THE COUNTY OF GALVESTON

RUFUS G. CROWDER, CPPO, CPPB
PURCHASING AGENT

COUNTY COURTHOUSE
722 Moody (21st Street)
Fifth (5th) Floor
GALVESTON, TEXAS 77550

April 6, 2022

PROJECT NAME: **23rd Street Paving, Drainage & Utility Rehabilitation**

SOLICITATION NO: **ITB #B221010**

RE: **ADDENDUM #1**

To All Prospective Bidders,

The following information is being provided to aid in the preparation of your bid submittal(s):

QUESTIONS:

Question #1: ***I'm reaching out in regards to the above listed project. It looks like we are missing the TxDOT specs. Please advise.***

Response: The referenced TxDOT specs can be found on the TxDOT website.
https://www.txdot.gov/business/resources/txdot-specifications.html

Question #2: ***Will a bid item be added for removal of sanitary sewer pipe? Will it need to be open cut removed, or is grout abandoning acceptable?***

Response: See 1400 Specification, existing sanitary sewer pipe is to be removed (included in pay item) when open cut construction is utilized.

Question #3: ***Is the cement grouting of abandoned water line underneath pavement to be included in items 56 and 57?***

Response: The abandonment of the waterline is covered by bid item 64 as well as in the 1400 specification. Specification 2221 has also been added. Done at no separate pay.

Question #4: ***Where will the cost of removing the existing storm structures be accounted for?***

Response: A bid item has already been included in the bid form for the removal of existing storm sewer. See bid item (now) 27 & 28.

Question #5: ***Will a bid item be added for the 12" and 15" storm sewer that is shown in the Crossing Profiles?***

Response: Bid items for the mentioned sizes has been added.

Question #6: ***Will the 36" storm sewer underneath the tracks at Ave P need to be tunneled/bored?***

Response: A bid item has been added for the trenchless construction of the storm sewer under the trolly track.

Question #7: ***Pavers are show in areas outside of the crosswalks in the striping plans. Will those areas be considered standard concrete sidewalk for the purposes of the base bid?***

Response: Yes, the pavers in the sidewalk shall be considered for alternate bid. If pavers not awarded, then normal sidewalk will be placed instead.

Question #8: ***Is the paving quantity in the bid form correct?***

Response: The paving quantity has been updated see bid item 7.

Question #9: ***There is only 1,055 LF of augered water line labeled in the plans. Are the lateral offsets intended to be augered as well?***

Response: Yes the lateral offsets are to be included in the augering. A note has been added to the plan set waterline sections and the bid item quantity has been updated.

Question #10: ***Will items be added for pipebursting the existing 8", 10", and 15" sanitary sewer lines?***

Response: Sewer pipe reconstruction (open cut) of the aforementioned sizes have been added to the supplementary bid items.

Question #11: ***Is dewatering included in the bid items?***

Response: Dewatering is included in the water, storm, and sanitary sewer items in the 1400 specification. There is no separate pay item for dewatering.

Question #12: ***Regarding Items 63 and 65, the OD's specified do not match up with DIPS or IPS pipe OD***

Response: Bid items (now) 65 and 67 have an updated OD as stated in DIPS/IPS.

Question #13: ***Would you please send us the Pre-Bid Sign in Sheet for this project?***

Response: Attached you will find the request information.

Question #14: ***The OD's given on the HDPE pipe do not match what's manufactured in DIPS or IPS OD's***

Here is what is showing:

Item 63 – 380ft OD 14.5 pipe burst 12" SDR 19
Item 65 – 2190 ft OD 21.5 pipe burst 18" SDR 19

Please let me know how you guys would like to correct

Response: Bid items (now) 65 and 67 have an updated OD.

Question #15: ***In bid item 31, is the 48" round pipe equivalent intended? The 36"x58 ½" arch pipe?***

Response: The pipe needs to be a 48-inch pipe round equivalent.

Question #16: ***Would a precast box be allowable for the AT&T conflict boxes?***

Response: There is no preference for cast in place or precast conflict box. Contractor will need to ensure that the location and depth of the steel conduit is in the correct location before precast is ordered. The road shall not be opened for extended periods of time that blocks traffic. An appropriate road closure plan must be submitted to the County before either construction method is chosen.

Question #17: ***There are 2 45° Turning Junction Boxes. Which is the work for item 46? Is the box at STA 29+42.42 precast or cast in place?***

Response: The work for the junction box (now bid item 48) is for the "Prop. **Conflict** Junction Box 45° Turning Box" at 29+42.42. The other 45° Junction box is covered in the bid item below it (now bid item 49).

Clarification #1: ***Conflict box clarification***

Response: Contractor shall submit engineer sealed submittals for traffic rated conflict boxes and cast in place junction boxes.

Clarification #2: ***Dewatering Clarification***

Response: Dewatering is included in the water, storm, and sanitary sewer items in the 1400 specification. There is no separate pay item for dewatering.

If you have any further questions regarding this bid, please address them to the representative listed below, via e-mail at purchasing.bids@co.galveston.tx.us, or contact the Purchasing Department at (409) 770-5371

Rufus G. Crowder, CPPO CPPB
Galveston County Purchasing Agent
722 Moody, Fifth (5th) Floor
Galveston, Texas 77550
E-mail: purchasing.bids@co.galveston.tx.us

Please excuse us for any inconvenience that this may have caused.

Sincerely,

Rufus Crowder

Rufus G. Crowder, CPPO CPPB
Purchasing Agent
Galveston County

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
6	2242	8-Inch Stabilized Sub-Grade (Manipulation), Complete in Place	25,540	SY	_____ Dollars _____ Cents	$_____	$_____
7	2521	7-Inch Reinforced Concrete Pavement, Match Existing Road Section (Minimum 5.5 Sacks per Cubic Yard), Complete in Place	22,180	SY	_____ Dollars _____ Cents	$_____	$_____
8	2521	6-Inch Reinforced Concrete Pavement for Driveways, Match Existing Road Section (Minimum 5.5 Sacks per Cubic Yard), Complete in Place	2,540	SY	_____ Dollars _____ Cents	$_____	$_____
9	2532	6-Inch Concrete Curb, Complete in Place	7,145	LF	_____ Dollars _____ Cents	$_____	$_____
10	2530	5-Inch Thick Concrete Sidewalk and Base Per Detail, Complete in Place	3,850	SY	_____ Dollars _____ Cents	$_____	$_____
11	2570	3-Inch Thick HMHL Surface Coarse, Type "D" per TXDOT Item 340, Including 10-Inch Thick Asphalt Base, Gr. 2, PG-64, Per TXDOT Item 292, Complete in Place	820	SY	_____ Dollars _____ Cents	$_____	$_____
12	TXDoT 531	ADA Accessible Concrete Ramp Per Detail, Complete in Place	131	EA	_____ Dollars _____ Cents	$_____	$_____

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
13	TXDoT: 666 DWGS	Traffic Markings, Prep and Paint, 4-Inch Solid White Striping, Complete in Place, As Directed by Engineer	750	LF	_____ Dollars _____ Cents	$_____	$_____
14	TXDoT: 666 DWGS	Traffic Markings, Prep and Paint, 4-Inch Solid Yellow Striping, Complete in Place, As Directed by Engineer	2,005	LF	_____ Dollars _____ Cents	$_____	$_____
15	TXDoT: 666 DWGS	Traffic Markings, Prep and Paint, 8-Inch Solid White Striping, Complete in Place, As Directed by Engineer	5,035	LF	_____ Dollars _____ Cents	$_____	$_____
16	TXDoT: 666 DWGS	Traffic Markings, Prep and Paint, 24-Inch Solid White Stop Bar, Complete in Place, As Directed by Engineer	1,170	LF	_____ Dollars _____ Cents	$_____	$_____
17	TXDoT: 666 DWGS	Traffic Markings, Prep and Paint, White "STOP" Marking, Complete in Place, As Directed by Engineer	14	EA	_____ Dollars _____ Cents	$_____	$_____
18	TXDoT:666 DWGS	Traffic Markings, Prep and Paint, White Turn Only Marking, Complete in Place, As Directed by Engineer	2	EA	_____ Dollars _____ Cents	$_____	$_____
19	DWGS	Remove Existing Sign and Replace with New Sign, Complete in Place	61	EA	_____ Dollars _____ Cents	$_____	$_____

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
20	DWGS	Remove Existing School Zone Sign and Replace with New School Zone Sign with Mounted Solar Powered Beacons, Complete in Place	2	EA	_____ Dollars _____ Cents	$_____	$_____
21	SS 5074	Remove and Replace 6-Foot Concrete Wheel Stops, Complete in Place	45	EA	_____ Dollars _____ Cents	$_____	$_____
22	DWGS	Traffic Control Plan, Complete in Place	1	LS	_____ Dollars _____ Cents	$_____	$_____
23	2935	Turf Establishment, Full Sodding, Complete in Place	4,820	SY	_____ Dollars _____ Cents	$_____	$_____
24	DWGS	SWPPP, Installed, Maintained, and Removed, In Accordance with Best Management Practices, Complete in Place	1	LS	_____ Dollars _____ Cents	$_____	$_____
25	1580	Project Identification Sign, Complete in Place	1	LS	_____ Dollars _____ Cents	$_____	$_____
26		Flagger - As Directed by Engineer (Min. Bid $20 / HR)	950	HR	_____ Dollars _____ Cents	$_____	$_____

TOTAL AMOUNT SITE BID ITEMS _____
(Items 1 thru 26)

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
STORM							
27	2706	Remove Existing Culverts 36-Inch or Less, Complete in Place	3,755	LF	_____ Dollars _____ Cents	$_____	$_____
28	2706	Remove Existing Culverts 60-Inch, Complete in Place	295	LF	_____ Dollars _____ Cents	$_____	$_____
29	2720	12-Inch Reinforced Concrete Pipe, ASTM C-76, Class III, including Cement Stabilized Sand, Complete in Place	25	LF	_____ Dollars _____ Cents	$_____	$_____
30	2720	15-Inch Reinforced Concrete Pipe, ASTM C-76, Class III, Complete in Place	10	LF	_____ Dollars _____ Cents	$_____	$_____
31	2720	24-Inch Reinforced Concrete Pipe, ASTM C-76, Class III, including Cement Stabilized Sand, Complete in Place	2,250	LF	_____ Dollars _____ Cents	$_____	$_____
32	2720	36-Inch Reinforced Concrete Pipe, ASTM C-76, Class III, Complete in Place	395	LF	_____ Dollars _____ Cents	$_____	$_____
33	2720	48-Inch Reinforced Concrete Arch Pipe, ASTM C-76, Class III, Complete in Place	1,235	LF	_____ Dollars _____ Cents	$_____	$_____
34	2720	60-Inch Reinforced Concrete Pipe, ASTM C-76, Class III, Complete in Place	745	LF	_____ Dollars _____ Cents	$_____	$_____

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
35	2720	8-Foot by 3-Foot Reinforced Concrete Box Culvert, ASTM C-1433, Complete in Place	1,590	LF	_____ Dollars _____ Cents	$_____	$_____
36	2720	36-Inch Reinforced Concrete Pipe Augered Construction (for trenchless construction under Trolly Track), and All Appurtenances, Complete in Place	30	LF	_____ Dollars _____ Cents	$_____	$_____
37	2720	Concrete Storm Manhole (4-Foot Diameter), Complete in Place	1	EA	_____ Dollars _____ Cents	$_____	$_____
38	2605	Type "A" Inlet, Complete in Place	19	EA	_____ Dollars _____ Cents	$_____	$_____
39	2605	Type "C" Inlet, Complete in Place	51	EA	_____ Dollars _____ Cents	$_____	$_____
40	2605	Type "C-1" Inlet, Complete in Place	5	EA	_____ Dollars _____ Cents	$_____	$_____
41	2605	Type "C-2" Inlet, Complete in Place	1	EA	_____ Dollars _____ Cents	$_____	$_____
42	2720	Junction Box (5'x5') with Manhole Access Lid, Complete in Place	4	EA	_____ Dollars _____ Cents	$_____	$_____

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
43	2720	Junction Box (7'x7') with Manhole Access Lid, Complete in Place	7	EA	_____ Dollars _____ Cents	$_____	$_____
44	2720	Junction Box (8'x6') with Manhole Access Lid, Complete in Place	1	EA	_____ Dollars _____ Cents	$_____	$_____
45	2720	Junction Box (8'x8') with Manhole Access Lid, Complete in Place	1	EA	_____ Dollars _____ Cents	$_____	$_____
46	2720	Junction Box (9.2'x9.5') with Manhole Access Lid, Complete in Place	1	EA	_____ Dollars _____ Cents	$_____	$_____
47	2720	Junction Box (10.5'x8') with Manhole Access Lid, Complete in Place	3	EA	_____ Dollars _____ Cents	$_____	$_____
48	DWGS	Conflict Junction Box ("45° Turning Box") with Manhole Access Lid, Complete in Place	1	EA	_____ Dollars _____ Cents	$_____	$_____
49	DWGS	Junction Box ("45° Turning Box") with Manhole Access Lid, Complete in Place	1	EA	_____ Dollars _____ Cents	$_____	$_____
					TOTAL AMOUNT STORM BID ITEMS	_____ (Items 27 thru 49)	

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
WATER							
50	2664	12-Inch Waterline, Augered Construction (PVC, AWWA C-900, DR-18) All Depths, Complete in Place	1,670	LF	_____ Dollars _____ Cents	$_____	$_____
51	2664	12-Inch Waterline (PVC, AWWA C-900, DR-18) with Ductile Iron Fittings, Open Cut, Joint Restraints (as necessary), Including Sections Ductile Iron (AWWA C-151, Class 350) (as necessary) and Offsets as Shown on Plans, All Depths, Complete in Place	755	LF	_____ Dollars _____ Cents	$_____	$_____
52	2664	12-Inch Waterline (PVC, AWWA C-900, DR-18) with Ductile Iron Fittings, **Augered and Encased** with 18-Inch PVC Casing (0.3125-Inch Thick, C-150), and Offsets as Shown on Plans, All Depths, Complete in Place	135	LF	_____ Dollars _____ Cents	$_____	$_____
53	2625	Close Existing Valve, Remove Box, Plug Valve Operator (Open cut & Backfill), Complete in Place	20	EA	_____ Dollars _____ Cents	$_____	$_____
54	2625	Construct New Polyethylene Tubing Service Connection (3/4-Inch to 1-Inch), Short Side, Including Tap, Pipe, Valves, Connection to New Meter, and New Meter Box, Complete in Place	11	EA	_____ Dollars _____ Cents	$_____	$_____

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
55	2625	Construct New Polyethylene Tubing Service Connection (3/4-Inch to 1-Inch), Long Side, Auger Beneath Road, Including Tap, Pipe, Valves, Connection to New Meter, and New Meter Box, Complete in Place	4	EA	_____ Dollars _____ Cents	$_____	$_____
56	2625	Construct New Polyethylene Tubing Service Connection (2-Inch), Short Side, Including Tap, Pipe, Valves, Connection to New Meter, and New Meter Box, Complete in Place	5	EA	_____ Dollars _____ Cents	$_____	$_____
57	2625	Construct New Polyethylene Tubing Service Connection (2-Inch), Long Side, Auger Beneath Road, Including Tap, Pipe, Valves, Connection to New Meter, and New Meter Box, Complete in Place	10	EA	_____ Dollars _____ Cents	$_____	$_____
58	2626	12" Gate Valve (AWWA) with Adjustable Box, Joint Restraint (as necessary), Accessories, Concrete Collar, Complete in Place	25	EA	_____ Dollars _____ Cents	$_____	$_____
59	2626	8-Inch Wet Connection, Including Valve Closures for Line Isolation and Cut & Plug of Existing Line or Removal as Necessary, Complete in Place	7	EA	_____ Dollars _____ Cents	$_____	$_____

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
60	2626	6-Inch Wet Connection, Including Valve Closures for Line Isolation and Cut & Plug of Existing Line or Removal as Necessary, Complete in Place	12	EA	_____ Dollars _____ Cents	$_____	$_____
61	2626	6-Inch x 6-Inch Tapping Sleeve and Valve (AWWA) Full Body with Adjustable Box, Joint Restraint (as necessary), Accessories, Concrete Collar, Complete in Place	1	EA	_____ Dollars _____ Cents	$_____	$_____
62	2626	Fire Hydrant Assembly, With Restrained Joints, 4-Foot Bury, Concrete Collar, Thrust Block, Complete in Place	13	EA	_____ Dollars _____ Cents	$_____	$_____
63	2626	Extra Depth Bury for Fire Hydrant, Complete in Place	24	VF	_____ Dollars _____ Cents	$_____	$_____
64	2221	Cut and Plug Existing Waterline (Open cut & Backfill), Complete in Place	19	EA	_____ Dollars _____ Cents	$_____	$_____
					TOTAL AMOUNT WATER BID ITEMS	_____ (Items 50 thru 64)	

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
SANITARY							
65	2730	12-Inch Sanitary Sewer, Open Cut Construction, Solid Wall PVC, SDR 26, Including By-pass Pumping, All Depths, Complete in Place	160	LF	_____ Dollars _____ Cents	$_____	$_____
66	2768	12-Inch Sewer Reconstruction by Pipe Bursting with 13.2-Inch O.D. Polyethylene Pipe (SDR 19), all Depths, Including By-pass Pumping, Trench Safety, Post TV Inspection, Etc., As Directed by Owner's Representative, Complete in Place	380	LF	_____ Dollars _____ Cents	$_____	$_____
67	2730	18-Inch Sanitary Sewer, Open Cut Construction, Solid Wall PVC, SDR 26, Including By-pass Pumping, All Depths, Complete in Place	1320	LF	_____ Dollars _____ Cents	$_____	$_____
68	2768	18-Inch Sewer Reconstruction by Pipe Bursting with 19.5-Inch O.D. Polyethylene Pipe (SDR 19), all Depths, Including By-pass Pumping, Trench Safety, Post TV Inspection, Etc., As Directed by Owner's Representative, Complete in Place	2,190	LF	_____ Dollars _____ Cents	$_____	$_____

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
69	2601	Standard Concrete Sanitary Sewer Manhole, 4-Foot Diameter, 0-8' Depth, Complete in Place	34	EA	_____ Dollars _____ Cents	$_____	$_____
70	2076	Remove Existing Sanitary Sewer Manhole, Complete in Place	31	EA	_____ Dollars _____ Cents	$_____	$_____
71	2665	Normal Connection (4-Inch or 6-Inch), Complete in Place	67	EA	_____ Dollars _____ Cents	$_____	$_____
72	2665	Short Side Service Connection (4-Inch), Complete in Place	4	EA	_____ Dollars _____ Cents	$_____	$_____
73	2665	Long Side Service Connection (4-Inch), Complete in Place	49	EA	_____ Dollars _____ Cents	$_____	$_____
74	2665	Long Side Service Connection (6-Inch), Complete in Place	4	EA	_____ Dollars _____ Cents	$_____	$_____

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
75	2665	Short Side Service Connection (6-Inch), Complete in Place	10	EA	_____ Dollars _____ Cents	$_____	$_____
76	DWGS	Sanitary Sewer Vent, Complete in Place	2	EA	_____ Dollars _____ Cents	$_____	$_____
					TOTAL AMOUNT SANITARY BID ITEMS		_____ (Items 65 thru 76)
SUPPLEMENTAL BID ITEMS							
77	2521	Furnish and Install 8" Reinforced High Early Strength Concrete Pavement, Match Existing Road Section (Minimum 7 Sacks per Cubic Yard), Complete in Place	6,500	SY	_____ Dollars _____ Cents	(Minimum bid $85.00) $_____	$_____
78	2442	Flyash for 8-Inch Stabilized Sub-Grade (5% by Dryweight), Complete in Place (48 lb/sy)	100	TON	_____ Dollars _____ Cents	(Minimum bid $100.00) $_____	$_____
79	TXDoT: 666 DWGS	Traffic Markings, Prep and Paint, ADA Parking Marking, Complete in Place, As Directed by Engineer	1	EA	_____ Dollars _____ Cents	(Minimum bid $300.00) $_____	$_____

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
80	2720	18-Inch Reinforced Concrete Pipe, ASTM C-76, Class III, Complete in Place	200	LF	_____ Dollars _____ Cents	(Minimum bid $40.00) $_____	$_____
81	HD Storm Pipe 12"-60"	24-Inch HP Storm Pipe, Pipe conforms to TxDOT SS Item 4122, AASHTO M330, ASTM F2881 Type S, Complete in Place	70	LF	_____ Dollars _____ Cents	(Minimum bid $40.00) $_____	$_____
82	2720	6" Insertion Valve (AWWA) with Adjustable Box, Joint Restraint (as necessary), Accessories, Concrete Collar, As Directed by Owner's Representative, Complete in Place	1	EA	_____ Dollars _____ Cents	(Minimum Bid $5,000.00) $_____	$_____
83	2720	8" Insertion Valve (AWWA) with Adjustable Box, Joint Restraint (as necessary), Accessories, Concrete Collar, As Directed by Owner's Representative, Complete in Place	1	EA	_____ Dollars _____ Cents	(Minimum Bid $6,000.00) $_____	$_____
84	2720	12" Insertion Valve (AWWA) with Adjustable Box, Joint Restraint (as necessary), Accessories, Concrete Collar, As Directed by Owner's Representative, Complete in Place	1	EA	_____ Dollars _____ Cents	(Minimum Bid $7,000.00) $_____	$_____

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
85	LJA Spec. 2560	Sanitary Sewer Cleanout Per Detail, Complete in Place	1	EA	_____ Dollars _____ Cents	(Minimum Bid $300.00) $_____	$_____
86	2730	8-Inch Sanitary Sewer, Open Cut Construction, Solid Wall PVC, SDR 26, Including By-pass Pumping, All Depths, Complete in Place	100	LF	_____ Dollars _____ Cents	(Minimum Bid $30.00) $_____	$_____
87	2730	10-Inch Sanitary Sewer, Open Cut Construction, Solid Wall PVC, SDR 26, Including By-pass Pumping, All Depths, Complete in Place	100	LF	_____ Dollars _____ Cents	(Minimum Bid $40.00) $_____	$_____
88	2730	15-Inch Sanitary Sewer, Open Cut Construction, Solid Wall PVC, SDR 26, Including By-pass Pumping, All Depths, Complete in Place	100	LF	_____ Dollars _____ Cents	(Minimum Bid $50.00) $_____	$_____
89	TXDoT 400	"Extra" Cement Stabilized Sand, As Directed by Owner's Representative, Complete in Place	200	TON	_____ Dollars _____ Cents	(Minimum Bid $35.00) $_____	$_____

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
90	2521	"Extra" Class "A" Concrete, As Directed by Owner's Representative, Complete in Place	100	CY	_____ Dollars _____ Cents	(Minimum bid $100.00) $_____	$_____
91	TXDoT 440	"Extra" Reinforcing Steel, As Directed by Owner's Representative, Complete in Place	2,500	LB	_____ Dollars _____ Cents	(Minimum Bid $1.00) $_____	$_____
92	LJA Spec. 2223	"Extra" Crushed Limestone Bedding, As Directed by Owner's Representative, Complete in Place	50	CY	_____ Dollars _____ Cents	(Minimum bid $25.00) $_____	$_____
93	DWGS	Select Fill, Compacted per ASTM D698, As Directed by Owner's Representative, Complete in Place	300	CY	_____ Dollars _____ Cents	(Minimum Bid $10.00) $_____	$_____

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
94	2932	Turf Establishment, Hydromulch Seeding, Complete in Place	0.50	AC	_____ Dollars _____ Cents	(Minimum Bid $2,000.00) $_____	$_____
95	1526	Trench Safety, Complete in Place	12,395	LF	_____ Dollars _____ Cents	(Minimum Bid $0.50) $_____	$_____
					TOTAL AMOUNT SUPPLEMENTAL BID ITEMS		_____ (Items 77 thru 95)
ALTERNATE BID ITEMS							
96	DWGS	Brick Paver (Sidewalk Crossing/Bumpouts) Per Detail, Complete in Place	2,605	SY	_____ Dollars _____ Cents	(Minimum Bid $30.00) $_____	$_____
					TOTAL AMOUNT ALTERNATE BID ITEMS		_____ (Items 96)

ITEM NO.	SPEC NO.	DESCRIPTION (2)	APPROX. QTY.	UNITS	UNIT PRICE IN WORDS	UNIT PRICE (2)	TOTAL AMOUNT
SUMMATION							

TOTAL AMOUNT PAVING BID ITEMS _____
(Items 1 thru 26)

TOTAL AMOUNT STORM BID ITEMS _____
(Items 27 thru 49)

TOTAL AMOUNT WATER BID ITEMS _____
(Items 50 thru 64)

TOTAL AMOUNT SANITARY BID ITEMS _____
(Items 65 thru 76)

TOTAL AMOUNT BASE BID ITEMS _____
(Items 1 thru 76)

TOTAL AMOUNT SUPPLEMENTAL BID ITEMS _____
(Items 77 thru 95)

TOTAL AMOUNT ALTERNATE BID ITEMS _____
(Items 96)

TOTAL AMOUNT SUPPLEMENTAL AND BASE BID ITEMS _____
(Items 1 thru 95)

TOTAL AMOUNT SUPPLEMENTAL, ALTERNATE, AND BASE BID ITEMS _____
(Items 1 thru 96)

Notes:
(1) The intent of the Contract Documents is for the Contractor to include all items necessary for the proper execution and completion of the Work described the Contract Documents. No separate measurement and payment shall be made for any work unless identified as a pay item in the BID. Include the cost of work not identified as a separate pay item in Contract price bid for items of which this work is a component. In case of discrepancy between measurement and payment within the BID and Technical Specification Section, the BID shall govern.
(2) In the event of a discrepancy, this column shall govern.

23RD STREET REHABILITATION
GALVESTON COUNTY

TECHNICAL SPECIFICATIONS

DIVISION 2 – SITE WORK

DIVISION 3 – CONCRETE

LJA Project No. 0384-9012

ITEM 1400

MEASUREMENT AND PAYMENT

MEASUREMENT AND PAYMENT: It is the intent of the Proposal and of the General and Supplementary Conditions that the total bid, as submitted, shall cover all work required by these Contract Documents and the Plans. All costs in connection with the work, including the furnishing of all materials, appliances, equipment, supplies and all appurtenances; providing all construction equipment and tools; and performing all necessary labor to fully complete the work shall be included in the unit prices in the Proposal. No item of work that is required by the Contract Documents for the proper and successful completion of the Contract will be paid for outside of or in addition to the prices submitted to the Proposal. All work not specifically set forth in the Proposal as a pay item shall be considered a subsidiary obligation of the Contractor and all costs in connection therewith shall be included in the prices named in the Proposal.

The method of measurement and basis of payment shall be as stipulated in the following subparagraphs:

1. Mobilization including all permits and fees; Bid Item 1:

   Measurement shall be "Per Lump Sum". The unit price shall be full compensation for the transportation and delivery of supplies, equipment, and crew on site and start the job. This item is to be utilized once only in the beginning of the job.

2. Excavation of Existing Road 5-Inches to 8-Inches; Bid Item 2:

   Measurement shall be "Per Square Yard". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies, and incidentals necessary to complete the work; including roadway, destruction, excavation, saw cutting, shaping and finishing, salvaging, transporting, and removing material and base material, as required.

3. Cut / Excavation for Ditch Finished Grade; Bid Item 3:

   Measurement shall be "Per Cubic Yard". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies, and incidentals necessary to complete the work, including excavating or blading onsite material from roadway to establish a finished grade on spoil location sheet as called out in plans, and reach compaction to 95% by Standard Procter Density. The surplus suitable material shall be placed as shown in plans as described by Owner's Representative. The location for desirable spoil to be placed shall not exceed a distance of 0.5 miles.

4. Embankment for Fill Purposes, Bid Item 4:

   Measurement shall be "Cubic Yard" of in-place material. The unit price shall be full compensation for materials, labor, and appurtenances for delivery and installation of extra embankment as required to raise and establish a finished grade as called out on plans, and reach compaction of 95% standard proctor density, as directed by the Owner's Representative.

5. Lime for 8-inch Stabilized Sub-Grade (5% by Dryweight); Bid Item 5:

   Measurement shall be "Per Ton". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies and incidentals necessary to complete the work, including supplying and placing lime to be utilized.

6. 8-Inch Stabilized Sub-Grade (Manipulation); Bid Item 6:

   Measurement shall be "Per Square Yard". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies, and incidentals necessary to complete the work, including salvaging and reshaping the existing base material and subgrade to obtain the required alignment and grade of the proposed pavement; spreading, blading and shaping of any material brought to the project from a stockpile; spreading and blading of the lime/flyash to obtain a uniform application; lime/flyash stabilization; mixing, sprinkling, blading, shaping and rolling of the base material and subgrade to obtain the required Standard Proctor Density and all manipulations, labor, tools, equipment necessary to complete the work.

7. 7-Inch Reinforced Concrete Pavement (5.5 Sacks per Cubic Yard); Bid Item 7:

   Measurement shall be "Per Square Yard". The unit price shall be full compensation for shaping and fine grading the roadbed, including furnishing and applying all water required; for furnishing, loading and all freight and royalty involved; for mixing, placing, finishing and curing all concrete mix; for furnishing all materials for and placing longitudinal, warping, expansion, sawed control and contraction joints , and load transmission units, and joint filler material in proper position; for coating steel bars where required by plans, for furnishing and placing all reinforcing steel; and for all manipulations, labor, equipment, appliances, tools, traffic provisions and incidentals necessary to complete the work.

8. 6-Inch Reinforced Concrete Pavement for Driveways (5.5 Sacks per Cubic Yard); Bid Item 8:

   Measurement shall be "Per Square Yard". The unit price shall be full compensation for shaping and fine grading the roadbed, including furnishing and applying all water required; for furnishing, loading and all freight and royalty involved; for mixing, placing, finishing and curing all concrete mix; for furnishing all materials for and placing longitudinal, warping, expansion, sawed control and contraction joints , and load transmission units, and joint filler material in proper position; for coating steel bars where required by plans, for furnishing and placing all reinforcing steel; and for all manipulations, labor, equipment, appliances, tools, traffic provisions and incidentals necessary to complete the work.

9. 6-Inch Curb; Bid Item 9:

   Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies and incidentals necessary to complete the work, including layout, forming, reinforcement including dowels, supply and installation of concrete, joints, trenching and incidentals thereto, salvaging, transporting, and delivering the material, as required to complete a 6-Inch concrete curb complete in place.

10. 5-Inch Thick Concrete Sidewalk, Bid Item 10:

    Measurement shall be "Per Square Yard". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies and incidentals necessary to complete the work, including layout, shaping and compacting the select fill bed, including furnishing and applying all water required; loading and all freight and royalty involved; compact to 95% maximum dry density determined by the standard proctor method (ASTM 0-698) for sidewalk bedding, mixing, placing, finishing with a light broom finish and curing all concrete mix, new sidewalk per detail, adjusting elevation of new sidewalk using compacted sand, forming, reinforcement including dowels, joints, trenching and incidentals thereto, salvaging, transporting, and delivering the material, as required, complete in place.

11. 3-Inch Asphaltic Concrete Surface, Bid Item 11:

    Measurement shall be "Per Square Yard". The unit price shall be for furnishing and placement of all materials including prime coat, 8-inch asphalt base grade-2 PG-64, per TXDOT Item 292, 3-inch thick HMHL surface coarse, type "D" per TXDOT Item 340, and required equipment and labor. Pavement shall be for repaired areas where removal was required for construction. Saw-cutting and excavation of existing area to be repaired is incidental to this item. Pavement replacement shall not exceed the areas shown on the details. Other damaged areas shall be repaired at Contractor's expense.

12. ADA-Handicap Accessible Ramp; Bid Item 12:

    Measurement shall be "Per Each". The unit price shall be full compensation for shaping, including furnishing and applying all water required; for furnishing, loading and all freight and royalty involved; for mixing, placing, finishing and curing all concrete mix; for furnishing all materials for and placing truncated domes, slopes, doweling into existing ramp, and tie-ins to new or existing sidewalk and pavement, for furnishing and placing all reinforcing steel; and for all manipulations, labor, equipment, appliances, tools, traffic provisions and incidentals necessary to complete the work for a concrete ramp complete in place.

13. Traffic Markings, Prep and Paint, 4" Solid White Striping; Bid Item 13:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies, and incidentals necessary to complete the work, including the layout, and surface preparation to place a 4" solid white stripe, as directed by the Owner's Representative, complete in place.

14. Traffic Markings, Prep and Paint, 4" Solid Yellow Striping; Bid Item 14:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies, and incidentals necessary to complete the work, including the layout, and surface preparation to place a 4" dashed yellow stripe, as directed by the Owner's Representative, complete in place.

15. Traffic Markings, Prep and Paint, 8" Solid White Striping; Bid Item 15:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies, and incidentals necessary to complete the work, including the layout, and surface preparation to place a 8" solid white stripe, as directed by the Owner's Representative, complete in place.

16. Traffic Markings, Prep and Paint, 24" Wide Stop Bar; Bid Item 16:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies, and incidentals necessary to complete the work, including the layout, and surface preparation to place a 24" wide white stop bar stripe, as directed by the Owner's Representative, complete in place.

17. Traffic Markings, Prep and Paint, White "STOP" Marking; Bid Item 17:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies, and incidentals necessary to complete the work, including the layout, and surface preparation to place a white "STOP" Marking stripe, as directed by the Owner's Representative, complete in place.

18. Traffic Markings, Prep and Paint, White Turn Only Marking; Bid Item 18:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies, and incidentals necessary to complete the work, including the layout, and surface preparation to place a white Turn Only Marking stripe, as directed by the Owner's Representative, complete in place.

19. Remove Existing Sign and Replace with New, Bid Item 19:

    Measurement shall be "Per Each." Unit price shall be full compensation for removal and replacement of existing sign, cleanup, appurtenances, and any incidentals necessary to complete the work.

20. Remove Existing Solar School Zone Sign with Lights and Replace with New, Bid Item 20:

    Measurement shall be "Per Each." Unit price shall be full compensation for removal and replacement of existing sign, cleanup, appurtenances, and any incidentals necessary to complete the work.

21. Remove and Replace 6-Foot Concrete Wheel Stops; Bid Item 21:

    Measurement shall be "Per Each". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies and incidentals necessary to complete the work, including layout, forming, reinforcement including rebar, supply and installation of concrete, drilling holes, setting stops, salvaging, transporting, and delivering the material, as required to place wheel stops as shown in plans, complete in place.

22. Traffic Control Plan During Construction; Bid Item 22:

    Measurement shall be "Per Month". The unit price shall be full compensation for furnishing traffic control plan needed for milling, proof rolling, forming and concrete activities as necessary. Roadways are to be open to local traffic. The unit price shall include furnishing, installation, and removal of signs and/or barricades as necessary, and the use of flagmen to assist in traffic control during working hours.

23. Turf Establishment, Full Sodding; Bid Item 23:

    Measurement shall be "Per Square Yard". Payment is to be full compensation for the establishment of turf by sodding in accordance with the Specifications in locations specified by the Owner's Representative.

24. SWPPP, Installed, Maintained, and Removed; Bid Item 24:

    Measurement shall be "Per Lump Sum". The unit price shall be full compensation for supplying materials, installation of SWPPP, maintenance of SWPPP, and removal of SWPPP at the end of construction, finish grading, clean-up, and all incidental work.

25. Project Sign; Bid Item 25:

    Measurement shall be "Per Lump Sum". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies and incidentals necessary to complete the work, including the placement of sign, as directed by the engineer for the duration of the project and then removed at projects end, complete in place.

26. Flagger; Bid Item 26:

    Measurement shall be "Per Hour". The unit price shall be full compensation for flagger in field during construction for traffic control if deemed necessary by county's' representative. Contractor shall get in writing approval before flagger is to be used for entirety of contract. This item does not preclude contractor from implementing the approved traffic control plan as necessary but shall be deemed as an additional necessity and shall be avoided if it can be.

27. Remove Existing Culverts 36-Inch or Less, Bid Item 27:

    Measurement shall be "Per Linear Foot". Payment shall be full compensation for supplying all materials to remove existing culvert, and labor to place haul offsite as directed by the engineer.

28. Remove Existing Culverts 60-Inch, Bid Item 28:

    Measurement shall be "Per Linear Foot". Payment shall be full compensation for supplying all materials to remove existing culvert, and labor to place haul offsite as directed by the engineer.

29. 12-Inch Reinforced Concrete Pipe, ASTM C-76, Class III; Bid Item 29:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing and installation of storm sewers of size contained in the bid form including excavation and embedment as required, removal of existing storm sewer, backfilling, finish grading, ditch grading to drain, dewatering, trench safety, cement stabilized sand, clean-up and all appurtenances including concrete collars per detail, and work required for the complete placement of proposed storm sewers.

30. 15-Inch Reinforced Concrete Pipe, ASTM C-76, Class III; Bid Item 30:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing and installation of storm sewers of size contained in the bid form including excavation and embedment as required, removal of existing storm sewer, backfilling, finish grading, ditch grading to drain, dewatering, trench safety, cement stabilized sand, clean-up and all appurtenances including concrete collars per detail, and work required for the complete placement of proposed storm sewers.

31. 24-Inch Reinforced Concrete Pipe, ASTM C-76, Class III; Bid Item 31:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing and installation of storm sewers of size contained in the bid form including excavation and embedment as required, removal of existing storm sewer, backfilling, finish grading, ditch grading to drain, dewatering, trench safety, cement stabilized sand, clean-up and all appurtenances including concrete collars per detail, and work required for the complete placement of proposed storm sewers.

32. 36-Inch Reinforced Concrete Pipe, ASTM C-76, Class III; Bid Item 32:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing and installation of storm sewers of size contained in the bid form including excavation and embedment as required, removal of existing storm sewer, backfilling, finish grading, ditch grading to drain, dewatering, trench safety, cement stabilized sand, clean-up and all appurtenances including concrete collars per detail, and work required for the complete placement of proposed storm sewers.

33. 48-Inch Reinforced Concrete Arch Pipe, ASTM C-76, Class III; Bid Item 33:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing and installation of storm sewers of size contained in the bid form including excavation and embedment as required, removal of existing storm sewer, backfilling, finish grading, ditch grading to drain, dewatering, trench safety, cement stabilized sand, clean-up and all appurtenances including concrete collars per detail, and work required for the complete placement of proposed storm sewers.

34. 60-Inch Reinforced Concrete Pipe, ASTM C-76, Class III; Bid Item 34:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing and installation of storm sewers of size contained in the bid form including excavation and embedment as required, removal of existing storm sewer, backfilling, finish grading, ditch grading to drain, dewatering, trench safety, cement stabilized sand, clean-up and all appurtenances including concrete collars per detail, and work required for the complete placement of proposed storm sewers.

35. 8-Foot by 3-Foot Reinforced Box Culvert (ASTM C850), Including Slope Paving and Backfill; Bid Item 35:

    Measurement shall be "Per Linear Foot" along the centerline of box sewer without deductions for manholes and inlets, from start to the line terminus. The unit price shall be full compensation for layout, trenching and incidentals thereto, saw-cutting, cement stabilized bedding, Concrete Safety End Treatment as shown in Plans, boxes and fitting materials, box placement, embedment and backfill to existing surface elevations, removal of existing storm sewer, dewatering, connections, trench safety, trench backfill maintenance, clean-up and all incidental work required for the complete contract not specifically included in another payment item.

36. 36-Inch Reinforced Concrete Pipe, Augered Construction (for trenchless construction under Trolly Track), ASTM C-76, Class III; Bid Item 36:

    Measurement shall be "Per Linear Foot" along centerline of pipe installed in augered hole from start to the augered terminus. The unit price shall be full compensation for layout, pit excavation, pavement removal, traffic control, dewatering, trench safety, boring to indicated alignment and grade, normal backfill to existing surface elevations, and all incidental work required for a complete installation.

37. Standard Concrete Storm Manhole; Bid Item 37:

    Measurement shall be "Per Each". Payment shall be full compensation for a 4-foot to 6-foot diameter manhole 0 to 8 feet deep, well point watering, per details on plans if necessary, complete in place concrete units including cone, rings, frame and cover, accessories, embedment, and backfill per details shown on Plans.

38. Type "A" Inlet; Bid Item 38:

Measurement shall be "Per Each". The unit price shall be full compensation for furnishing and installation of type "A" inlet including excavation and embedment as required, backfilling, finish grading, trench safety, SWPPP during construction and removal of SWPPP post construction, ditch grading to drain, dewatering, clean-up and all appurtenances including concrete collars per detail, and work required for the complete placement of proposed type "A" inlet.

39. Type "C" Inlet; Bid Item 39:

Measurement shall be "Per Each". The unit price shall be full compensation for furnishing and installation of type "C" inlet including excavation and embedment as required, backfilling, finish grading, trench safety, SWPPP during construction and removal of SWPPP post construction, ditch grading to drain, dewatering, clean-up and all appurtenances including concrete collars per detail, and work required for the complete placement of proposed type "C" inlet.

40. Type "C-1" Inlet; Bid Item 40:

Measurement shall be "Per Each". The unit price shall be full compensation for furnishing and installation of type "C-1" inlet including excavation and embedment as required, backfilling, finish grading, trench safety, SWPPP during construction and removal of SWPPP post construction, ditch grading to drain, dewatering, clean-up and all appurtenances including concrete collars per detail, and work required for the complete placement of proposed type "C-1" inlet.

41. Type "C-2" Inlet; Bid Item 41:

Measurement shall be "Per Each". The unit price shall be full compensation for furnishing and installation of type "C-2" inlet including excavation and embedment as required, backfilling, finish grading, trench safety, SWPPP during construction and removal of SWPPP post construction, ditch grading to drain, dewatering, clean-up and all appurtenances including concrete collars per detail, and work required for the complete placement of proposed type "C-2" inlet.

42. Junction Box; Bid Items 42, 43, 44, 45, 46, 47, 48 and 49:

Measurement shall be "Per Each." The unit price shall be full compensation for layout, materials, installation of materials necessary, excavation, disposal of waste, seal slabs, access inlet with solid cover, forming, steel placement, placement of concrete, trench safety, connections to all existing and proposal storm sewer, and appurtenances as shown on the Plans and/or Details, embedment and backfill, finish grading, dewatering, clean-up, coordination with sanitary sewer and AT&T is needed to avoid conflicts, and all appurtenances necessary to complete the work, complete in place.

43. Waterline in Augered Construction; Bid Item 50:

Measurement shall be "Per Linear Foot" along centerline of pipe from start to the augered terminus. The unit price shall be full compensation for layout, grade, clearing and grubbing, boring and jacking of pipe and incidentals thereto, bedding, carrier pipe and materials, pipe placement, fittings, thrust blocking and normal backfill to existing surface elevations, connections, joint restraints, bore pit dewatering, trench safety, testing, disinfection, trench backfill maintenance, and all incidental work.

44. Waterline, Open Cut; Bid Items 51:

Measurement shall be "Per Linear Foot" along centerline of pipe without deductions for valves and fittings, from start to line terminus. The unit price shall be full compensation for layout, clearing and grubbing, trenching and incidentals thereto, bank sand bedding, pipe and fitting materials, steel pipe sections (as applicable), pipe placement, thrust blocking and normal backfill to existing grade, testing, disinfection, connections, joint restraints, trench backfill, maintenance, clean-up, dewatering, trench safety, and all incidental work required for the complete contract not specifically included in another payment item.

45. Waterline in Augered & Encased Construction, Bid Item 52:

Measurement shall be "Per Linear Foot" along centerline of pipe from start to the augered terminus. The unit price shall be full compensation for layout, grade, clearing and grubbing, boring and jacking of encasement pipe and incidentals thereto, bedding, carrier pipe and materials, pipe placement, fittings, racci supports, thrust blocking and normal backfill to existing surface elevations, connections, bore pit dewatering, trench safety, testing, disinfection, trench backfill maintenance, and all incidental work.

46. Close Existing Valve, Remove Box, Plug Valve Operator (Open cut & Backfill), Bid Item 53:

    Measurement shall be "Per Each." Unit price shall be full compensation for excavation as necessary, closure of existing valve, removal of valve box, filling of valve operator nut cavity with concrete, backfill and surface restoration in accordance with plans, appurtenances and any incidentals necessary to complete the work.

47. Short Side Service Connections, Bid Items 54 and 56:

    Measurement shall be "Per Each". Payment shall be full payment for tapping of the line through service saddle with corporation stop, temporary capping of stop, installing new service line (with or without casing as required in Bid Form), excavating trench for new service, laying new service tubing from new meter to the new waterline, connecting new service line to the meter, dewatering, backfilling trench, and clean-up. No adjustment in the unit price shall be made for varying service line footage.

48. Long Side Service Connections; Bid Items 55 and 57:

    Measurement shall be "Per Each". Payment shall be full payment for tapping of the line through service saddle with corporation stop, temporary capping of stop, installing new service line (with or without casing as required in Bid Form), auger under road for new service, laying new service tubing from existing meter to the new waterline, connecting new service line to the meter, dewatering, brass adapters as necessary, tracer wire, setting new District supplied meter box if required by the District, backfilling auger pit, and clean-up. No adjustment in the unit price shall be made for varying service line footage.

49. Gate Valves; Bid Item 58:

    Measurement "Per Each". Payment includes valve with resilient seats, manual operator of type specified, accessories, adjustable valve box, setting, valve blocking, and incidental work.

50. Wet Connections, Bid Items 59 and 60:

    Measurement shall be "Per Each." Unit price shall be full compensation for excavation, dewatering, cutting, cleaning, fittings, blocking, appurtenances and any incidentals including cutting and plugging of existing pipes to be abandoned necessary for a complete connection.

51. Tapping Sleeve and Valve, Bid Item 61:

Measurement shall be "Per Each". Unit price shall be full compensation for tapping through full body service saddle with gate valve, valve pressure tap, adjustable box, blocking, appurtenances and dewatering of trench and any incidentals necessary to complete the work.

52. Fire Hydrant Assembly; Bid Item 62:

Measurement is to be "Per Each." Unit price shall be full compensation for tee (if required), piping, valve, elbow, new fire hydrant 4' bury, restrained joints, concrete block, drain gravel, and backfill.

53. Extra Depth of Bury for Fire Hydrant, Bid Item 63:

Measurement is to be "Per Vertical Foot." Unit price shall be full compensation for addition in barrel length over 4-foot of bury fire hydrant, complete with drain gravel, and backfill.

54. Cut & Plug Existing Waterline, Bid Item 64:

Measurement shall be "Per Each." Unit price shall be full compensation for excavation, dewatering, cutting, and plugging existing waterline to be abandoned, manufactured plug, backfill, appurtenances and any incidentals necessary to complete the work.

55. Sewer Reconstruction by Open Cut Method; Bid Items 65 and 67:

Measurement shall be "Per Linear Foot" for all sizes along the centerline of the pipe without deductions for manholes and fittings from start to line terminus. The unit price shall be full compensation for layout, removal of existing sanitary sewer as needed, bypass pumping, trenching and incidental thereto, Open cutting with saw for clean edge, material, placement, sealing when required, steel encasement as shown in the details, backfill to existing surface, post rehabilitation TV inspection, traffic control, trench safety for access pits and insertion pits, dewatering, cement stabilized sand, finish grading, clean-up and all incidental work for a complete project. If post rehabilitation TV inspection shows defects, TV inspection shall be repeated until defect is satisfactorily repaired. Post TV and relevant submittals shall be incidental to the project.

56. Sewer Reconstruction by Pipe Bursting; Bid Items 66 and 68:

Measurement shall be "Per Linear Foot" for all sizes along the centerline of the pipe without deductions for manholes and fittings from start to line terminus. The unit price shall be full compensation for layout, bypass pumping, trenching, dewatering, and incidental thereto, pipe bursting, liner material, liner placement, sealing when required, backfill to existing surface, cement stabilized sand, post rehabilitation TV inspection, traffic control, trench safety for access pits and insertion pits, finish grading, clean-up and all incidental work for a complete project. If post rehabilitation TV inspection shows defects, TV inspection shall be repeated until defect is satisfactorily repaired. Post TV and relevant submittals shall be incidental to the project.

57. Standard Concrete Sanitary Sewer Manhole; Bid Item 69:

Measurement shall be "Per Each". Payment shall be full compensation for a 4-foot diameter manhole 0 to 8 feet deep, sealed, bypass pumping, dewatering, per details on plans if necessary, complete in place concrete units including cone, rings, frame and cover, accessories, and backfill per details shown on Plans.

58. Remove Existing Sanitary Sewer Manhole; Bid Item 70:

Measurement shall be "Per Each". Unit price shall be full compensation for excavation, dewatering, bypass pumping, per details on plans if necessary, complete in place, cleanup, appurtenances, and any incidentals necessary to complete the work, and backfill per details shown on Plans.

59. Normal Connection, Complete in Place; Bid Item 71:

Measurement shall be "Per Each". Payment shall be full compensation for removal and replacement of individual house (4-inch) or commercial (6-inch) services from the newly reconstructed sewers to the service lead (long or short service). Work includes but is not limited to layout, dewatering, trenching and incidental thereto, sealing, bypass pumping, insert a tee and piping, backfill to existing surface, surface restoration, testing, safety measures, finish grading, clean-up, obstruction removal and all incidental work.

60. Short Side Service Connection; Bid Items 72 and 75:

Measurement shall be "Per Each". Payment shall be full compensation for removal and replacement of individual house services from the new sewer to the property line or easement line, including the connection to the new sewer line (deep connection or normal connection). Work includes but is not limited to layout, trenching and incidental thereto, sealing, pipe, backfill to existing surface, testing, traffic control, safety measures, finish grading, clean-up, obstruction removal, dewatering, required boring or auguring to install new service line, district side cleanout, and all incidental work required for a complete installation.

61. Long Service Connection; Bid Items 73 and 74:

    Measurement shall be "Per Each". Payment shall be full compensation for removal and replacement of individual house services from the new sewer under the street to the property line or easement line, including the connection to the new sewer line (deep connection or normal connection). Work includes but is not limited to layout, auguring and incidental thereto, sealing, pipe, backfill to existing surface, testing, traffic control, safety measures, finish grading, clean-up, obstruction removal, dewatering, required boring or auguring to install new service line, district side cleanout, and all incidental work required for a complete installation.

62. Vent Sanitary Sewer Manhole; Bid Item 76:

    Measurement shall be "Per Each". The unit price shall be full compensation for each manhole vent supplied and installed, including connection to the manhole, piping, bedding and backfill, fittings, and all incidental work required for a complete installation.

SUPPLEMENTARY ITEMS

63. Furnish and Install 8" Reinforced High Early Strength Concrete Pavement, Match Existing Road Section (Minimum 7 Sacks per Cubic Yard), As Directed by Owner's Representative; Supplemental Bid Item 77:

    Measurement shall be "Per Square Yard". The unit price shall be full compensation for shaping and fine grading the roadbed, including furnishing and applying all water required; for furnishing, loading and all freight and royalty involved; for mixing, placing, finishing and curing all concrete mix; for furnishing all materials for and placing longitudinal, warping, expansion, sawed control and contraction joints , and load transmission units, and joint filler material in proper position; for coating steel bars where required by plans, for furnishing and placing all reinforcing steel; and for all manipulations, labor, equipment, appliances, tools, traffic provisions and incidentals necessary to complete the work.

64. Flyash for 8-Inch Stabilized Sub-Grade (6% by Dryweight), As Directed by Owner's Representative; Supplemental Bid Item 78:

    Measurement shall be "Per Ton". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies and incidentals necessary to complete the work, including supplying and placing lime to be utilized.

65. Traffic Markings, Prep and Paint, ADA Parking Only Marking, As Directed by Owner's Representative; Supplemental Bid Item 79:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies, and incidentals necessary to complete the work, including the layout, and surface preparation to place a white Turn Only Marking stripe, as directed by the Owner's Representative, complete in place.

66. 18-Inch Reinforced Concrete Pipe, ASTM C-76, Class III, As Directed by Owner's Representative; Supplemental Bid Item 80:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing and installation of storm sewers of size contained in the bid form including excavation and embedment as required, backfilling, finish grading, ditch grading to drain, dewatering, clean-up and all appurtenances including concrete collars per detail, and work required for the complete placement of proposed storm sewers.

67. 24-Inch HP Storm Pipe, As Directed by Owner's Representative; Supplemental Bid Item 81:

    Measurement shall be "Per Linear Foot". The unit price shall be full compensation for furnishing and installation of storm sewers of size contained in the bid form including excavation and embedment as required, dewatering, backfilling, finish grading, ditch grading to drain, clean-up and all appurtenances including concrete collars per detail, and work required for the complete placement of proposed storm sewers.

68. Insertion Valves, As Directed by Owner's Representative; Supplemental Bid Items 82, 83, and 84:

    Measurement shall be "Per Each". Payment includes valve with resilient seats, manual operator of type specified, insertion of valve into, and connection to existing pipe, accessories, adjustable valve box, setting, concrete collar, dewatering, and incidental work as directed by the Owner's Representative.

69. Sanitary Sewer Cleanout, As Directed by Owner's Representative; Supplemental Bid Item 85:

    Measurement shall be "Per Each". Payment shall be full compensation for clearing and grubbing, excavation and incidentals thereto, removal and disposal of defective pipe, bedding, pipe materials, pipe placement, backfill, and all appurtenances for a complete Sanitary Sewer Cleanout per detail.

70. "Extra" Cement Stabilized Sand, 2.0 Sacks per Ton, As Directed by Owner's Representative; Supplemental Bid Item 86:

    Measurement shall be "Per Ton". Payment shall be full compensation for supplying all materials to deliver cement stabilized sand, labor to place cement stabilized sand as directed by the Owner's Representative.

71. "Extra" Class A Concrete, As Directed by Owner's Representative; Supplemental Bid Item 87:

    Measurement shall be "Per Cubic Yard". Payment shall be full compensation for supplying all materials to deliver class A concrete, labor to place class A concrete as directed by the Owner's Representative.

72. "Extra" Reinforcing Steel, As Directed by Owner's Representative; Supplemental Bid Item 88:

    Measurement shall be "Per Pound" of in-place material. The unit price shall be full compensation for materials, labor and appurtenances for delivery and installation of extra reinforcing steel as directed by the Owner's Representative. Installation of supplemental materials shall be done so as directed by the Owner's Representative and approved by the Engineer.

73. "Extra" Crushed Limestone Bedding, As Directed by Owner's Representative; Supplemental Bid Item 89:

    Measurement shall be "Per Cubic Yard". Payment shall be full compensation for supplying all materials to deliver crushed limestone bedding, labor to place crushed limestone bedding as directed by the engineer.

74. Select Fill, Compacted per ASTM D698, As Directed by Owner's Representative; Supplemental Bid Item 90:

    Measurement shall be "Per Cubic Yard". Payment shall be full compensation for supplying all materials to deliver select fill and follow recommendations based on Geotest Engineering, Inc. Geotechnical Report for Bel Road, labor to place select fill as directed by the Owner's Representative.

75. Turf Establishment, Hydromulch Seeding, As Directed by Owner's Representative; Supplemental Bid Item 91:

    Measurement shall be "Per Acre". The unit price shall be full compensation for furnishing all labor, tools, equipment, supplies, and incidentals necessary to complete the work, including the establishment of hydromulch seeding in accordance with the specifications and plans, complete in place.

76. Slip Line Removal; Bid Item, As Directed by Owner's Representative; Supplemental Bid Item 92:

    Measurement shall be "Per Linear Foot" along the centerline of the pipe without deductions for manholes, valves, or fittings from start to line terminus for gravity and/or pressure systems for all depths in excess of 5 foot. The unit price shall be full compensation for trench safety system, material construction, maintenance and inspection of any shoring related equipment.

ALTERNATE ITEMS

77. Brick Paver (Sidewalk Crossing), Alternate Bid Item 93:

    Measurement shall be "Per Square Yard". The unit price shall be full compensation for installing brick pavers per manufactures recommendations on top of proposed concrete roadway at appropriate thickness per detail as shown in striping plan. Pavers shall be used if awarded by county at beginning of job and the location shall be verified with county's representative before concrete is placed in order to prevent extra placement or excavation of new concrete, complete in place.

Std. 1/16/89
Revised 6/12/17

ITEM 2221

EXCAVATION, TRENCHING AND BACKFILLING FOR UTILITIES

I. GENERAL

A. Scope: This specification covers excavation and trenching work and shall include the necessary pavement removal and preparation of the site, removal and disposal of all debris, excavation, and trenching as required, handling, storage transportation, and disposal of all excavated material, all necessary sheeting, shoring, and protection work, preparation of sub-grades, pumping and dewatering as necessary or required, protection of adjacent property, backfilling, pipe embedment, pipe abandonment, backfill, maintenance, and other appurtenant work for the installation of underground utilities.

B. Related Work (if utilized in this project)

1. Item 2555 – Water Piping
2. Item 2560 – Sanitary Sewers
3. Item 2600 – Repair of Asphalt Paving
4. Item 15061 – Steel Piping and Fittings
5. Item 15062 – Ductile Iron Pipe and Fittings
6. Item 15064 – Plastic Piping and Fittings (4-Inches or Smaller)

C. Existing Utilities: The Plans and/or Exhibits show the approximate location of all known underground utilities, foreign pipe lines and structures. No guarantee is made that all such obstructions have been found and located, unknown lines may be encountered. The trench shall be excavated well ahead of the pipe laying operations to expose underground utilities, foreign pipe lines and structures. The Contractor shall employ skilled operators and proceed with caution at all times. Upon encountering such an obstruction the Contractor shall immediately notify the Engineer and the Owner. If the encounter results in damage of the nature that may endanger the public, he shall take such emergency measures as appropriate to notify the affected public, and to mitigate the danger. If the obstruction conflicts with the proposed work, he shall stop work until directions are given by the Engineer. Avoid damage to utilities and foreign pipe lines throughout all operations.

D. Pavement Protection: All tracked construction equipment shall have tracks fitted with suitable pads to minimize damage to pavement. Those not so fitted may be driven across pavement surfaces only when suitable planking or mats are interposed between track and pavement, or when pavement is protected by suitable layer of earth. All construction operations shall be conducted so to minimize damage to pavement other than that scheduled for removal. All such damage shall be repaired by the Contractor restoring damaged areas to as near original condition as practical.

E. Blasting will not be permitted without specific written approval from the Engineer.

II. MATERIALS

A. Earth Backfill (EF): Where no other backfill is specified, use suitable soils from the excavation as backfill material. Bedding and backfill material shall be free of roots, trash, mud balls and conform to the following limits for deleterious materials:

1. Clay Lumps: Less than 0.5 percent when tested in accordance with ASTM C142.

2. Lightweight Pieces: Less than 5 percent when tested in accordance with ASTM C123.

3. Organic Impurities: No color darker than standard color when tested in accordance with ASTM C40.

B. Sand Backfill (BS): Where sand backfill is required, Contractor may select, unless specified on Plans and/or Exhibits, sand backfill depending upon availability from the following:

1. Bank Run Sand: Durable bank run sand classified as SP, SW, or SM by the Unified Soil Classification System (ASTM D2487) meeting the following requirements:

a. Less than 15 percent passing the number 200 sieve when tested in accordance with ASTM C136.

b. Material passing the number 40 sieve shall meet the following requirements when tested in accordance with ASTM D4318:

1) Liquid limit not exceeding 25.

2) Plasticity index not exceeding 7.

2. Concrete Sand: Natural sand, manufactured sand, or a combination of natural and manufactured sand conforming to the requirements of ASTM C33 and graded within the following limits when tested in accordance with ASTM C136:

Sieve	Percent Passing
3/8 inch	100
No. 4	95 to 100
No. 8	80 to 100
No. 16	50 to 85
No. 30	25 to 60
No. 50	10 to 30
No. 100	2 to 10

3. Gem Sand: Sand conforming to the requirements of ASTM C33 for course aggregates specified for number 8 size and graded within the following limits when tested in accordance with ASTM C136:

Sieve	Percent Passing
3/8 inch	95 to 100
¼ inch	60 to 80
No. 4	15 to 40
No. 10	0 to 5

C. Select Fill (ES): Select fill shall be lean clay to sandy, lean clay soil with a maximum liquid limit of 35 and a PI range of 8 to 20 and minimum of 60 percent passing the No. 200 sieve. Select fill may consist of lime stabilized soils excavated on site. Lime stabilization of 8-inch loose lifts should be performed by blending 25 pounds of hydrated lime per square yard into each 8-inch loose lift of fill soils.

D. Aggregate Bedding (AB): Where aggregate bedding is required, Contractor may select, unless specified on Plans and/or Exhibits, aggregate bedding for trench stabilization or backfill depending on availability from the following:

1. Pea Gravel: Durable particles composed of small, smooth, rounded stones or pebbles and graded within the following limits when tested in accordance with ASTM C136:

Sieve	Percent Passing
½ inch	100
3/8 inch	85 to 100
No. 4	10 to 30
No. 8	0 to 10
No. 16	0 to 5

2. Crushed Aggregates: All crushed aggregates consist of durable particles obtained from an approved source and meeting the following requirements:

   a. All materials of one product delivered for the same construction activity from a single source.

   b. Non-plastic fines

   c. Los Angeles abrasion test wear not exceeding 40 percent when tested in accordance with ASTM C131.

   d. Gradations, as determined in accordance with Tex-110-E.

Sieve	Percent Passing by Weight for Pipe Embedment By Ranges of Nominal Pipe Sizes		
	>15"	15" - 8"	<8"
1"	95 - 100	100	-
¾"	60 - 90	90 - 100	100
½"	25 - 60	-	90 - 100
3/8"	-	20 - 55	40 - 70
No. 4	0 - 5	0 - 10	0 - 15
No. 8	-	0 - 5	0 - 5

e. Crushed Stone: Produced from oversize quarried aggregate, sized by crushing from a naturally occurring single source. Crushed gravel or uncrushed gravel are not acceptable material for utility embedment.

f. Crushed Concrete: Crushed concrete is an acceptable substitute for crushed stone as utility backfill. Gradation and quality control test requirements are the same as crushed stone. Provide crushed concrete produced from normal weight concrete of uniform quality; containing particles of aggregate and cement material, free from other substances such as asphalt, base course material, reinforcing steel fragments, soil, debris, or deteriorated concrete fragments.

E. Cement Stabilized Backfill

1. Cement stabilized sand shall be used for backfill and bedding as called for on the Plans and/or Exhibits or as directed by the Engineer.

2. Cement shall consist of Type I portland cement conforming to ASTM C150.

3. Sand shall be clean, durable sand containing not more than the following:

a. Deleterious Materials

1) Clay lumps, ASTM C142; less than 0.5 percent

2) Lightweight pieces, ASTM C123; less than 5.0 percent

3) Organic impurities, ASTM C40; shall not show a color darker than the standard color.

b. Plasticity index shall be six (6) or less when tested in accordance with ASTM D4318.

4. Water shall be potable, free of oils, acids, alkalis, organic matter or other deleterious substances.

5. Sand-cement mixture product shall consist of the proper percentage of cement per cubic yard or per ton of sand with sufficient water to hydrate the cement.

6. Mix in a pug mill using not less than 2 sacks of cement per ton of mixture with sufficient water to hydrate the cement.

III. EXECUTION

A. Preparation

1. Any clearing and grubbing required shall have been performed pursuant to the appropriate Item.

2. Where concrete or asphalt pavement is to be cut; true saw cuts defining the area to be removed shall have been made (a parallel pavement joint may be used as one boundary), and the pavement broken into pieces suitable for handling by excavating equipment.

3. Layout staking of the utility line shall have been made with adequate definition of alignment and grade of the particular portion to be laid.

4. Utility line materials (Pipe and fittings, conduits, etc.) shall be on site prior to excavation for its placement.

5. Bedding materials and any special backfill material shall be on site, or delivery arrangements definitely made with a reliable source.

6. Any permits pertinent to work to be performed are to be on site. All required notifications shall have been made and any special inspection forces on site or proper and arrangement therefore made.

B. Excavation

1. The trench for the utility line or appurtenance shall be excavated on the given alignment to the grade indicated on Plans and/or Exhibits, minimum cover requirements and construction to govern. Trench sides shall be as near vertical as practical considering wall stability and need for safety. From the bottom of the trench to the top at the proposed pipe, the wall shall be near vertical with slopes, if any, above this level. Where conditions require, vertical wall shall be shored or sheeted and braced. It is the Contractor's responsibility to fully comply with all OSHA safety requirements. Sheeting or sheet piling to be employed if necessary for trench wall stability.

2. Excavated material suitable for backfilling to be piled as far as practical from edge of ditch, to increase soil stability and allow working room for pipe-laying operations. Excess material is to be removed from the trench bank as soon as practical. Excess is to belong to Contractor and disposition is his responsibility. Placement of excavated material on adjacent private property without written consent of Owner is prohibited. The written consent shall specifically absolve the Owner and Engineer of

any liability in regard to such placement. Excavation material may be placed in existing drainage ditches subject to the following restrictions:

a. Bypass piping is to be provided.

b. Standing water in such ditch to be removed.

c. Rain does not appear to be imminent.

d. Ability is to be demonstrated that the earth can be removed in a short time if rain does occur during the day, including access for earth-moving equipment.

e. All such earth is to be removed before the working day is over and the drainage capacity of the ditch fully restored. Sidewalks are not to be blocked with earth unless approved substitute passage and access is provided.

3. Where trenches are scheduled to be partly or totally in the drainage ditch, the requirements given in the preceding paragraph shall apply. Work shall not be undertaken when rain is threatening. Should rain threaten during the work day, the drainage capacity of the ditch shall be immediately restored and maintained, and the trench backfilled. Full drainage capacity shall be restored at the end of each working day. Any liabilities resulting from drainage obstructions created by construction operations shall occur solely to the Contractor.

C. Trench Water

1. Where practical, ground surfaces shall be graded or diked to prevent the entry of surface water into the open trench.

2. Ground water entering the open trench from the walls and from a firm bottom in small quantities is to be promptly removed by trench pumps. Multiple pumps in good operating order shall be kept on the excavation site for such purposes at all times. Under such trench conditions, the rough excavation grades to drain to the pumps prior to under-bedding placement, with suitable screening to exclude sand from pump suction. Other methods may be employed by the Contractor to achieve the required results. The water level shall be maintained below the pipe invert until full compaction of the pipe bedding can be and is accomplished.

3. In the event that trench pumps are unable to maintain the required level, or, if the water entry is from the bottom of the excavation in such quantities as to make the bottom unstable, or, from the sides in such quantities as to make the walls unstable, then the Contractor shall provide

and operate an effective well point system to dewater the trench to the required pipe laying conditions.

4. Water removed from trenches, from drainage ditches and by well points shall be conveyed to the Owner's drainage system (pipe or ditch) and not discharged upon the roadway, sidewalk or private property in such a manner as not to create damages or public nuisance.

5. Dewatering or well point systems shall be placed and operated so as to minimize inconvenience and annoyance to public, mechanical equipment shall be housed or shielded to minimize noise; engines are to be provided with efficient noise mufflers. Points and headers shall not block pedestrian and vehicular access to adjacent property. Location of pumping units to be chosen for minimum disturbance. Site to be promptly restored to original condition after point removal.

D. Pipe Embedment, General: Pipe materials, handling and joining, cable and utility appurtenances are covered in other sections of these specifications. These work elements are to be closely coordinated with the trench excavation, trench backfill, and with embedment placement.

E. Pipe Embedment: Concrete Steel Cylinder, Corrugated Metal Pipe, Reinforced Concrete Pipe, Cast Iron, Ductile Iron, Vitrified Clay, PVC Pipe, Reinforced Plastic Mortar, Steel.

1. After trenching to rough grade, and trench water removal arrangements are made, the prescribed underbedment, using the dry material of type specified (stabilized sand, bank sand, etc.) and minimum depth shown on details this Item and/or specified herein, is to be placed across the width of the trench and approximately to the grade of the bottom of the pipe, with bell hole left open and additional material on sides. Additional dry, loose material is to be placed in uniformly spaced amounts along pipe (clearing sling points, if any, and bell holes) sufficient to support lower quadrant of pipe barrel for 30 percent or more of its length. The pipe is to be lowered into the trench, aligned, positioned so spigot end is just outside bell and lowered against sand. It is to be checked for vertical alignment of spigot vs. bell and for gradient. The length is to be worked into true alignment and gradient by "bumping", and/or adding or removing underbedment material, so pipe is uniformly supported, under its own weight, for the lower quadrant for not less than 80 percent of its length. The pipe piece is then to be moved horizontally (axially) to make up joint, and additional underbedment material promptly worked under the pipe and tamped to provide support for its lower 1/3 for its entire length. Joint is to be checked for make-up, and exterior protection placement commenced. Pipe bedding material placement to continue, and pipe shall be solidly anchored against axial movement before next joint is made-up.

Remaining bedding and backfill placing to continue until complete. Trench water not to be allowed to rise appreciably until bedding level is above spring line of pipe.

2. Bedding placement on sides and top to be in layers of 8-inch maximum thickness and mechanically compacted. Placement shall be made on both sides of pipe in such a manner that pipe is not moved horizontally or vertically by placement or compaction.

3. Bank sand placement on sides and top to be in layers of 8-inch maximum thickness and mechanically compacted to not less than 90% of Texas State Department of Highways and Public Transportation test method TEX-113-E within ± 3 percent of optimum moisture content. Placement shall be made on both sides of pipe in such a manner that pipe is not moved horizontally or vertically by placement or compaction.

F. Pipe Embedment, 3-Inches and Smaller Water Lines: Small diameter pipe lines not shown to be on a specific grade may be laid on 2-inch loose fill in ditch bottom, and stabilized with loose materials placed sides and top to cover pipe not less than 6-inches, then backfilled.

G. Backfill (Normal, Select or Regular)

1. Where excavation has been by ladder or wheel trenchers, or:

2. Where excavation by other types of equipment has resulted in clods not larger than 10-inches in largest dimension, and where excavated materials have been separated into "suitable" and "non-suitable", the surface excavated material (or select imported substitute material) may be pushed into the trench in layers not thicker than 12-inches and compacted. Where excavation has resulted in large clods:

   a. The clods are to be removed from the trench area and select imported material substituted therefor, or

   b. The clods are to be reduced to not greater than allowed above, and adequate finer material sufficient to fill voids between large clods provided. Highly-organic excavated material is to be considered "unsuitable" and excluded from the backfill.

3. Each layer of the backfill is to be mechanically compacted, to densities per ASTM D698 (standard proctor) within ± 3 percent of optimum moisture content. Reopen trenches inadequately compacted and recompact.

4. Backfill shall be hand placed and compacted under lines crossing the trench, steep slopes, valves, valve boxes, service connections, manholes,

inlets and other appurtenances and specials.

5. Any trench settlement to be promptly filled, all trenches to be given final dressing immediately after settlement.

6. Final clean-up to follow backfill operation within 48 hours of construction or earlier if directed by the Engineer.

H. Backfill (Under Roadways and Driveways)

1. Where utility line excavation is open cut across a roadway or driveway, the backfill from top of bedding to bottom of future pavement restoration to be made with cement stabilized sand. The material is to be fresh (mixed not more than 3 hours before final placement). It is to be placed in layers not exceeding 10-inches depth (loose measure) and mechanically compacted from the bottom to top to minimum density not less than 95 percent of optimum, ASTM D698.

2. The surface of the material is to be dampened and covered with polyethylene or otherwise prevented from drying, for 72 hours. Wood bridges or steel plates shall be positioned to permit vehicular traffic, with the remaining portion barricaded for the curing period. After 3 days, the space for future surfacing may be temporarily filled with limestone until pavement restoration is begun and/or restoration undertaken immediately.

I. Crossing Existing Utility and Foreign Lines

1. Where existing utility or pipe lines are found crossing the route of the proposed utility line and are one "main" diameter or more above the proposed utility on undisturbed soil, the Contractor shall "jump" the crossing main with the excavating machinery, leaving a minimum of 1 foot of undisturbed area on each side of the crossing pipe. An opening for the proposed utility is to be tunneled under the crossing pipe line, and the proposed utility carefully threaded through. The crossing line is to be protected from damage at all times. In the event the undisturbed soil is found to be unstable, or if the Engineer decides support is required because of the nature or configuration of the pipe, the Contractor shall:

   a. Excavate down to the crossing line;

   b. Provide a temporary strong-back support; and/or

   c. Provide a reinforced concrete cradle across trench adequately supported to carry crossing pipe and backfill.

2. Where existing utilities or pipe lines are encountered in grade, subject to the approval of the Engineer and conditions of paragraph 1 above, the

Contractor shall:

a. Adjust the grade of the proposed utility to clear the existing utility.
b. Remove and replace the existing utility in a manner shown on the Plans and/or Exhibits or as approved by the Owner of the existing utility.

J. Removing and Replacing Culverts: Where it is necessary to remove culverts in order to install the proposed utility, the Contractor may at his option:

1. Remove and waste the existing pipe, replacing with new, equivalent pipe, or,

2. Salvage existing pipe in good condition and relay. New pipe shall be substituted for damaged pipe at the Contractor's expense. The re-laid culvert shall be of the same length, same depth, same location as original, and in no way inferior to the original. No extra pay will be allowed for replacement of damaged culvert pipe whether or not was caused by Contractor.

K. Miscellaneous Precautions, Restoration of Damages

1. Contractor shall at all times be vigilant in observing overhead electric power and communication equipment.

2. Damage to overhanging tree limbs shall also be avoided.

3. Damage to pavement curbing is to be avoided. If such are damaged, the damaged section from joint shall be removed and replaced with curb of like material, dimension, texture and finish.

L. Test for Displacement of Sewers: After the trench has been backfilled to 2-feet above the pipe and tamped as specified, check the alignment as follows. Flash a light through the sewer between manholes. Use a flashlight or reflect sunlight with a mirror. If the illuminated interior of the pipe line shows poor alignment, pipe displacement, or other defects, remedy them satisfactorily.

M. Deflection Test of Thermoplastic Pipe (PVC, etc.): Deflection test shall not be performed before 30 days have passed after backfill (installation), but must occur prior to final acceptance. All thermoplastic lines shall be tested by pulling a mandrel or approved deflectometer through the line. All sections indicating five percent (5%) deflection or more shall be removed, reinstalled, and retested for leakage and deflection. A drawing of a typical testing mandrel follows.

IV: PIPE ABANDONMENT

A. Description: This specification shall govern all work and materials required for grouting abandoned utility lines.

B. Materials:

1. Raw Soil: Soil shall be typical clayey soil of the area. It shall be from the project site or other approved source not suspected of being contaminated. The soil shall have a Plasticity Index over 15 and a Liquid Limit not to exceed 65.

2. Lime: Lime shall be hydrated lime, calcium hydroxide, in accordance with AASHTO M 216.

3. Water: Water shall be potable.

C. Construction Methods:

1. Mix Design: The following is given as a typical mix design for trial mix. The mix design is based on damp soil with initial water content of about 15%. The proportions of soil and lime shall not be altered. The Contractor shall determine the amount of water to be added as required to produce a mix at its liquid limit.

a. Trial Mix Design:

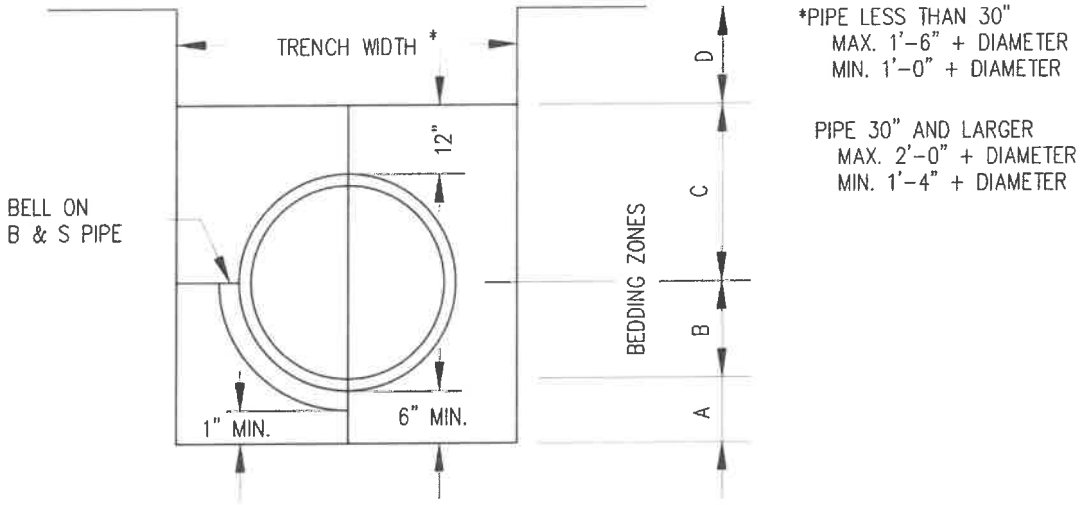
Damp Soil	1,000 lb.
Lime	50 lb.
Water (Approximate)	48 gal.

Consistency shall be checked with liquid limit apparatus.

2. Placement: The Contractor shall grout abandoned lines as indicated on the drawings. Temporary pumping and venting ports shall be placed as required to provide complete filling of the abandoned line and proper placement of the grout. If segregation or "sand packing" is experienced during pumping, the Contractor shall reduce water content of mix or obtain other soil source, as required. Any damage resulting from pumping operation shall be repaired at the Contractor's expense.

D. Measurement & Payment:

Unless indicated otherwise in the Proposal, Grouting Abandoned Utility Lines shall be measured by the linear foot. Payment shall include all equipment, materials and incidentals required to mix, transport, and place the grout and restore surface at pump ports.



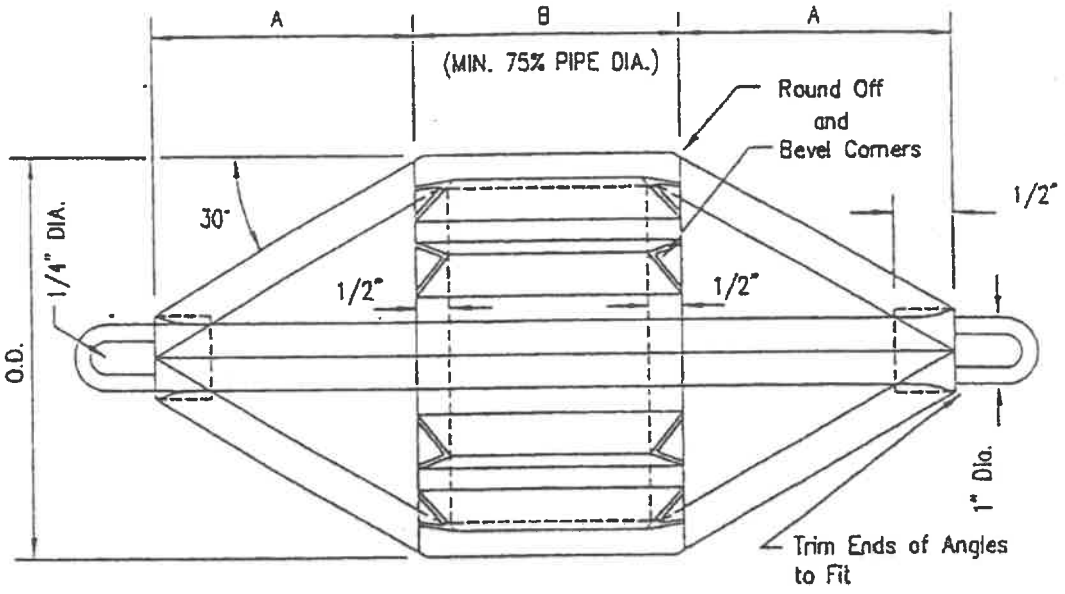
PIPE MATERIAL	BEDDING ZONES				
	A	B	C	D (EARTHEN OR UNPAVED)	D (ASPHALT OR CONCRETE)
CORRUGATED METAL PIPE	CS	CS	CS	EF	CS
REINFORCED CONCRETE PIPE	CS	CS	CS	EF	CS
DUCTILE IRON (PRESSURE PIPE)	BS	BS	BS	EF	CS
DUCTILE IRON (GRAVITY PIPE)	CS	CS	CS	EF	CS
PVC (PRESSURE PIPE)	BS	BS	BS	EF	CS
PVC (GRAVITY PIPE)	CS	CS	CS	EF	CS
STEEL	BS	BS	BS	EF	CS

BS- BANKSAND.
AB- AGGREGATE BEDDING.
ES- SELECT EARTH FILL PLACED SAME DAY AS PIPE IS LAID.
EF- EARTH FILL PLACED NEXT DAY (OR LATER) AFTER PIPE IS LAID.
CS- CEMENT STABILIZED SAND.

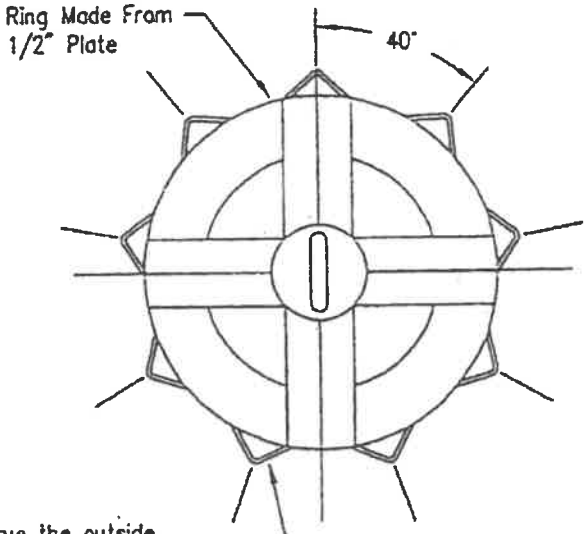
ORDINARY TRENCH
EMBEDMENT & BACKFILL DETAIL

N.T.S.

TYPICAL
GO, NO-GO DEFLECTION TESTING MANDREL
CONSTRUCTED FROM 1/2-INCH ANGLE IRON



SIZE	A (inches)	B (inches)
4	3.0	4
6	4.0	4.5
8	5.3	6
10	6.7	7.5
12	8.0	9
15	10.0	11.5

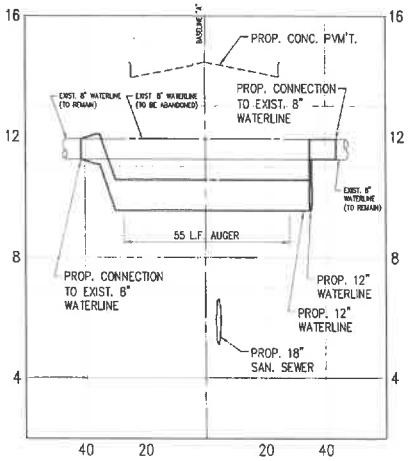


NOTE:
After welding is completed, true the outside diameter dimension for the full length of "B" to 95% ± 0.010" of original inside diameter of pipe being tested.

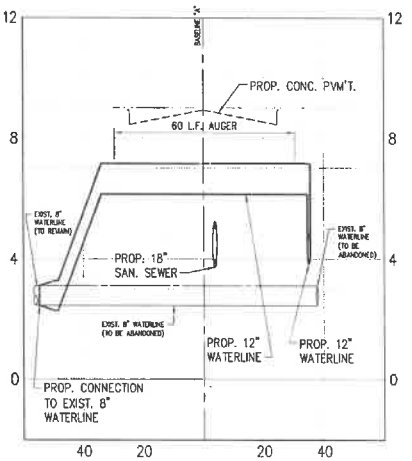
MANDREL
NOT TO SCALE

2221 *** 14/14

ADDENDUM No. 1



LATERAL AT BL "A" STA. 3+10.00



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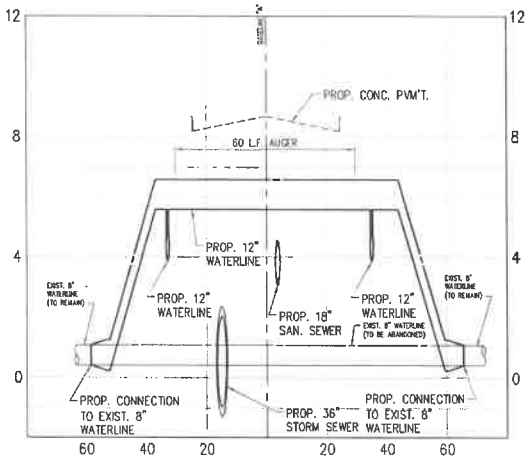
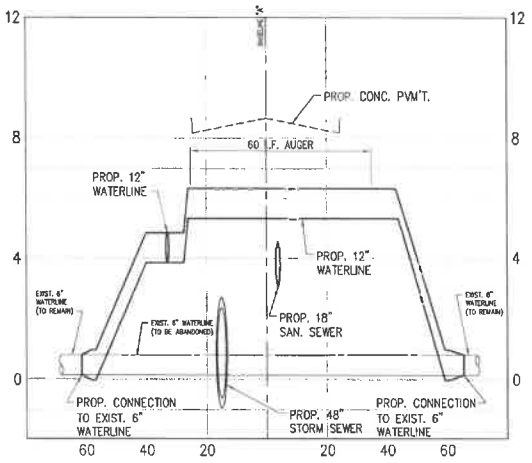


LATERAL AT BL "A" STA. 9+34.00



LATERAL AT BL "A" STA. 12+62.00

WATERLINE NOTES:

1. WATERLINE OFFSETS SHOWN ARE BASED ON BEST AVAILABLE RECORDS. IF MODIFIED IN FIELD BASED ON UNDERGROUND FINDINGS THERE WILL BE NO ADDITIONAL PAY.
2. CONTRACTOR TO COORDINATE VALVE AND WATER SHUT OFF BEFORE CONSTRUCTION BEGINS ON WATERLINE WITH CITY OF GALVESTON REPRESENTATIVE. ANY WATER SHUT OFF MUST BE COORDINATED WITH RESIDENTS AND BUSINESS OWNERS FOR ENTIRETY OF JOB.

20 0 20 40
SCALE IN FEET

TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED, CALL CENTERPOINT AT 713-207-2222

NOTICE:

For your safety you are required by Texas law to call 811 at least 48 hours before you dig so that underground lines can be marked. This signature does not fulfill you obligation to call 811.

VERIFICATION OF PRIVATE UTILITIES

DATE 08-12-21

CenterPoint Energy/Natural Gas Facilities Verifications ONLY
CenterPoint Energy natural gas utilities shown. Gas service lines are not shown. This signature not to be used for conflict verification.
Signature Valid for six months

DATE 08-12-21

CenterPoint Energy/UNDERGROUND Electrical Facilities Verifications ONLY
(This Signature verifies existing underground facilities - not to be used for conflict verification)
Signature Valid for six months

DATE 9/1/2021

TEXAS GAS SERVICE FACILITIES VERIFICATION ONLY
Texas Gas natural gas utilities shown. (Gas service lines are not shown).
This signature not to be used for conflict verification
Signature Valid for six months

DATE 08-11-202

AT&T TEXAS / SWBT FACILITIES
(Approved for AT&T Texas/SWBT Underground Conduit Facilities only)
Signature Valid for one year

STATE OF TEXAS
MARK E. HAVRAN
118810
LICENSED
PROFESSIONAL ENGINEER
7-7-22

Revision	By	Chk.	App.	Date

GALVESTON COUNTY
23RD STREET
PAVING, DRAINAGE & UTILITY REHABILITATION

WATER & SANITARY PROFILE CROSSINGS SHEET 1 OF 2

LJA Engineering, Inc.
11931 East Freeway
Suite 360
Houston, Texas 77029
Phone 713.450.1300
Fax 713.450.1385
FRN - F-1386

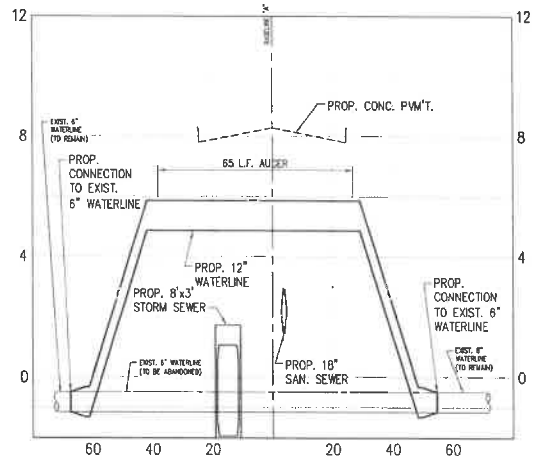
DESIGN: M.E.H.	JOB No. 0364-9012
DRAWN: P.R.	DATE: MARCH, 2022
CHECKED:	SCALE: 1"=20' HORIZ.; 1"=2' VER.
APPROVED:	SHEET No. 18A OF 57

ADDENDUM No. 1

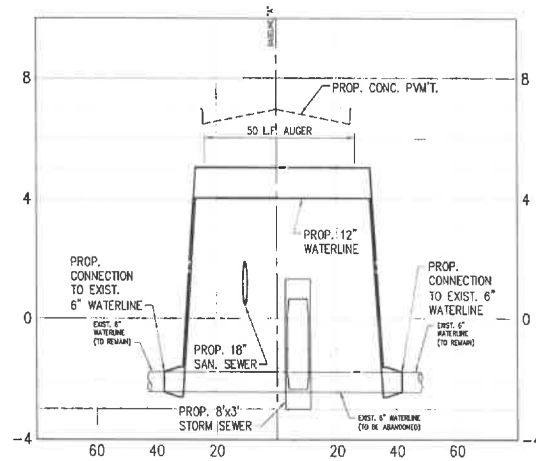
H:\CAD\Clients\364-9012 23rd Street City of Galveston\Design\0364-9012-16 PROFILE CROSSINGS.dwg SHEET: 0364-9012 Border: 0364-9012 Base)

04/04/22

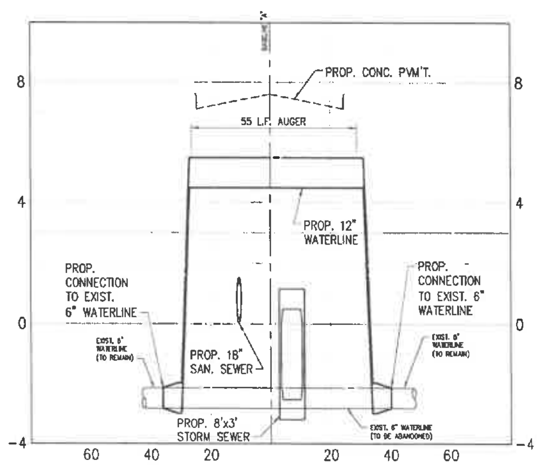
ADDENDUM No. 1



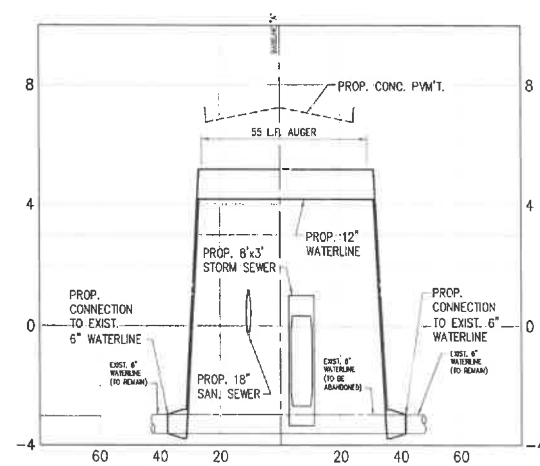
LATERAL AT BL "A" STA. 22+50.00



LATERAL AT BL "A" STA. 31+05.00



LATERAL AT BL "A" STA. 34+37.00



LATERAL AT BL "A" STA. 37+52.00

WATERLINE NOTES:

1. WATERLINE OFFSETS SHOWN ARE BASED ON BEST AVAILABLE RECORDS. IF MODIFIED IN FIELD BASED ON UNDERGROUND FINDINGS THERE WILL BE NO ADDITIONAL PAY.
2. CONTRACTOR TO COORDINATE VALVE AND WATER SHUT OFF BEFORE CONSTRUCTION BEGINS ON WATERLINE WITH CITY OF GALVESTON REPRESENTATIVE. ANY WATER SHUT OFF MUST BE COORDINATED WITH RESIDENTS AND BUSINESS OWNERS FOR ENTIRETY OF JOB.

20 0 20 40
SCALE IN FEET

TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED, CALL CENTERPOINT AT 713-207-2222

NOTICE:

For your safety you are required by Texas law to call 811 at least 48 hours before you dig so that underground lines can be marked. This signature does not fulfill your obligation to call 811.

VERIFICATION OF PRIVATE UTILITIES

DATE 08-12-21
CenterPoint Energy/Natural Gas Facilities Verifications ONLY

DATE 08-12-21
CenterPoint Energy/UNDERGROUND Electrical Facilities Verifications ONLY

DATE 9/1/2021
TEXAS GAS SERVICE FACILITIES VERIFICATION ONLY

DATE 08-11-202
AT&T TEXAS / SWBT FACILITIES

STATE OF TEXAS
MARK E. HAVRAN
118810
LICENSED PROFESSIONAL ENGINEER
3-7-22

Revision	By	Chk.	Appr.	Date

GALVESTON COUNTY
23RD STREET
PAVING, DRAINAGE & UTILITY REHABILITATION

WATER
PROFILE CROSSINGS
SHEET 2 OF 2

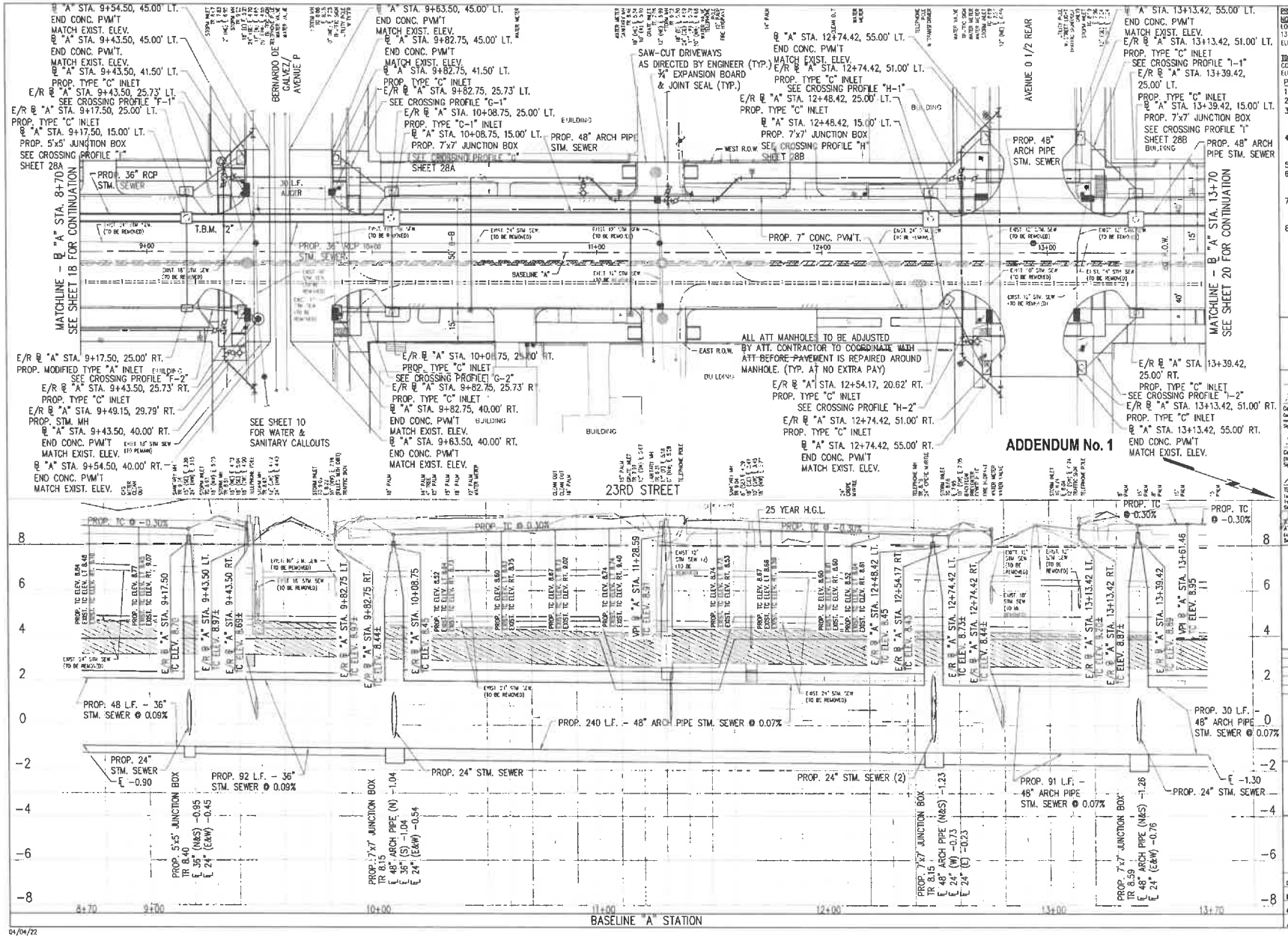
LJA Engineering, Inc.
11821 East Freeway
Suite 360
Houston, Texas 77029
Phone 713.450.1300
Fax 713.450.1385
FRN-F-1386

DESIGN: M.E.H.	JOB No. 0384-9012
DRAWN: P.R	DATE: MARCH, 2022
CHECKED:	SCALE: 1"=20' HORIZ.; 1"=2' VER.
APPROVED:	SHEET No. 16B OF 67

ADDENDUM No. 1

04/04/22

H:\ACAD Clients\384\9012 23rd Street City of Galveston\Design\0384-9012-16 PROFILE CROSSINGS 2.dwg (XREF: 0384-9012 Border: 0384-9012 Base)



PROJECT BENCHMARK
NGS BENCHMARK "HALL RM 1"
LOCATED ALONG THE SEAWALL, BETWEEN 12TH STREET AND 13TH STREET.
ELEVATION: 14.18 (NAVD88 2003ADJ)

TBM #2:
COTTON SPINDLE DFA WASHER
ELEVATION: 9.23

PLAN & PROFILE NOTES:

1. ALL UTILITIES TO BE FIELD LOCATED.
2. SEE SHEET 2B FOR LEGEND.
3. ALL STORM SEWER LATERALS TO BE 24" RCP UNLESS OTHERWISE NOTED ON THE PLANS
4. DRY UTILITY MATCHES AND MANHOLES TO BE ADJUSTED TO MATCH FINISHED GRADE OF PROPOSED PAVEMENT.
5. BMUS CUT DETAILS ARE ON SHEET 35A.
6. ALL EXISTING STORM SEWER STRUCTURES TO BE REMOVED UNLESS OTHERWISE NOTED ON THE PLANS.
7. ALL TEXAS ONE GAS AND AT&T LINES ARE CALLED OUT ON THE WATER AND SANITARY PLAN AND PROFILE SHEETS.
8. BY-PASS PUMPING FOR STORM SEWER & SANITARY SEWER TO BE INCLUDED WITH INSTALLATION AT NO EXTRA PAY FOR ENTIRETY OF JOB. THIS INCLUDES MODIFICATIONS TO PLAN SET FOR PROPOSED LOCATION OF NEW UTILITIES.

SCALE IN FEET
20 0 20 40

TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED, CALL CENTERPOINT AT 713-207-2222

NOTICE:
For your safety you are required by Texas law to call 811 at least 48 hours before you dig so that underground lines can be marked. This signature does not fulfill you obligation to call 811.

VERIFICATION OF PRIVATE UTILITIES

DATE 08-12-21
CenterPoint Energy/Natural Gas Facilities Verifications ONLY
CenterPoint Energy and gas utilities shown. (Gas service lines are not shown). This signature not to be used for conflict verification
Signature Valid for 12 months

DATE 08-12-21
CenterPoint Energy/UNDERGROUND Electrical Facilities Verifications ONLY
(This Signature verifies existing underground facilities - not to be used for conflict verification)
Signature Valid for 12 months

DATE 9/1/2021

DATE 08-11-202

AT&T TEXAS / 5491 FACILITIES
(Approved for AT&T Texas/5491 Underground Conduit Facilities only)
Signature Valid for one year

MARK E. HAVRAN
118510
LICENSED PROFESSIONAL ENGINEER
8-11-22

Revision	By	Chk.	Appr.	Date

GALVESTON COUNTY
23RD STREET
PAVING, DRAINAGE & UTILITY REHABILITATION

DRAINAGE & PAVING
23RD STREET
PLAN & PROFILE
BL "A" STA. 8+70 TO BL "A" STA. 13+70

LJA Engineering, Inc.
11821 East Freeway
Suite 380
Houston, Texas 77029
Phone 713.450.1300
Fax 713.450.1385
FRN - F-1386

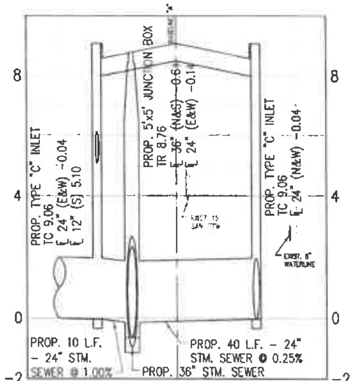
DESIGN: M.E.H.	JOB No. 0384-9012
DRAWN: P.R.	DATE: MARCH, 2022
CHECKED:	SCALE: 1"=20' HORIZ.; 1"=2' VER.
APPROVED:	SHEET No. 19 OF 57

ADDENDUM No. 1

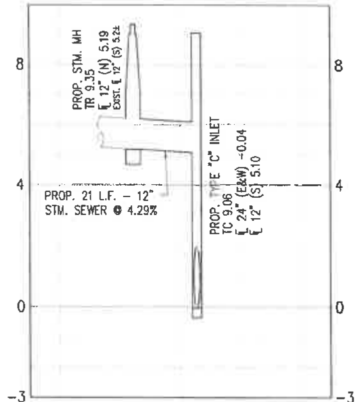
04/04/22

H:\LAND\Clients\384\9012 23rd Street City of Galveston\Design\0384-9012-19 PP03 - Plan&Prof.dwg (XREF: 0384-9012 Base: 0384-9012 Border)

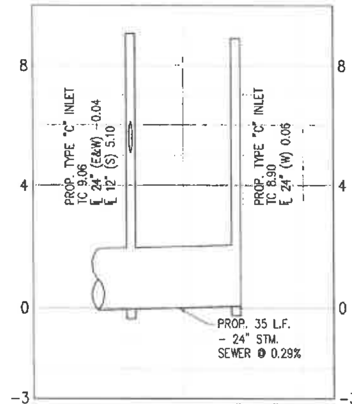
ADDENDUM No. 1



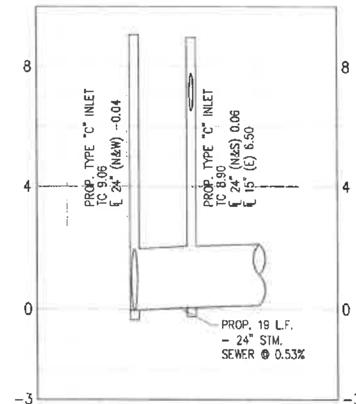
PROFILE CROSSING "C"



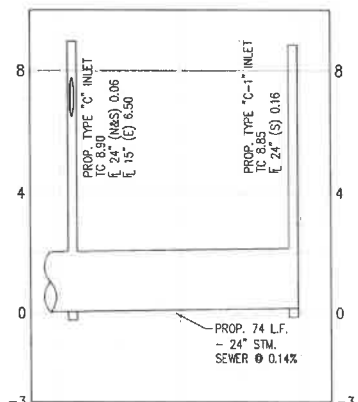
PROFILE CROSSING "C-1"



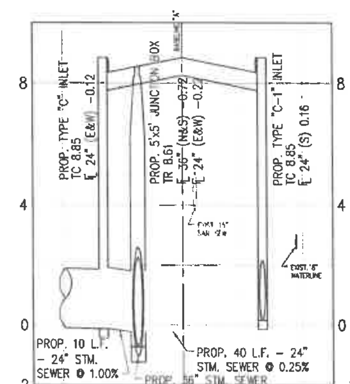
PROFILE CROSSING "C-2"



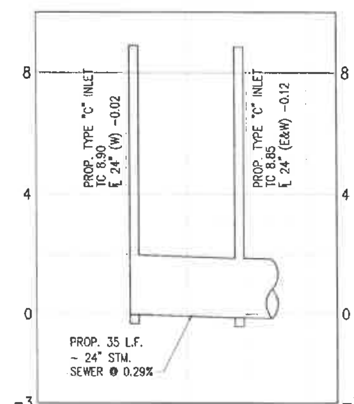
PROFILE CROSSING "C-3"



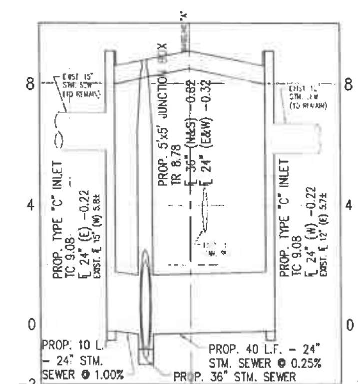
PROFILE CROSSING "C-4"



PROFILE CROSSING "D"



PROFILE CROSSING "D-1"



PROFILE CROSSING "E"

SCALE IN FEET (20 0 20 40)

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VERIFICATION OF PRIVATE UTILITIES

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CenterPoint Energy/Natural Gas Facilities Verifications ONLY

DATE 08-12-21
CenterPoint Energy/UNDERGROUND Electrical Facilities Verifications ONLY

DATE 9/1/2021
TEXAS GAS SERVICE FACILITIES VERIFICATION ONLY

DATE 08-11-2021
AT&T TEXAS / SWBT FACILITIES

STATE OF TEXAS — MARK E. HAVMAN — 118510 — LICENSED PROFESSIONAL ENGINEER — 3-7-22

Revision	By	Chk.	App.	Date

GALVESTON COUNTY
23RD STREET
PAVING, DRAINAGE & UTILITY REHABILITATION

PAVING & DRAINAGE PROFILE CROSSINGS SHEET 1 OF 9

LJA Engineering, Inc.
11821 East Freeway, Suite 360, Houston, Texas 77029
Phone 713.450.1300
Fax 713.450.1385
FRN - F-1386

DESIGN: M.E.H.	JOB No. 0384-9012
DRAWN: P.R	DATE: MARCH, 2022
CHECKED:	SCALE: 1"=20' HORIZ. 1"=2' VER.
APPROVED:	SHEET No. 28 of 67

ADDENDUM No. 1

H:\ACAD\Clients\384\9012 23rd Street City of Galveston\Design\0384-9012-28 PROFILE CROSSINGS 1.dwg | XREF: 0384-9012 Border; 0384-9012 Base)

04/04/22

ITB #B221010, 23rd Street Paving, Drainage & Utility Rehabilitation
Pre-Bid Attendees:

- Rufus Crowder
- Michael Shannon
- Nancy Baher
- Tammy Dickey
- Sharonda Dennis
- Troy Whitley
- Trina Jankowski
- Robert Winiecke
- Mark Havran
- Christine Magnon
- Amber Forrest
- Dan Reynolds
- Ted Labuzan
- Clare Roman
- Claude Marshall