



AGENDA ITEM SUMMARY FORM

MEETING DATE: August 23, 2022

PREPARED BY: Chris Whittaker

AGENDA CONTENT: New Sewer Serves to County's EOC

AGENDA ITEM SECTION: Regular Agenda

BUDGETED AMOUNT:
N/A

FUNDS REQUESTED:
N/A

FUND:N/A

EXECUTIVE SUMMARY:

Brazoria County is currently building a new Emergency Operation Center (EOC) building on the west side of SH 288B north of Live Oak across from the Annex Building. The existing sanitary sewer in this area is extremely shallow and flat. The majority of this line is the original concrete line (only a small portion is pvc from the construction of the Annex Building). Currently, City staff monitors the flow in this sanitary sewer line and performs maintenance (cleaning) when required. The County has approached the City about their concerns on the existing sanitary sewer services to the EOC. When the EOC is being utilized during extreme events it houses 20 plus individuals to operate County business and to gather and disperse critical information to the public. The County is concerned about the possibility that during an extreme event maintenance would be required to keep the EOC sanitary sewer services available to the people housed and the City will be overtaxed with other priorities and obligations during this time.

The City has request HDR to look into possible solutions for this section of line. The material and condition of this line indicates that it is approaching its life expectancy. Also due to the shallow depths of this line downstream receiving the flow, installing a gravity sewer at the required TCEQ slopes to achieve a self-cleaning velocity is not possible. HDR has evaluated two potential option that would provide service to the EOC Building.

The City could install a small lift station and 3" force main to pump flow across SH 288B to an existing manhole downstream. During times of extreme event and power failures, the City has a portable generator that is utilized to power lift stations and pump down the collection system. This lift station and its service area could be included in that service program during extreme events. There are two options for this solution:

Option #1

Service the County's EOC only. This option would provide an independent collection system for the EOC (only) consisting of a lift station and force main. Section of the county's parking lot would be replaced to install the proposed force main with a new steel casing under SH 288B and connection point into the down stream system. This would address the County's concerns about the service to the EOC. However, the City would still have to maintain the existing gravity line that is quickly approaching its life expectancy for the remaining stakeholders on the west side of SH 288B. Please see attached flow calculations, exhibit, and OPCC for Option #1.

Option #2

Provide service to all facilities serviced by the existing sanitary sewer line. This would be the same process as above but include abandoning the existing old gravity sanitary sewer line and redirecting the existing flows to the proposed station. The station will then pump across to SH 288B through a 3" force main like option #1.

This will provide service to the west side of SH 288B and remove the sewer line that is quickly reaching its service life and requires maintenance. Please see attached flow calculations, exhibit, and OPCC for Option #2.

RECOMMENDATION: If Council elects to proceed forward with one of the two options stated above, Staff Recommends Option #2.

Option #1

Building	Cameron Hydraulic Data		2" Pipe	3" Pipe	4" Pipe
	Flow(gpm)	Flow	Velocity (ft/s)	Velocity (ft/s)	Velocity (ft/s)
EOC	64	65	6.21	2.95	1.53-1.79

Proposed Force Main (ft) 714

Option #1



OPINION OF PROBABLE CONSTRUCTION COST					
City of Angleton Courthouse Expansion Project					
JUNE 2022					
Option 1 - Construction of a New Lift Station with 3" Force Main					
ITEM NO.	ITEM DESCRIPTION	UNIT	QUAN.	UNIT PRICE	TOTAL AMOUNT
A) GENERAL ITEMS					
1	Mobilization	L.S.	1	\$ 10,000.00	\$ 10,000.00
2	Traffic Control Plans and Flagmen	L.S.	1	\$ 10,000.00	\$ 10,000.00
3	SWPPP	L.S.	1	\$ 2,500.00	\$ 2,500.00
		SUB-TOTAL GENERAL ITEMS			\$ 22,500.00
B) WATER ITEMS					
4	70 gpm Grinder Pump Station	L.S.	1	\$ 200,000.00	\$ 200,000.00
5	6" reinforced Concrete Point Repair including removal of existing concrete and 12" of Subgrade and Installation of 12" of Cement Stablized Sand	SY	1,250	\$ 180.00	\$ 225,000.00
6	Auger 8" Steel Casing	L.F.	100	\$ 150.00	\$ 15,000.00
7	3" Force Main	L.F.	750	\$ 25.00	\$ 18,750.00
8	Trench Safety	L.F.	750	\$ 2.00	\$ 1,500.00
		SUB-TOTAL WATER LINE ITEMS			\$ 460,250.00
SUB-TOTAL					\$ 482,750.00
TxDOT Coordination					\$ 5,000.00
30% CONTINGENCY					\$ 144,825.00
5% MARKET VOLATILITY (N/A)					\$ 24,137.50
TOTAL OPINION OF PROBABLE CONSTRUCTION COST					\$ 656,712.50

Option #2

Buildings	L(ft)	W(ft)	Area (SF)	SU Equivalent	1.0SU = 250gpd	Flow(gpm)
A	59.5	54.9	3266.55	0.000237	193.54	0.54
B	160	55	8800	0.000237	521.40	1.45
C	160	50	8000	0.000237	474.00	1.32
D	120	68.6	8232	0.000237	487.75	1.35
E	192.8	39.2	7557.76	0.000237	447.80	1.24
F	157.7	100.8	15896.16	0.000237	941.85	2.62
G	28.3	25.7	727.31	0.000237	43.09	0.12
H	93.3	46.2	4310.46	0.000237	255.39	0.71
I	90.4	56	5062.4	0.000237	299.95	0.83
J	71	51.8	3677.8	0.000237	217.91	0.61
EOC						64
Tax Office						7.25
Total						82.03

Cameron Hydraulic Data	2" Pipe	3" Pipe	4" Pipe
Flow	Velocity (ft/s)	Velocity (ft/s)	Velocity (ft/s)
80	7.65	3.63	2.04
85	8.13	3.86	
90	8.6	4.08	2.3
95	9.08	4.31	
100	9.56	4.54	2.55
110	10.52	4.99	2.81
120	11.5	5.45	3.06

Proposed Force Main (ft)	714
Proposed Gravity Sewer Line (ft)	520
Proposed Manhole	2

Option #2



OPINION OF PROBABLE CONSTRUCTION COST					
City of Angleton Courthouse Expansion Project					
JUNE 2022					
Option 2 - Construction of a New Lift Station with 3" Force Main and 8" Gravity Sewer Line					
ITEM NO.	ITEM DESCRIPTION	UNIT	QUAN.	UNIT PRICE	TOTAL AMOUNT
A) GENERAL ITEMS					
1	Mobilization	L.S.	1	\$ 15,000.00	\$ 15,000.00
2	Traffic Control Plans and Flagmen	L.S.	1	\$ 20,000.00	\$ 20,000.00
3	SWPPP	L.S.	1	\$ 5,000.00	\$ 5,000.00
		SUB-TOTAL GENERAL ITEMS			\$ 40,000.00
B) WATER ITEMS					
4	120 gpm Grinder Pump Station	L.S.	1	\$ 250,000.00	\$ 250,000.00
5	6" reinforced Concrete Point Repair including removal of existing concrete and 12" of Subgrade and Installation of 12" of Cement Stablized Sand	SY	1,250	\$ 180.00	\$ 225,000.00
6	Auger 8" Steel Casing	L.F.	100	\$ 150.00	\$ 15,000.00
5	3" Force Main	L.F.	750	\$ 25.00	\$ 18,750.00
6	8" Sanitary Sewer	L.F.	550	\$ 65.00	\$ 35,750.00
7	4' Diameter Sanitary Sewer Manhole	EA.	2	\$ 7,500.00	\$ 15,000.00
8	Trench Safety	EA.	750	\$ 2.00	\$ 1,500.00
		SUB-TOTAL WATER LINE ITEMS			\$ 561,000.00
SUB-TOTAL					\$ 601,000.00
TxDOT Coordination					\$ 5,000.00
30% CONTINGENCY					\$ 180,300.00
5% MARKET VOLATILITY (N/A)					\$ 30,050.00
TOTAL OPINION OF PROBABLE CONSTRUCTION COST					\$ 816,350.00