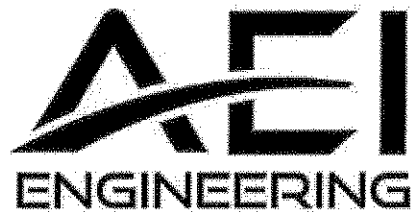


PRELIMINARY BOND AUTHORIZATION REPORT
FOR
GALVESTON COUNTY MUNICIPAL UTILITY DISTRICT NO. 12

PROPOSED \$17,460,000 BOND AUTHORIZATION

AEI JOB No. 366-004-001

MARCH 2017



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TBPE REGISTRATION No. F-1697

GALVESTON COUNTY MUNICIPAL UTILITY DISTRICT No. 12
BOND AUTHORIZATION REPORT

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GALVESTON COUNTY MUNICIPAL UTILITY DISTRICT NO. 12
BOND AUTHORIZATION REPORT

I. District Overview

Galveston County Municipal Utility District No. 12's (the "District") purpose is to provide water supply and distribution, sanitary sewer collection and treatment and canal facilities to a 390.436-acre development in Galveston County. The District was originally created on September 1, 1981 under an order of the Texas Water Rights Commission, presently known as the Texas Commission on Environmental Quality, hereinafter referred to as the "Commission". The District operates pursuant to the provisions of Chapter 54 of the Texas Water Code and other general statutes of Texas applicable to a municipal utility district.

The District is located approximately 39 miles southeast of the Houston central business district and approximately 9 miles northwest of the City of Galveston. It is located near Bayou Vista at the intersection of State Highway 6 and Interstate 45. It lies entirely within Galveston County and is bound on the north by State Highway 6, east by Interstate 45, south by Jones Bay, and west by Highland Bayou. A location map is provided as **Attachment A**.

The residents of the District have previously authorized bonds in the amount of \$ 4,270,000 as shown in the following table.

Date of Election	Purpose	Amount Approved	Amount Canceled	Total Amount
11/03/1981	Water, Wastewater, Drainage	\$ 1,470,000	-	\$ 1,470,000
08/12/1995	Water, Wastewater, Drainage	\$ 2,800,000	-	\$ 2,800,000
	Total	\$ 4,270,000	-	\$ 4,270,000

Bonds have been issued for infrastructure improvements to better serve the developed

areas. All of the previously authorized bond funds have been depleted.

Description	Date	Tax Bonds Amount
Series 1983 Unlimited Tax Bonds	10/25/1982	\$620,000
Series 1983A Unlimited Tax Bonds	10/25/1982	\$850,000
Series 1996 Unlimited Tax Bonds	04/10/1996	\$280,000
Series 1996A Unlimited Tax Bonds	04/10/1995	\$1,820,000
Series 2014 Unlimited Tax Bonds	05/19/2014	\$700,000
	Total Issued	\$4,270,000

The District is faced with an aging infrastructure system that requires improvements to the wastewater collection system, water plant facility, wastewater treatment plant facility and canal facilities. It is seeking \$17,460,000 of Bond Authorization to fund the needed improvement projects to enable continued service at the same or higher level than currently provided. A detailed summary of the estimated project costs justifying this authorization is provided in **Attachment B**. While the summary lists proposed years for each project, the District may prioritize the projects as the needs of the public change.

II. **Water Supply and Distribution System**

The District has one (1) water plant facility and one (1) remote water well. Water Plant No. 1 is located at 3031 Highway 6, Bayou Vista, TX 77563. It is comprised of two (2) 284,000-gallon ground storage tanks (GSTs), three (3) 1,050-gpm booster pumps and two (2) 25,000-gallon Hydro-Pneumatic Tanks (HPTs). A site plan for Water Plant No. 1 is included as **Attachment C**. The remote water well site is located at 109 Barracuda Street and includes one 400-gpm water well (Water Well No. 1). Water from the remote well is transferred to Water Plant No. 1 via a 6-inch transmission line. Water Plant No. 1 receives treated water from the Gulf Coast Water Authority (GCWA) as the primary water source for the District. The District does not have emergency interconnects with adjacent utility districts or municipalities.

Water Plant No. 1 was constructed in 1983 with an expansion in 1996. Recent engineering evaluations indicated the need to rehabilitate plant components to improve future reliability and ensure satisfactory taste, odor and overall quality of the water supply.

The following is a list of the proposed water supply and distribution projects requiring funding.

Project	Opinion of Probable Cost		
	Construction	Engineering	Total with Inflation
Perform full GST and HPT Inspections	\$ 0	\$ 9,000	\$ 9,000
Perform Booster Pump Capacity Evaluation	\$ 0	\$ 7,500	\$ 7,500
Evaluation and Testing of GCWA Water Supply	\$ 0	\$ 17,500	\$ 17,500
Evaluation and Testing of Disinfection System	\$ 0	\$ 20,000	\$ 20,000
Replace 284,000-Gallon GST (West)	\$ 612,000	\$ 92,000	\$ 721,000
Booster Pump Rehabilitation	\$ 28,000	\$ 4,000	\$ 33,000
GCWA Flow Piping and Water Well Improvements	\$ 20,000	\$ 10,000	\$ 31,000
25,000-Gallon HPT (West and East) Rehabilitation	\$ 95,000	\$ 14,000	\$ 114,000
284,000-Gallon GST (East) Rehabilitation	\$ 175,000	\$ 26,000	\$ 211,000
Generator and Fuel Tank Replacement	\$ 175,000	\$ 26,000	\$ 216,000
Motor Control Center (MCC) Replacement	\$ 250,000	\$ 38,000	\$ 309,000
WWTP/WP Site Fencing Improvements	\$ 10,000	\$ 2,000	\$ 14,000
Water Well Rehabilitation	\$ 60,000	\$ 9,000	\$ 81,000
Emergency Interconnect	\$ 300,000	\$ 45,000	\$ 407,000
	Water Supply and Distribution Total		\$ 2,192,000

III. Sanitary Sewer Collection System

The District has a sanitary sewer collection system designed to collect wastewater from residential and commercial sources and transport it to the wastewater treatment plant. The majority of this system was constructed from the 1950s through the 1970s and is comprised of gravity sewer pipe, manholes and five (5) sewer lift stations.

A portion of the existing piping and all of the District's lift stations need improvements to continue to operate reliably.

The proposed sanitary sewer collection system projects are as follows.

Opinion of Probable Cost			
Project	Construction	Engineering	Total with Inflation
Flow Monitoring	\$ 0	\$ 100,000	\$ 100,000
Evaluate Bayou Vista Lift Station	\$ 0	\$ 5,000	\$ 5,000
Lift Station Improvements	\$ 306,000	\$ 46,000	\$ 387,000
Sanitary Sewer Evaluation/ Rehabilitation of Old Bayou Vista Sewer System	\$ 300,000	\$ 45,000	\$ 407,000
Sanitary Sewer Collection System Total			\$ 899,000

IV. Wastewater Treatment

The District has one (1) wastewater treatment plant located on the same site as the water plant. The original treatment facility was constructed in or about 1996 and includes a fine screen, two (2) aeration basins, two (2) clarifiers, a chlorine contact basin, two (2) digesters, motor controls, blowers, yard piping and drainage facilities. The facility is operating under TPDES Permit No. WQ0010435002. This permit was issued September 4, 2015 by the Commission and allows an average annual discharge of 0.4 million gallons per day (MGD). The permit will expire on October 1, 2018. A site plan for the existing Wastewater Treatment Plant is included as **Attachment D**.

Recent engineering evaluations indicate the need to replace, improve or upgrade each component of the wastewater treatment process.

The wastewater treatment facility projects proposed for funding are presented in the following table.

Opinion of Probable Cost

Project	Construction	Engineering	Total with Inflation
Site Survey	\$ 0	\$ 25,000	\$ 25,000
Non-potable Water System Additions	\$ 160,000	\$ 24,000	\$ 188,000
Headworks Replacement, Influent Channel Modifications and Odor Abatement	\$ 508,500	\$ 76,000	\$ 599,000
Supervisory Control and Data Acquisition (SCADA) Upgrade	\$ 150,000	\$ 23,000	\$ 177,000
Aeration Basin No. 1 and No. 2 Rehabilitation	\$ 113,000	\$ 17,000	\$ 133,000
Influent/Effluent Channel Modifications	\$ 35,000	\$ 5,000	\$ 41,000
Digester Basin No. 1 and No. 2 Rehabilitation	\$ 20,000	\$ 3,000	\$ 24,000
Mag Meter Replacement and Minor Improvements	\$ 23,000	\$ 3,000	\$ 27,000
Clarifier No. 1 and No. 2 Rehabilitation, including RAS and Scum Box	\$ 218,000	\$ 33,000	\$ 270,000
Generator and Fuel Tank Replacement	\$ 250,000	\$ 38,000	\$ 309,000
Aeration Basin No. 1 and No. 2 Air Line Improvements	\$ 15,000	\$ 2,000	\$ 19,000
Concrete Basin Structural Assessment	\$ 0	\$ 5,000	\$ 6,000
Motor Control Center (MCC) Replacement	\$ 500,000	\$ 75,000	\$ 679,000
WWTP Expansion	\$ 2,600,000	\$ 390,000	\$ 3,530,000
Odor Control Fencing	\$ 100,000	\$ 15,000	\$ 136,000
Wastewater Treatment Facilities Total			\$ 6,163,000

V. Canal Facilities

The District participates in the maintenance of the canal systems, constructed in the 1950s and 1960s, that drain to Jones Bay. Sediment has built up and dredging has become necessary.

Opinion of Probable Cost

Project	Construction	Engineering	Total with Inflation
District Canal Dredging	\$ 3,500,000	\$ 280,000	\$ 4,463,000
Drainage Facilities Total			\$ 4,463,000

VI. Other District Facilities

The District meeting building and reception hall was constructed in 1986. Due to the aging building, air conditioner upgrades, an emergency generator and general maintenance has become necessary.

Opinion of Probable Cost			
Project	Construction	Engineering	Total with Inflation
District Building Improvements	\$ 450,000	\$ 68,000	\$ 612,000
	Drainage Facilities Total		\$ 612,000

VII. Developer Reimbursement

The District does not have any pending or proposed developer projects or reimbursement.

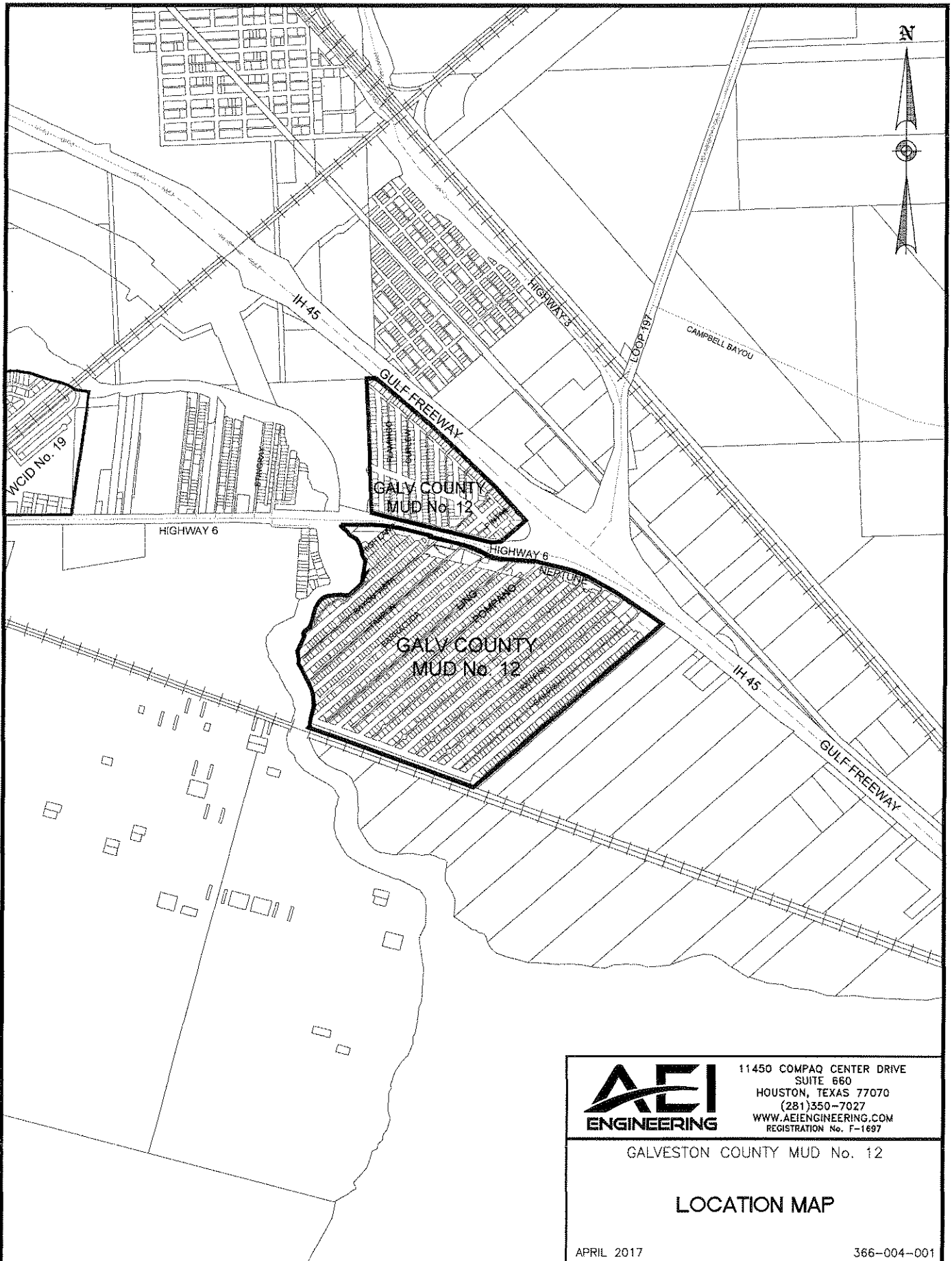
VIII. Conclusion

The District provides water, sanitary sewer and canal services to residents and commercial entities within its 390.436-acre boundary. The aging water plant, water distribution system, sanitary sewer collection system, wastewater treatment plant and canal facilities were all constructed between 35 and 60 years ago and need to be improved to better serve the public.

The maintenance, rehabilitations and improvements are projected to be constructed in several projects over the next 10 years. It is anticipated the various projects presented will provide an improved level of service.

In order to fund projects, the District seeks authorization for bonds in the amount of **\$17,460,000**. A detailed summary of the estimated project costs is provided in **Attachment B**.

ATTACHMENT A
DISTRICT LOCATION MAP



P:\366-004-001 Bond Authorization\dwg\exhibit.dwg, 3/29/2017 7:03:58 PM, janice.keven

	11450 COMPAQ CENTER DRIVE
	SUITE 660
	HOUSTON, TEXAS 77070
	(281)350-7027
WWW.AEIENGINEERING.COM	
REGISTRATION No. F-1697	

GALVESTON COUNTY MUD No. 12

LOCATION MAP

APRIL 2017

366-004-001

ATTACHMENT B

SUMMARY OF COSTS

GALVESTON COUNTY MUNICIPAL UTILITY DISTRICT NO. 12
PROPOSED BOND AUTHORIZATION
SUMMARY OF ESTIMATED COSTS

CONSTRUCTION COSTS

Capital Project	Construction		Total Cost w/	
	Cost	Engineering ¹	Total Cost ²	Inflation ³
2017				
Sanitary Sewer Flow Meter Monitoring including Report (2 months of testing)	\$0	\$100,000	\$100,000	\$100,000
Review Bayou Vista LS	\$0	\$5,000	\$5,000	\$5,000
WWTP Site Survey	\$0	\$25,000	\$25,000	\$25,000
WWTP Non-Potable Water System Additions	\$160,000	\$24,000	\$184,000	\$188,000
Perform Full GST and HPT Inspections including Reports	\$0	\$9,000	\$9,000	\$9,000
Perform Booster Pump Capacity Evaluation including Report	\$0	\$7,500	\$7,500	\$8,000
Evaluation and Testing of GCWA (bi-monthly water test for 3 months)	\$0	\$17,500	\$17,500	\$18,000
Evaluation and Testing of Disinfection System including Report	\$0	\$20,000	\$20,000	\$20,000
				\$373,000
2018				
WWTP Rehabilitation and Odor Abatement - Phase I				
Headworks Replacement and Influent Channel Modifications	\$508,500	\$76,000	\$584,500	\$599,000
WWTP SCADA Upgrade	\$150,000	\$23,000	\$173,000	\$177,000
Aeration Basin No. 1 and No. 2 Rehabilitation	\$113,000	\$17,000	\$130,000	\$133,000
Influent/Effluent Channel Modifications	\$35,000	\$5,000	\$40,000	\$41,000
Digester Basin No. 1 and No. 2 Rehabilitation	\$20,000	\$3,000	\$23,000	\$24,000
WWTP General Improvements	\$23,000	\$3,000	\$26,000	\$27,000
Water Plant Improvements - Phase I				
Replace 284,000 Gal. GST (West) with Glass Fused Tank and Geodesic Domed Roof	\$612,000	\$92,000	\$704,000	\$721,000
Booster Pump Rehabilitation	\$28,000	\$4,000	\$32,000	\$33,000
GCWA Flow Piping and Water Well Improvements	\$20,000	\$10,000	\$30,000	\$31,000
				\$1,786,000
2019				
25,000 Gal. HPT (East and West) Rehabilitation	\$95,000	\$14,000	\$109,000	\$114,000
284,000 Gal. GST (East) Rehabilitation	\$175,000	\$26,000	\$201,000	\$211,000
				\$325,000
2020				
WWTP Rehabilitation and Odor Abatement - Phase II				
Clarifier No. 1 and 2 Rehabilitation, incl. RAS and Scum Box	\$218,000	\$33,000	\$251,000	\$270,000
WWTP Generator and ATS Replacement ⁴	\$250,000	\$38,000	\$288,000	\$309,000
Water Plant Improvements - Phase II				
WP Generator and Fuel Tank Replacement ⁴	\$175,000	\$26,000	\$201,000	\$216,000
Water Plant MCC Replacement	\$250,000	\$38,000	\$288,000	\$309,000
				\$1,104,000
2021				
Lift Station Improvements	\$306,000	\$46,000	\$352,000	\$387,000
				\$387,000
2022				
WWTP Aeration Basin No. 1 and No. 2 Air Line Improvements	\$15,000	\$2,000	\$17,000	\$19,000
WWTP Concrete Basin Structural Assessment	\$0	\$5,000	\$5,000	\$6,000
General WWTP/WP Site Fencing Improvements	\$10,000	\$2,000	\$12,000	\$14,000
				\$39,000
2023-2027				
District Canal Dredging	\$3,500,000	\$280,000	\$3,780,000	\$4,463,000
District Building Improvements - Air Conditioner Upgrade, Emerg. Generator, General Maintenance	\$450,000	\$68,000	\$518,000	\$612,000
WWTP Motor Control Center Replacement	\$500,000	\$75,000	\$575,000	\$679,000
Sanitary Sewer Evaluation/Rehabilitation Old Bayou Vista (approx. 5000 LF)	\$300,000	\$45,000	\$345,000	\$407,000
WWTP Expansion	\$2,600,000	\$390,000	\$2,990,000	\$3,530,000
WWTP Odor Control Fencing	\$100,000	\$15,000	\$115,000	\$136,000
Water Well Rehabilitation	\$60,000	\$9,000	\$69,000	\$81,000
Emergency Interconnect	\$300,000	\$45,000	\$345,000	\$407,000
				\$14,329,000
				Contingencies (5%)
				\$716,450
				Total Construction Costs
				\$15,045,450

Notes: 1. Engineering estimated costs include preliminary engineering, final design, bidding, and full construction management services.
2. 'Total' is rounded to nearest thousand.
3. The total inflated cost uses the equation $FV = PV(1 + i)^n$ where FV is the future value with inflation, PV is the present value, i is interest, and n is the number of years. For the value of interest we used 2.40%.
4. Generator replacement recommended contingent upon re-evaluation of generator condition and emergency power needs.

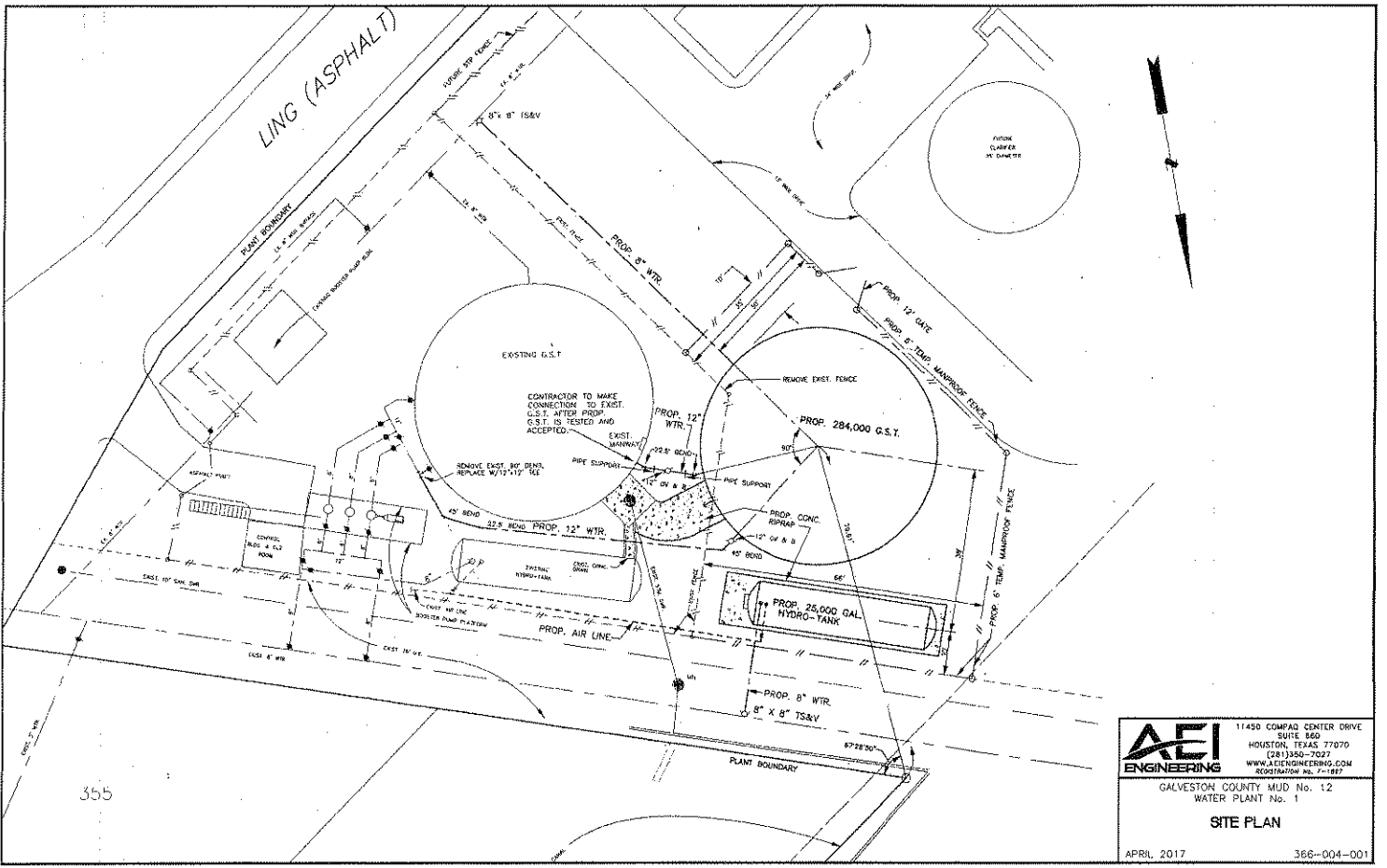
**GALVESTON COUNTY MUNICIPAL UTILITY DISTRICT NO. 12
PROPOSED BOND AUTHORIZATION
SUMMARY OF ESTIMATED COSTS**

NON-CONSTRUCTION COSTS

Description	Cost
A. Legal Fees (2.5%)	\$ 436,500.00
B. Financial Advisor Fees (2%)	\$ 349,200.00
C. Bond Discount (3%)	\$ 523,800.00
D. TCEQ Fee (0.25%)	\$ 43,650.00
E. Bond Issuance Costs	\$ 73,640.00
F. Bond Report	\$ 184,600.00
G. Capitalized Interest (4.5%)	\$ 785,700.00
H. Attorney General's Fee (0.10%)	\$ 17,460.00
TOTAL NON-CONSTRUCTION COST	\$ 2,414,550.00
TOTAL BOND ISSUE AMOUNT	\$17,460,000.00

ATTACHMENT C

WATER PLANT NO. 1 SITE PLAN

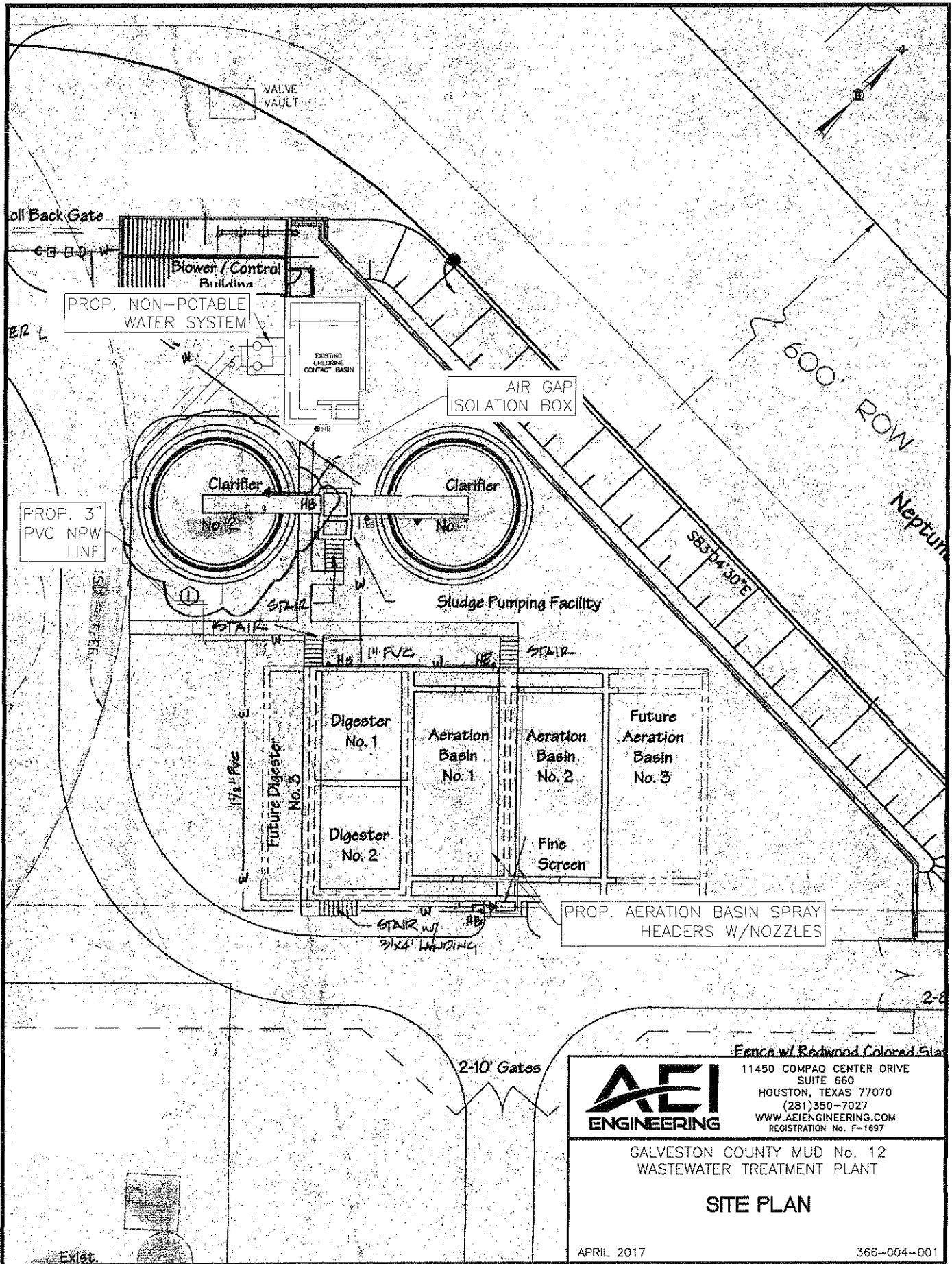


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	11490 COMPAG CENTER DRIVE SUITE 360 HOUSTON, TEXAS 77070 (832) 350-7027 WWW.AEIENGINEERING.COM REGISTRATION NO. 7-1887
	GALVESTON COUNTY MUD No. 12 WATER PLANT No. 1 <p style="text-align: center;">SITE PLAN</p> APRIL 2017 386-004-001



ATTACHMENT D
WASTEWATER TREATMENT
PLANT SITE PLAN



11450 COMPAQ CENTER DRIVE
 SUITE 660
 HOUSTON, TEXAS 77070
 (281) 350-7027
 WWW.AEIENGINEERING.COM
 REGISTRATION No. F-1697

GALVESTON COUNTY MUD No. 12
 WASTEWATER TREATMENT PLANT

SITE PLAN

APRIL 2017

366-004-001

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