ENGINEERING AND FEASABILITY REPORT FOR 5 +/- ACRES PROPOSED TO BE ANNEXED INTO GALVESTON COUNTY MUD NO. 45

1.0 INTRODUCTION

This report contains the conclusions and findings of a preliminary engineering study to determine the economic and engineering feasibility for a 5 Acre +/- Single-Family Development proposed to be annexed into Galveston County Municipal Utility District No. 45. The purpose of this study is to develop the required economic and engineering data to evaluate the feasibility of developing the proposed project.

The project is located at the southern end of existing Madrid Lane, in League City, Texas.

2.0 EXISTING CONDITIONS

2.1 Location and Description of the Project

The project is located at the southern end of existing Madrid Lane, in League City, Texas.

The tract consists of approximately 5 acres, and will contain a single-family development. A land plan is attached to this report.

2.2 Existing Site Conditions and Development

The proposed development has been cleared, but is currently undeveloped and uninhabited.

3.0 PROPOSED DEVELOPMENT

The development within the District requires the availability of water and wastewater facilities. Water and wastewater drainage facilities are all existing and available for use by the development.

3.1 Proposed Water Supply

3.1.1 Water Supply

Water supply is available to the development from an existing water line within Madrid Lane.

3.1.2 Water Distribution

It is anticipated that the water distribution system to serve the development will consist of solid wall polyvinyl chloride (PVC) or ductile iron pipelines and related appurtenances and fittings. The distribution system will be designed to meet Texas Commission on Environmental Quality and City of League City design criteria as well as pressure criteria under peak demand conditions.

3.3 Proposed Sanitary Sewer System

3.3.1 Wastewater Treatment Capacity

A gravity wastewater line to serve the development is proposed to be constructed within the extension of Madrid Lane.

3.3.2 Wastewater Collection System

It is anticipated that the proposed wastewater collection system for the development will consist primarily of solid wall polyvinyl chloride (PVC) sanitary sewer mains, with manholes and related appurtenances as shown in Exhibit D.

Design criteria for the Wastewater Collection System will meet City of Houston and Texas Commission on Environmental Quality requirements as follows:

Flow per Capita	90	gpdc
Single-family Connection	3.5	people
Flow per Connection	315	gpd
Minimum Line Velocity	2	ft/sec.

In addition, the wastewater collection system and service laterals will be designed using a peaking factor of 4 times the average daily flows of 90 gpd per capita. Therefore, the collection system and service laterals will be designed with a greater requirement than the flows listed above.

3.4 Proposed Drainage System

A public drainage system will need to be designed and developed within the site.

3.4.3 Detention

The plans provided for a proposed storm sewer system do not show detention required for the development of the site. However, detention for the site was accounted for in the master drainage plan for the Coastal Point development, approved by League City in 2017.

3.5 Roads

The plans provided for a proposed internal public roadways. These roadways will be privately funded, and will not be eligible for reimbursement.

4.0 SUMMARY OF PROJECT COSTS

A cost estimate was done for the project and is attached to this feasibility report.

5.0 FEASIBILITY

5.1 Engineering Feasibility

This report's analysis of this project indicates that it is feasible to provide adequate water, wastewater and drainage facilities to serve the development, as described herein.

5.2 Economic Feasibility

The 12 lots proposed within the annexation tract will produce approximately $3,000,000 in value (@ $250,000/house) which is more than enough value to reimburse the public infrastructure required to serve the tract ($129,310.16 from the cost estimate), and thus the annexation is economically feasible.

6.0 CONCLUSION

The annexation of the 5 +/- acre Single Family Development is feasible.

PRELIMINARY COST ESTIMATE
FOR
COASTAL POINT - 5 ACRE ANNEXATION

DESCRIPTION	*UNIT*	*ESTIMATED QUANTITY*	*UNIT PRICE*	*TOTAL AMOUNT*
SECTION A - WATER DISTRIBUTION SYSTEM				
4-INCH P.V.C. WATERLINE	L.F.	315	$22.00	$6,930.00
6-INCH P.V.C. WATERLINE	L.F.	325	$26.00	$8,450.00
FLUSHING VALVE ASSEMBLY	EA.	1	$4,000.00	$4,000.00
4-INCH GATE VALVE & BOX	EA.	2	$1,100.00	$2,200.00
12" x 6" TAPPING SADDLE & VALVE	EA.	2	$5,000.00	$10,000.00
TRENCH SAFETY	L.F.	640	$2.00	$1,280.00
DISPOSAL OF UTILITY SPOILS	C.Y.	135	$3.00	$405.00
				$33,265.00
SECTION B - SANITARY SEWER COLLECTION SYSTEM				
8-INCH SDR-26 P.V.C. PIPE, ALL DEPTHS	L.F.	235	$30.00	$7,050.00
8-INCH SDR-26 P.V.C. PIPE, (WET BEDDING & BACKFILL)	L.F.	235	$40.00	$9,400.00
4-FOOT DIAMETER MANHOLE	EA.	7	$2,800.00	$19,600.00
PVC NEAR SIDE LEAD WITH SINGLE WYE	EA.	2	$650.00	$1,300.00
PVC NEAR SIDE LEAD WITH DOUBLE WYE	EA.	5	$700.00	$3,500.00
PVC FAR SIDE LEAD WITH SINGLE WYE	EA.	0	$1,750.00	$0.00
PVC FAR SIDE LEAD WITH DOUBLE WYE	EA.	0	$1,800.00	$0.00
WELL POINTS FOR DEWATERING	L.F.	235	$25.00	$5,875.00
TELEVISED INSPECTION	L.F.	470	$2.25	$1,057.50
TRENCH SAFETY	L.F.	470	$2.00	$940.00
DISPOSAL OF UTILITY SPOILS	C.Y.	130	$3.00	$390.00
				$49,112.50

PRELIMINARY COST ESTIMATE
FOR
COASTAL POINT - 5 ACRE ANNEXATION

DESCRIPTION	*UNIT*	*ESTIMATED QUANTITY*	*UNIT PRICE*	*TOTAL AMOUNT*
SECTION C - STORM DRAINAGE SYSTEM				
24-INCH DIAMETER R.C.P.	L.F.	200	$43.00	$8,600.00
TYPE "H-2" INLET - STAGE 1	EA.	2	$1,250.00	$2,500.00
TYPE "H-2" INLET - STAGE 2	EA.	2	$900.00	$1,800.00
STANDARD TYPE "C" MANHOLE (0-42" PIPE)	EA.	2	$2,250.00	$4,500.00
TELEVISED INSPECTION	L.F.	200	$3.00	$600.00
TRENCH SAFETY	L.F.	200	$1.50	$300.00
DISPOSAL OF UTILITY SPOILS	C.Y.	150	$3.00	$450.00
				$18,750.00
SECTION D - STORM WATER POLLUTION PREVENTION				
REINFORCED FILTER FABRIC FENCE	L.F.	2,000	$1.25	$2,500.00
INLET PROTECTION BARRIER - STAGE 1	EA.	2	$50.00	$100.00
INLET PROTECTION BARRIER - STAGE 2	EA.	2	$47.00	$94.00
SWPPP ADMINISTRATION	L.S.	1	$1,500.00	$1,500.00
STABILIZED CONSTRUCTION ENTRANCE	EA.	2	$1,600.00	$3,200.00
CONCRETE TRUCK WASHOUT	EA.	1	$600.00	$600.00
HYDRO-MULCH SEEDING & FERTILIZATION	AC.	1	$1,400.00	$1,400.00
				$9,394.00

SUMMARY

SECTION A - WATER DISTRIBUTION SYSTEM	**$33,265.00**
SECTION B - SANITARY SEWER COLLECTION SYSTEM	**$49,112.50**
SECTION C - STORM DRAINAGE SYSTEM	**$18,750.00**
SECTION D - STORM WATER POLLUTION PREVENTION	**$9,394.00**
	$110,521.50

CONTINGENCIES:	0%	$0.00
ENGINEERING FEES:	15%	$16,578.23
CITY OF LEAGUE CITY INSPECTION FEES:	2%	$2,210.43
TOTAL CONSTRUCTION COST:		**$129,310.16**