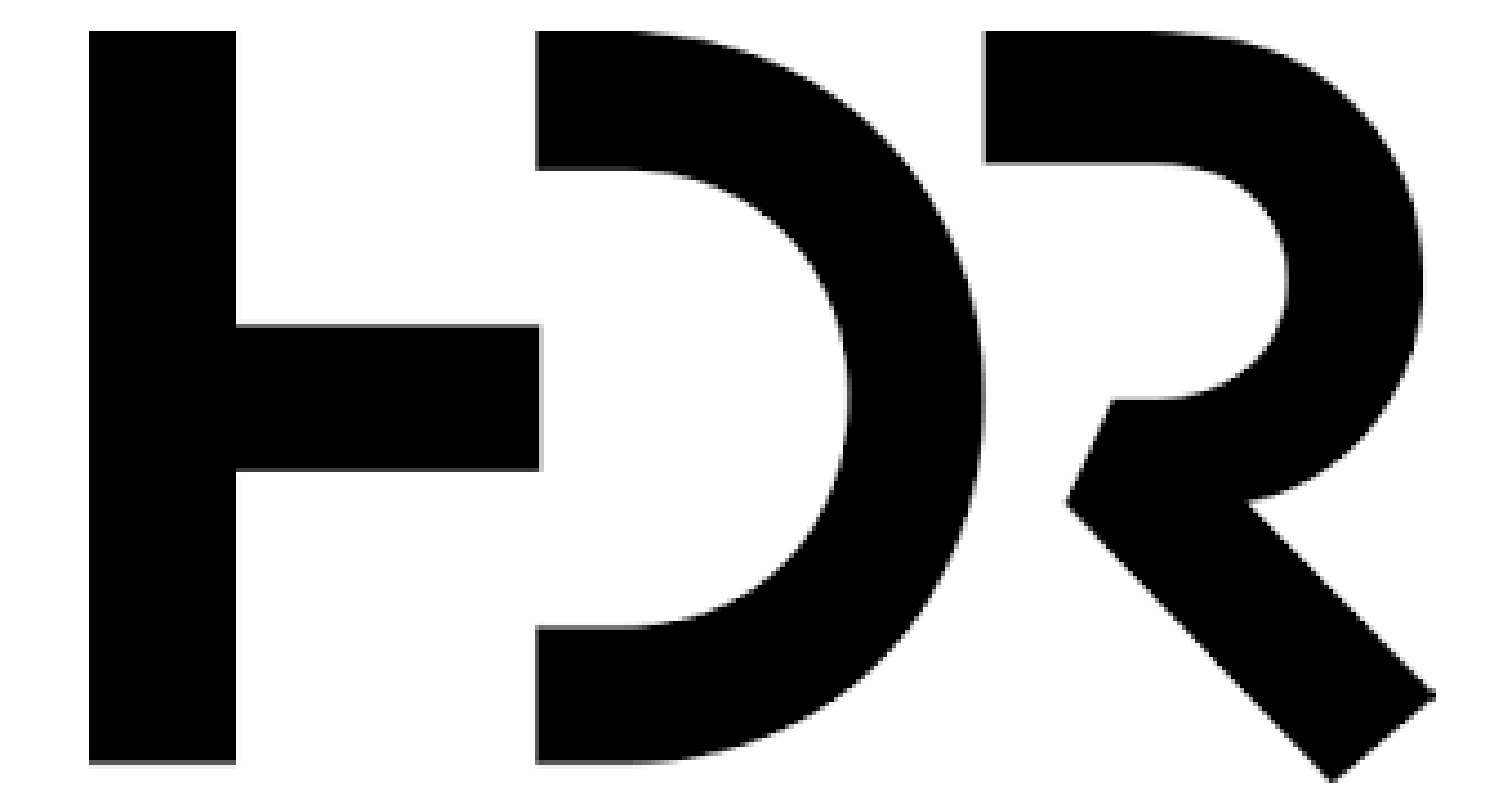


C1.06: City of Angleton Wastewater Treatment Plant

Caden Smith, Shawn Jasso, Jordon Gallego

Sponsored by: HDR Inc. - Todd Warrix



Scope

The following was requested from our Sponsor:

- Size Determination
- Location
- Process Selection
- Effluent Discharge Location
- Design of the WWTP

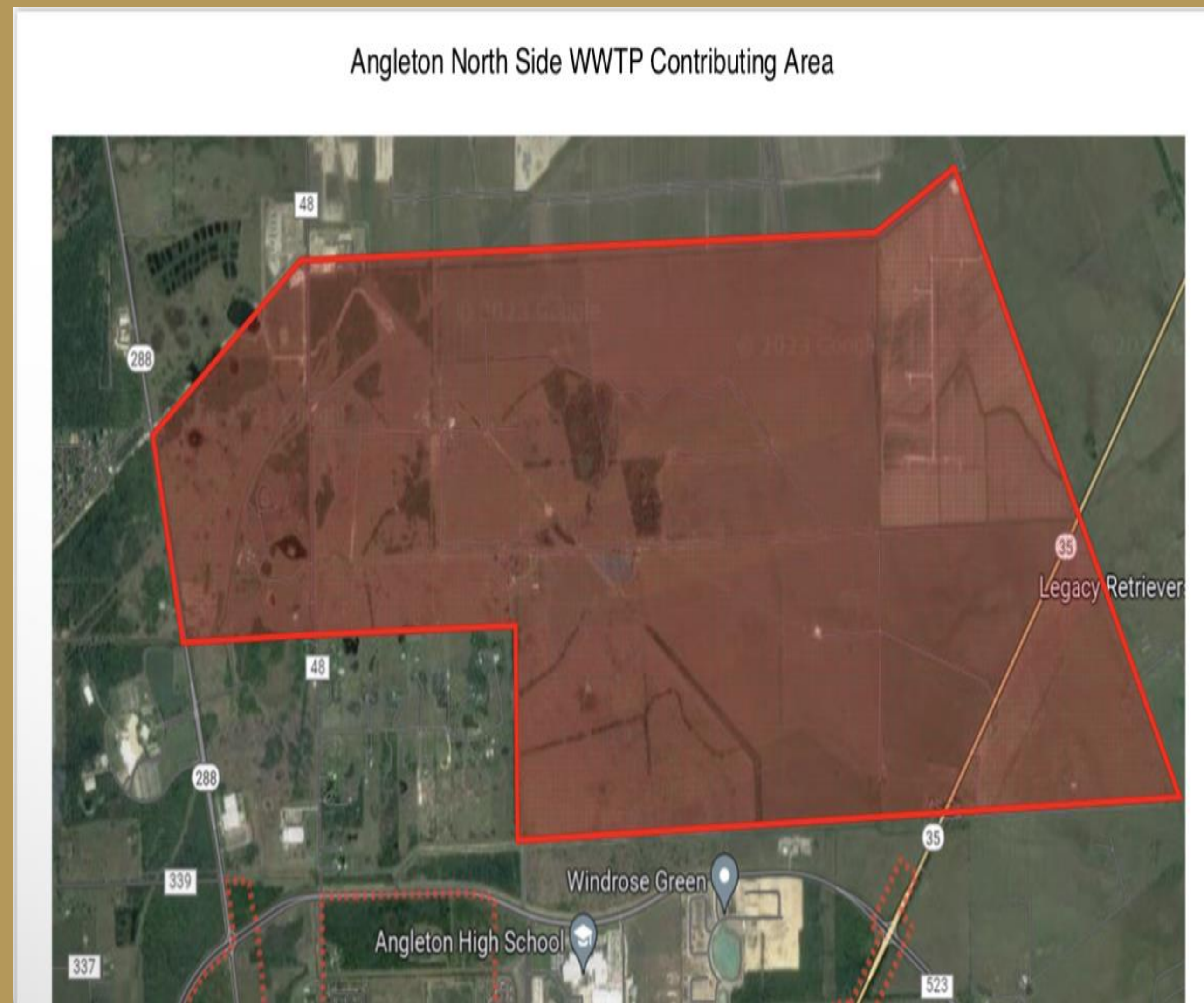
Objective

Due to Houston's expanding metropolitan area, the City of Angleton expects growth in a mapped-out area north of the city over the next 40 years, necessitating a new wastewater treatment plant.

Design Considerations

- 2 Million Gallons Per Day Capacity
- 2500 Acre Coverage
- 40 Year Growth Plan
- Indirect VS Direct Reuse
- Avoid Flood Planes
- Phasing Requirements

Site Location and Alternatives



The following alternatives were considered:

- Traditional Effluent
- Purple Pipe System
- Full Reuse Plant
- Agricultural Reuse



Jordon Gallego, Shawn Jasso, Caden Smith



Sustainability Evaluation

Based on Envision, a sustainability calculator used to test a projects service to the community, we received a Silver Rating.

Credit Category	Submitted Score Information			Verified Score
	Applicable	Submitted	Percentage	
Quality of Life	182	39	21%	200
Leadership	182	75	41%	182
Resource Allocation	196	76	39%	196
Natural World	218	37	17%	232
Climate and Resilience	190	74	39%	190
Total Points / %	968	301	31%	1000

PROJECT LEADER	YOUR ROLE	SUBMITTED SCORE	VERIFIED SCORE	RATING
Jordan Gallego	Member	301	301	Silver

Capital & Life Cycle Costs

Equipment	AVG Cost	Construction	AVG Cost	Admin	AVG Cost	Year	Adj. For Inflation
Anoxic Tank	\$852,000	Installation	\$3,591,300	Commissioning /Startup	\$293,872	2019	\$21,526,905
Primary Clarifier	\$1,910,000	Site Work	\$1,069,500	Contractor Markup	\$1,836,900	2020	\$23,060,159
Secondary Clarifier	\$1,493,000	Electrical/Instrumentation	\$744,667	Contingencies	\$2,770,500	2021	\$23,867,265
Cloth/DM Filter	\$374,000	-	-	Engineering/Admin/Legal	\$2,246,167	2023	\$24,702,619
UV Disinfectant	\$207,000	-	-	-	-	-	-
Miscellaneous	\$4,138,000	-	-	-	-	-	-
Sums:	\$8,974,000	-	\$5,405,467	-	\$7,147,439	-	Rate = 1.035
Purple Pipe Additions	\$1,000,000	Installation	\$1,500,000	Administrative Costs	\$1,000,000	WWTP W/ PP	\$25,702,619

Work Done	Traditional Alternative		Purple Pipe		
	Costs	Costs	Costs	Costs	
Maintenance and Operations	\$300,000	\$450,000			
Rehabilitation	\$500,000	\$600,000			
LCCA	Year	Rehab.	O/M	Traditional	Purple Pipe
	1		X	\$25,000,000	\$28,500,000
	11	X	X	\$26,250,166	\$34,650,000
	31		X	\$34,387,621	\$46,462,500
	41	X	X	\$39,257,002	\$53,510,526
	61		X	\$48,044,852	\$66,266,156
	71	X	X	\$53,597,095	\$74,304,464
91		X	\$63,101,950	\$88,099,687	

Group Photo



Jordon Gallego, Shawn Jasso, Caden Smith

Second Semester Plans

An in-depth design of Angleton's new WWTP with a Purple Pipe system. Determination of the Hydraulic Profile, Treatment Process, and Site Organization.

