

AA 192-91

EXHIBITS

EXHIBIT

Continued on following page

Walter G. Conrad, Jr. San Diego

Investigation No. 91 Section AA-1921

Date: 3-21-72

Exhibit No.	Submitted by	Description
1	Mr. Kennedy	Paid list of Cash - Tax Records
2	Mrs. Dautsch	Seattle 810 Takahashi
3	3-22-72 Mrs. Dautsch	Bid records East Bay Home Dist.
4	" Kennedy	An Exp (1971) - John Marshall Exp
5	Mr. Kennedy	Letter by Economic Associates
6	Mr. Kennedy	Pacific Water West
7	Mr. Barclay	Receipts Water Sales Agency
8	Mr. Kennedy	Water Utilization Journal
9	Mr. Kennedy	Sales of Diverby Sales Water
10	Mr. Kennedy	Bid Takahashi

CERTAIN-TIED PRODUCTS CO.,

AREA 1

**FLUID-TITE PRESSURE PIPE
TRUCKLOAD PRICES**

REPLACES 12/1/70
EFFECTIVE 2/15/71

M. Kennedy
3/21/72
PAGE 1

PRICES PER FOOT INCLUDING COUPLINGS AND GASKETS

CLASS	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
100	\$.99	\$1.36	\$1.90	\$2.55	\$3.41	\$4.52	\$5.47	\$6.98	\$8.01	\$11.49
150	1.05	1.43	2.18	3.17	4.14	5.46	6.55	9.37	11.38	15.86
200	1.25	1.72	2.51	3.66	5.05	6.95	8.72	---	---	---

PRICE PER FOOT - PIPE ONLY

CLASS	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
100	\$.84	\$1.14	\$1.56	\$2.09	\$2.83	\$3.78	\$4.60	\$5.73	\$6.40	\$9.20
150	.88	1.18	1.80	2.68	3.52	4.66	5.58	7.77	9.22	13.06
200	1.07	1.44	2.12	3.12	4.39	6.12	7.70	---	---	---

PRICE EACH FLUID-TITE COUPLINGS ONLY

CLASS	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
100	\$1.05	\$1.62	\$2.86	\$4.25	\$5.60	\$7.03	\$8.25	\$9.88	\$14.16	\$21.70
150	1.29	2.00	3.32	4.59	6.01	7.35	9.01	14.19	20.77	27.9
200	1.42	2.44	3.45	5.20	6.47	7.83	9.91	---	---	---

STANDARD RUBBER GASKETS

CLASS	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
100	\$.45	\$.60	\$.79	\$.87	\$.99	\$1.34	\$1.53	\$3.20	\$3.35	\$4.00
150 &										
200	.46	.62	.80	.88	1.05	1.53	1.64	3.30	3.65	4.26

F.O.B. - PLANT WITH FREIGHT ALLOWED TO NEAREST ACCESSIBLE DESIGNATED POINT OF DELIVERY OVER HARD SURFACED ROADS.

TERMS OF PAYMENT - 2% 10TH PROX. NET 30TH PROX.
EXCEPTION: TRUCKLOAD SHIPMENTS TO CONTRACTORS -
2% 25TH PROX. NET 30TH PROX.

CERTAIN-TIED PRODUCTS CO.

AREA 1

**FLUID-TITE PRESSURE PIPE
TRUCKLOAD PRICES**

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PRICES PER FOOT INCLUDING COUPLINGS AND GASKETS

CLASS	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
100	\$.99	\$1.36	\$1.90	\$2.55	\$3.41	\$4.52	\$5.47	\$6.98	\$8.01	\$11.45
150	1.05	1.43	2.18	3.17	4.14	5.46	6.55	9.37	11.38	15.80
200	1.25	1.72	2.51	3.66	5.05	6.95	8.72	---	---	---

PRICE PER FOOT - PIPE ONLY

CLASS	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
100	\$.84	\$1.14	\$1.56	\$2.09	\$2.83	\$3.78	\$4.60	\$5.73	\$6.40	\$9.20
150	.88	1.18	1.80	2.69	3.52	4.66	5.58	7.77	9.22	13.00
200	1.07	1.44	2.12	3.12	4.39	6.12	7.70	---	---	---

PRICE EACH FLUID-TITE COUPLINGS ONLY

CLASS	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
100	\$1.05	\$1.62	\$2.86	\$4.25	\$5.67	\$7.03	\$8.25	\$9.88	\$14.16	\$21.90
150	1.29	2.00	3.32	4.97	6.01	7.35	9.31	14.19	20.77	27.90
200	1.42	2.44	3.45	5.20	6.47	7.83	9.91	---	---	---

STANDARD RUBBER GASKETS

CLASS	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
100	\$.45	\$.60	\$.79	\$.87	\$.99	\$1.34	\$1.53	\$3.20	\$3.35	\$4.00
150 &										
200	.48	.62	.80	.88	1.05	1.53	1.64	3.30	3.63	4.26

F. O. B. - PLANT WITH FREIGHT ALLOWED TO NEAREST ACCESSIBLE DESIGNATED POINT OF DELIVERY OVER HARD SURFACED ROADS.

TERMS OF PAYMENT - 2% 10TH PROX. NET 30TH PROX.

**EXCEPTION: TRUCKLOAD SHIPMENTS TO CONTRACTORS--
2% 25TH PROX. NET 30TH PROX.**

(4)



TRANSITE WATER PIPE

(CC 9510)

CLASS 150

(Sizes 4"-16" Inclusive)

Terms:
For Contractors:
2%, 25th prox, net 30th prox
For All Others:
2%, 10th prox, net 30th prox

PRICES PER FOOT

F.O.B. Pipe Plants
Freight Allowed
Effective February 1, 1971

PIPE WITH COUPLINGS AND 2 RINGS (BELLED)

PIPE SIZE INCHES	4	6	6	8	10	12	14	16
STD. LGTH. FT.	10	10	13	13	13	13	13	13
WT. LBS./FT.	7.20	12.30	12.30	18.70	29.90	41.00	55.00	68.30
PRICE LINE 51	\$ 1.00	\$ 1.39	\$ 1.36	\$ 2.08	\$ 3.01	\$ 3.94	\$ 5.20	\$ 6.23
52	0.99	1.38	1.34	2.05	2.98	3.90	5.15	6.16
53	0.98	1.36	1.33	2.03	2.95	3.86	5.09	6.10
54	0.97	1.35	1.31	2.01	2.92	3.82	5.04	6.04
55	0.96	1.34	1.30	1.99	2.89	3.78	4.99	5.98
56	0.95	1.32	1.29	1.97	2.87	3.75	4.94	5.92
57	0.94	1.31	1.28	1.95	2.84	3.71	4.89	5.86
58	0.93	1.30	1.26	1.93	2.81	3.67	4.84	5.80
59	0.92	1.28	1.25	1.91	2.78	3.63	4.80	5.74
60	0.91	1.27	1.24	1.90	2.75	3.60	4.75	5.69
61	0.90	1.26	1.23	1.88	2.72	3.56	4.70	5.63
62	0.89	1.25	1.21	1.86	2.70	3.53	4.65	5.57
63	0.88	1.23	1.20	1.84	2.67	3.49	4.61	5.52
64	0.88	1.22	1.19	1.82	2.64	3.46	4.56	5.46
65	0.87	1.21	1.18	1.80	2.62	3.42	4.51	5.41
66	0.86	1.20	1.17	1.78	2.59	3.39	4.47	5.35
67	0.85	1.18	1.15	1.77	2.57	3.35	4.43	5.30
68	0.84	1.17	1.14	1.75	2.54	3.32	4.38	5.25
69	0.83	1.16	1.13	1.73	2.51	3.29	4.34	5.20
70	0.82	1.15	1.12	1.71	2.49	3.25	4.29	5.14
71	0.82	1.14	1.11	1.70	2.46	3.22	4.25	5.09
72	0.81	1.13	1.10	1.68	2.44	3.19	4.21	5.04
73	0.80	1.12	1.09	1.66	2.42	3.16	4.17	4.99
74	0.79	1.10	1.07	1.65	2.39	3.13	4.12	4.94
75	0.78	1.09	1.06	1.63	2.37	3.09	4.08	4.89
76	0.78	1.08	1.05	1.61	2.34	3.06	4.04	4.84
77	0.77	1.07	1.04	1.60	2.32	3.03	4.00	4.79
78	0.76	1.06	1.03	1.58	2.30	3.00	3.96	4.75
79	0.75	1.05	1.02	1.57	2.27	2.97	3.92	4.70
80	0.75	1.04	1.01	1.55	2.25	2.94	3.88	4.65
81	0.74	1.03	1.00	1.54	2.23	2.91	3.84	4.61
82	0.73	1.02	0.99	1.52	2.21	2.88	3.81	4.56
83	0.72	1.01	0.98	1.50	2.18	2.86	3.77	4.51
84	0.72	1.00	0.97	1.49	2.16	2.83	3.73	4.47
85	0.71	0.99	0.96	1.47	2.14	2.80	3.69	4.42
86	0.70	0.98	0.95	1.46	2.12	2.77	3.66	4.38
87	0.70	0.97	0.94	1.45	2.10	2.74	3.62	4.34
88	0.69	0.96	0.93	1.43	2.08	2.72	3.58	4.29
89	0.68	0.95	0.93	1.42	2.06	2.69	3.55	4.25
90	0.67	0.94	0.92	1.40	2.04	2.66	3.51	4.21
91	0.67	0.93	0.91	1.39	2.02	2.63	3.48	4.16
92	0.66	0.92	0.90	1.37	2.00	2.61	3.44	4.12
93	0.65	0.91	0.89	1.36	1.98	2.58	3.41	4.08
94	0.65	0.90	0.88	1.35	1.96	2.56	3.37	4.04
95	0.64	0.89	0.87	1.33	1.94	2.53	3.34	4.00
96	0.64	0.89	0.86	1.32	1.92	2.51	3.31	3.96
97	0.63	0.88	0.85	1.31	1.90	2.48	3.27	3.92
98	0.62	0.87	0.85	1.29	1.88	2.46	3.24	3.88
99	0.62	0.86	0.84	1.28	1.86	2.43	3.21	3.84
100	0.61	0.85	0.83	1.27	1.84	2.41	3.18	3.80



TRANSITE WATER PIPE

(CC 9510)

(Sizes 4"-16" Inclusive)

CLASS 150

Terms:
 For Contractors:
 2%, 25th prox., net 30th prox
 For All Others:
 2%, 10th prox., net 30th prox

F.O.B. Pipe Plants
 Freight Allowed
 Effective February 1, 1971

PRICES PER FOOT

PIPE WITH COUPLINGS AND 2 RINGS (BELLED)

PIPE SIZE INCHES STD. LGTH. FT. WT. LBS./FT.	4	6	6	8	10	12	14	16
	10	10	13	13	13	13	13	13
	7.20	12.30	12.30	18.70	29.90	41.00	55.00	68.30
PRICE LINE 1	\$ 1.65	\$ 2.30	\$ 2.24	\$ 3.43	\$ 4.98	\$ 6.51	\$ 8.59	\$10.29
2	1.63	2.28	2.22	3.40	4.93	6.44	8.50	10.19
3	1.62	2.25	2.20	3.36	4.88	6.38	8.42	10.09
4	1.60	2.23	2.17	3.33	4.83	6.32	8.33	9.98
5	1.58	2.21	2.15	3.29	4.78	6.25	8.25	9.88
6	1.57	2.19	2.13	3.26	4.74	6.19	8.17	9.79
7	1.55	2.17	2.11	3.23	4.69	6.13	8.09	9.69
8	1.54	2.14	2.09	3.20	4.64	6.07	8.01	9.59
9	1.52	2.12	2.07	3.17	4.60	6.01	7.93	9.50
10	1.51	2.10	2.05	3.13	4.55	5.95	7.85	9.40
11	1.49	2.08	2.03	3.10	4.50	5.89	7.77	9.31
12	1.48	2.06	2.01	3.07	4.46	5.83	7.69	9.21
13	1.46	2.04	1.99	3.04	4.41	5.77	7.61	9.12
14	1.45	2.02	1.97	3.01	4.37	5.71	7.54	9.03
15	1.43	2.00	1.95	2.98	4.33	5.66	7.46	8.94
16	1.42	1.98	1.93	2.95	4.28	5.60	7.39	8.85
17	1.40	1.96	1.91	2.92	4.24	5.54	7.31	8.76
18	1.39	1.94	1.89	2.89	4.20	5.49	7.24	8.67
19	1.38	1.92	1.87	2.86	4.16	5.43	7.17	8.59
20	1.36	1.90	1.85	2.83	4.11	5.38	7.10	8.50
21	1.35	1.88	1.83	2.81	4.07	5.32	7.03	8.42
22	1.34	1.86	1.81	2.78	4.03	5.27	6.96	8.33
23	1.32	1.84	1.80	2.75	3.99	5.22	6.89	8.25
24	1.31	1.83	1.78	2.72	3.95	5.17	6.82	8.17
25	1.30	1.81	1.76	2.69	3.91	5.11	6.75	8.08
26	1.28	1.79	1.74	2.67	3.87	5.06	6.68	8.00
27	1.27	1.77	1.72	2.64	3.83	5.01	6.61	7.92
28	1.26	1.75	1.71	2.61	3.80	4.96	6.55	7.84
29	1.25	1.74	1.69	2.59	3.76	4.91	6.48	7.77
30	1.23	1.72	1.67	2.56	3.72	4.86	6.42	7.69
31	1.22	1.70	1.66	2.54	3.68	4.82	6.35	7.61
32	1.21	1.68	1.64	2.51	3.65	4.77	6.29	7.54
33	1.20	1.67	1.62	2.49	3.61	4.72	6.23	7.46
34	1.18	1.65	1.61	2.46	3.57	4.67	6.17	7.39
35	1.17	1.63	1.59	2.44	3.54	4.63	6.10	7.31
36	1.16	1.62	1.58	2.41	3.50	4.58	6.04	7.24
37	1.15	1.60	1.56	2.39	3.47	4.53	5.98	7.17
38	1.14	1.59	1.54	2.36	3.43	4.49	5.92	7.09
39	1.13	1.57	1.53	2.34	3.40	4.44	5.86	7.02
40	1.11	1.55	1.51	2.32	3.37	4.40	5.80	6.95
41	1.10	1.54	1.50	2.29	3.33	4.36	5.75	6.88
42	1.09	1.52	1.48	2.27	3.30	4.31	5.69	6.81
43	1.08	1.51	1.47	2.25	3.27	4.27	5.63	6.75
44	1.07	1.49	1.45	2.23	3.23	4.23	5.58	6.68
45	1.06	1.48	1.44	2.20	3.20	4.18	5.52	6.61
46	1.05	1.46	1.43	2.18	3.17	4.14	5.46	6.55
47	1.04	1.45	1.41	2.16	3.14	4.10	5.41	6.48
48	1.03	1.43	1.40	2.14	3.11	4.06	5.36	6.42
49	1.02	1.42	1.38	2.12	3.07	4.02	5.30	6.35
50	1.01	1.41	1.37	2.10	3.04	3.98	5.25	6.29

BID TABULATION

*United Contn
Grant Hillland
host HDF
Reports Sept*

DATE SEPT 25 1970 ^{year?} THIS ORDER LOST SECURED
 OUR QUOTE NO. JL-70C-172 PRESSURE PIPE SEWER

1. LOCATION LAGOON PT WATER DIST - GREENBANK, W^N
 2. PURCHASER 1 OF 25 BIDDERS (LOW BIDDER - 3-WAY
 3. - 4. CONST. CO)

UNIT PRICES

Size	Class	Footage	J-M	Cert.	PWW
8"	150	7,762	134	176	123
6"	150	14,339	125	118	116
		22101			
		TOTAL AMOUNT	32,000		
		% OFF LIST	-3-5	-12	-13.5

5. LOST TO: C-T & PWW are competing
 6. REASON: without us in picture. - I am
sure price in the end
for 6" CL 150 will be
8/10/F.T.

Submitted by:
LGH Wilson

Rep Super

BID TABULATION

DATE 10-1-70

THIS ORDER LOST SECURED

OUR QUOTE NO. JL-70C-157

PRESSURE PIPE SEWER

1. LOCATION GOLD BAR, WASHINGTON

2. PURCHASER ACME CONST [FRANK CHINELLA ROY SURFACE]

3. - 4.

UNIT PRICES

Size	Class	Footage	J-M	Cert.	KUBOTA PWW
4	150	14,000	97	?	78
6	"	19,000	130	↓	114
8	"	4,700	194	↓	156
		37700	41		
		TOTAL AMOUNT	48000		
		% OFF LIST	-3		-22

5. LOST TO: PWW

6. REASON: PRICE - Contractor would not give us a chance to take order because PWW gave him low prices to quote job. Only 5 contractors bid job - All are PWW originated & I assume all received good prices.

Submitted by: W. J. Bellon

B I D T A B U L A T I O N

DATE 9-4-70

THIS ORDER LOST SECURED

OUR QUOTE NO. UL-70C-133-R

PRESSURE PIPE SEWER

1. LOCATION HORIZONS HIGHLANDS - PUYALLUP, WA

2. PURCHASER MORRIS CONST CO - TACOMA.

3. - 4.

Size	Class	Footage	UNIT PRICES		KUBOTA PWW
			J-M	Cert.	
12"	150	3650	368	368	} Kubota make lump sum deduct of Approx 15%
8"	"	1450	174	174	
6"	"	810	130	130	
4"	"	1575	97	97	
		7485			
TOTAL AMOUNT			14,600	14,600	Approx
% OFF LIST			-3	-3	-3-10

5. LOST TO: P. WW

6. REASON: Price & Package

We quoted Storm Drain & Sewer as an exception to specs, but unable to use as contractor immediately gave order to P. WW for water pipe.

Submitted by:

K. J. Wilson

This one "hurt" we are slowly losing our good customers because they are using PWW prices to bid low. Morris in the past has paid 100% as a down payment but 100%

B I D T A B U L A T I O N

DATE AUG 3, 1970

THIS ORDER LOST SECURED

OUR QUOTE NO. UL-70C-87

PRESSURE PIPE SEWER

1. LOCATION CITY OF OLYMPIA

2. PURCHASER TONNESEN CONST

3. - 4.

Size	Class	Footage	UNIT PRICES			P/V/M
			J-M	Cert.		
12"	150	2,600	368	368	330	
8"	150	1040	194	194	170	
TOTAL AMOUNT			11,800			
% OFF LIST			-3	-3	-13	

5. LOST TO: P. W. W.

6. REASON: P. W. W. IS SUCCEEDING TO BUY OUR GOOD CUSTOMER WITH LOW LOW PRICES NO MATTER WHAT SIZE OF PROJECT

Submitted by:
K. G. MILLONS

B I D T A B U L A T I O N

DATE 6-22-70

THIS ORDER LOST SECURED

OUR QUOTE NO. _____

PRESSURE PIPE SEWER

1. LOCATION City of Abbeville, SC

2. PURCHASER Same Bid opening 6-22-70 @

3. - 4. 7:30 PM.

UNIT PRICES

Size	Class	Footage	J-M	Cert.	P.W.W.
6"	150	2300	154	154	117
4"	150	360	109	109	70
TOTAL AMOUNT			4750	4760	4100
% OFF LIST			12.3%	12.2%	12.5%

5. LOST TO: P.W.W.

6. REASON: Price & Package

<u>P.W.W.'s</u>	<u>W.U.</u>	<u>H.D.F.</u>
<u>PACKAGE</u>	<u>PACKAGE</u>	<u>PACKAGE</u>
<u>5712</u>	<u>6869</u>	<u>6531</u>

U.U. package did not include our quote - they quoted themselves. Council was willing to combine J.M. & W.U. BUT W.U. rep. not bid opening & P.W.W. was too low. P.S. bid opening

B I D T A B U L A T I O N

DATE AUG 3, 1970

THIS ORDER LOST SECURED

OUR QUOTE NO. WJ-700-83

PRESSURE PIPE SEWER

1. LOCATION PORT OF BREWERTON

2. PURCHASER RON WILDER - OLYMPIA

3. - 4.

UNIT PRICES

Size	Class	Footage	J-M	Cert.	PWW
8"	150	2400	19¢	19¢	170
TOTAL AMOUNT			4700		
% OFF LIST			-3	-3	-15

5. LOST TO: PWW

6. REASON: This price is standard for their good customers.

Submitted by:

KG MILLONS

ESTIMATE OF WORK

APRIL 20, 1970

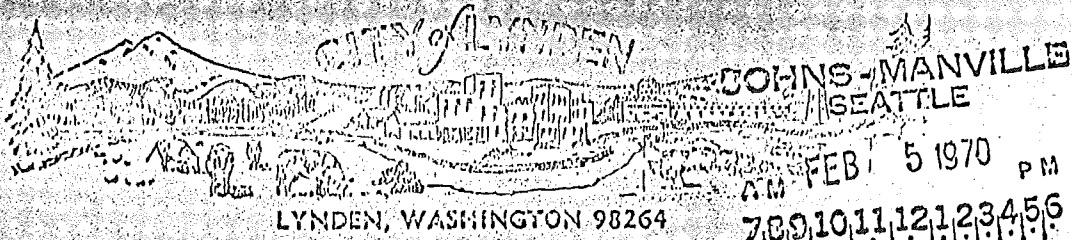
CITY OF OLYMPIA

TOTAL 17 BIDDERS

ITEM NO.	QUANTITY	UNIT DESCRIPTION	BIDDERS																
			Tonnese	Allison	Bert	Robison	Slead	Septis	Welter	Relson	Wood	Wilder	Russin	82.00	80.00	81.00	82.00		
			Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price	Unit Price		
1	11,000 LB	Overly Paving & Reinforce	.60	.60	.75	1.00	1.00												
2	600 CB	Excavation	1.00	.50	1.00	1.00	1.00												
3	11,000 LB	Turn. & Install 12" AS Pipe Class 150 & Appert. Turn. & Install 12" Gate Valve and Valve Box	4.00	4.20	4.21	4.12	4.12												
4	25 IN	Turn. & Install 3" AC Pipes Class 150 & Appert. Turn. & Install 3" Gate Valve and Valve Box	3.00	2.47	2.90	2.80	2.80												
5	65 LB	Reinforcing Steel 150 & Appert. Turn. & Install 3" Gate Valve and Valve Box	3.00	2.25	3.30	4.00	4.00												
6	2 CB	Reinforcing Steel 150 & Appert. Turn. & Install 3" Gate Valve and Valve Box	190.00	137.00	160.00	172.00	172.00												
7	21,000 LB	Reinforcing Steel 150 & Appert. Turn. & Install 3" Gate Valve and Valve Box	25.00	31	20	20	20												
8	2,500 CB	Reinforcing Trench	1.00	1.75	1.25	1.00	1.00												
9	600 CB	Excavation	3.00	2.00	2.50	1.50	1.50												
10	375 CB	Excavation	3.50	5.50	3.60	4.60	4.60												
11	35 IN	Reinforcing Steel	8.00	8.25	6.00	9.00	9.00												
12	600 CB	Excavation	2.00	1.80	3.40	2.80	2.80												
		Excavation & Reinforcement	1,000.00	300.00	400.00	500.00	500.00												
			70,653.75	73,006.65	74,311.50	74,429.50	74,429.50												
			80,870.00	81,353	83,917.00														

Tonnese
Allison
Bert
Robison
Slead
Septis
Welter
Relson
Wood
Wilder
Russin
82.00
80.00
81.00
82.00

IAN ANDEL
Mayor



LYNDEN, WASHINGTON 98264

February 3, 1970

*Robert
Johnson*

Johns-Manville
4304 Stoneway N
Seattle, Wash 98103

Gentlemen:

This is to advise you that the bid submitted by Pacific Water Works Supply, Inc. to supply 3175 feet of 12-inch class 150 cement and asbestos water pipe, with couplings, gaskets and lube at a cost of \$11,271.25, plus \$507.21 sales tax, was accepted by the City Council at their meeting January 19.

The bids submitted were:

	Unit Price	Total	
Pacific Water Works Supply, Inc.	3.55	\$11,271.25, plus sales tax	
H. D. Fowles Co., Inc.	3.68	11,684.00	"
Johns-Manville	3.79	12,033.25	"

We wish to thank you for submitting a bid on this material.

Yours very truly,

Marjorie A. Phillips
Marjorie A. Phillips
City Clerk

B I D T A B U L A T I O N

DATE 1/9/50

THIS ORDER LOST SECURED

OUR QUOTE NO. L-69C-254

PRESSURE PIPE SEWER

1. LOCATION CHINOOK WATER DIST.

2. PURCHASER D. ORIO CONST

3. - 4.

UNIT PRICES

*PWW
KUBOTA*

Size	Class	Footage	J-M	Cert.		
10	150	9700	271	221	252	
8	150	9900	188	188	179	
6	150	4700	126	126	120	
TOTAL AMOUNT			49300			
% OFF LIST			-3			

5. LOST TO: Par. W. W. Kubota

6. REASON: Price & Other Customs

Submitted by:
[Signature]

500

B I D T A B U L A T I O N

DATE 7/12/69

THIS ORDER LOST SECURED

OUR QUOTE NO. JK-6711-221

PRESSURE PIPE SEWER

1. LOCATION So Tacoma, W

2. PURCHASER South East Tacoma Rural Water

3. - 4.

UNIT PRICES

JM Contract Customer

Size	Class	Footage	J-M	Cert.	PWV		
6"	150	3,000	1 ³⁰	NO QUOTE	1 ¹⁶		1 ²¹
10"	150	5,000	2 ⁷⁹		2 ⁵⁰		2 ⁵⁹
TOTAL AMOUNT							
% OFF LIST			0		-10%		-7
					-11%		

5. LOST TO: PWV

6. REASON: PRICE & MILEAGE

I hinted to Water Co that if they would consider going contract customer our price would be 1³⁰-7% & 2⁷⁹-7%.

Submitted by:

W. J. Wilkins

Plus 2% terms.
NOTE: PWV also beat W.U. & Sols NW on fittings.

B I D T A B U L A T I O N

DATE 7-29-69

THIS ORDER LOST SECURED

OUR QUOTE NO. 455 VESCAL

PRESSURE PIPE SEWER

1. LOCATION MILLER SLY ESTATES - DUNNWOOD IS

2. PURCHASER STATE

3. - 4.

UNIT PRICES

Size	Class	Footage	J-M	Cert.	P.V.M.I.		
4	150	635	3.74	0	0		
6	150	11,475	1.26		1.22		
8	150	2,670	1.88		1.82		
		<u>14,780</u>					
TOTAL AMOUNT			<u>70,090</u>				
% OFF LIST			<u>-3</u>				

5. LOST TO: D.V.M.I.

6. REASON: PRICE OF PIPE & PACKAGE

Reported July
2

Submitted by:

[Signature]

B I D T A B U L A T I O N

DATE 6/26/69 THIS ORDER LOST SECURED

OUR QUOTE NO. WL-69C-117 PRESSURE PIPE SEWER

1. LOCATION Black Lake Blvd - City of Olympia

2. PURCHASER Lon Wilder Const Co.

3. - 4.

UNIT PRICES

Size	Class	Footage	J-M	Cert.	PWW
12"	150	1,030	357	3	350
8"	150	2,315	188		185
6"	150	54	126		124
TOTAL AMOUNT			5675		5545
% OFF LIST					

PWW price was about 2% off this.

prices Wilder gave me.

5. LOST TO: PWW

6. REASON: price & package of 100% PWW customer.

Wilder said after he had placed order, that if we could have meet PWW price he would have given us job. Stan & I felt job was too small to ask for price in keeping with H. L. Olson's request. We felt

Submitted by:

Bill Olson

B I D T A B U L A T I O N

DATE 6/26/69

THIS ORDER LOST SECURED

OUR QUOTE NO. UL-67C-87

PRESSURE PIPE SEWER

1. LOCATION Dartwood Acres - Lenox Rd

2. PURCHASER Lon Wilton Const Co.

3. - 4.

UNIT PRICES

Size	Class	Footage	J-M	Cert.	PWV →	
6"	150	3200	160	?	1.20	1.20
4" PVC	160	3050	23	0	.57	Superlon class
APPROX. TOTAL AMOUNT			10,200			
% OFF LIST			3			

5. LOST TO: PWV & Superlon

6. REASON: price & package

Submitted by:
Gilmore

*Reported
March*

BID TABULATION

DATE 3/21/69

THIS ORDER LOST SECURED

OUR QUOTE NO. _____

PRESSURE PIPE SEWER

1. LOCATION CITY OF PORT ANGELES

2. PURCHASER JAMIE

3. - 4.

Size	Class	Footage	UNIT PRICES		
			J-M	Cert.	<i>PIC w.w</i>
8	150	5,000	194	194	183
10	150	4,000	279	279	268
12	150	100	368	368	350
TOTAL AMOUNT			21,228	21,228	20,268
% OFF LIST			-	-	-

5. LOST TO: PACIFIC WATER WORKS, "BELGIAN ETHERNIT"

6. REASON: PRICE

Submitted by: *[Signature]*

Permit
for

B I D T A B U L A T I O N

DATE 2/12/69
OUR QUOTE NO. 69M-26

~~Permit~~
THIS ORDER LOST SECURED
PRESSURE PIPE SEWER

- 1. LOCATION CITY OF BREMERTON
- 2. PURCHASER SAME
- 3. - 4.

UNIT PRICES

Size	Class	Footage	J-M	Cert.			
4"	150	800	97	97	.92	.76	
6"	150	4500	130	130	1.26	1.21	
8"	150	4200	194	194	1.86	1.76	
12"	150	2000	368	368	3.53	3.50	
<u>TOTAL AMOUNT</u>			<u>22,134</u>				
<u>1/2 OFF LIST</u>							

D.W. "KUBOTA"
RATHKE "NIPPONITE"

- 5. LOST TO: RATHKE - "NIPPONITE"
- 6. REASON: PRICE

Submitted by:

Herman

*Report
Hawbury*

B I D T A B U L A T I O N

DATE 7/14/69
OUR QUOTE NO. 6414 22

THIS ORDER LOST SECURED
PRESSURE PIPE SEWER

- 1. LOCATION SKAGIT COUNTY D.U.D., MT. VERMONT W.V.
- 2. PURCHASER SAME
- 3. - 4.

UNIT PRICES

Size	Class	Footage	J-M	Cert.			
10"	150	3,600 ft	279	279	270	275	
8"	150	4,400 ft	194	194	184	176	
6"	150	12,000 ft	130	130	124	119	
TOTAL AMOUNT			31,500				
% OFF LIST							

PACIFIC W.W. KUOBTH SYSTEM RATHKE NIPPONITE

- 5. LOST TO: ~~Same~~ 10" - PWW
- 6. REASON: 8" x 6" TO RATHKE

*J.M. 2% 10th Prox
H.D.F. 2% 40 days
PWW - net
Rathke - net*

Submitted by: *Horman*

L. F. BROWN - SOURCE

Revised February

B I D T A B U L A T I O N

DATE 2/13/69

THIS ORDER LOST SECURED

OUR QUOTE NO. 26-69C-6

PRESSURE PIPE SEWER

1. LOCATION SHERWOOD PACIFIC CO. - TERRA MAR - OYSTERVILLE, WASH.

2. PURCHASER BORLAND ELECTRIC - PORTLAND, ORE.

3. - 4.

Size	Class	Footage	J-M	Cert.	UNIT PRICES		
					PACIFIC W.W. KUBOTA	UTILITIES SUPPLY CO. NIPPONISE	ROBINZ NIPPONISE
8"	150	2,515 FT.	1.88	1.88	1.70	1.715	1.72
6"	150	21,370 FT.	1.26	1.26	1.15	1.1425	1.20
4"	150	1,936 FT.	.94	.94	.70	.71	.7185
2"	PLASTIC 200	5,650 FT.	N.B.				
1"	PLASTIC 200	1,620 FT.	N.B.				
TOTAL AMOUNT			33,499. ⁵¹	33,499. ⁵¹	30,229. ²⁰		
% OFF LIST			+ PLASTIC 3%				

5. LOST TO: PACIFIC WATER WORKS - KUBOTA

6. REASON: ENGINEER APPROVED FOR USE OF KUBOTA PIPE

PRICE \$ 3,270.34 DIFFERENCE

R. M. STROM

WE HAD A CLUB IN 10, 150 FT. OF 4" TRANSIT ELECTRICAL PUCT ON THE JOB BUT TO NO AVAIL - PLEASE REFER OUR COMPLETE REPORT OF 2/7/69 - SHOWING WHAT WE HAD TO GIVE.

CC: STAN NORMAN - SOURCE



Reported January Report
2/3/69

B I D T A B U L A T I O N

DATE 1/13/69

~~PERMITTED~~
THIS ORDER LOST SECURED

OUR QUOTE NO. 65C-264

PRESSURE PIPE SEWER

1. LOCATION KING COUNTY WATER DIST #704

2. PURCHASER BERT ROBINSON

3. - 4.

UNIT PRICES

Size	Class	Footage	J-M	Cert.		
8"	150	5675	185	185	179	
					121	
TOTAL AMOUNT			10,669	10,494	10,158	
% OFF LIST						

PWW

5. LOST TO: Pacific Water Works

6. REASON: Price

Robison has always dealt with Fowler.
I would guess that Fowler met the first
price (179) then PWW cut to 121

Submitted by:
[Signature]

EXHIBIT NO. 13
San District
DISTRICT 3-22-72

EAST BAY MUNICIPAL UTILITY
 PUBLIC BID

DATE	QUANTITY	J-M	K-M (GUARANTEED) THRU REPUBLIC	Voss (KUBOTA)	OTHER	OTHER	AWARD
8/61	120,000 FT 6"	1.28	1.16				REPUBLIC
	40,000 FT 8"	1.84 ✓	1.62				REPUBLIC
5/62	24,000 FT 8"	1.82	1.84				J-M
8/62	80,000 FT 6"	1.24	1.36				J-M
	30,000 FT 8"	1.74 ✓	1.79				J-M
2/63	105,000 FT 6"	1.25	1.32		PIPELINE (KUBOTA) 1.20		J-M
	32,000 FT 8"	1.74 ✓	1.74		1.73 *		J-M
* REJECTED BY DISTRICT							
10/63	28,000 FT 8"	1.75	1.73		PIPELINE 1.73 ✓		REPUBLIC
9/63	75,000 FT 6"	1.27	1.30		PIPELINE 1.19		PIPELINE
	20,000 FT 8"	1.70	1.71		1.67 LESS 10% - 15 DAYS LESS 2% - BOTTLE ITEMS		PIPELINE
7/64	60,000 FT 6"	1.25	1.30	THRU REPUBLIC	PIPELINE 1.24		PIPELINE
	20,000 FT 4"	1.74	1.98		1.70		PIPELINE
1/65	45,000 FT 6"	1.33	1.23	1.24 ✓	1.24	BEELIUM 1.20	Voss
	32,000 FT 8"	1.88 ✓	1.72	1.71 ✓ LESS 4%	1.64	1.68	Voss
2/65	40,000 FT 6"	1.33	1.29	1.20 ✓	1.17		Voss
	45,000 FT 8"	1.90	1.79	1.66 ✓ LESS 5%	1.64 LESS 2%		Voss
12/65	60,000 FT 6"	1.29	1.31	1.15 ✓	1.12	FORNI	Voss
	20,000 FT 8"	1.79	1.81	1.50 ✓ LESS 3%	1.52 LESS 19.10TH		Voss
4/66	90,000 FT 6"	1.27	1.21	.97			Voss
	50,000 FT 8"	1.84	1.65	1.33 ✓			Voss
1/67	50,000 FT 6"	1.32	1.28	1.21	ERICKSON .91		ERICKSON
	45,000 FT 8"	1.92	1.88	1.71 ✓	1.33 ✓		ERICKSON
9/68	45,000 FT 6"	1.31	1.28	1.22 ✓	1.08 ✓		Voss
	35,000 FT 8"	1.92	1.80	1.73 ✓ LESS 12%	1.58 ✓ LESS 2%		Voss
7/71	45,000 FT 6"	1.38	1.35	1.29 ✓			Voss
	35,000 FT 8"	2.12	2.02	1.98 ✓			Voss

EXHIBIT NO. H-5

PRESENTED BY Mr. Kennedy

DATE 3/22/72

Kubota, Ltd.
3, 3-Chome, Nihonbashi-Muromachi
Chuo-ku, Tokyo, Japan

Kubota, Ltd.
606 South Olive Street
Suite 720
Los Angeles, California 90014

March 21, 1972

Mr. Kenneth Mason
Secretary
Tariff Commission
Eighth & E Streets, N.W.
Washington, D.C. 20436

Dear Mr. Secretary:

The purpose of this letter is to inform you of changes in Kubota, Ltd.'s production facilities which, in our opinion, are relevant to the Tariff Commission's pending investigation of asbestos-cement pipe from Japan under the Antidumping Act of 1921.


Last summer, Kubota, Ltd. reduced its capacity for making asbestos-cement pipe from 6,500 metric tons per month to 4,000 metric tons per month. This was accomplished by removing machinery for making asbestos-cement pipe and substituting machinery for extruding asbestos-cement structurals.

As a result of this reduction in our capacity to make a asbestos-cement pipe, we now plan in 1972 to establish our levels of export to the United States, Canada, Guam and other areas at 1,000 metric tons per month. Of this, 200 metric tons per month, we expect, will be sold to other areas than the U.S.A. The remaining 800 metric tons per month of capacity will be sold to the United States. The remaining 3,000 metric tons per month of capacity will be sold in Japan.

It should be noted that we are producing not more than 1,000 metric tons per month that meet American Waterworks Association's and American Society for Testing Materials' specifications.

Yours very truly,

KUBOTA, LTD.


Tsutomu Hashimoto
Manager, Kubota, Ltd.
Los Angeles Office

Pacific Water works # 6 Barclay
Mr. Kennedy

3/22/72

Following Oregon territory Water Districts and Cities will not accept foreign material.

Rockaway, Oregon

Lincoln City, Oregon

Toledo, Oregon

Heceta Beach Water District, Florence, Oregon

City of Florence, Oregon

Reedsport, Oregon

Lakeside Water District, Lakeside, Oregon

Eastside, Oregon

Bandon, Oregon

Harbor Rural Water District, Brookings, Oregon

Monmouth, Oregon

Veneta, Oregon

Oakridge, Oregon

Sutherlin, Oregon

Union, Oregon

Gates, Oregon

Rivergrove Water District, Lake Oswego, Oregon

Central Point, Oregon

Talent, Oregon

Stayton, Oregon

Colton Water District, Colton, Oregon

Sandy, Oregon

Estacada, Oregon

Oregon territory engineers who will not accept foreign material

W. J. Dorner, Portland, Oregon

Edward W. Riley, North Bend, Oregon

Clark & Groff, Salem, Oregon

Arkaret Engineering, Roseburg, Oregon

C.B.S. Engineering, Medford, Oregon

Townley & Associates, Rogue River, Oregon

Erickson & Associates, Coos Bay, Oregon

WATER UTILITIES' USE OF PLASTIC PIPE

Los Angeles, Calif., has been experimenting with plastic pipe installations for more than sixteen years. Two compositions have been given field trials, and a third is undergoing "proving-ground" tests. Results, so far, are encouraging. Skagit County, Wash., another of the districts in the US to pioneer the use of plastic pipe, reports favorably about the installation of various types and sizes of pipe and tubing used in its distribution system.

Los Angeles County—J. M. Wool

TO DATE the installation of plastic piping by the Los Angeles Dept. of Water and Power has been on a trial basis only. Three different plastic materials are being evaluated at the present time: both polyvinyl chloride (PVC) Type 2 and polyethylene 3306 have been installed in services; polybutylene (PB) is being tried in lines on department property (see Table 1).

Polyvinyl Chloride

The first PVC installations were made in Sep. 1954, and, through Jun. 1959, 315 services were installed using PVC in 1-in.-tubing size with wall thicknesses of 0.100 in. and approximately 0.070 in. Water pressures ranged up to 167 psi. Of the total number of installations, 246 are still in service, 28 failed due to various causes (see Table 2), and 41 were replaced or no longer exist for reasons other than material failures.

Two failures were attributed to hot water backing up in the lines and softening the plastic, and two leaks developed in flared compression joints at the main-line cock as a result of improper bedding and back-filling methods, which caused excessive settlement of the back-fill material. The remaining failures were attributed to two primary causes.

The first cause was generally unsatisfactory installation. Many early installations made use of heat flaring in the field to make the compression connections at the main-line cock and at the curb valve. Also numerous riser bends at the meter were made by heating the tubing. Improved joining techniques and fittings now make it unnecessary to attempt to flare, bend, or join PVC in the field by the use of heat.

The second cause of many leaks was the excessive dimensional difference between the inside diameter of socket fittings and the outside diameter of the spigot portion of solvent-fused joints.

Closer manufacturing tolerances are now specified—and held—so that difficulties due to excessively loose fits for solvent-fused joints have been eliminated, for the most part.

An up-to-date evaluation of service involving PVC lines shows the following:

1. The material has proved to be durable and trouble free.

2. Field installation crews had not been pleased with the material from an installation standpoint; however, most of their early complaints have been voided by new and better joint fittings and new installation methods.

3. In 1956 an overall comparison of initial costs made between 49 1-in. PVC-tubing service installations and 49 copper-tubing services of the same size showed copper to be the more economical of the two materials.

Polyethylene

In Jul. and Aug. 1966, 21 services were installed using 1-in. PE 3306 piping with a standard dimension ratio of 7 (SDR-7) and a pressure rating of 160 psi. These services were all made with compression-type connections in which pipe flaring was involved. Regular copper-tubing-size compression fittings were used except that the tail-pieces were oversized to accommodate the larger outside diameter of the PE pipe. The flaring operation involved mild heat application to the ends to be flared. No trouble was experienced in making the riser bends cold. Pressures ranged up to 122 psi. To date no failure of any type has taken place; however, two lines were inadvertently torn out during street excavations.

An evaluation at this time of these installations and the PE 3306 pipe shows the following:

1. The installations have been trouble free.

2. Field-installation crews reported that they liked working with the material and had no complaints about installation techniques.

3. A complete comparison of the total installation costs per service was made for the 1-in. PE 3306 piping and 1-in. copper tubing installed in the same subdivision. Copper proved to be slightly less costly.

Polybutylene

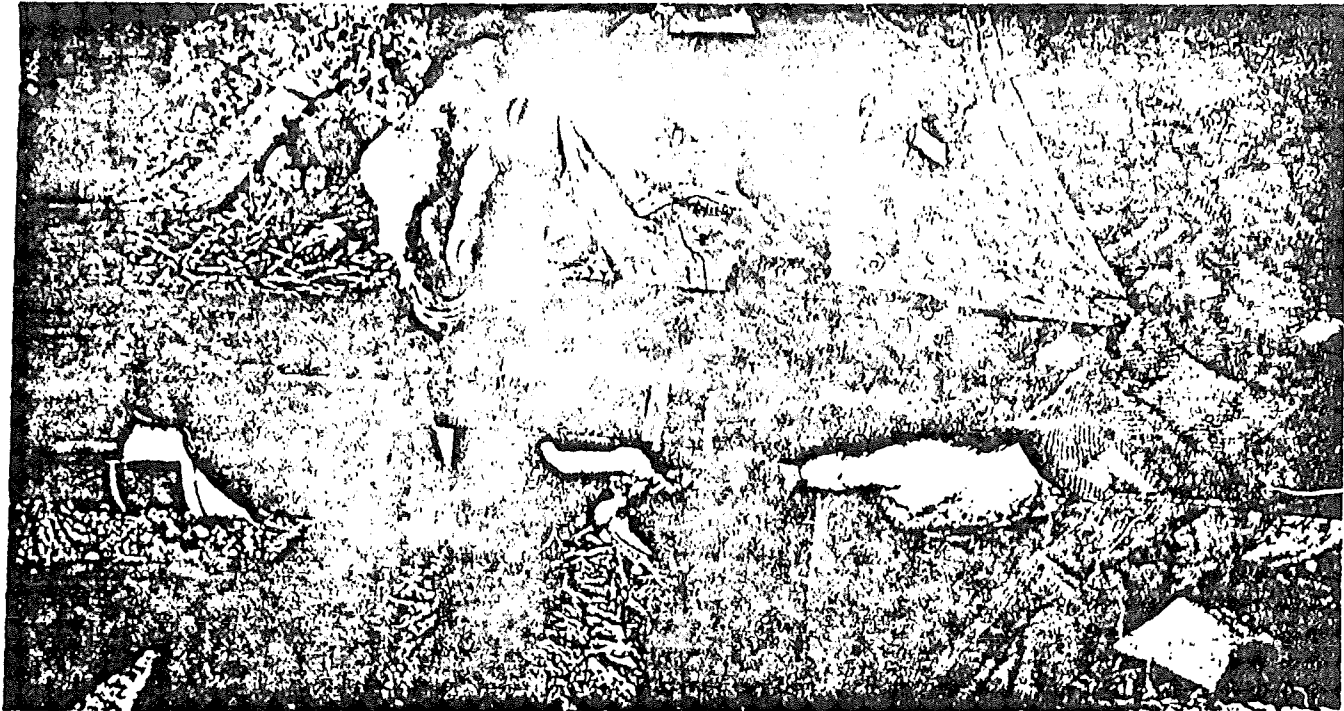
To date testing of PB consists of an installation of 1-in. PB 2110 tubing with a pressure rating of 160 psi. Lengths of this material were installed on Department property in Feb. 1969. Water pressures involved have been 160 psi and approximately 200 psi. One loop is exposed to sunshine and atmosphere, and other lines are underground near the edge of an orange grove where gophers are present. Connections are all by standard copper-tubing compression fittings that require flaring. All flares were made cold. No leaks or troubles have occurred to date.

Future Studies and Evaluations

At the present time it appears that the total initial cost (materials plus labor) of plastic service installations is less than the cost of comparable copper installations. Any significant changes in the physical characteristics of the installed plastic materials that might develop over prolonged periods, such as 40 or 50 years, remain a major concern of the Department, however.

The Los Angeles Dept. of Water and Power plans to add new trial installations of plastic-piping materials along with their required fittings and to keep abreast of developments in the field of plastic materials for water-system use.

Two papers presented as part of a panel discussion at the Annual Conference on Jun. 22, 1970, by J. M. Wool (Active Member, AWWA), Sr. Water Works Engr., Dept. of Water and Power, Los Angeles, Calif., and Robert A. Yale (Active Member, AWWA), Sr. Engr., Public Utility District No. 1, Skagit County, Wash. [D]



Before plastic pipe can be installed, it must be . . .

Skagit County—Robert A. Yale

PUBLIC Utility District (PUD) No. 1 of Skagit County, Wash., has been working with plastic-pipe material for over seventeen years and today counts 110 mi of plastic tubing and pipe in its broad area of service.

Skagit County PUD operates a unique water system that encompasses three small cities, two towns, and the large productive farm areas surrounding these centers. Today a total of 260 mi of pipe plant is serving 9,100 water customers, 42 per cent of whom are located outside the limits of the three cities. The distribution plant extends into 100 sq mi. of Skagit Valley. Most of the District's system is completely tied together with transmission and distribution lines delivering water from the main sources of supply.

Virtually all of the rural plant has been constructed since 1940; in that

same period over 90 per cent of the city systems have been built, by additions and replacements. Even pipe plant installed in the early '40s from materials then available—such as wood stave and thin-wall steel pipe—also has been replaced, or is being replaced today.

Waters in the area are very soft and usually contain some amounts of dissolved iron. Consequently, the water supplied is corrosive to steel and conducive to the development of iron bacteria tuberculation on steel- or iron-wall pipe. Feasibility and economics have dictated the installation of small-diameter, least-cost pipe in the sprawling rural areas. The need has been for domestic water service. Fire-protection-pipe sizing has not been practical, except in and near the cities.

Polyethylene Tubing

Interest in plastic material developed because of poor results with conventional service piping. Galvanized-steel service pipe purchased after the early '40s plugged up with iron tubercules so badly that the district had to replace such pipes within ten years. Aggressive soil conditions often would corrode through such pipe in even less time. Copper has been a good material, but cost had steadily increased.

In 1952, six 7-in. water services using polyethylene (PE) tubing were installed and carefully watched. These services were easy to install, and they performed without failure. In 1953 several more services were installed.

The tubing was available in several pressure ratings, which were set largely by the manufacturer. Since the cost was so low in comparison with galvanized and copper pipe, the district chose to purchase tubing with a pressure rating of 125 psi—well over the water pressure in the mains. Installation locations were chosen in areas where normal pressures did not exceed 60 psi and where extensive paving improvements were unlikely.

Since corrosion to steel by aggressive soils was a primary concern, the District did specify stainless-steel clamps and stainless-steel screws to clamp the tubing around brass-insert fittings. (For a short time nylon fittings were used, but, after a year or two of service, these fittings would fail. The nylon would absorb moisture, lose its toughness, and become brittle. Eventually, every such nylon fitting installed had to be replaced with either a brass, copper, or molded-plastic fitting.)

Despite dire predictions that the tensile strength of the PE would fall with time, there have been fewer than a half-

TABLE 1
PVC Service Installations

Number of installations	315
Number of failures	28
Removals other than failures	41*
Remaining installations	246
Oldest installation—yr	15½
Youngest installation—yr	11

* Removals due to new main installations, destruction by new excavations, and relocations in conjunction with construction projects.



... cleaned and solvent-cemented.

dozen failures in thousands of PE-tubing services installed since 1951—excepting those broken by earthwork contractors. Using a heavier tubing helped ensure this success; so did the use of brass fittings at points of external stress, such as coupling connections and ells.

Meanwhile, since PE pipe use was inaugurated, the creation of plastic formulations has been explosive. When polyethylene was first used, there were five basic types. Since that time, apparently, "hundreds" have been discovered. From these developments have come the formulations that are used today for making several different densities of tubing material for water service, none of which, for the chemist, even closely resemble that from which the first tubing was made.

The District's records show that over 200,000 ft of 3- and 1-in. PE tubing are now installed in over 6,500 of the District's water services. Since the adoption of the Commercial Standard for PE pipe in 1963, the District has been using medium-density tubing, designated PE 2306, in class 125 pressure rating. Accumulated experience provides no reason to use higher-rated tubing or to consider the new flare-type tubing that utilizes copper flare fittings. It frequently has been suggested that inserts reduce the capacity of the tubing because of the increased pressure loss

through the smaller inside diameter of the fitting. This condition has not been substantiated. Since the total length of reduced cross section is only about 4 in. in a service, the head loss in the fittings is negligible, and the more costly high-density flare tubing does not seem warranted.

Smaller Distribution Mains

The smooth interior wall of plastic pipe and evidence that plastic is immune to corrosion as water suppliers know it—thereby providing good long-term flow characteristics—led the District to try the material in small distribution mains. As mentioned before, galvanized steel had not performed well and some difficulty was experienced with 2-in. asbestos-cement pipe. A hard-wall plastic pipe that had to be solvent-welded with molded couplings was introduced to the District. This pipe was made of acrylonitrile-butadiene-styrene (ABS) material. The material has a much higher tensile strength than polyethylene and, therefore, is less expensive than PE pipe in larger than 1-in. sizes for an equivalent pressure rating (since less raw material is required to make it).

In 1953 the first 2-in. ABS pipe was laid. It had solvent-welded-pipe (SWP) dimensions; that is, it had a somewhat smaller outside diameter

than galvanized-steel pipe. It came in 20-ft lengths that were joined by cementing or solvent welding molded couplings of higher-density material over the pipe ends. Two cements were required: (1) a strong solvent to etch into the dense interior wall of the coupling; (2) a solvent with ABS material mixed in to act as a filler in the joint—this solvent being applied to the outer wall of the pipe end.

Shortly after beginning the installation of this material it was realized there would be some advantages in using iron-pipe-size outside-diameter pipe, so that certain standard repair bands and flexible couplings could be used when needed. The District's suppliers were able to furnish this size with no difficulty, and it has been the standard for many years now. However, there are a good many feet of old SWP dimension pipe in service that are run across occasionally.

The District had the good fortune to purchase its earliest ABS pipe from a reputable water-works supply house, which in turn obtained the pipe from a very conscientious extruder who was interested in the District's problems. A number of problems indeed were encountered in those early years, some of which the District solved on its own. Possibly pipe would be received that was damaged or scarred. Or perhaps it would be egg shaped so that assembly would be difficult. Possibly the interior wall would be rough, or dimensional tolerances such that it would not fit properly into couplings. The supplier and extruder always worked hard to correct these problems when they occurred. Looking back, it is apparent that the District pioneered the field in the '50s and early '60s. The District even developed its own design for a

TABLE 2
Types of Failures of PVC Service Lines

Failure Type	Quantity
Leaks (all types: includes solvent-fused joints and heated butt welds)	16
Hot-water back-up	2
Sheared near main (due to excessive backfill settlement and surface loads)	2
Breaks at riser bend (all bends made by heating)	5
Breaks at flare	2
Unspecified	1
Total	28

mechanical service clamp that would not distort the pipe out of roundness and had the clamps manufactured locally, until the industry developed acceptable clamps.

After a while, higher-density ABS resins were developed, and it became possible to mold or extrude couplings of the same material as the pipe. Solvent welding was simplified, since only one solvent was then necessary.

From 1953 through mid-1964, the Skagit County PUD installed over 38 mi of ABS pipe in sizes from 1½ in. through 4 in. Most of it is in the 2-in. size. Over 95 per cent of this material is still in service, including the very earliest pipe. Undoubtedly one major factor in the District's success up until now has been the conservative rating of the pipe purchased. Minimum-class 150-psi ABS pipe was used first, and it was raised to 160 psi when a stronger ABS material became available in the late fifties. Another success factor was that the installers were well trained and the same men always worked with the plastic installations.

However, not all installations were trouble free. At one time, a new ABS formulation, designated as HTHT (high tensile-high temperature), was offered. It was supposed to be superior to earlier types, and, since it was a stronger material, the pipe could be made with less wall thickness for the same pressure rating, thereby further reducing first cost.

It proved to be a terrible flop. Internal stresses were created in the pipe from improper tempering after extrusion. These stresses caused the pipe to split in most unexpected ways. Some pieces would split in storage. The District's two installations using this material never did hold water for more than a day or two. The embarrassed pipe supplier covered all the expenses of replacing the pipe with the former ABS type pipe, but the experience did raise District concern since the splits in this pipe were the same as had been experienced on some occasions with the regular ABS.

The District has experienced failures in older ABS pipe installations in the past few years. Sections of pipe will split open longitudinally, sometimes the

full 20-ft length between couplings. Some have split when but barely disturbed—such as by shaking the ground during nearby excavation activity. In three cases the District installed pressure-reducing valves at the head of lead-end lines, dropping the pressure from 80 psi, or more, to 50 psi. On these lines continued failures have ceased.

Servicemen have found that ABS pipe splits are only in the earliest types of pipe and that none of the class 160 pipe made with higher-strength material has failed, unless broken by impact.

Polyvinyl Chloride Pipe

In early 1964 the two prime extruders near the District's area, from which most of the pipe came, tooled up to manufacture pipe from polyvinyl chloride (PVC) plastic. It had been said that this material was superior to ABS for pressure pipe, and the District was anxious to try it. The standards as published by the US Dept. of Commerce effectively had standardized the manufacturing of plastic pipe, and the District was sold on the higher impact and tensile strengths of PVC. Before the year ended conversion had been completed from ABS to PVC pipe in the smallest-main installations.

In the past six years, the District has installed and placed into service just over 34 mi of PVC plastic pipe. The pipe has all been of the PVC-1120 or 1220 type, designed for 200-psi working pressure. Most of this pipe has been of the 2-in. and 3-in. size, though over 4 mi of 4 in. PVC pipe, also of class 200-psi working-pressure rating, has been installed in the past year.

PVC pipe is available to the District with (1) molded couplings for gluing to pipe ends; (2) pre-belled pipe ends for gluing sections together in a bell and spigot method, and (3) rubber-gasketed bell ends molded or factory-glued on one end of each pipe length. The last joint is the most costly but requires no gluing or curing. For inexperienced personnel it is suggested as the most positive joining method.

Considerable success has been obtained with the pre-belled pipe ends for gluing. Now all District pipe is ordered this way. It is very important, though, that the pipe maker know exactly what he is doing when

forming the belled end. The District will not accept deformed or imperfect bell ends.

The cost of class-200 PVC pipe has become very competitive with other types of pipe the District normally has used in 4-, 6-, and 8-in. sizes. The 4-in. PVC is used now, because it is found easier to install and the first cost is less. Because of the success with this size and the District's experience with plastics, it most likely will be using 6-in. PVC before 1971.* Actually there are a few hundred feet of 6- and 8-in. PVC in service now under highways and railroads within steel casing pipes.

PVC pipe has been received with damaged ends, poorly factory-installed couplings, or egg-shaped bell ends. Careful inspection before installation by experienced pipe installers has disclosed these blemishes before assembly. Today the suppliers seem to be more careful, although inspection of every piece continues. To this date the District has not experienced a single PVC pipe failure after the pipe has been placed in full service.

Conclusion

The District has been very close to the evolution and refinement of plastic-pipe manufacture for many years. Considerable savings have been realized with the use of plastics, even though some failures in ABS types are being experienced today. These savings have accrued from first-cost-material savings and continued excellent-flow characteristics.

The success of plastic materials in Skagit County probably has been the result of having experienced installers, keeping close contact with the pipe manufacturers, and applying conservative pressure ratings. Although system pressures seldom exceed 100 psi, the District is still specifying class 200 pipe in PVC materials. The longer success with polyethylene tubing allows continued use of class 125 tubing, however.

The District looks forward to continued use of plastic pipe and tubing and the expansion of its experience in larger diameters.

*Since the submission of this paper, the District has installed 6,730 ft of 6-in. class 200 PVC pipe with success.

CLASS 1
FURNISHED E

DATE 3/23/72
Mr. Kennedy

B I D T A B U L A T I O N

DATE 6-22-70 THIS ORDER LOST SECURED

OUR QUOTE NO. _____ PRESSURE PIPE SEWER

1. LOCATION CITY OF NEW YORK, NY

2. PURCHASER Same Bid opening 6-22-70 @

3. - 4. 7:30 PM.

UNIT PRICES

Size	Class	Footage	J-M	SAM ²	Cert.	PUWU	WU BIO5M
6"	150	3300	134	134	117	1.40	
4"	150	360	1.00	1.00	.70	1.03	
		TERMS	270	NET	NET		
TOTAL AMOUNT			4750	4750	4100		
% OFF LIST			-37%	-37%	12.7		

5. LOST TO: PUWU

6. REASON: Price & Package

PUWU'S PACKAGE 5912
W.U. PACKAGE 6869
H.O.F. PACKAGE 6531

W.U. package did not include air quote - they quoted themselves. Council was willing to combine J.H. & W.U. BUT W.U. rep. not to bid opening & P.W.U. was too low. P.S.

CLASS 2

FURNISHED "KUBOTA"

BID 6/2/70 DELIVERED 6/17/70

BID TABULATION

DATE AUG 3, 1970

THIS ORDER ~~LOST~~ SECURED

OUR QUOTE NO. UL-70C-87

PRESSURE PIPE SEWER

1. LOCATION CITY OF OLYMPIA

2. PURCHASER TONNESEN CONST

3. - 4.

Size	Class	Footage	UNIT PRICES		P.W.W.	ACTUAL	SAME PRICE AS 4/7 JOB
			J-M	Cert.			
12"	150	2,600	3.68	3.68	3.30	3.35	
8"	150	1,040	1.94	1.94	1.70	1.80	
		TOTAL AMOUNT	11,800				
		% OFF LIST	-3	-3	-13		

5. LOST TO: P.W.W.

6. REASON: P.W.W. IS SUCCEEDING TO BUY OUR GOOD CUSTOMER WITH LOW LOW PRICES NO MATTER WHAT SIZE OF PROJECT

NOTE: Same customer as April 20 JOB

So give same price. Submitted by: K.G. MILLIONS

156

CLASS 3
FURNISHED "ETERNIT"

BID - 7/28/70 BID TABULATION

DATE 9-4-70 THIS ORDER SECURED
OUR QUOTE NO. JL-70C-133-R PRESSURE PIPE SEWER

- LOCATION HORIZONS HIGHLANDS - PUYALLUP, W
- PURCHASER MORRIS CONST CO - TACOMA.
- 4.

Size	Class	Footage	UNIT PRICES		KUBOTA	
			J-M	Cert.	PWW	
12"	150	3650	368	368	?	} Kubota make lump sum deduct of Approx 150
8"	"	1450	174	174	184	
6"	"	810	130	130	124	
4"	"	1575	97	97	90	
		7485				
TOTAL AMOUNT			14,600	14,600	14,600	
OFF LIST			-3	-3	-3-10	

- LOST TO: P. WW
- REASON: Price & Package

RIEN
COMBINATION

We quoted Storm Drain & Sewer as an exception to specs, but unable to use as contractor immediately gave order to P. WW for water pipe. This one "hurt" we are slowly losing our good customers because they are using PWW prices to bid low. Morris in the past has paid 1.4 1.7

Submitted by: K. (V.) [Signature]

CLASS 2
FURNISHED KUBOTA

United Contractors
Grant Hillland
Host HDF
Depot Sept

BID TABULATION

DATE SEPT 25 1970 ^{year?} THIS ORDER LOST SECURED
OUR QUOTE NO. JL-70C-172 PRESSURE PIPE SEWER

1. LOCATION LAGOON PT WATER DIST - GREENBANK, W.V.
2. PURCHASER 1 OF 25 BIDDERS (LOW BIDDER - 3-WAY)
3. - 4. CONST. CO

Size	Class	Footage	UNIT PRICES				PWV	OUR ACTUAL PRICE
			J-M	Cert.				
8"	150	7,762	1.24	1.76	1.73		1.78	
6"	150	14,339	1.24	1.18	1.16		1.18	
		22101						
TOTAL AMOUNT			32,000					
% OFF LIST			-3-5	-12	.135			

5. LOST TO: C.T & PWV are competing
6. REASON: without us in picture - I am
sure price in the end
for 6" CL 150 will be
8/10 /F.T.

Submitted by:
L.G. Hillman

CLASS 2
 FURNISHED "KUBOTA"

Pipe Sept

BID TABULATION

BID 8/31/70

DATE 10-1-70

THIS ORDER LOST SECURED

OUR QUOTE NO. JL-70C-157

PRESSURE PIPE SEWER

1. LOCATION GOLD BAR, WASHINGTON

2. PURCHASER ACME CONST [FRANK CHINNELLA] ROY SURFACE

3. - 4.

Size	Class	Footage	UNIT PRICES		KUBOTA - PWU	WRONG OUR ACTUAL PRICES	
			J-M	Cert.			
4	150	14,000	97	?	78	.75	
6	"	17,000	130		114	1.18	
8	"	4,700	194	↓	156	1.78	
		37700	41				
TOTAL AMOUNT			48,000				
% OFF LIST			-3		-22		

5. LOST TO: PWW

6. REASON: PRICE - Contractor would not give us a chance to take order because PWW gave him low prices to quote job. Only 5 contractors bid job - all are PWW originated & I assume all received good prices.

Submitted by:

L.G. Wilson

CLASS 2

010 5/13/69

OUR PRICE

3.51

1.84

1.23

NET
"K" + E

FURNISHED

BID TABULATION

DATE 6/26/69

THIS ORDER LOST SECURED

OUR QUOTE NO. WL-69C-117

PRESSURE PIPE SEWER

1. LOCATION Black Lake Blvd - City of Olympia

2. PURCHASER Ron Wilder Const Co.

3. - 4.

UNIT PRICES

Size	Class	Footage	J-M	Cert.	PWW	ACTUAL
12"	150	1,030	357	7	350	351
8"	150	2,315	138		183	184
6"	150	54	126		124	123
JM GENERALLY						2 in off
ALLOW 2% cash discount						This 0
TOTAL AMOUNT			5675		5545	7941.32
% OFF LIST			8097.34			

prices Wilder gave me.

5. LOST TO: PWW

6. REASON: price & package of 100% PWW customer.

Wilder said after he had placed order, that if we could have meet PWW price he would have given us job. Stan & I felt job was too small to ask for price in keeping with H.L. Olson's request. we felt

Submitted by:

Bill Wilson