DCWASA

DC Water and Sewer Authority
Blue Plains AWTP



Zoning Commission Hearing Presentation for the Egg-shaped Digester Facility

ZONING COMMISSION
District of Columbia
CASE NO.04-19
EXHIBIT NO.27

DC Water and Sewer Authority:

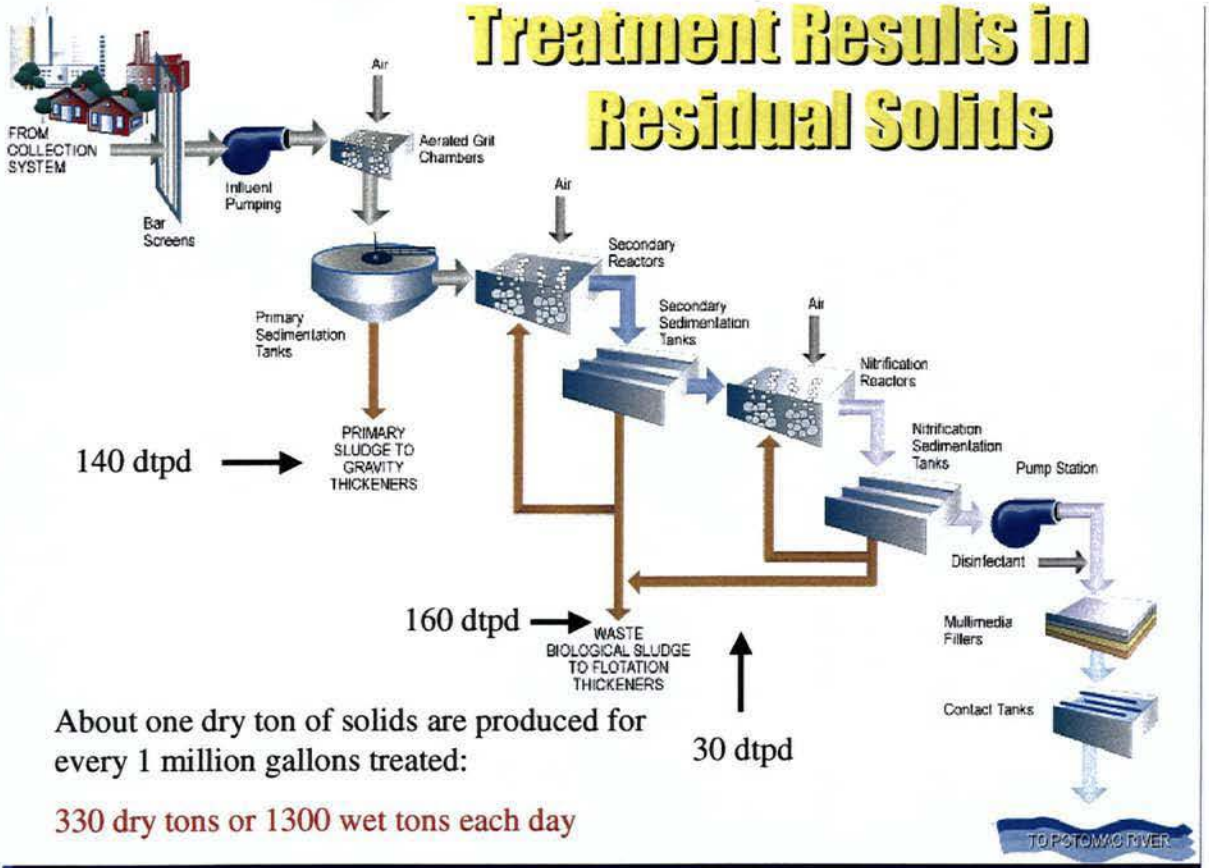


- Provides wastewater treatment services for the District, and neighboring jurisdictions at the Blue Plains AWTP
- Operates the sewer collection system within the District
- Distributes Drinking Water within the District

Blue Plains:

- Is the largest capacity advanced wastewater treatment plant (AWT) in the World
- Serves over 2 million in DC, MD and VA
- Flows at an average of 370 million gallons per day (enough to fill Lake Erie in a year)
- Is the single most significant source of protection for water quality in the Potomac and Chesapeake Bay region

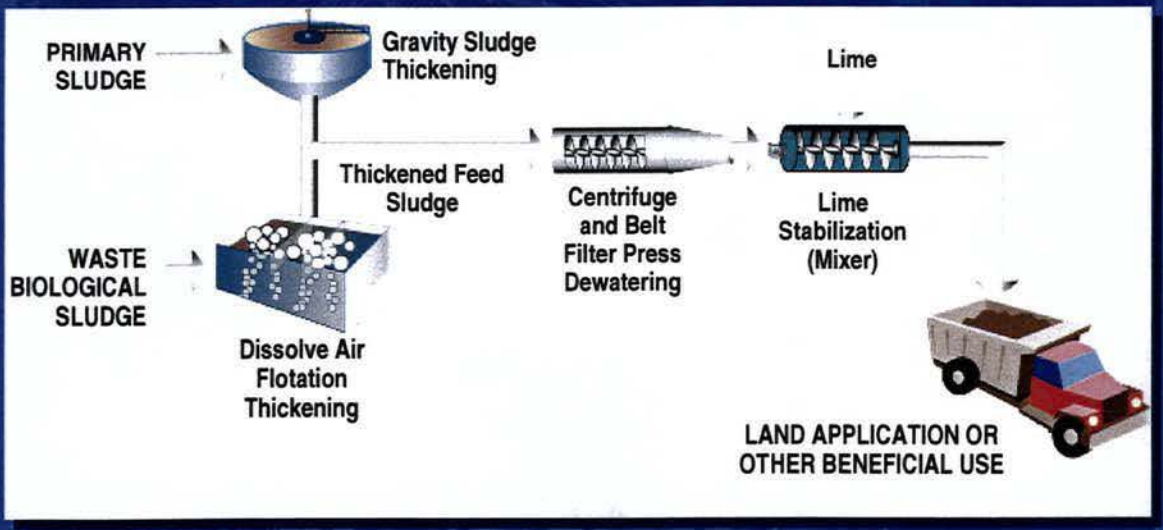
Treatment Results in Residual Solids



About one dry ton of solids are produced for every 1 million gallons treated:

330 dry tons or 1300 wet tons each day

Current Biosolids Processing Method



Handling and Disposal of Residual Solids from Treatment is a Huge Undertaking

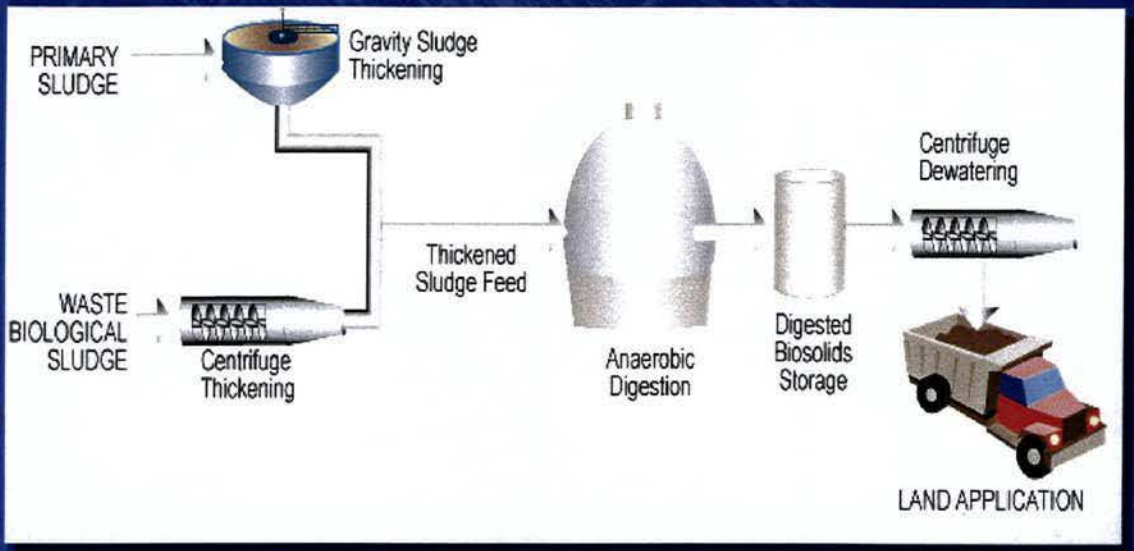


- 24/7 operation on-site: thickening, dewatering, and lime stabilizing
- ~70 trucks per day haul to agricultural sites in MD and VA for reuse - 3 to 4 million miles annually
- One half of Blue Plains' $60M Annual Operating Budget

In 1999 WASA Developed a Biosolids Master Plan to Address Needs

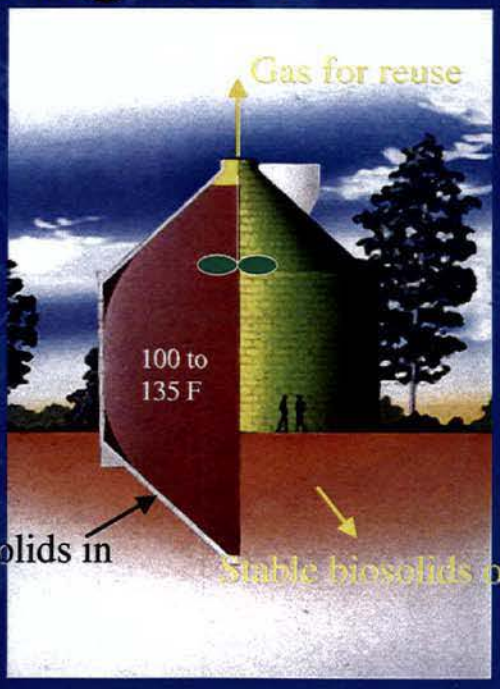
- Provide biosolids treatment capacity to meet current and future needs
- Replace aging facilities and improve overall solids processing system reliability
- Improve the characteristics of biosolids to enhance management options and ensure regulatory compliance
- Reduce long term risk and cost

A New Solids Management Plan is now Being Implemented
Anaerobic Digestion is the Key!



What is anaerobic digestion?

- Solids are degraded by microorganisms in a heated, mixed, oxygen free (anaerobic) environment. About half of the solids are converted to gas - mostly methane



What are the Benefits of Digestion?

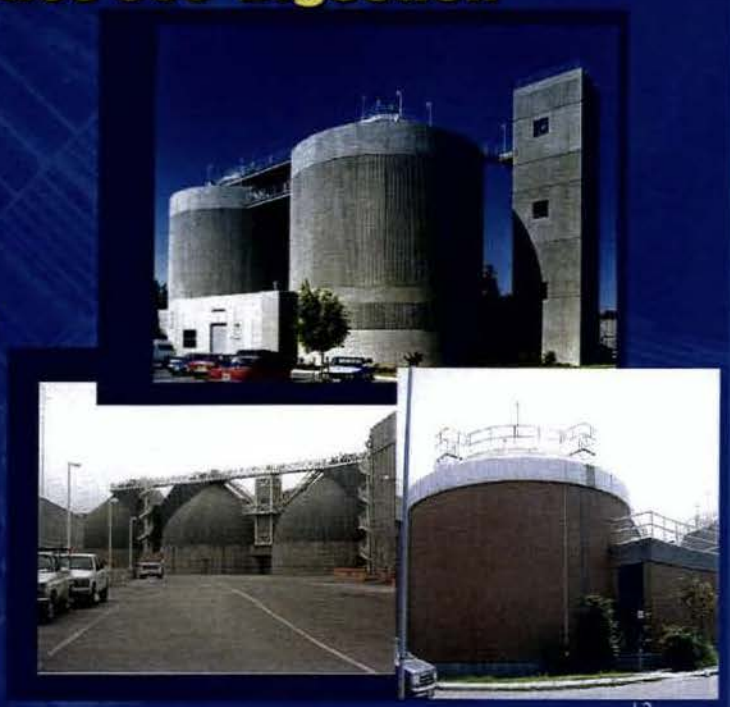
- Reduces volume of material by 50%
- Saves $16 million, or more, per year, in O&M costs
- Reduces truck traffic and pollution
  - 35 to 40 fewer trucks daily
  - Saves 1.5 to 2 million miles annually
  - Reduces truck emissions
- Reduces odor on and off-site, in transit, and at application sites

What are the Benefits of Digestion?

- Resource recovery at its best
  - Produces a stable, dependable and sought-after agricultural product used as a fertilizer/soil conditioner- superior to today's product
  - Produces biogas - a renewable energy resource
    - Enough energy to produce > 10 MW daily
    - Enough to power 10,000 homes or provide 1/3 of Blue Plains' electrical needs

Most Large Cities Use Digestion

- New York
- LA
- Chicago
- Atlanta
- San Francisco
- Philadelphia
- Boston
- Baltimore
- Milwaukee
- Denver
- Seattle



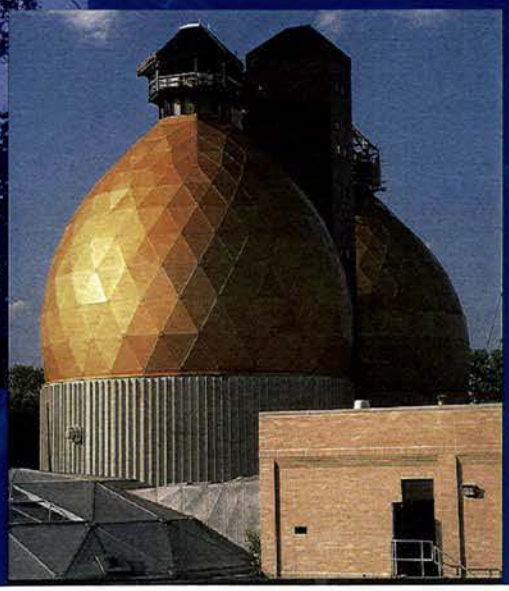
Egg Shaped Digesters are State-of-the-Art

- Easy to mix
- Minimizes heat loss
- Land efficient
- Does not accumulate grit and scum
- Lowers operations and maintenance cost

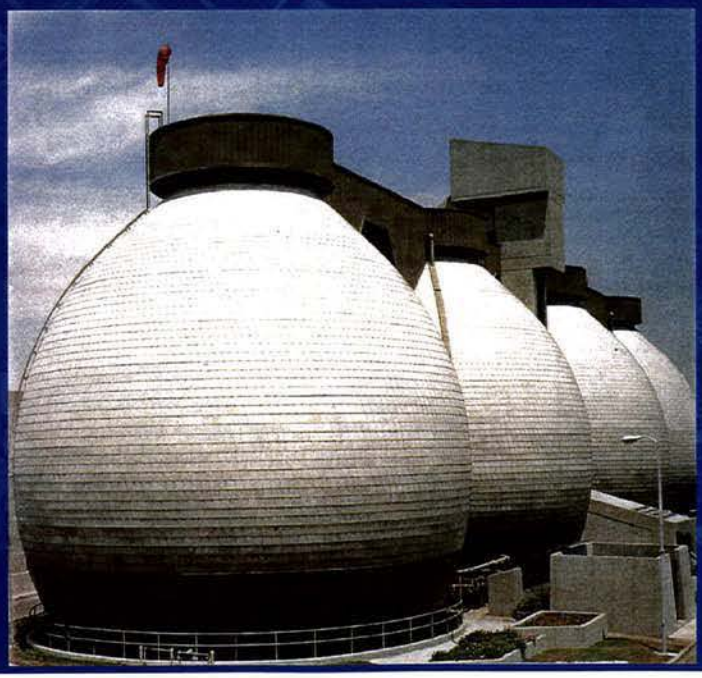


Baltimore - Back River





Terminal Island - Los Angeles



NYC - Newtown Creek



Dinslaken, Germany



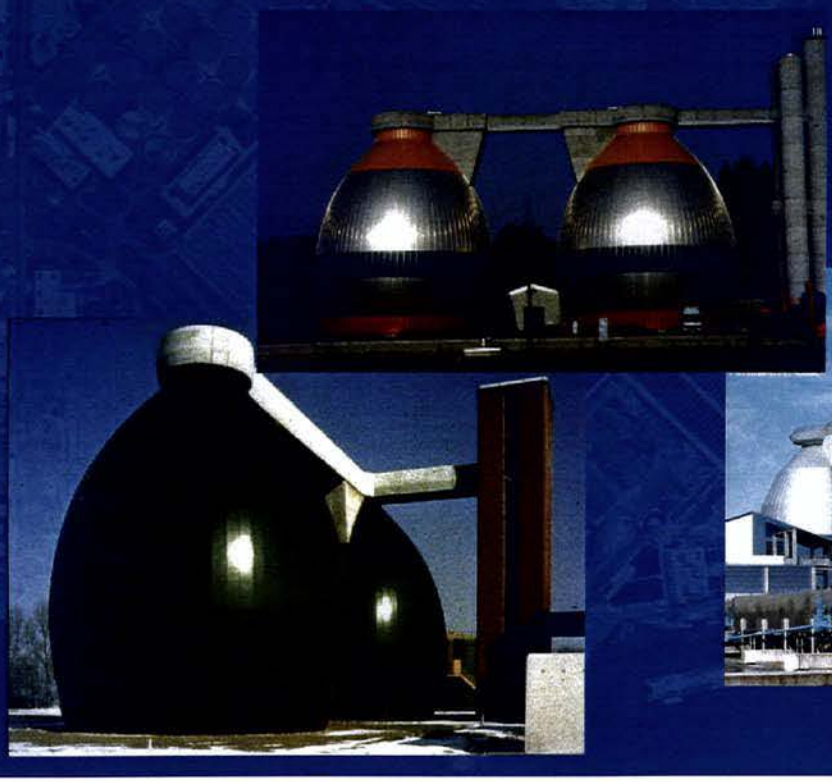
Bottrop Germany



Mannheim, Germany



Other German ESDs



Community Involvement in PUD Planning

Project Rollout Program

- WASA developed and implemented a rollout program to obtain public acceptance of the project
- Senior WASA management made presentations to city officials, regulators and community leaders
- Prepared and distributed presentation materials including project brochure and flyer of *Frequently Asked Questions*

Presentations to Administrators, Regulators, and Stakeholders

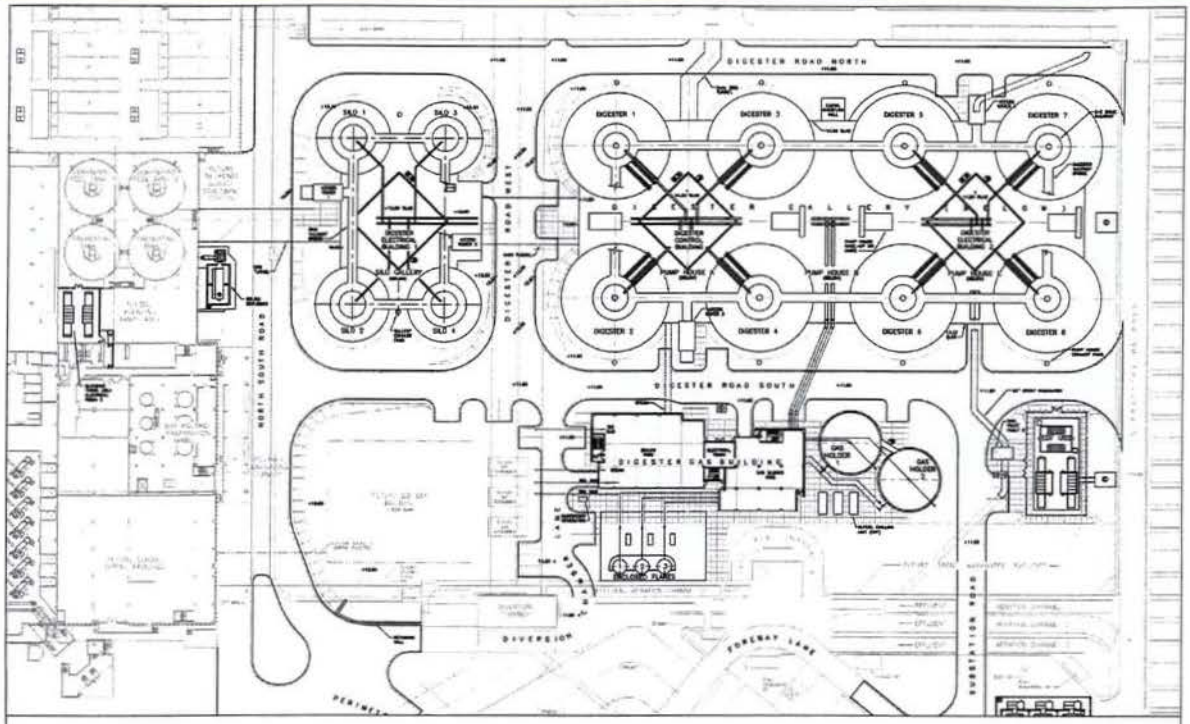
- Mayor Anthony Williams
- City Administrator
- Office of Planning
- Ward 8 DC Council Member
- Dept of Consumer & Regulatory Affairs
- Commission on Fine Arts
- Prince George's County Representative
- Ward 8 Advisory Neighborhood Commissions

The project was well received by all parties

Presentations to ANC and Community Groups

Host	Date	Location
ANC 7B	March 20, 2003	Ryland Methodist Church 3200 S Street, SE
ANC 8D	March 27, 2003	Hadley Memorial Hospital 4601 Martin Luther King Jr. Ave, SW
ANC 7E	April 8, 2003	Jones Memorial United Methodist Church 4625 G St. SE
ANC 8A	May 6, 2003	The Professional Building 2041 Martin Luther King Jr. Ave, SE
ANC 8C	May 7, 2003	Boys and Girls Club 620 Milwaukee Pl, SE #11
ANC 8E	May 20, 2003	701 Mississippi Ave, SE
ANC 8B	June 17, 2003	MPD 7th District Police Station Community Center Alabama and McGee Streets, SE
ANC 7A	September 16, 2003	
Other Meetings		
Public Meeting - Wards 7 and 8 and civic associations	Nov 20, 2002	Stanton Elementary School Alabama & Naylor, SE
AARP Washington Highlands Chapter	May 14, 2003	Washington Highlands Library MLK Jr. Ave and Atlantic Street, SE





SITE PLAN

Factors Affecting Location and Height

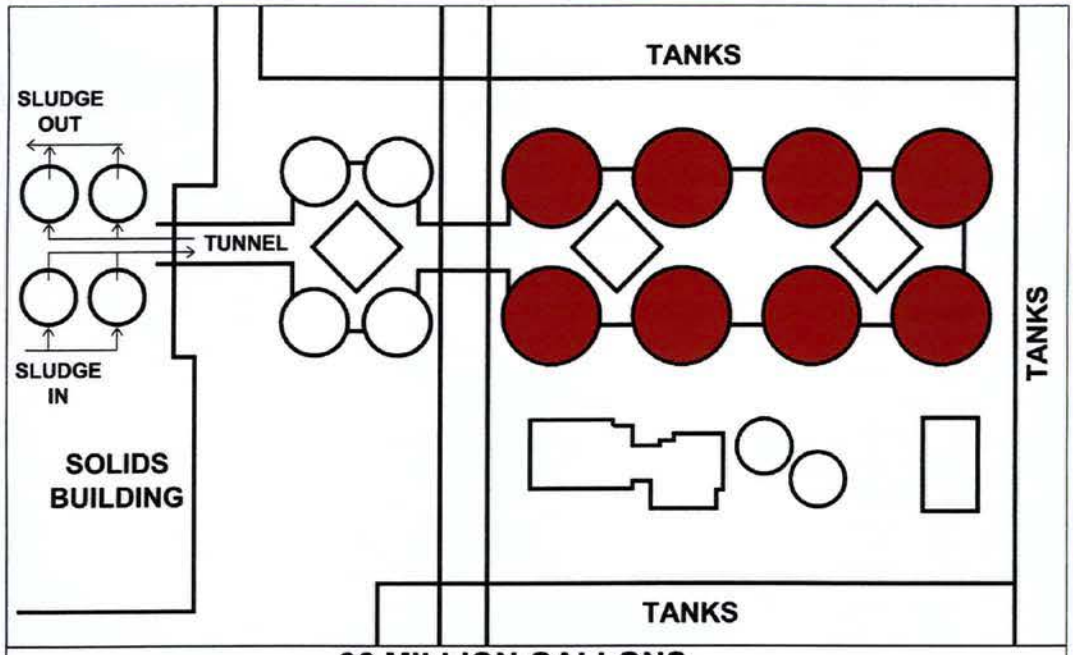
Location:

- Only available area on-site
- Proximity to solids handling building

Height:

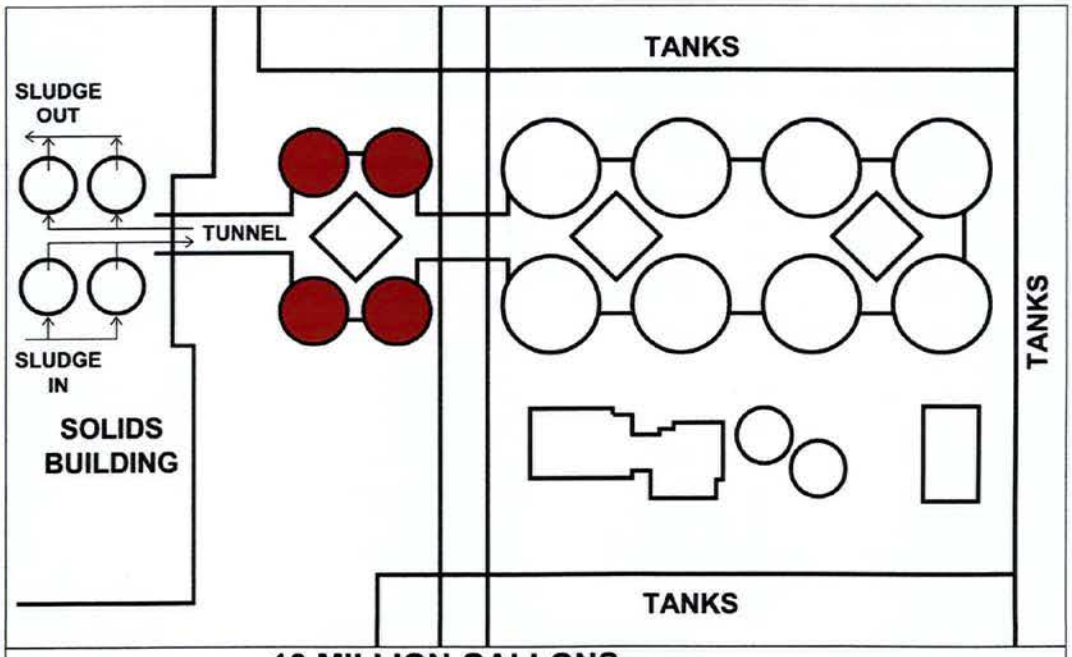
- Secondary Effluent Conduit
- Ground Water & Subsurface conditions
- Space constraints

Eggs and Silos Need to be in Close Proximity to Solids Handling Building



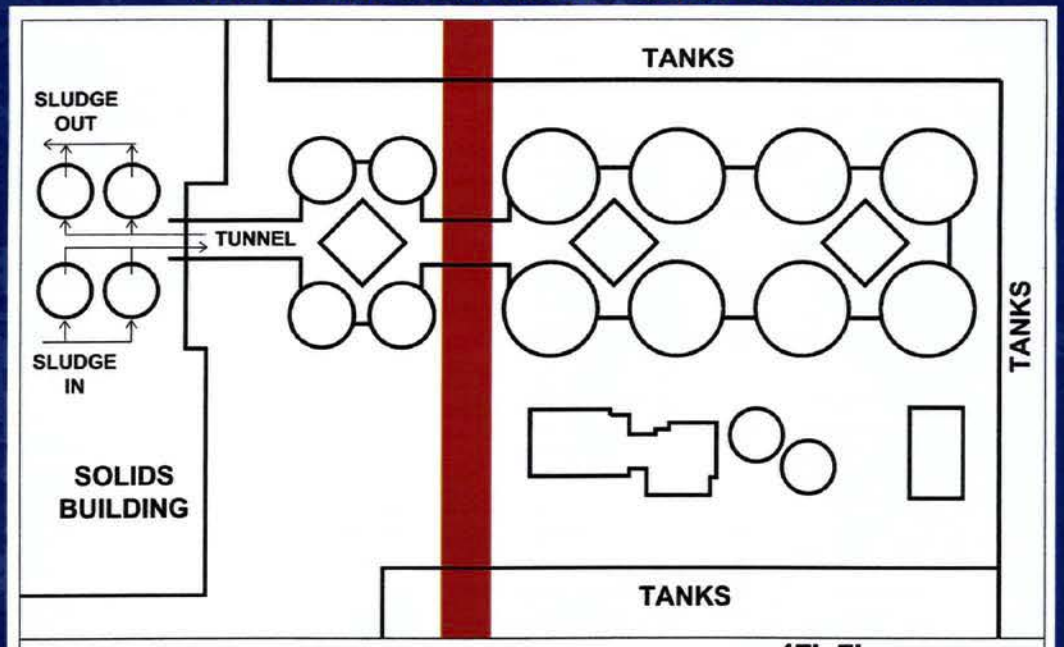
8 DIGESTERS: 36 MILLION GALLONS
20 DAYS HOLDING TIME AT AVERAGE FLOW

Eggs and Silos Need to be in Close Proximity to Solids Handling Building



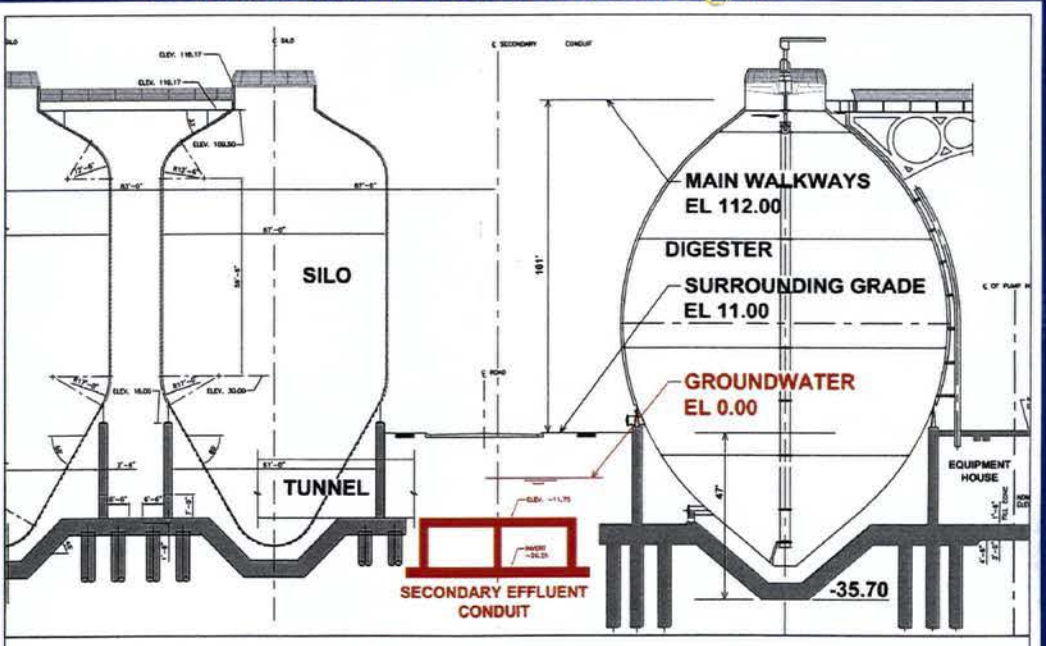
4 SILOS: 10 MILLION GALLONS
SLUDGE STORAGE; PROCESS SEQUENCING

The Existing Effluent Conduit Also Fixes Location and Elevation



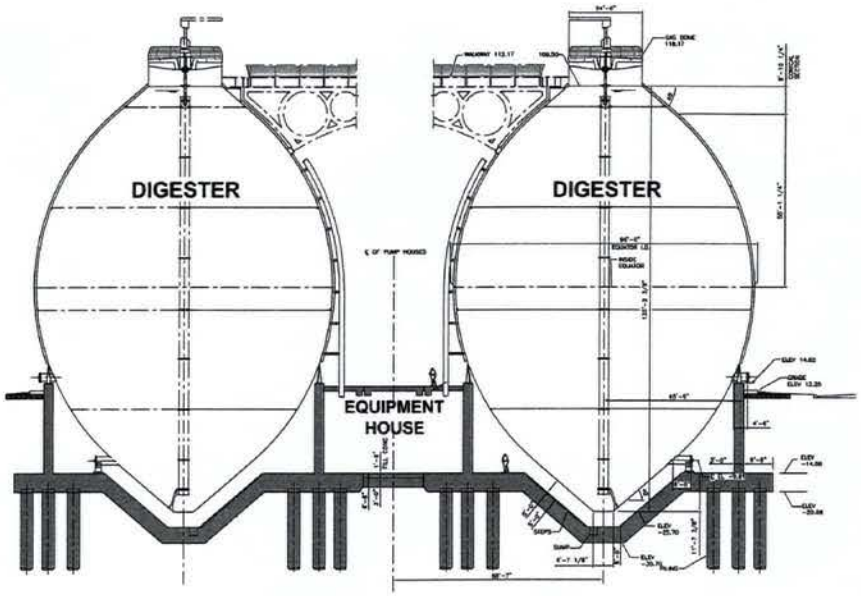
SECONDARY EFFLUENT CONDUIT: 47'x7' PLANT BYPASS

High Groundwater Table and Subsurface Conditions Determine Height



LONGITUDINAL SECTION

ESD Geometry& Depth Maximizes Available Space



CROSS SECTION

Summary

- Location of facility determined by existing site arrangement
  - Only suitable space available on plant site
  - Proximity to Solids Building
  - Effluent conduit
- Height to top of digesters determined by conditions at foundation of digesters
  - Effluent conduit
  - Groundwater and subsurface conditions
  - Equipment room space