

# Water Reclamation Facility



2020

1980





Tertiary Filters



Gravity Belt Thickener



Belt Filter Press



Laboratory



Equalization Tank



Ultraviolet Disinfection



Supervisory Control & Data Acquisition Center



Screw Pump



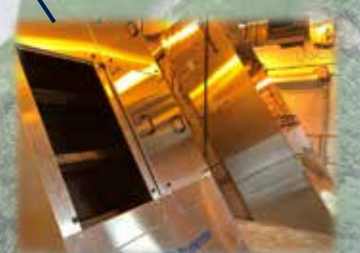
Secondary Treatment Pumps



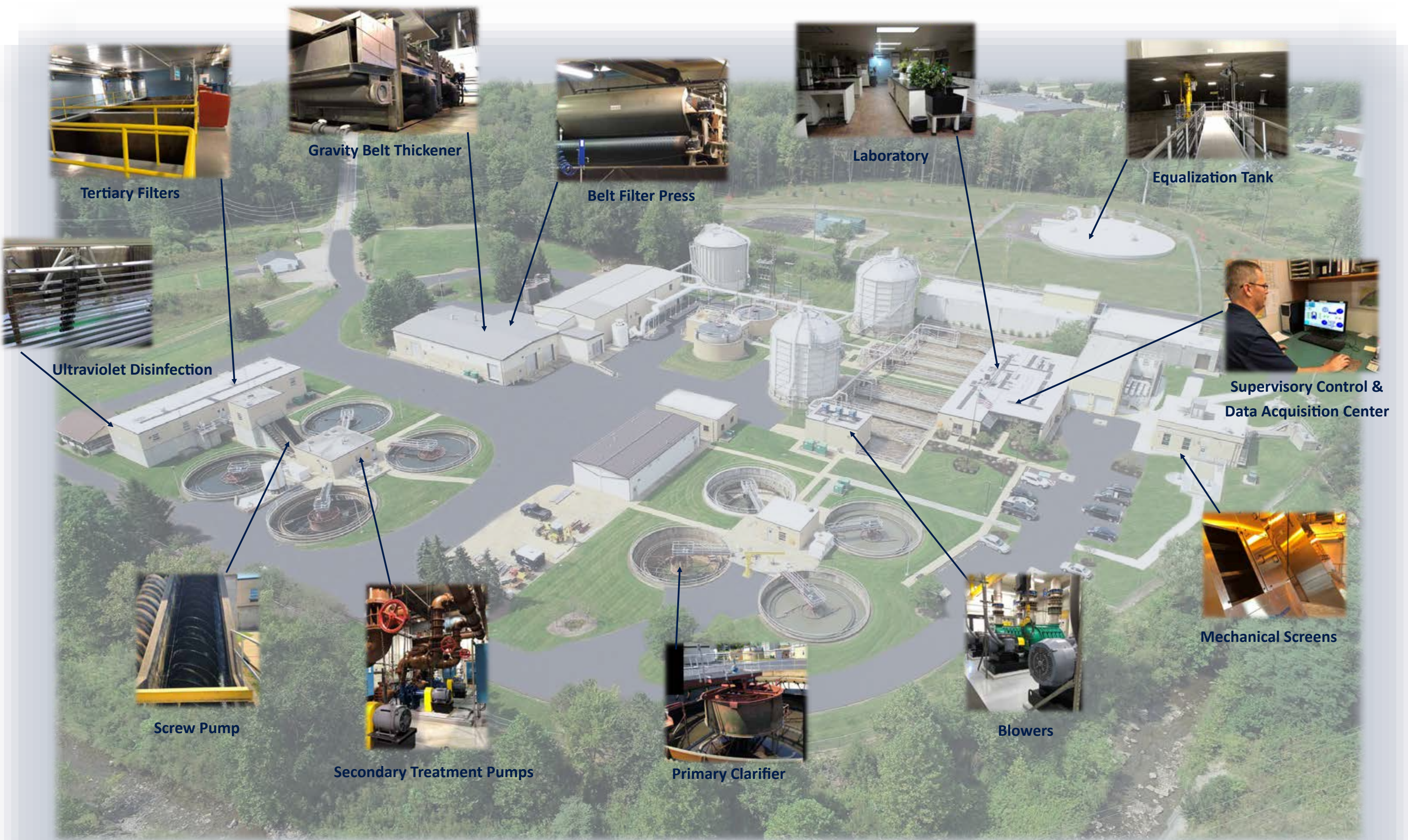
Primary Clarifier



Blowers



Mechanical Screens



## DESIGN DATA

Design Year                    2020  
 Design Population 26,400

### Design Flows

Average Daily (mgd)                    5.8  
 Peak Hourly Dry Weather (mgd)       9.6  
 Peak Hourly Wet Weather (mgd)    23.5  
     (15.0 with Storage)

### Design Characteristics

BOD<sub>5</sub>, Raw (mg/l)    405.0  
 BOD<sub>5</sub>, Effluent (mg/l)    9.0  
 Suspended Solids, Raw (mg/l)    347.0  
 Suspended Solids, Effluent (mg/l)    10.5

## WET STREAM PROCESS

### Flow Equalization



### Flow Equalization

#### Storage

Northeast Pump Station Site (gal)	90,000
Equalization Tanks 1, 2 & 3 (gal)	880,000
Equalization Tank 4 (gal)	1,700.00
<b>Total Storage (gal)</b>	<b>2,670,000</b>

### Preliminary Treatment



### Mechanical Bar Screens

Number:	2
Max. Capacity , each (mgd)	7.5
Bar Spacing (in)	0.25



### Grit Tanks

Number	2
Type	Mechanical Vortex
Max. Capacity, each (mgd)	7.5
Pumps	
Number	3
Type	Vortex

## DESIGN DATA

### WET STREAM PROCESS

#### Primary Treatment



#### Primary Clarifiers

Number:	4
Diameter (ft)	50
SWD (ft)	10
Volume, each (gal)	147,000
Surface Overflow Rate @ ADF (gpd/sf)	740

#### Effluent Pumps

Number	4
Type	Submersible
Capacity, each (gpm)	5,200

#### Trickling Filters

Number	3
Diameter	45
Media Depth (ft)	34
Surface Area, total (sf)	4,770
Volume, total (cf)	162,225
BOD <sub>5</sub> Loading, (lbs/1,000cf)	88

#### Aeration Basins

Number	8
Total Volume (gal)	1,227,000
Detention Time @ ADF (hrs)	5

#### Blowers

Number	3
Capacity, each (cfm)	5,000

#### Final Clarifiers

Number	4
Diameter (ft)	55
SWD (ft)	12
Volume, each (gal)	213,750
Surface Overflow Rate @ ADF (gpd/sf)	610
Solids Loading Rate (lbs/day/sf)	35

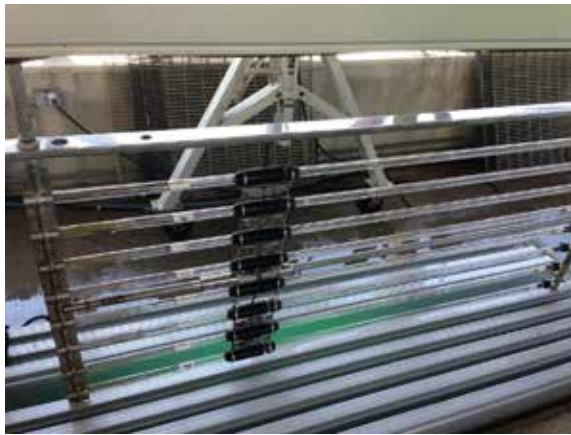
#### Secondary Treatment



## DESIGN DATA

### TERTIARY TREATMENT

Tertiary Treatment



#### Tertiary Filters

Number:	5
Area, each (sf)	378
Filtration Rate @ ADF, gpm/sf	2.24

#### Ultraviolet Disinfection

Number of Channels	2
Number of Banks/Channel	2
Number of Bulbs	416

Laboratory



#### Laboratory Testing (Weekly Limits)

Nitrogen, Ammonia (mg/l)	
Summer	2.3
Winter	8.7
Dissolved Oxygen, Daily Minimum (mg/l)	5.0
Phosphorous (mg/l)	0.7
Oil & Grease (mg/l)	10
CBOD <sub>5</sub> (mg/l)	15
Total Suspended Solids (SS) (mg/l)	18

# DESIGN DATA

## BIOSOLIDS FACILITIES

Biosolids Facilities



### Gravity Thickener

Number	1
Diameter (ft)	30
SWD (ft)	10
Surface Overflow Rate (gpd/sf)	600



### Anaerobic Digesters

Number	2
Diameter (ft)	35
SWD (ft)	18
Volatile Suspended Solids Loading (lbs/1,000cf)	0.063



### Sludge Conditioning/Dewatering Gravity Belt Thickener

Number	2
Belt width (meters)	2.2
Capacity, each (lbs. dry solids/hr)	1,700



### Belt Filter Press

Number	2
1.5 Meter Press Capacity (lbs. dry solids/hr)	900
2.0 Meter Press Capacity (lbs. dry solids/hr)	1200

### Lime Stabilization Process

Capacity (lbs. dry solids/hr)	850
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### Biosolids Cake Storage

Area (ft)	3,100
Cake Depth (ft)	3
Volume (cy)	350



## **Water Reclamation Department Mission Statement**

Working together as a team to provide exceptional value for residents while maintaining a sense of pride and accomplishment.



In 2008, The City of Solon was recognized by the Ohio Water Environment Association with the Facility Image Award!

[www.solonohio.org](http://www.solonohio.org)