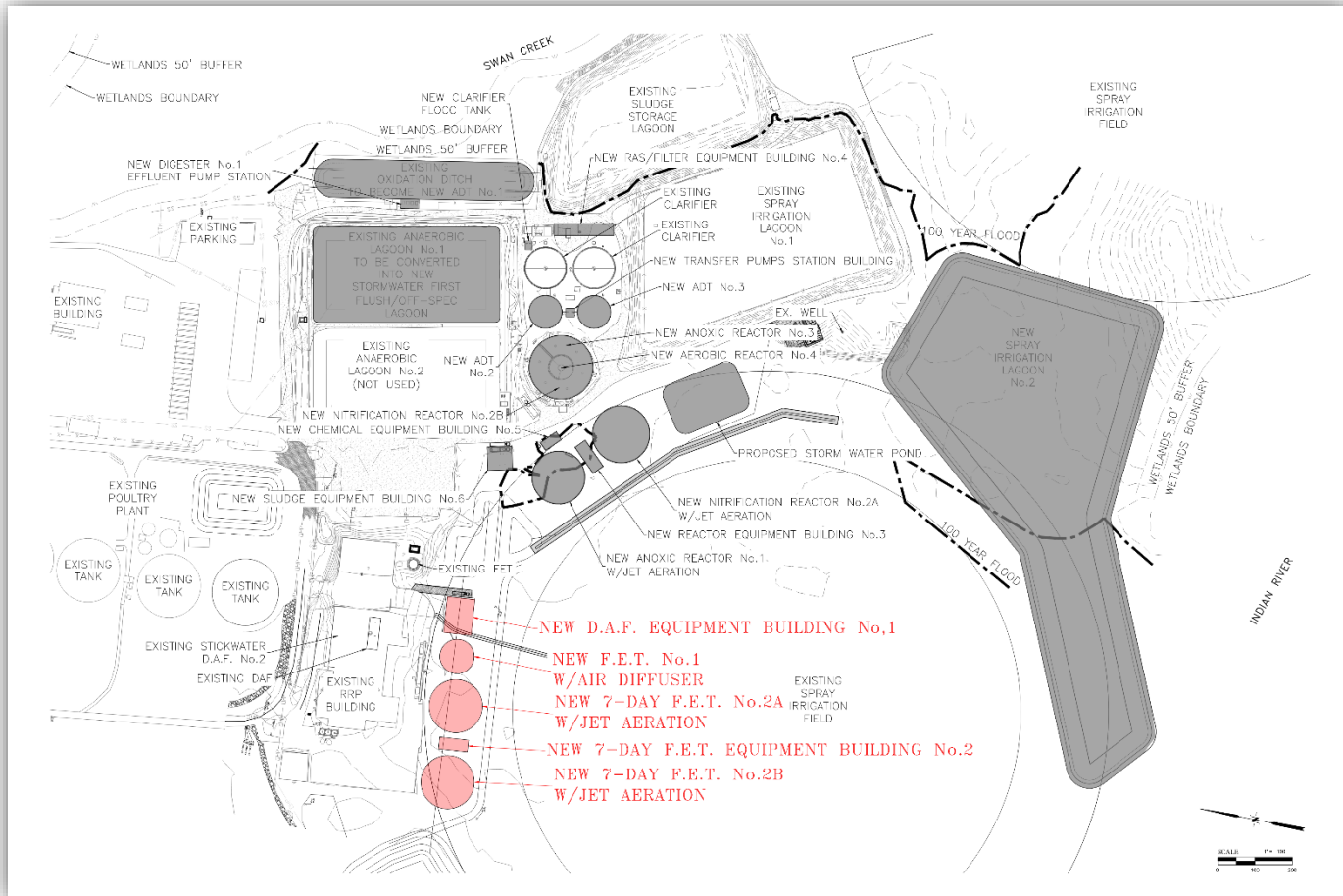


# Current Pretreatment

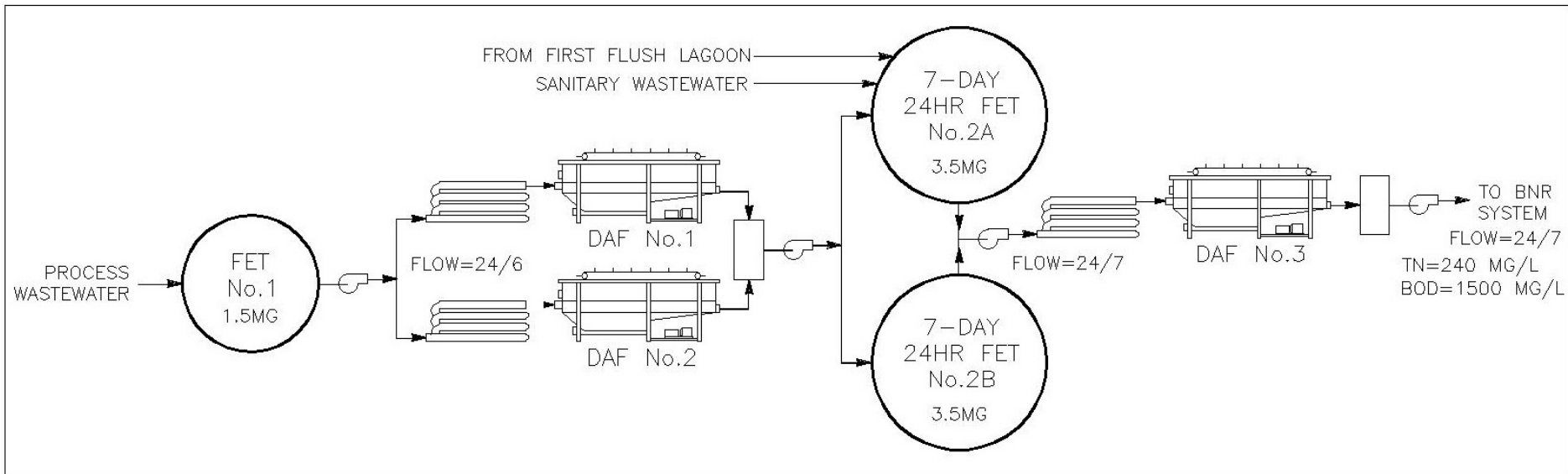


- 1 – 120,000 gallon FET
- 1 – 2,400 gpm DAF
- 2 – 7,250,000 gallon Anaerobic Lagoons
- Flow out 24 hours, 7 days/week
- TN = 240 to 300 mg/L; BOD = 1,400 mg/L

# Upgrade Pretreatment

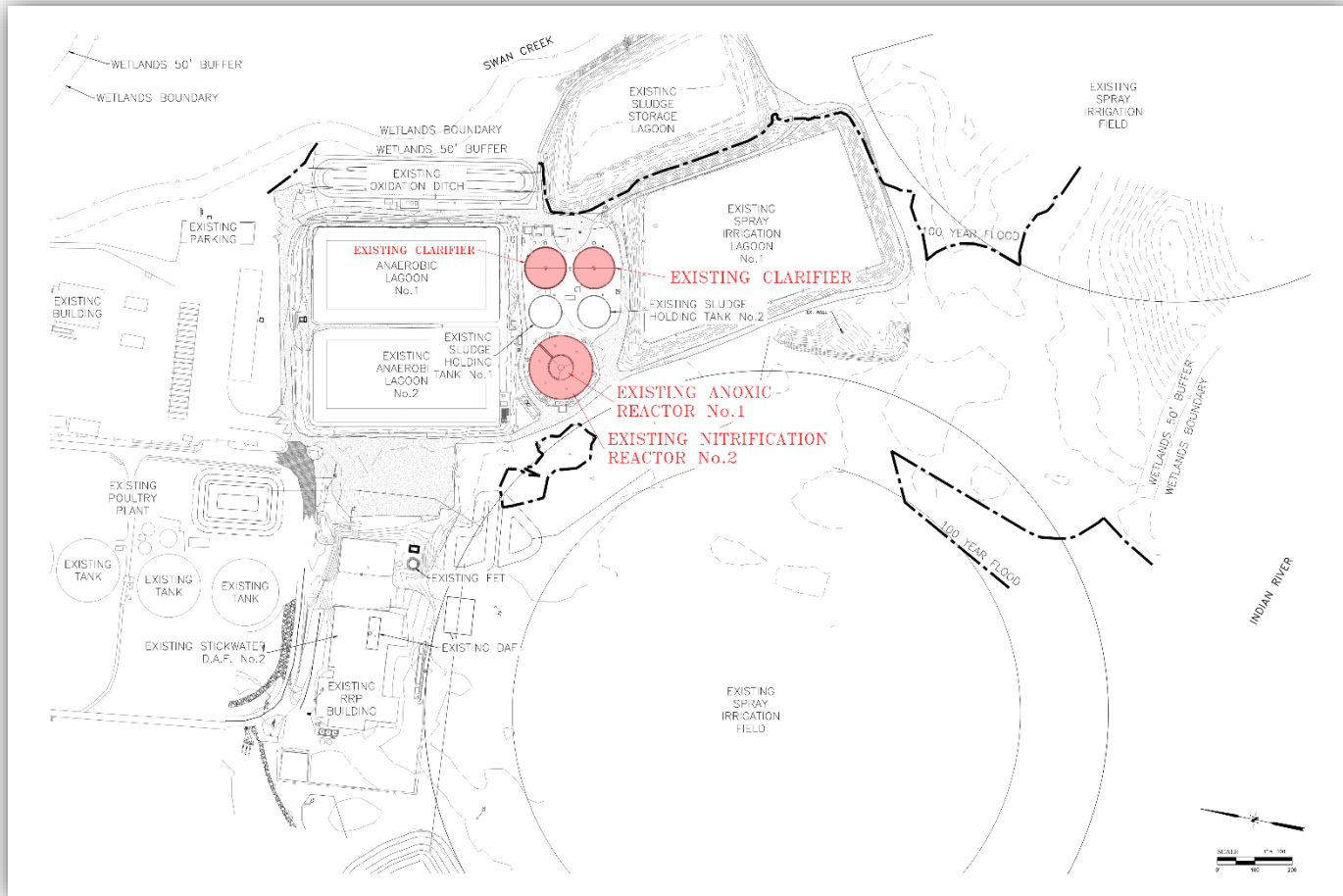


# Upgrade Pretreatment

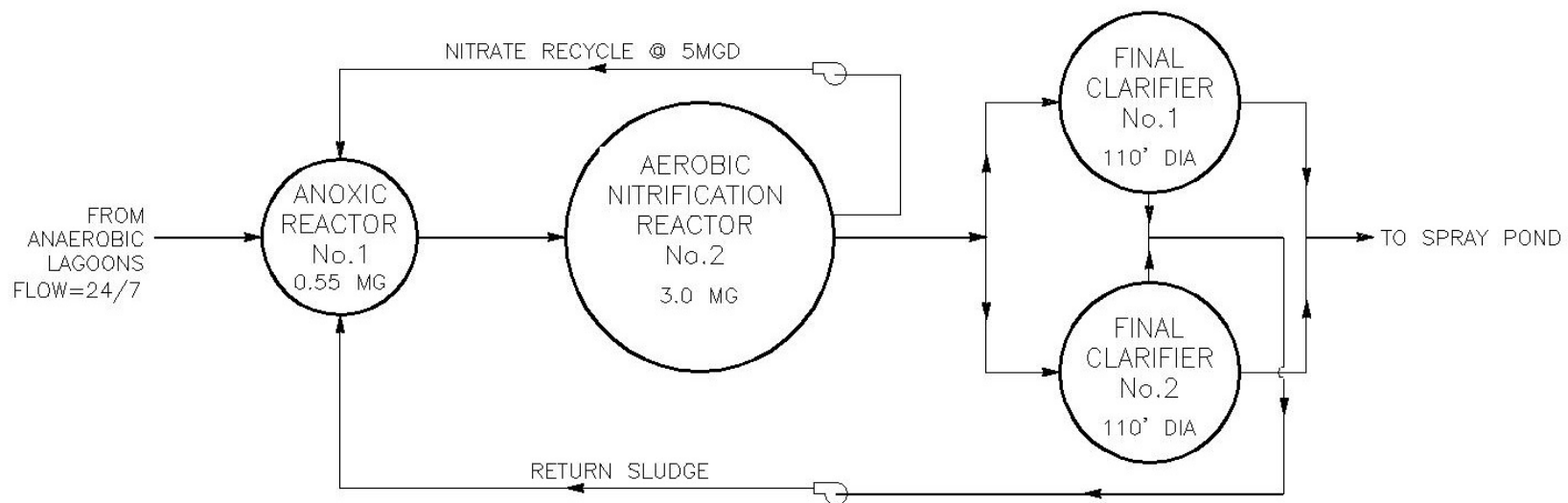


- 1 – New 1,500,000 gallon FET
- 1 – 2,400 gpm DAF + New 3,000 gpm DAF
- 225% Current DAF Capacity
- 2 – New 3,500,000 gallon FETs
- Flow out 24 hours, 7 days/week
- TN = 240 mg/L; BOD = 1,500 mg/L
- Ex. Anaerobic Lagoon No. 1 to be used for Stormwater First Flush Storage
- Ex. Anaerobic Lagoon No. 2 will not be used

# Current Final Treatment



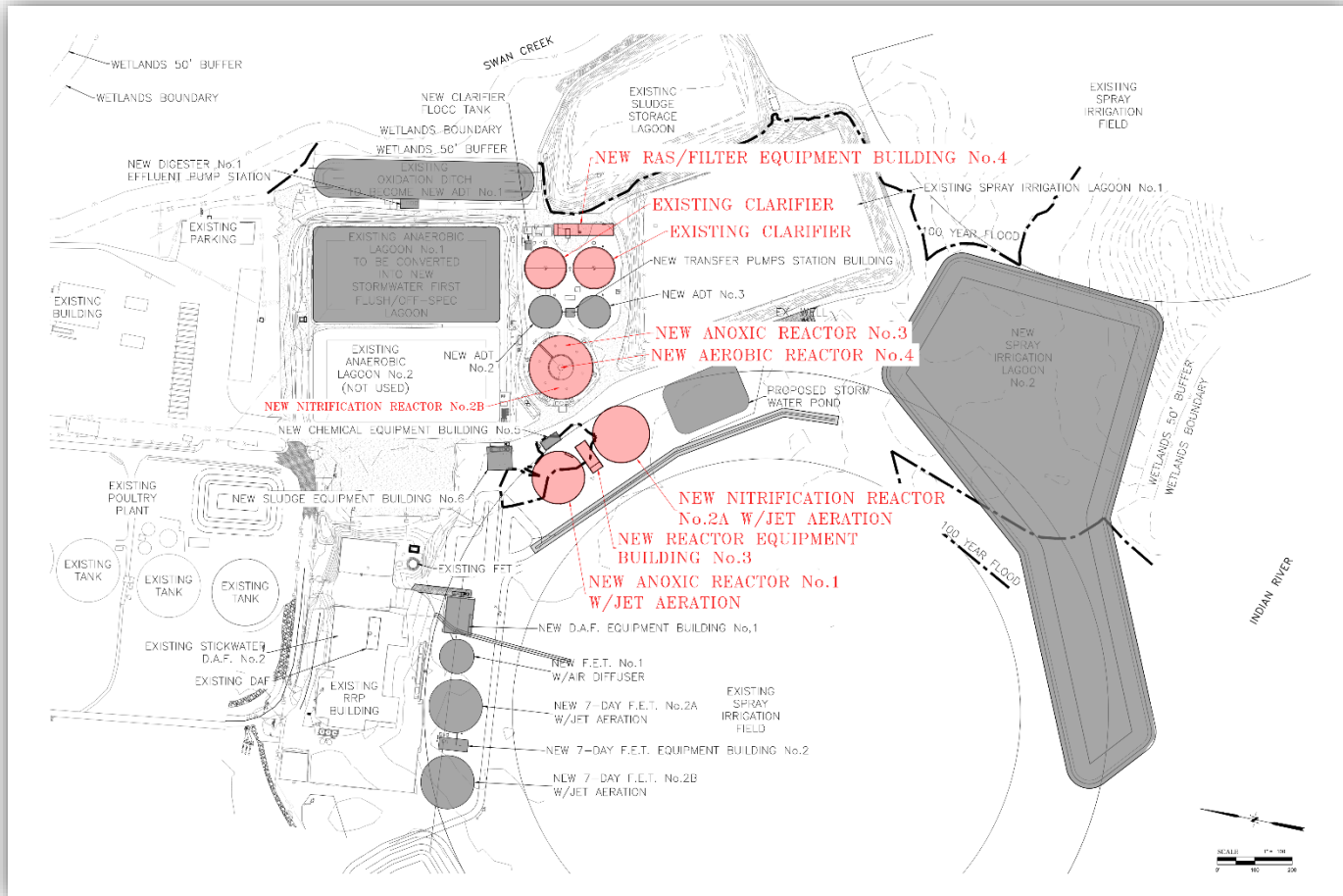
# Current Final Treatment



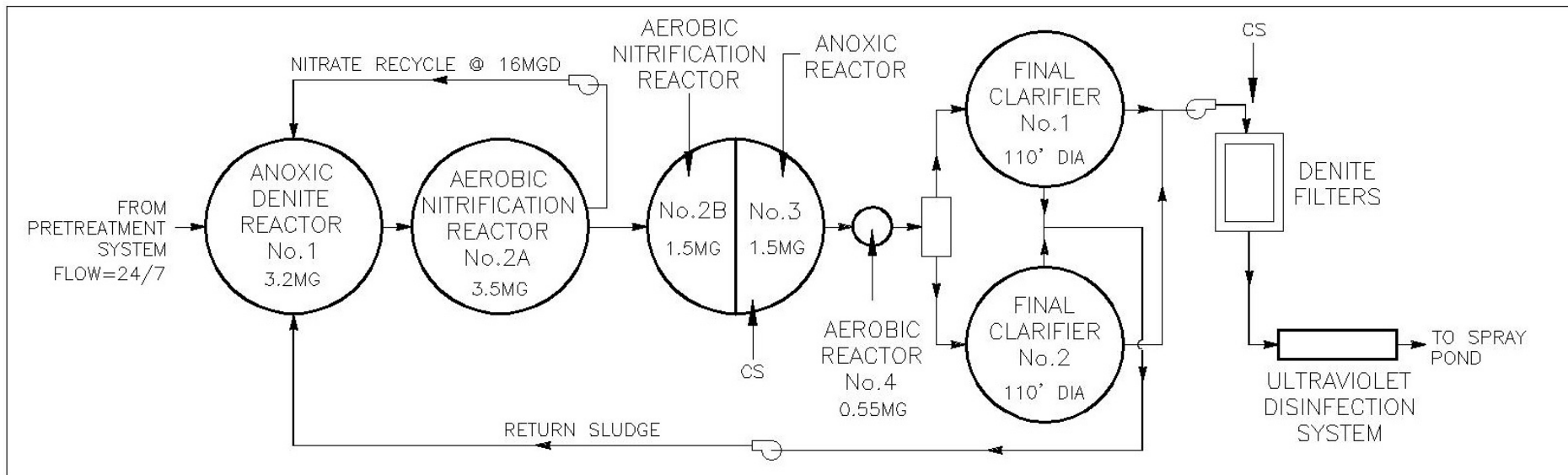
- 2 Stage BNR System
- Total Reactor Volume = 3,550,000 gal
- 75% to 85% TN Removal
- TN out = 21.3 mg/L



# Upgrade Final Treatment

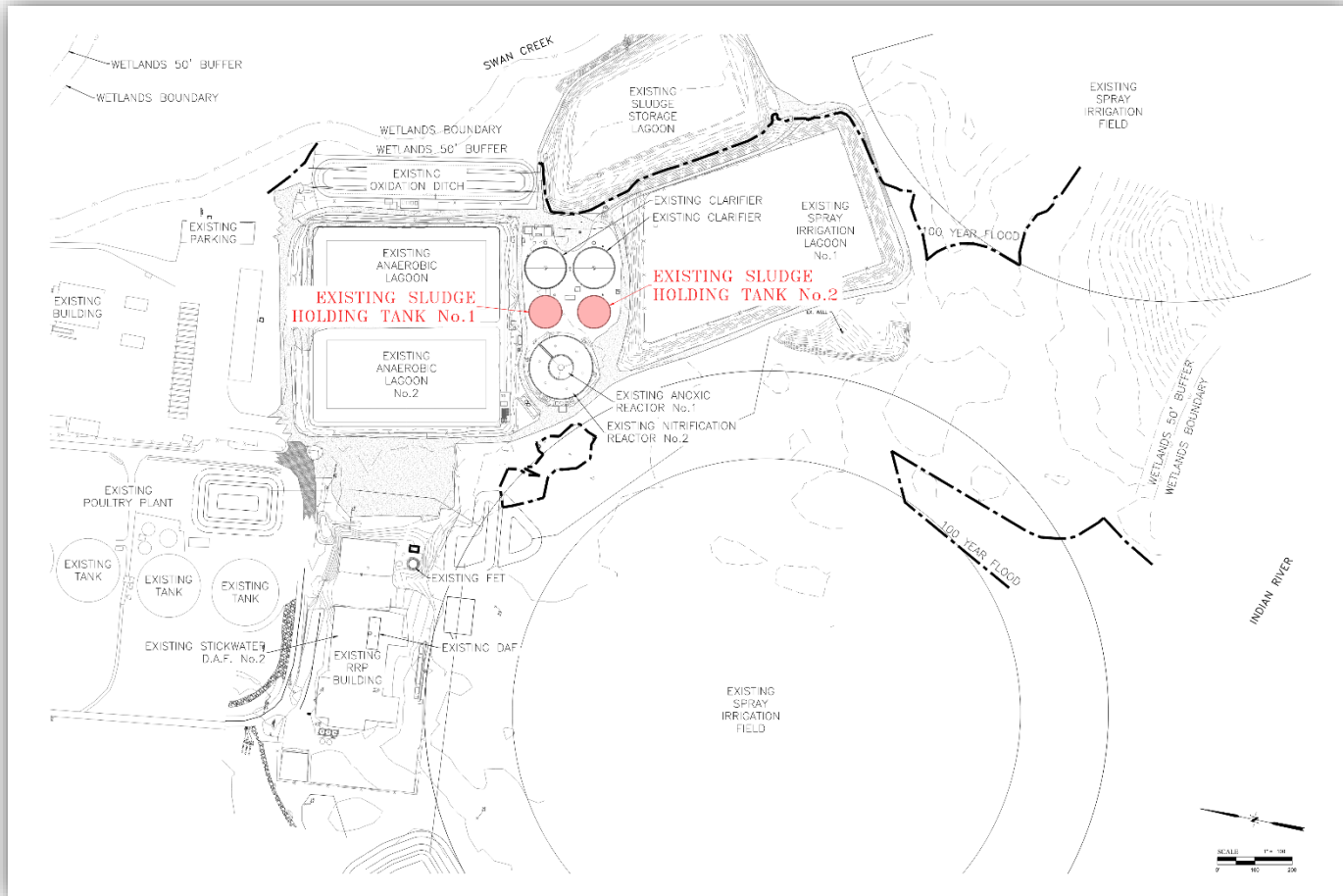


# Upgrade Final Treatment

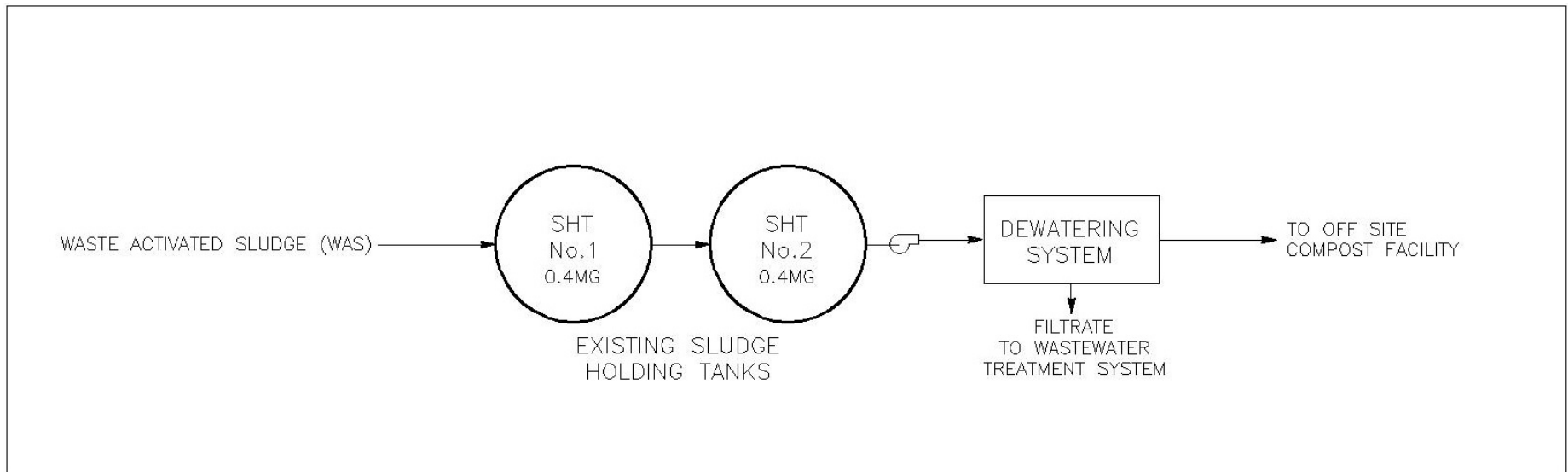


- 4 Stage BNR System
- Total Reactor Volume = 10,250,000 gallons
- 288% Current Total Reactor Volume
- 96% TN Removal
- TN out = 10 mg/L
- Denite Filters – 18 Filter Modules
- Ultraviolet Light Disinfection System

# Current Sludge Disposal

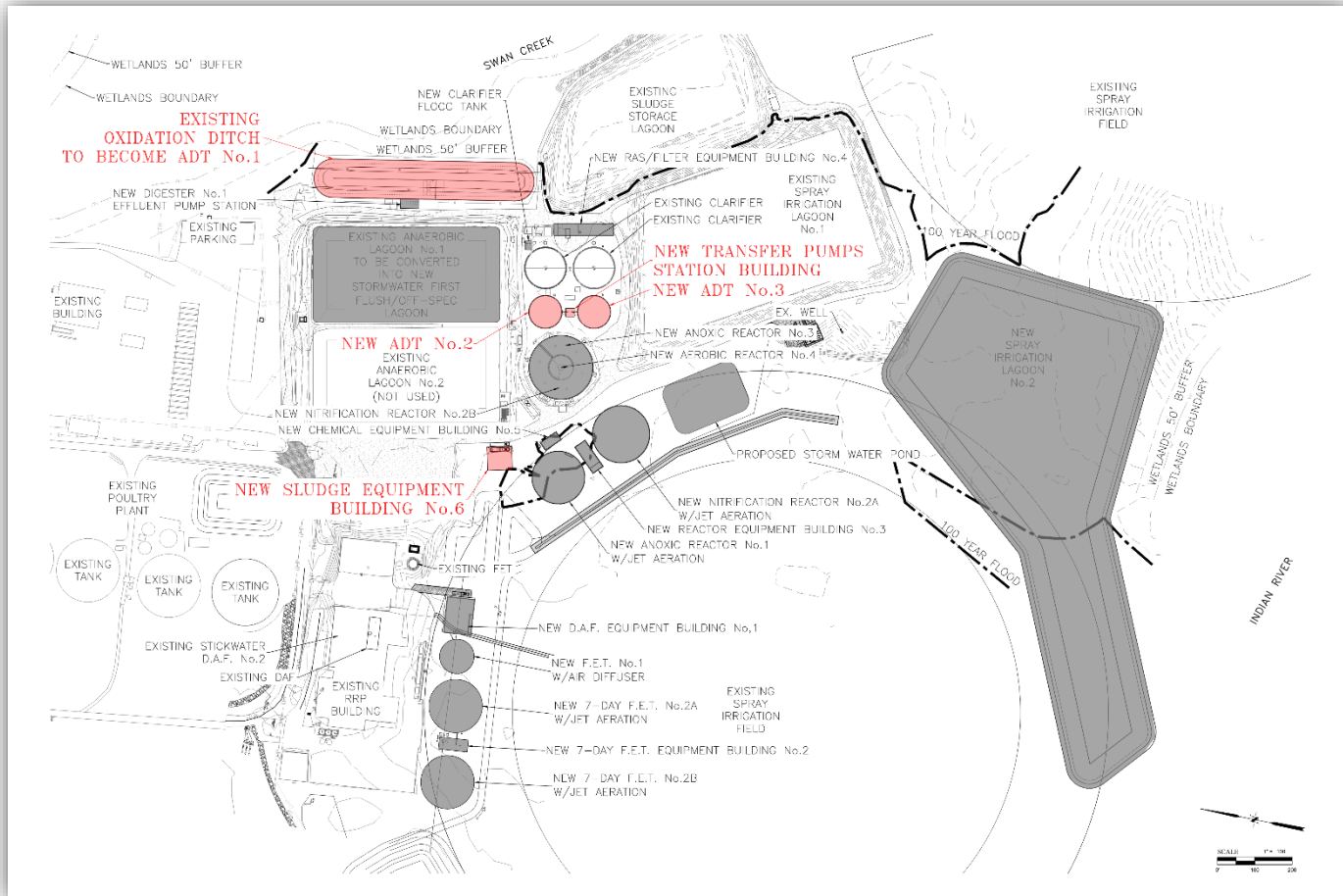


# Current Sludge Disposal

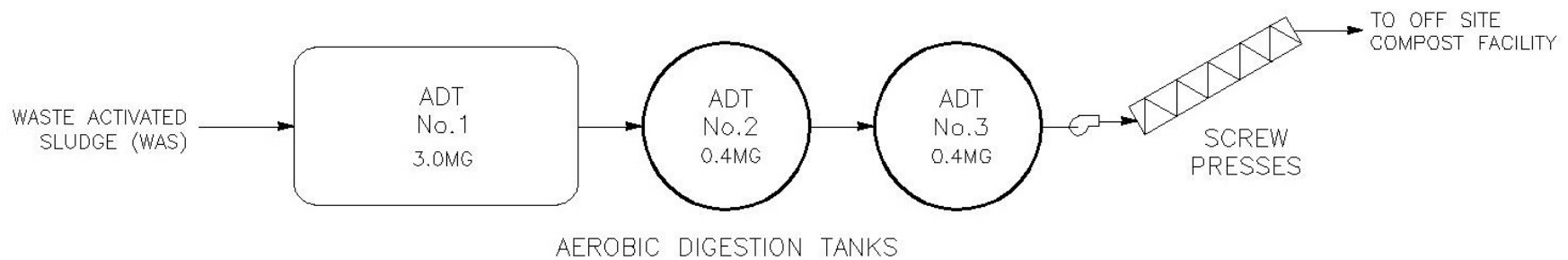


- 2 – 400,000 gallon Aerobic Sludge Holding Tanks
- Total Aerobic Sludge Holding Tank Volume = 800,000 gallons

## Upgrade Sludge Disposal



# Upgrade Sludge Disposal



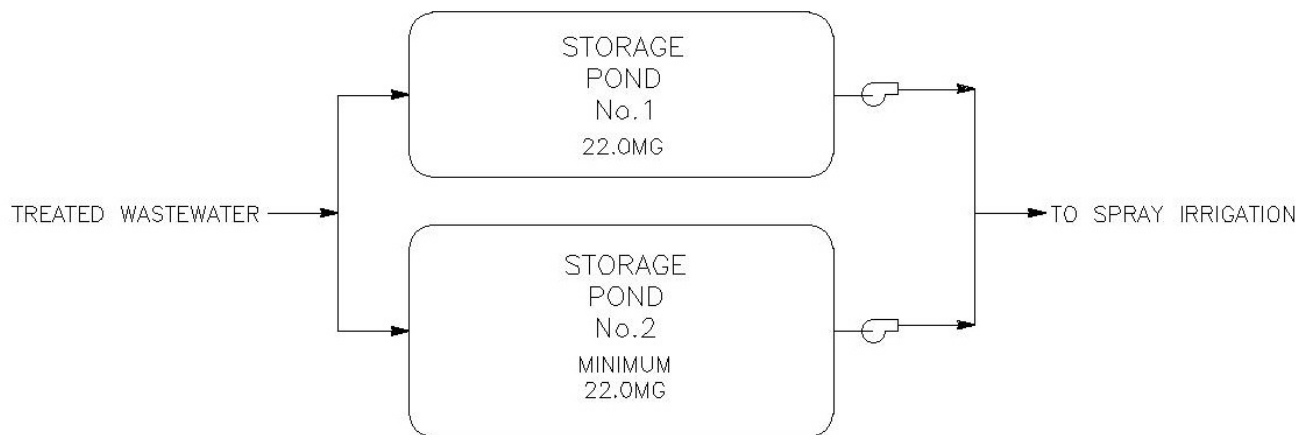
- 1 – Additional 3,000,000 gallon Aerobic Digester Tank (Modified Oxidation Ditch)
- Total ADT Volume = 3,800,000 gallons
- 475% Current ADT Capacity
- 3 – New Screw Presses

# Current Spray Storage



- 1 – 22,000,000 gallon Storage Pond

# Upgrade Spray Storage



- 1 – New 22,000,000 gallon minimum Storage Pond
- Total Minimum Storage Pond Volume = 44,000,000 gallons
- 200% Current Storage Capacity