

# WET STREAM TREATMENT FACILITIES

## Preliminary Treatment Facilities

### 1. Plant Influent System

Main Trunk Sewer :	33 inch diameter
Wet Well #1 Influent Sewer :	42 inch diameter
Wet Well #1 Influent Sluice Gate :	42 inch diameter
Wet Well #2 Influent Sewer :	33 inch diameter
Wet Well #2 Influent Sluice Gate :	36 inch diameter
Bypass Sewer :	33 inch diameter
Bypass Sluice Gate :	48 inch diameter
Equalization Force Main :	36 inch diameter

### 2. Grinding and Screening System

#### Grinder #1

Number of Units :	1
Cutting Chamber :	34 inch
Grinding Size :	1/4 inch
Motor Horsepower :	3 HP
Capacity :	13.8 MGD

#### Coarse Screen

Bars :	3 at 8.0 inch
Spaces :	1/4 inch
Channel Width :	48 inch
Channel Depth :	36 inch

#### Grinder #2

Number of Units :	1
Cutting Chamber :	28 inch
Grinding Size :	1/4 inch
Motor Horsepower :	3 HP
Capacity :	8.3 MGD

#### Fine Screen

Bars :	2-3/8 inch
Spaces :	3-3/8 inch
Channel Width :	42 inch
Channel Depth :	36 inch

## Raw Wastewater Pumping and Metering System

### Pump Station #1

Wet Well Capacity : 45,300 gallons @ operating level

Total Pumping Capacity : 4 pumps @ 3100 gpm (50 hp)

### Pump Station #2

Wet Well Capacity : 56,000 gallons @ operating level

Total Pumping Capacity : 3 pumps @ 1700 gpm (30hp)

1 pump @ 1000gpm (15hp)

Total Plant Pumping Capacity 25.2 M.G.D.

## 2. Fine Screening

Number of Units :	1
Screen Width :	4.5 feet
Discharge Height :	10 feet
Mesh Size :	6 mm
Incline Angle :	75 degrees
Channel Width :	4.5 feet
Channel Depth :	5.9 feet

## 3. Grit Removal System

Number of Units :	1
Length :	60 feet
Width :	7 feet
Water Depth :	9.75 feet
Detention Time :	4.4 minutes

## 4. Primary Treatment

Number of Clarifiers :	6
Tank Width :	20 feet
Tank Length :	100 feet
Water Depth :	8.25 feet
Detention Time :	2.9 hours
Surface Overflow Rate :	500 gpd/sq.ft.
Weir Overflow Rate :	12,240 gpd/ft.

## SECONDARY TREATMENT SYSTEM

### 1. Aeration System #1

Aerated Influent Channel Width :	3 feet
Number of Basins :	5 (#1-#5)
Basin Width :	25 feet
Basin Length :	110 feet
Water Depth :	12.4 feet
Aeration Basin Volume :	1,275,340 gallons
Diffuser Type :	Fine Bubble (Tube)
Number of Diffusers :	2,080 (2 scfm each)

### 2. Aeration System #2

Number of Basins :	5 (#6-#10)
Basin Width :	20 feet
Basin Length :	100 feet
Water Depth :	12.4 feet
Aeration Basin Volume :	927,520 gallons
Diffuser Type :	Ultra Fine Bubble(Parkson Panel)
Number of Diffusers :	120 (3ft. x 9ft.)

### Aeration Blowers

3. Number of Blowers:	3
Type:	Centrifugal
Size:	2 @ 3,500 scfm (150hp)
Size:	1 @ 3195 to 7100 scfm (300hp)

### 4. Secondary Settling Tanks

Number of Tanks:	2 (circular)
Tank Diameter:	100 feet
Tank S.W.D:	15 feet
Detention Time:	7.1 hours
Surface Overflow Rate	637 gpd/sq. ft.
Weir Overflow Rate	15,923 gpd/ft.

### 5. Re-aeration Basin

Number of Tanks:	1
Tank Width:	20 feet
Tank Length:	100 feet
Tank Maximum Water Depth	10 feet

## Disinfection System

### 1. Ultraviolet Treatment

Type: Aquionics  
Capacity: 2 units @ 7.5 MGD  
Strength 16 High Density bulbs @ 4000 watts

### 2. Chlorine De-chlorination Contact Tanks ( Feed is off-line )

Length: 13 feet  
Width: 7 feet  
Water Depth: 10 feet  
Detention Time: 1 minute

### 3. Effluent Metering System

Parshall Flume: 1 – ( 36 inch ) throat

## SOLIDS STREAM TREATMENT SYSTEM

### 1. Raw Sludge Pumping

Raw Sludge Pumps: 2 @ 300 gpm each

### 2. Primary Anaerobic Digesters #1 and #2

Number of Tanks: 2 ( fixed, insulated covers )

Diameter: 65 feet

S.W.D: 25 feet

Volume: 621,867 gallons/unit

Detention: 43 days @ feed rate 24,000 gpd

Recirculation Pumps: Dig 1- @ 450 gpm

Dig 2 - @ 350 gpm

Sludge Transfer Pump: 1 @ 270 gpm each

### 3. Secondary Anaerobic Digesters #3 and #4

Number of Tanks: 2 (flexible membrane gas covers)

Diameter: 45 feet

S.W.D. : 24 feet

Volume: 286,132 gallons/unit

Detention: 22 days @ feed rate 12,500 gpd

Recirculation Pumps: 2 @ 350 gpm (each)

Sludge Transfer Pump: 1 @ 225 gpm

### 4. Methane Gas System

Number of Storage Units: 2

Gas Storage Volume: 16,800 cu. Ft. (each)

Waste Gas Burner: 6 inch

## SLUDGE THICKENING & DE-WATERING

### 1. Sludge Pumps

Waste Activated Sludge Feed Pumps: 2 @ 520 gpm (each)  
Thickened Sludge Transfer Pump: 2 @ 100 gpm

### 2. Gravity Belt Thickener

Gravity Belt: 1 (2.2 Meters, 320 gpm avg. feed)

### 3. Belt Filter Press

Belt Press: 1 (2.0 Meters, 75 gpm avg. feed)

### 4. Chemical Feed System

Feed System: Polymer mixing Systems

## SLUDGE HOLDING TANKS

### 1. Sludge Tanks

Number of Basins: 2  
Basin Length: 53.5 feet  
Basin Width: 25 feet  
Basin Depth: 9.5 feet  
Basin Volume: 95,300 gallons (each)  
Air Supply: 2 Blowers @ 1.100 scfm/each

## SLUDGE DEWATERING

### 1. Sludge Drying Beds

Number of Beds: 10  
Length: 110 feet  
Width: 40 feet  
Volume at 1 ft. Depth: (330, 000 gallons total)

## LAND APPLICATION SITES

450 Acres

Private Farmland