Table 3C-2 Node Data (1/10)

NO	Node No.	Head at Source, m	Nodal Demand, m^3/s	Ground Elevation, m	X Coordinate	Y Coordinate	Total Head, m	Effective Head, m	Supply at Source (m^3/s)
2	***N3***		***0.00086***	***3.0***	***3196.5***	***2637.2***	***28.49***	***25.5***	
3	***N4***		***0.00105***	***4.0***	***3095.5***	***2570.6***	***28.54***	***24.5***	
4	N5		0.00000	3.0	3175.9	2545.3	28.49	25.5	
5	N6		0.00000	8.0	3219.0	4117.3	38.34	30.3	
6	N10		0.00000	20.0	3212.5	3754.4	37.91	17.9	
7	N12		0.00000	5.0	3148.0	1331.1	28.11	23.1	
8	N13		0.00000	5.0	3208.0	1342.8	28.14	23.1	
9	N14		0.00000	10.0	3107.0	2204.6	29.56	19.6	
10	N15		0.00000	10.0	3228.0	2218.6	29.41	19.4	
11	N17		0.00000	15.0	3124.2	2793.6	37.65	22.7	
12	N18		0.00000	15.0	3127.4	2775.5	37.51	22.5	
13	***N22***		***0.00314***	***7.1***	***3194.7***	***3514.6***	***40.02***	***32.9***	
14	N23		0.00000	22.0	3093.9	3549.7	40.64	18.6	
15	N24		0.00000	5.0	3229.7	2234.6	29.39	24.4	
16	N26		0.00000	5.0	3246.7	2369.2	28.90	23.9	
17	N27		0.00000	5.0	3165.8	2361.5	27.61	22.6	
18	N29		0.00000	15.0	3136.5	2133.8	29.65	14.7	
19	N33		0.00000	5.0	2415.8	2507.1	24.74	19.7	
20	N34		0.00000	5.0	1181.3	2598.3	30.80	25.8	
21	N35		0.00000	5.0	1199.6	2488.3	29.83	24.8	
22	N36		0.00000	5.0	1814.0	2581.3	27.73	22.7	
23	N37		0.00000	5.0	1826.2	2518.3	28.72	23.7	
24	***N38***		***0.00107***	***4.0***	***2813.3***	***2581.9***	***27.36***	***23.4***	
25	***N39***		***0.00225***	***4.0***	***2813.3***	***2490.4***	***26.85***	***22.9***	
26	N41		0.00000	7.0	1528.2	2837.5	39.73	32.7	
27	N44		0.00000	5.0	1586.5	2993.6	34.93	29.9	
28	N45		0.00000	5.0	1559.7	3057.8	34.90	29.9	
29	N46		0.00000	7.0	1493.6	2899.1	38.61	31.6	
30	N47		0.00000	7.0	1619.2	2887.3	35.21	28.2	
31	N50		0.00000	7.0	1546.4	2814.4	35.34	28.3	
32	N53		0.00000	15.0	1557.0	3821.1	28.81	13.8	
33	N54		0.00000	15.0	1640.0	3678.4	28.81	13.8	
34	N55		0.00000	10.0	1537.7	2615.1	32.44	22.4	
35	N56		0.00000	10.0	1639.6	2598.1	32.04	22.0	
36	N59		0.00000	7.0	1565.7	2657.5	35.28	28.3	
37	***N63***		***0.00112***	***5.9***	***1054.3***	***4220.9***	***28.67***	***22.8***	
38	N65		0.00000	15.0	1242.5	3896.0	28.79	13.8	
39	N69		0.00000	15.0	1367.5	3941.3	28.77	13.8	
40	N70		0.00000	15.0	1322.9	3978.5	28.76	13.8	
41	N76		0.00000	15.0	1308.0	3845.7	28.77	13.8	
42	N77		0.00000	15.0	1349.0	3613.8	28.88	13.9	
43	N81		0.00000	7.0	1472.0	2863.9	39.73	32.7	
44	N82		0.00000	15.0	1051.9	3058.9	39.73	24.7	
45	***N86***		***0.00868***	***6.6***	***1532.8***	***2809.6***	***35.30***	***28.7***	
46	N87		0.00000	7.0	1501.0	2826.4	34.99	28.0	
47	N90		0.00000	5.0	1316.7	2839.4	33.39	28.4	
48	N94		0.00000	5.0	1197.0	2720.2	31.89	26.9	
49	N96		0.00000	10.0	1546.4	2711.7	32.82	22.8	
50	N97		0.00000	10.0	1520.5	2734.0	33.58	23.6	
51	***N98***		***0.00528***	***23.0***	***2663.5***	***3599.2***	***41.34***	***18.4***	
52	N100		0.00000	18.0	2556.2	3469.4	40.41	22.4	
53	N101		0.00000	24.0	2664.4	3581.7	41.25	17.2	
54	***N102***		***0.00858***	***7.5***	***2073.0***	***3531.5***	***30.14***	***22.6***	
55	N106		0.00000	12.0	2364.1	3540.5	33.86	21.9	
56	***N107***		***0.00280***	***12.0***	***2364.1***	***3594.5***	***32.75***	***20.7***	
57	N108		0.00000	12.0	2377.7	3556.0	34.88	22.9	
58	N110		0.00000	23.0	2627.7	3570.7	41.01	18.0	
59	N112		0.00000	22.0	2740.1	3591.4	41.20	19.2	
60	***N113***		***0.00214***	***15.0***	***2344.4***	***4105.9***	***39.52***	***24.5***	
61	N115		0.00000	15.0	2436.2	4197.8	39.76	24.8	
62	N116		0.00000	14.0	2360.4	4232.2	39.44	25.4	
63	N117		0.00000	10.0	2384.1	4512.6	39.01	29.0	
64	N119		0.00000	10.0	2361.6	3794.4	32.35	22.4	
65	N121		0.00000	10.0	2354.3	3783.5	32.13	22.1	
66	N123		0.00000	10.0	2368.8	3729.3	32.13	22.1	
67	N125		0.00000	10.0	2384.2	3740.7	33.40	23.4	
68	***N128***		***0.00481***	***2.4***	***2114.8***	***4110.5***	***32.13***	***29.8***	
69	***N130***		***0.00262***	***3.6***	***2031.3***	***4008.9***	***29.99***	***26.4***	
70	N131		0.00000	3.0	2251.0	4363.4	39.27	36.3	
71	***N133***		***0.00426***	***2.3***	***2168.4***	***4471.3***	***39.15***	***36.8***	
72	***N135***		***0.00578***	***10.0***	***2248.7***	***4524.1***	***39.07***	***29.1***	

Table 3C-2 Node Data (2/10)

NO	Node No.	Head at Source, m	Nodal Demand, m^3/s	Ground Elevation, m	X Coordinate	Y Coordinate	Total Head, m	Effective Head, m	Supply at Source (m^3/s)
73	***N137***		***0.00293***	***2.6***	***2227.3***	***4275.8***	***39.35***	***36.8***	
74	N140		0.00000	12.0	2019.2	3993.2	29.40	17.4	
75	***N142***		***0.00426***	***14.2***	***1982.2***	***3868.0***	***29.48***	***15.3***	
76	N143		0.00000	16.0	1786.9	3828.0	29.06	13.1	
77	N144		0.00000	15.0	1747.8	3928.0	28.95	14.0	
78	N147		0.00000	15.0	1822.1	4033.7	29.13	14.1	
79	N148		0.00000	15.0	1653.0	3947.9	28.87	13.9	
80	***N153***		***0.00322***	***14.2***	***1633.6***	***3921.4***	***28.83***	***14.6***	
81	N156		0.00000	15.0	1799.6	3758.9	29.04	14.0	
82	N159		0.00000	15.0	1733.6	3629.0	28.99	14.0	
83	N162		0.00000	10.0	2322.4	3855.7	32.13	22.1	
84	N163		0.00000	10.0	2337.4	3858.0	32.35	22.4	
85	N164		0.00000	10.0	2108.3	3957.0	30.25	20.2	
86	N166		0.00000	10.0	2297.3	3722.5	31.09	21.1	
87	***N167***		***0.00565***	***10.0***	***2310.4***	***3642.2***	***31.32***	***21.3***	
88	***N168***		***0.00858***	***4.4***	***2366.9***	***3653.1***	***32.13***	***27.7***	
89	***N170***		***0.00429***	***12.0***	***2860.9***	***4218.4***	***38.80***	***26.8***	
90	***N171***		***0.00505***	***10.0***	***2563.2***	***4404.7***	***38.90***	***28.9***	
91	N172		0.00000	10.0	3044.5	4112.7	38.55	28.5	
92	N174		0.00000	25.0	2790.7	3941.8	40.26	15.3	
93	N175		0.00000	25.0	2775.5	3985.2	40.35	15.3	
94	N176		0.00000	25.0	2723.3	3907.0	40.12	15.1	
95	***N177***		***0.00293***	***22.0***	***2758.8***	***3692.2***	***41.24***	***19.2***	
96	***N179***		***0.00379***	***25.0***	***2680.9***	***3842.0***	***39.82***	***14.8***	
97	N181		0.00000	20.0	2580.8	3984.3	40.33	20.3	
98	***N183***		***0.00293***	***25.0***	***2642.2***	***3909.5***	***40.63***	***15.6***	
99	N185		0.00000	25.0	2661.0	3878.8	40.25	15.3	
100	N186		0.00000	25.0	2612.1	3896.9	40.63	15.6	
101	N187		0.00000	25.0	2729.8	3887.5	40.08	15.1	
102	N188		0.00000	25.0	2755.9	3900.5	40.03	15.0	
103	N189		0.00000	25.0	2764.6	3883.2	39.99	15.0	
104	N192		0.00000	20.0	2589.3	3806.1	32.35	12.4	
105	N193		0.00000	20.0	2605.1	3790.3	32.13	12.1	
106	N194		0.00000	15.0	2615.9	3700.7	32.13	17.1	
107	N195		0.00000	20.0	2635.2	3807.7	32.13	12.1	
108	N196		0.00000	17.0	3033.4	3788.9	37.95	21.0	
109	N198		0.00000	10.0	3049.5	3984.0	38.00	28.0	
110	***N199***		***0.00225***	***15.0***	***2901.7***	***3728.4***	***40.27***	***25.3***	
111	N200		0.00000	22.0	2979.6	3664.5	40.27	18.3	
112	N201		0.00000	22.0	2876.4	3707.3	40.29	18.3	
113	N202		0.00000	22.0	2917.4	3623.5	40.29	18.3	
114	N205		0.00000	20.0	2452.3	3052.0	40.20	20.2	
115	N207		0.00000	20.0	2439.0	3062.7	38.72	18.7	
116	N209		0.00000	20.0	2410.1	3111.0	38.84	18.8	
117	N211		0.00000	20.0	2360.1	3136.5	38.81	18.8	
118	N212		0.00000	15.0	2385.0	3520.1	34.81	19.8	
119	N213		0.00000	15.0	2392.2	3533.8	37.15	22.1	
120	N214		0.00000	5.0	1654.2	3131.0	34.84	29.8	
121	N215		0.00000	5.0	1738.4	3029.4	34.79	29.8	
122	N216		0.00000	5.0	1815.7	3067.5	34.40	29.4	
123	N217		0.00000	5.0	1800.8	3038.3	34.60	29.6	
124	N219		0.00000	15.0	2204.4	3058.5	38.81	23.8	
125	N221		0.00000	10.0	2081.6	3055.4	38.79	28.8	
126	***N222***		***0.00078***	***5.0***	***2026.1***	***3142.3***	***38.78***	***33.8***	
127	N225		0.00000	5.0	1971.2	3216.4	38.78	33.8	
128	N226		0.00000	5.0	1763.5	3225.6	34.19	29.2	
129	N228		0.00000	5.0	1763.5	3122.2	34.31	29.3	
130	N230		0.00000	5.0	1953.0	3231.7	33.84	28.8	
131	N232		0.00000	5.0	1840.2	3279.1	34.00	29.0	
132	N234		0.00000	5.0	1854.4	3207.8	34.08	29.1	
133	N240		0.00000	5.0	2035.8	3335.7	32.93	27.9	
134	N241		0.00000	10.0	2250.2	3436.5	33.77	23.8	
135	N242		0.00000	5.0	2093.0	3407.2	33.77	28.8	
136	N243		0.00000	10.0	2250.2	3500.1	33.77	23.8	
137	N244		0.00000	7.0	2178.5	3475.4	33.77	26.8	
138	N245		0.00000	5.0	2300.1	3355.6	33.46	28.5	
139	N249		0.00000	12.0	2364.1	3494.2	33.77	21.8	
140	***N251***		***0.00065***	***18.0***	***2242.4***	***3185.2***	***36.90***	***18.9***	
141	N252		0.00000	15.0	2121.1	3124.2	36.90	21.9	
142	***N253***		***0.00209***	***20.0***	***2307.4***	***3161.5***	***38.79***	***18.8***	
143	N255		0.00000	18.0	1958.8	2900.5	39.96	22.0	

Table 3C-2 Node Data (3/10)

NO	Node No.	Head at Source, m	Nodal Demand, m^3/s	Ground Elevation, m	X Coordinate	Y Coordinate	Total Head, m	Effective Head, m	Supply at Source (m^3/s)
144	N256		0.00000	12.0	1954.1	2621.0	27.39	15.4	
145	N257		0.00000	12.0	2020.7	2617.5	27.06	15.1	
146	N260		0.00000	15.0	1979.7	2799.3	32.74	17.7	
147	N262		0.00000	18.0	1954.6	2915.5	36.69	18.7	
148	N263		0.00000	10.0	1757.2	2802.3	39.84	29.8	
149	N265		0.00000	7.0	1758.3	2785.1	36.26	29.3	
150	***N267***		***0.00387***	***17.0***	***1905.9***	***2875.6***	***36.44***	***19.4***	
151	N269		0.00000	10.0	1779.6	2906.3	35.53	25.5	
152	N270		0.00000	5.0	1624.3	2965.1	34.95	30.0	
153	N271		0.00000	7.0	1640.3	2929.5	35.07	28.1	
154	N272		0.00000	17.0	1900.9	2896.9	39.92	22.9	
155	N273		0.00000	17.0	1929.0	2877.7	39.94	22.9	
156	***N275***		***0.00528***	***10.0***	***1797.8***	***2625.6***	***27.00***	***17.0***	
157	N276		0.00000	10.0	1743.4	2686.5	28.83	18.8	
158	N277		0.00000	10.0	1743.4	2647.6	29.70	19.7	
159	N280		0.00000	10.0	1653.5	2668.2	31.77	21.8	
160	N282		0.00000	12.0	1954.6	2679.7	27.69	15.7	
161	N285		0.00000	12.5	1857.9	2679.7	27.37	14.9	
162	N286		0.00000	12.5	1857.9	2625.6	27.19	14.7	
163	N288		0.00000	15.0	1960.6	2593.1	27.73	12.7	
164	N289		0.00000	20.0	2089.3	2895.1	40.02	20.0	
165	N291		0.00000	20.0	2081.0	2911.1	37.19	17.2	
166	N292		0.00000	15.0	2270.6	3032.9	38.84	23.8	
167	N295		0.00000	20.0	2489.1	3120.4	40.24	20.2	
168	N296		0.00000	15.0	2554.7	3001.2	38.86	23.9	
169	***N297***		***0.00884***	***20.0***	***2458.6***	***3090.6***	***38.86***	***18.9***	
170	***N298***		***0.00115***	***5.0***	***2711.5***	***3059.6***	***38.52***	***33.5***	
171	N299		0.00000	5.0	2650.5	3086.3	38.72	33.7	
172	N300		0.00000	5.0	2708.4	3041.6	0.00	(5.0)	
173	N301		0.00000	5.0	2637.8	3077.6	0.00	(5.0)	
174	N302		0.00000	10.0	2753.2	3206.0	39.06	29.1	
175	***N303***		***0.00248***	***10.0***	***2793.0***	***3313.2***	***38.90***	***28.9***	
176	N305		0.00000	20.0	2480.4	3318.5	40.33	20.3	
177	N306		0.00000	10.0	2662.6	3307.7	39.55	29.5	
178	N307		0.00000	20.0	2466.2	3332.3	39.95	19.9	
179	N311		0.00000	18.0	2554.7	3495.4	40.24	22.2	
180	***N312***		***0.00646***	***18.5***	***2538.7***	***3468.8***	***40.63***	***22.1***	
181	N319		0.00000	18.0	2544.4	3483.9	40.23	22.2	
182	N320		0.00000	18.0	2537.0	3508.7	39.84	21.8	
183	N325		0.00000	19.0	2519.5	3211.4	39.49	20.5	
184	N328		0.00000	19.0	2471.2	3229.0	39.49	20.5	
185	N331		0.00000	19.0	2567.9	3137.5	39.49	20.5	
186	N333		0.00000	10.0	2682.9	3224.9	39.16	29.2	
187	N334		0.00000	8.0	2632.3	3127.7	0.00	(8.0)	
188	N336		0.00000	10.0	2663.8	3273.3	0.00	(10.0)	
189	N337		0.00000	15.0	2993.3	3399.3	41.18	26.2	
190	N339		0.00000	10.0	3071.4	3215.6	41.16	31.2	
191	N340		0.00000	5.0	3023.1	3137.6	41.15	36.2	
192	N345		0.00000	10.0	2847.9	2995.6	0.00	(10.0)	
193	N348		0.00000	10.0	2471.7	2869.9	38.86	28.9	
194	N349		0.00000	5.0	2737.1	3023.2	38.41	33.4	
195	N350		0.00000	5.0	2730.4	3011.5	0.00	(5.0)	
196	***N351***		***0.00081***	***5.0***	***2639.1***	***2584.4***	***24.83***	***19.8***	
197	N353		0.00000	5.0	2458.5	2649.2	24.75	19.8	
198	***N354***		***0.00502***	***2.9***	***2869.4***	***2747.4***	***36.74***	***33.9***	
199	N355		0.00000	10.0	2905.9	2864.1	0.00	(10.0)	
200	N356		0.00000	10.0	2898.0	2772.8	37.90	27.9	
201	N357		0.00000	10.0	2918.9	2854.9	37.98	28.0	
202	N358		0.00000	10.0	2897.6	2957.4	38.07	28.1	
203	N361		0.00000	10.0	2874.4	2969.6	0.00	(10.0)	
204	***N362***		***0.00418***	***10.0***	***2852.0***	***3005.0***	***38.12***	***28.1***	
205	***N364***		***0.00050***	***4.0***	***3117.3***	***3015.9***	***41.14***	***37.1***	
206	N365		0.00000	10.0	2919.1	2791.8	37.87	27.9	
207	N366		0.00000	4.0	2940.8	2612.8	28.55	24.5	
208	***N368***		***0.00243***	***4.0***	***2827.4***	***2628.7***	***28.55***	***24.6***	
209	N369		0.00000	10.0	2887.6	2748.6	37.22	27.2	
210	***N373***		***0.00928***	***2.9***	***593.6***	***562.8***	***21.34***	***18.4***	
211	N374		0.00000	5.0	633.2	311.3	20.23	15.2	
212	N375		0.00000	3.0	312.2	497.9	20.44	17.4	
213	N376		0.00000	5.0	434.1	519.8	21.13	16.1	
214	N377		0.00000	5.0	498.5	544.7	21.13	16.1	

Table 3C-2 Node Data (4/10)

NO	Node No.	Head at Source, m	Nodal Demand, m^3/s	Ground Elevation, m	X Coordinate	Y Coordinate	Total Head, m	Effective Head, m	Supply at Source (m^3/s)
215	N378		0.00000	5.0	523.9	490.0	21.14	16.1	
216	***N381***		***0.00196***	***2.0***	***1614.2***	***1813.1***	***20.31***	***18.3***	
217	***N387***		***0.00188***	***2.6***	***1540.0***	***2055.8***	***25.12***	***22.5***	
218	N388		0.00000	2.0	1588.7	1893.2	21.90	19.9	
219	***N389***		***0.00583***	***3.2***	***1825.7***	***2104.5***	***35.13***	***31.9***	
220	N393		0.00000	5.0	1392.9	1552.2	22.09	17.1	
221	N394		0.00000	5.0	1083.6	1490.1	20.28	15.3	
222	N395		0.00000	5.0	1115.7	1653.0	20.28	15.3	
223	N396		0.00000	5.0	1097.0	1509.7	22.92	17.9	
224	N397		0.00000	5.0	1113.8	1608.7	24.06	19.1	
225	N398		0.00000	7.0	810.2	1605.5	24.27	17.3	
226	N400		0.00000	7.0	798.2	1572.3	23.68	16.7	
227	***N402***		***0.00196***	***10.0***	***1486.9***	***2048.1***	***23.45***	***13.4***	
228	N404		0.00000	10.0	1081.5	2007.8	23.73	13.7	
229	***N407***		***0.00986***	***3.1***	***891.1***	***2001.3***	***25.16***	***22.1***	
230	N408		0.00000	10.0	1273.8	2020.2	22.29	12.3	
231	N409		0.00000	10.0	1258.7	2123.2	22.29	12.3	
232	N410		0.00000	10.0	1349.9	2025.7	22.61	12.6	
233	N411		0.00000	10.0	1000.7	2403.7	27.96	18.0	
234	N412		0.00000	10.0	1013.2	2279.1	27.81	17.8	
235	N413		0.00000	10.0	1111.0	2154.3	23.73	13.7	
236	N414		0.00000	10.0	1452.2	2145.5	22.95	13.0	
237	***N415***		***0.00052***	***10.0***	***1452.2***	***2336.4***	***22.04***	***12.0***	
238	N417		0.00000	10.0	1217.0	2176.1	22.29	12.3	
239	N419		0.00000	5.0	1210.3	1652.0	20.28	15.3	
240	***N420***		***0.00209***	***10.0***	***860.9***	***1907.4***	***24.67***	***14.7***	
241	N422		0.00000	10.0	1113.3	1857.1	23.21	13.2	
242	***N423***		***0.00026***	***10.0***	***835.5***	***2001.3***	***25.15***	***15.2***	
243	***N424***		***0.00058***	***10.0***	***1136.2***	***1955.3***	***22.64***	***12.6***	
244	N426		0.00000	7.0	971.2	1702.3	24.29	17.3	
245	***N427***		***0.00403***	***5.0***	***848.0***	***1742.7***	***24.46***	***19.5***	
246	N428		0.00000	10.0	823.6	1753.8	24.49	14.5	
247	N429		0.00000	5.0	1108.7	1715.0	20.28	15.3	
248	N431		0.00000	5.0	1553.2	1789.3	20.68	15.7	
249	***N433***		***0.00105***	***5.0***	***1350.1***	***1785.3***	***21.83***	***16.8***	
250	N434		0.00000	10.0	1234.5	1930.0	22.12	12.1	
251	N436		0.00000	10.0	1278.2	1956.0	22.12	12.1	
252	***N438***		***0.00285***	***10.0***	***1283.6***	***2020.2***	***22.22***	***12.2***	
253	N439		0.00000	10.0	1361.1	1936.4	22.61	12.6	
254	N440		0.00000	10.0	1204.9	1824.7	22.12	12.1	
255	N442		0.00000	10.0	1490.1	1913.6	23.45	13.4	
256	N446		0.00000	5.0	1236.8	1739.9	20.28	15.3	
257	N450		0.00000	5.0	1557.7	1679.3	21.15	16.1	
258	N457		0.00000	5.0	981.8	1087.1	21.80	16.8	
259	N458		0.00000	5.0	735.3	1039.8	21.80	16.8	
260	N459		0.00000	5.0	662.5	657.3	22.82	17.8	
261	***N462***		***0.00374***	***1.5***	***816.8***	***1327.2***	***16.86***	***15.4***	
262	N464		0.00000	5.0	125.2	1022.3	18.83	13.8	
263	N465		0.00000	5.0	139.8	1139.4	18.70	13.7	
264	N466		0.00000	5.0	631.6	1021.0	21.80	16.8	
265	***N467***		***0.00272***	***5.0***	***484.0***	***1292.1***	***15.04***	***10.0***	
266	N471		0.00000	5.0	305.8	1142.8	15.04	10.0	
267	N472		0.00000	5.0	587.1	1355.1	15.66	10.7	
268	***N477***		***0.00332***	***3.0***	***298.9***	***798.2***	***14.74***	***11.7***	
269	N479		0.00000	5.0	107.8	850.8	19.03	14.0	
270	N482		0.00000	5.0	233.0	1004.8	18.83	13.8	
271	N487		0.00000	5.0	464.2	843.6	18.01	13.0	
272	N488		0.00000	5.0	631.6	1002.5	21.80	16.8	
273	N494		0.00000	5.0	467.5	652.3	21.74	16.7	
274	N497		0.00000	5.0	1230.9	1018.2	23.54	18.5	
275	***N499***		***0.00573***	***3.4***	***1351.9***	***1032.2***	***23.68***	***20.3***	
276	***N500***		***0.00534***	***2.9***	***981.8***	***994.7***	***23.33***	***20.5***	
277	N501		0.00000	5.0	1244.8	1424.3	22.75	17.8	
278	N502		0.00000	5.0	1080.0	1434.9	22.04	17.0	
279	N503		0.00000	5.0	991.5	1261.3	18.89	13.9	
280	***N505***		***0.00405***	***1.6***	***977.9***	***1287.1***	***17.17***	***15.6***	
281	N506		0.00000	5.0	1057.1	1398.0	19.00	14.0	
282	N507		0.00000	5.0	877.6	1496.7	19.86	14.9	
283	N516		0.00000	5.0	1382.0	1410.3	22.75	17.8	
284	N517		0.00000	5.0	1465.1	1414.7	22.76	17.8	
285	N518		0.00000	5.0	1311.8	1420.9	22.55	17.6	

Table 3C-2 Node Data (5/10)

NO	Node No.	Head at Source, m	Nodal Demand, m^3/s	Ground Elevation, m	X Coordinate	Y Coordinate	Total Head, m	Effective Head, m	Supply at Source (m^3/s)
286	N522		0.00000	5.0	1402.1	1039.4	23.88	18.9	
287	N526		0.00000	5.0	1050.6	1015.6	23.39	18.4	
288	N528		0.00000	5.0	946.8	977.0	23.29	18.3	
289	***N530***		***0.00371***	***5.0***	***3008.9***	***1517.4***	***27.95***	***23.0***	
290	N531		0.00000	5.0	2622.9	1527.6	29.59	24.6	
291	***N532***		***0.00175***	***2.7***	***2654.5***	***1654.2***	***31.02***	***28.4***	
292	N533		0.00000	5.0	2356.5	1594.2	25.13	20.1	
293	N534		0.00000	5.0	2310.9	1424.1	24.52	19.5	
294	N535		0.00000	2.0	1871.4	1526.2	21.58	19.6	
295	N537		0.00000	5.0	2389.8	1587.2	25.25	20.2	
296	N538		0.00000	5.0	2343.9	1733.4	25.64	20.6	
297	***N541***		***0.00369***	***7.5***	***2282.9***	***2023.2***	***25.88***	***18.4***	
298	N543		0.00000	10.0	2361.2	2219.8	25.59	15.6	
299	N544		0.00000	10.0	2462.5	2213.0	25.59	15.6	
300	***N546***		***0.00541***	***10.0***	***2335.3***	***2127.3***	***25.84***	***15.8***	
301	***N547***		***0.00068***	***10.0***	***1908.8***	***1980.4***	***30.73***	***20.7***	
302	N551		0.00000	10.0	1992.0	2129.2	32.01	22.0	
303	N553		0.00000	10.0	1979.8	2287.0	32.00	22.0	
304	N555		0.00000	12.0	1985.6	2484.2	26.20	14.2	
305	N556		0.00000	10.0	1802.9	2309.5	31.98	22.0	
306	N558		0.00000	10.0	1775.9	2297.0	32.39	22.4	
307	N559		0.00000	10.0	1818.4	2399.6	30.56	20.6	
308	N560		0.00000	10.0	1854.3	2518.3	28.72	18.7	
309	N564		0.00000	5.0	2343.3	2373.2	25.21	20.2	
310	N565		0.00000	5.0	2113.6	2452.6	25.55	20.5	
311	***N566***		***0.00175***	***5.0***	***2265.1***	***2512.4***	***24.73***	***19.7***	
312	N569		0.00000	5.0	2304.9	2367.7	25.11	20.1	
313	N570		0.00000	10.0	2211.0	2142.3	28.08	18.1	
314	N576		0.00000	5.0	2007.2	1766.4	15.35	10.4	
315	N577		0.00000	2.0	1642.6	1787.4	17.43	15.4	
316	N579		0.00000	2.0	1764.8	1539.9	19.49	17.5	
317	N580		0.00000	2.0	1696.1	1642.4	15.92	13.9	
318	***N581***		***0.00390***	***2.0***	***1665.6***	***1746.5***	***13.92***	***11.9***	
319	N585		0.00000	2.0	1776.8	1623.6	17.59	15.6	
320	N590		0.00000	7.5	2168.0	1950.1	28.08	20.6	
321	N591		0.00000	5.0	2058.2	1854.7	15.84	10.8	
322	***N592***		***0.00235***	***7.5***	***2200.3***	***1844.1***	***16.43***	***8.9***	
323	N593		0.00000	7.5	2137.7	1950.1	28.08	20.6	
324	N595		0.00000	7.5	2226.1	1924.6	25.65	18.2	
325	N599		0.00000	5.0	2317.6	1880.7	25.65	20.6	
326	N600		0.00000	10.0	2734.4	2042.1	33.37	23.4	
327	***N601***		***0.00460***	***4.0***	***2798.2***	***2116.8***	***34.97***	***30.9***	
328	N602		0.00000	10.0	2682.1	2058.3	32.81	22.8	
329	N603		0.00000	10.0	2682.1	2015.1	32.81	22.8	
330	N604		0.00000	10.0	2864.7	1967.1	30.27	20.3	
331	***N605***		***0.00092***	***12.0***	***2843.3***	***2128.9***	***33.57***	***21.6***	
332	***N606***		***0.00212***	***12.0***	***2971.7***	***2140.0***	***30.76***	***18.8***	
333	N609		0.00000	20.0	3139.4	2008.8	29.65	9.7	
334	N610		0.00000	10.0	2690.1	2089.6	32.81	22.8	
335	***N613***		***0.00105***	***10.0***	***3033.0***	***2348.5***	***27.22***	***17.2***	
336	N614		0.00000	15.0	3086.0	2215.7	29.30	14.3	
337	N615		0.00000	4.0	2869.9	2266.9	30.21	26.2	
338	N621		0.00000	4.0	2823.6	2416.2	27.16	23.2	
339	***N625***		***0.00199***	***4.0***	***2834.8***	***2394.4***	***27.26***	***23.3***	
340	N627		0.00000	5.0	3147.2	2448.3	26.17	21.2	
341	***N629***		***0.00039***	***5.0***	***3043.8***	***2468.1***	***24.45***	***19.5***	
342	***N630***		***0.00141***	***5.0***	***3054.9***	***2498.6***	***24.24***	***19.2***	
343	***N631***		***0.00272***	***15.0***	***3109.7***	***2137.0***	***29.65***	***14.7***	
344	***N638***		***0.00102***	***15.0***	***3092.6***	***2199.8***	***29.37***	***14.4***	
345	N641		0.00000	15.0	3098.0	2217.6	29.37	14.4	
346	***N645***		***0.00131***	***10.0***	***2855.4***	***1810.3***	***28.87***	***18.9***	
347	***N646***		***0.00133***	***10.0***	***2755.5***	***1827.6***	***30.91***	***20.9***	
348	***N648***		***0.00157***	***10.0***	***2744.9***	***1958.0***	***32.00***	***22.0***	
349	***N649***		***0.00180***	***5.0***	***2684.6***	***1747.3***	***30.55***	***25.6***	
350	N650		0.00000	10.0	2746.6	1921.2	31.69	21.7	
351	N652		0.00000	5.0	2408.8	1700.1	25.64	20.6	
352	N653		0.00000	5.0	2660.5	1671.2	30.94	25.9	
353	N654		0.00000	5.0	2680.9	1716.6	30.70	25.7	
354	***N655***		***0.00254***	***2.4***	***2855.4***	***1678.8***	***30.04***	***27.6***	
355	***N656***		***0.00131***	***10.0***	***2980.7***	***1801.6***	***28.19***	***18.2***	
356	***N661***		***0.00267***	***10.0***	***2970.6***	***1909.7***	***28.44***	***18.4***	

Table 3C-2 Node Data (6/10)

NO	Node No.	Head at Source, m	Nodal Demand, m^3/s	Ground Elevation, m	X Coordinate	Y Coordinate	Total Head, m	Effective Head, m	Supply at Source (m^3/s)
357	***N665***		***0.00157***	***10.0***	***2846.8***	***1946.7***	***29.73***	***19.7***	
358	N668		0.00000	15.0	3068.6	1978.1	29.65	14.7	
359	N670		0.00000	5.0	2996.7	1699.8	28.47	23.5	
360	N676		0.00000	5.0	2410.9	1104.3	29.26	24.3	
361	N677		0.00000	5.0	2403.8	1376.8	20.98	16.0	
362	N678		0.00000	5.0	2282.2	923.4	28.55	23.6	
363	***N679***		***0.00416***	***3.7***	***2433.2***	***1029.9***	***29.46***	***25.7***	
364	N681		0.00000	5.0	2261.1	972.5	28.31	23.3	
365	N683		0.00000	2.5	1779.7	1004.6	25.39	22.9	
366	N687		0.00000	2.5	1829.2	1249.7	25.31	22.8	
367	N688		0.00000	2.5	1850.7	1296.2	25.30	22.8	
368	N692		0.00000	5.0	1698.2	1453.3	23.96	19.0	
369	N696		0.00000	2.5	1934.7	1303.6	25.30	22.8	
370	N698		0.00000	3.0	1849.0	1327.0	25.29	22.3	
371	N702		0.00000	2.5	1964.1	1243.9	25.30	22.8	
372	N703		0.00000	5.0	2112.9	1332.1	25.25	20.2	
373	N704		0.00000	5.0	2088.3	1256.7	25.25	20.2	
374	N706		0.00000	5.0	2146.2	1332.1	25.25	20.2	
375	***N707***		***0.00178***	***5.0***	***2117.4***	***1414.4***	***24.55***	***19.6***	
376	N711		0.00000	5.0	1964.5	833.1	26.67	21.7	
377	***N712***		***0.00518***	***3.4***	***1775.7***	***953.6***	***25.40***	***22.0***	
378	N719		0.00000	5.0	2185.8	935.7	28.31	23.3	
379	N724		0.00000	5.0	2505.5	1218.2	28.93	23.9	
380	***N725***		***0.00196***	***5.0***	***2488.0***	***1329.5***	***28.74***	***23.7***	
381	N726		0.00000	5.0	2547.6	1364.5	28.82	23.8	
382	N727		0.00000	5.0	2607.2	1413.6	28.92	23.9	
383	***N728***		***0.00442***	***5.0***	***2405.6***	***1329.5***	***19.37***	***14.4***	
384	***N729***		***0.00196***	***5.0***	***2619.4***	***1473.2***	***28.99***	***24.0***	
385	N734		0.00000	5.0	2498.5	1121.8	29.09	24.1	
386	N735		0.00000	5.0	2463.5	1121.8	29.15	24.2	
387	N736		0.00000	5.0	2502.6	1067.9	29.35	24.3	
388	N744		0.00000	5.0	2969.1	1192.2	28.64	23.6	
389	N745		0.00000	5.0	2907.7	1241.3	28.71	23.7	
390	***N748***		***0.00753***	***3.0***	***295.8***	***322.4***	***20.56***	***17.6***	
391	***N750***		***0.00369***	***1.8***	***78.4***	***268.9***	***20.56***	***18.8***	
392	N755		0.00000	5.0	934.1	341.4	18.88	13.9	
393	***N758***		***0.00377***	***2.5***	***1068.9***	***118.5***	***11.54***	***9.0***	
394	***N760***		***0.00612***	***5.5***	***3262.8***	***2538.5***	***28.49***	***23.0***	
395	***N761***		***0.00560***	***10.0***	***3871.8***	***2486.2***	***30.50***	***20.5***	
396	N762		0.00000	15.0	3939.8	2656.2	33.14	18.1	
397	N763		0.00000	10.0	4266.3	2566.5	35.09	25.1	
398	N764		0.00000	10.0	4186.7	2540.6	35.09	25.1	
399	***N765***		***0.00256***	***4.5***	***4455.2***	***2484.9***	***34.50***	***30.1***	
400	N766		0.00000	10.0	4319.0	2573.2	34.94	24.9	
401	N767		0.00000	18.0	5409.8	2546.6	31.61	13.6	
402	N768		0.00000	12.7	5502.8	2622.5	31.82	19.1	
403	N769		0.00000	15.0	5338.1	2567.9	31.49	16.5	
404	N771		0.00000	10.0	4528.6	2463.4	34.30	24.3	
405	N772		0.00000	10.0	4581.2	2560.5	34.30	24.3	
406	N773		0.00000	10.0	4186.7	2501.6	35.09	25.1	
407	N774		0.00000	10.0	4057.3	2569.5	35.09	25.1	
408	N776		0.00000	10.0	3285.1	2553.0	28.49	18.5	
409	N779		0.00000	10.0	3491.8	2540.3	31.19	21.2	
410	N782		0.00000	20.0	4122.2	4538.3	35.30	15.3	
411	N783		0.00000	20.0	4168.1	4635.8	34.72	14.7	
412	***N785***		***0.00262***	***20.0***	***4645.1***	***4651.4***	***33.93***	***13.9***	
413	N786		0.00000	22.0	4927.5	4589.4	34.00	12.0	
414	N792		0.00000	15.0	4326.4	4803.4	33.74	18.7	
415	***N795***		***0.02354***	***15.0***	***4204.8***	***4821.8***	***33.70***	***18.7***	
416	***N796***		***0.00052***	***14.0***	***4551.4***	***4886.1***	***33.82***	***19.8***	
417	N797		0.00000	15.0	4574.3	4837.8	33.84	18.8	
418	N798		0.00000	15.0	4496.3	4870.0	33.80	18.8	
419	***N800***		***0.00157***	***10.0***	***5303.9***	***4858.0***	***34.16***	***24.2***	
420	N801		0.00000	10.0	5104.2	4855.7	34.11	24.1	
421	N802		0.00000	10.0	5017.0	4908.5	34.08	24.1	
422	N805		0.00000	20.0	4804.8	4310.8	34.96	15.0	
423	N806		0.00000	22.0	4703.8	4347.6	35.18	13.2	
424	***N807***		***0.00235***	***20.0***	***4741.1***	***4439.7***	***34.67***	***14.7***	
425	N809		0.00000	15.0	4816.9	4476.4	34.63	19.6	
426	N810		0.00000	18.0	4761.6	3536.3	32.41	14.4	
427	N811		0.00000	18.0	4852.9	3511.2	32.40	14.4	

Table 3C-2 Node Data (7/10)

NO	Node No.	Head at Source, m	Nodal Demand, m^3/s	Ground Elevation, m	X Coordinate	Y Coordinate	Total Head, m	Effective Head, m	Supply at Source (m^3/s)
428	N814		0.00000	19.0	4765.9	3168.5	33.63	14.6	
429	***N815***		***0.00314***	***18.0***	***4673.8***	***3158.5***	***33.72***	***15.7***	
430	N816		0.00000	15.0	3752.6	3548.4	38.61	23.6	
431	N817		0.00000	15.0	3679.8	3651.1	38.61	23.6	
432	N819		0.00000	15.0	4518.8	3589.5	32.42	17.4	
433	N820		0.00000	15.0	3827.7	3588.6	38.47	23.5	
434	N822		0.00000	15.0	3899.0	3551.8	38.08	23.1	
435	***N823***		***0.00471***	***8.5***	***3888.4***	***3583.1***	***38.37***	***29.9***	
436	N825		0.00000	15.0	4127.9	3472.6	36.21	21.2	
437	N826		0.00000	15.0	4054.9	3504.7	38.03	23.0	
438	N827		0.00000	15.0	4090.0	3472.8	38.03	23.0	
439	***N829***		***0.00262***	***10.0***	***3973.6***	***4269.4***	***36.85***	***26.8***	
440	***N834***		***0.00424***	***5.9***	***3389.8***	***4172.4***	***38.12***	***32.3***	
441	N835		0.00000	10.0	3588.0	4097.2	38.07	28.1	
442	***N837***		***0.00369***	***3.6***	***3544.4***	***4156.9***	***38.05***	***34.5***	
443	N838		0.00000	10.0	3686.7	4156.9	37.67	27.7	
444	***N844***		***0.00269***	***15.0***	***3207.9***	***3848.6***	***37.89***	***22.9***	
445	***N846***		***0.00403***	***21.0***	***3383.0***	***3945.1***	***38.08***	***17.1***	
446	N847		0.00000	28.0	3345.6	3896.8	38.03	10.0	
447	N848		0.00000	25.0	3260.7	3869.2	37.95	13.0	
448	N849		0.00000	25.0	3260.7	3844.0	37.93	12.9	
449	***N852***		***0.00348***	***28.0***	***3449.5***	***3942.8***	***37.97***	***10.0***	
450	N854		0.00000	13.0	3852.3	3882.4	38.18	25.2	
451	***N855***		***0.00434***	***13.0***	***3835.9***	***3918.1***	***38.18***	***25.2***	
452	N856		0.00000	10.0	3697.4	3857.9	38.11	28.1	
453	N858		0.00000	15.0	3674.5	3942.8	38.07	23.1	
454	N861		0.00000	15.0	3711.4	3603.8	38.32	23.3	
455	N862		0.00000	15.0	3870.8	3658.8	38.32	23.3	
456	N863		0.00000	15.0	3903.1	3595.7	38.37	23.4	
457	N865		0.00000	15.0	3884.9	3724.8	38.37	23.4	
458	N868		0.00000	15.0	4336.5	4276.4	36.00	21.0	
459	***N869***		***0.00209***	***10.0***	***3991.3***	***4322.5***	***36.72***	***26.7***	
460	N870		0.00000	10.0	4023.4	4421.2	36.16	26.2	
461	N872		0.00000	10.0	4172.7	4258.2	36.33	26.3	
462	N877		0.00000	22.0	4572.9	4379.7	35.47	13.5	
463	N879		0.00000	22.0	4641.8	4386.6	35.33	13.3	
464	N880		0.00000	13.0	4149.7	3649.6	37.83	24.8	
465	N881		0.00000	15.0	4184.8	3649.6	37.34	22.3	
466	N884		0.00000	18.0	4214.4	3601.8	36.52	18.5	
467	N885		0.00000	15.0	3985.9	2903.4	36.65	21.7	
468	N887		0.00000	15.0	3984.8	3419.9	36.70	21.7	
469	***N888***		***0.00675***	***15.0***	***3935.3***	***3395.4***	***38.13***	***23.1***	
470	***N890***		***0.00724***	***20.0***	***3995.2***	***3131.9***	***36.54***	***16.5***	
471	***N892***		***0.00463***	***18.4***	***3999.1***	***2891.7***	***36.56***	***18.2***	
472	N893		0.00000	15.0	3899.3	2900.5	36.57	21.6	
473	N894		0.00000	10.0	3964.2	2753.7	34.56	24.6	
474	N896		0.00000	17.0	3589.1	3414.4	39.12	22.1	
475	N897		0.00000	17.0	3582.3	3397.1	39.14	22.1	
476	N900		0.00000	20.0	3374.9	3427.8	39.83	19.8	
477	N901		0.00000	18.0	3386.5	3409.4	39.75	21.8	
478	N905		0.00000	25.0	3213.8	3522.7	40.44	15.4	
479	N913		0.00000	16.0	3935.3	3367.2	36.85	20.8	
480	N915		0.00000	15.0	3656.8	3468.1	38.83	23.8	
481	N916		0.00000	15.0	3669.1	3469.8	38.79	23.8	
482	N918		0.00000	15.0	3930.1	3420.3	36.91	21.9	
483	N919		0.00000	10.0	3588.7	2989.5	37.09	27.1	
484	N921		0.00000	10.0	3568.9	2692.1	33.16	23.2	
485	N925		0.00000	20.0	3573.8	2976.6	36.63	16.6	
486	N927		0.00000	20.0	3264.9	2921.3	37.45	17.5	
487	N928		0.00000	20.0	3262.7	2896.5	37.19	17.2	
488	***N931***		***0.00413***	***20.0***	***3588.5***	***2970.4***	***36.60***	***16.6***	
489	N933		0.00000	10.0	3743.6	2835.7	36.57	26.6	
490	N935		0.00000	10.0	3890.5	2820.7	36.57	26.6	
491	N936		0.00000	15.0	3684.5	2941.7	36.59	21.6	
492	N938		0.00000	15.0	3717.5	3005.0	36.59	21.6	
493	N939		0.00000	15.0	3630.5	2834.4	35.64	20.6	
494	N940		0.00000	15.0	3679.2	2841.2	35.64	20.6	
495	N941		0.00000	15.0	3631.0	2876.3	35.64	20.6	
496	N942		0.00000	10.0	3739.6	2613.8	33.15	23.1	
497	N943		0.00000	10.0	3683.1	2703.8	33.15	23.2	
498	N944		0.00000	10.0	3722.9	2751.6	36.57	26.6	

Table 3C-2 Node Data (8/10)

NO	Node No.	Head at Source, m	Nodal Demand, m^3/s	Ground Elevation, m	X Coordinate	Y Coordinate	Total Head, m	Effective Head, m	Supply at Source (m^3/s)
499	N945		0.00000	13.0	3954.4	2715.4	34.00	21.0	
500	N946		0.00000	10.0	3843.2	2761.2	34.56	24.6	
501	N947		0.00000	10.0	3860.0	2723.3	34.00	24.0	
502	N948		0.00000	18.0	4275.8	3007.6	35.27	17.3	
503	N950		0.00000	22.0	4014.1	3041.9	36.55	14.6	
504	***N952***		***0.00199***	***15.0***	***4370.5***	***3269.8***	***34.90***	***19.9***	
505	N953		0.00000	15.0	4298.8	3318.5	35.29	20.3	
506	N956		0.00000	15.0	4146.9	3392.6	36.05	21.1	
507	N961		0.00000	20.0	4084.6	3138.6	36.54	16.5	
508	N962		0.00000	20.0	4077.9	3211.7	36.54	16.5	
509	N963		0.00000	20.0	4121.2	3138.6	36.54	16.5	
510	N965		0.00000	20.0	4155.4	3138.6	36.54	16.5	
511	N966		0.00000	20.0	4150.6	3207.7	36.54	16.5	
512	N967		0.00000	20.0	4107.3	3219.2	36.54	16.5	
513	N968		0.00000	20.0	4155.4	3085.4	36.54	16.5	
514	N969		0.00000	15.0	4298.8	3172.9	35.05	20.0	
515	N970		0.00000	15.0	4328.6	3138.5	35.10	20.1	
516	***N972***		***0.00149***	***15.0***	***4683.7***	***3423.4***	***32.42***	***17.4***	
517	N976		0.00000	15.0	4576.1	3127.7	34.03	19.0	
518	***N978***		***0.00275***	***15.0***	***4429.6***	***3221.7***	***34.55***	***19.6***	
519	N982		0.00000	20.0	4274.2	2941.2	35.91	15.9	
520	***N983***		***0.00288***	***10.0***	***4204.7***	***2764.3***	***35.65***	***25.7***	
521	***N984***		***0.00105***	***6.0***	***4184.0***	***2830.8***	***36.14***	***30.1***	
522	N985		0.00000	10.0	4280.4	2782.6	35.78	25.8	
523	N987		0.00000	20.0	4186.5	2960.5	36.03	16.0	
524	N989		0.00000	22.0	3997.0	2969.8	36.58	14.6	
525	N990		0.00000	15.0	3997.0	2915.3	36.64	21.6	
526	N991		0.00000	15.0	4001.3	2902.4	36.56	21.6	
527	N992		0.00000	22.0	4014.1	2969.8	36.56	14.6	
528	N994		0.00000	6.0	4188.3	2939.5	36.03	30.0	
529	***N997***		***0.00157***	***15.0***	***4285.0***	***2844.6***	***35.88***	***20.9***	
530	N1000		0.00000	18.0	5449.3	3564.3	30.11	12.1	
531	***N1001***		***0.00288***	***18.0***	***5481.5***	***3587.2***	***29.27***	***11.3***	
532	N1002		0.00000	18.0	5648.1	3525.6	29.27	11.3	
533	***N1003***		***0.00617***	***16.0***	***5345.5***	***3542.4***	***32.37***	***16.4***	
534	***N1004***		***0.00288***	***16.4***	***5335.7***	***3599.9***	***32.40***	***16.0***	
535	N1007		0.00000	18.0	5033.4	3627.6	32.52	14.5	
536	N1008		0.00000	18.0	5153.6	3579.6	32.52	14.5	
537	N1009		0.00000	18.0	5296.1	3572.4	32.41	14.4	
538	***N1011***		***0.00471***	***15.0***	***5581.0***	***4056.0***	***31.14***	***16.1***	
539	N1014		0.00000	13.2	5542.4	3974.9	32.30	19.1	
540	N1015		0.00000	15.0	5781.3	3952.1	32.20	17.2	
541	***N1016***		***0.00366***	***16.5***	***5540.7***	***3740.2***	***29.16***	***12.7***	
542	N1018		0.00000	20.0	5160.9	4072.9	31.20	11.2	
543	***N1019***		***0.00288***	***21.5***	***5235.3***	***4084.6***	***32.01***	***10.5***	
544	N1021		0.00000	15.0	5429.9	4077.6	31.44	16.4	
545	N1022		0.00000	15.0	5456.2	4095.9	31.50	16.5	
546	N1023		0.00000	22.0	5197.9	4462.6	34.45	12.5	
547	N1024		0.00000	22.0	5069.4	4504.0	34.51	12.5	
548	N1027		0.00000	15.0	5308.5	4428.7	34.39	19.4	
549	N1028		0.00000	20.0	5253.4	4405.7	34.42	14.4	
550	N1029		0.00000	15.0	5420.5	4157.5	31.64	16.6	
551	N1030		0.00000	10.0	5184.7	3940.3	31.20	21.2	
552	***N1031***		***0.00078***	***20.0***	***5089.5***	***4056.7***	***30.46***	***10.5***	
553	N1032		0.00000	18.0	4783.1	3698.6	32.12	14.1	
554	***N1034***		***0.00078***	***18.0***	***4792.8***	***3816.5***	***31.95***	***14.0***	
555	N1037		0.00000	18.0	5042.0	3686.1	32.52	14.5	
556	N1040		0.00000	20.0	5298.4	3982.3	31.26	11.3	
557	N1041		0.00000	20.0	5277.4	4036.0	31.62	11.6	
558	N1043		0.00000	15.0	5440.7	4056.6	31.40	16.4	
559	N1044		0.00000	20.0	5324.9	3717.7	32.41	12.4	
560	N1046		0.00000	18.0	5236.9	3747.3	32.41	14.4	
561	N1048		0.00000	18.0	5744.0	4057.8	32.15	14.2	
562	N1049		0.00000	18.0	5874.8	4107.6	32.15	14.2	
563	N1050		0.00000	15.0	5702.4	4125.8	32.12	17.1	
564	N1051		0.00000	14.0	5724.3	4147.4	32.29	18.3	
565	***N1055***		***0.00105***	***10.0***	***5854.0***	***4327.2***	***31.76***	***21.8***	
566	N1056		0.00000	19.0	5587.4	2903.2	32.22	13.2	
567	N1057		0.00000	18.0	5540.0	2972.2	32.36	14.4	
568	N1058		0.00000	15.0	5383.7	2712.3	31.91	16.9	
569	N1059		0.00000	20.0	5627.9	2824.2	32.08	12.1	

Table 3C-2 Node Data (9/10)

NO	Node No.	Head at Source, m	Nodal Demand, m^3/s	Ground Elevation, m	X Coordinate	Y Coordinate	Total Head, m	Effective Head, m	Supply at Source (m^3/s)
570	N1060		0.00000	20.0	5632.2	2720.0	31.95	11.9	
571	N1063		0.00000	15.0	5096.0	3215.4	33.30	18.3	
572	N1064		0.00000	15.0	5041.1	3056.1	33.30	18.3	
573	N1066		0.00000	10.0	5093.4	3034.5	33.03	23.0	
574	N1068		0.00000	10.0	5185.5	3037.0	32.96	23.0	
575	N1069		0.00000	15.0	5265.5	3099.6	32.86	17.9	
576	N1070		0.00000	15.0	5205.4	2940.8	32.86	17.9	
577	***N1071***		***0.00620***	***18.0***	***5390.2***	***3075.0***	***32.65***	***14.7***	
578	N1072		0.00000	17.0	5356.6	3024.8	32.55	15.6	
579	***N1074***		***0.00058***	***18.0***	***5181.5***	***3333.5***	***29.67***	***11.7***	
580	N1075		0.00000	10.0	5193.4	3137.3	33.03	23.0	
581	***N1080***		***0.00209***	***18.6***	***4981.3***	***3520.7***	***33.36***	***14.8***	
582	N1081		0.00000	18.0	4949.7	3520.7	32.52	14.5	
583	N1084		0.00000	18.0	5102.1	3529.2	32.55	14.5	
584	***N1085***		***0.00306***	***16.7***	***4994.0***	***3219.3***	***33.55***	***16.9***	
585	***N1086***		***0.00562***	***13.0***	***4835.9***	***3179.6***	***33.55***	***20.6***	
586	N1089		0.00000	18.0	5110.0	3296.2	31.53	13.5	
587	***N1091***		***0.00991***	***18.0***	***5347.9***	***3351.1***	***32.43***	***14.4***	
588	***N1093***		***0.00060***	***18.0***	***5504.5***	***3339.8***	***31.46***	***13.5***	
589	N1094		0.00000	18.0	5354.1	3391.6	32.42	14.4	
590	N1095		0.00000	18.0	5287.2	3339.9	29.67	11.7	
591	***N1096***		***0.00819***	***18.4***	***5358.7***	***3098.7***	***32.65***	***14.3***	
592	N1097		0.00000	19.0	5337.5	3162.8	32.60	13.6	
593	N1098		0.00000	10.0	5222.7	3117.3	32.96	23.0	
594	N1102		0.00000	15.0	5159.8	2940.8	32.86	17.9	
595	N1103		0.00000	15.0	5165.4	2701.5	31.89	16.9	
596	***N1104***		***0.00157***	***15.0***	***5124.9***	***2637.8***	***31.76***	***16.8***	
597	N1105		0.00000	15.0	5200.5	2835.4	32.13	17.1	
598	N1106		0.00000	17.0	5294.2	2985.8	32.43	15.4	
599	N1108		0.00000	18.0	5727.5	3566.0	29.27	11.3	
600	N1111		0.00000	20.0	5652.1	2775.3	31.99	12.0	
601	N1112		0.00000	20.0	5668.0	2769.4	31.97	12.0	
602	N1113		0.00000	18.0	5819.8	2801.0	31.77	13.8	
603	N1116		0.00000	20.0	6081.4	2830.9	31.43	11.4	
604	N1117		0.00000	20.0	6154.5	2905.3	31.30	11.3	
605	N1118		0.00000	10.0	6551.6	3055.2	30.75	20.7	
606	***N1120***		***0.00230***	***5.0***	***6901.0***	***3084.8***	***30.30***	***25.3***	
607	N1122		0.00000	8.0	4769.3	1913.7	30.74	22.7	
608	***N1123***		***0.00308***	***5.0***	***4748.6***	***1973.5***	***30.96***	***26.0***	
609	N1124		0.00000	8.0	4673.5	1824.1	30.29	22.3	
610	***N1127***		***0.00395***	***5.1***	***4632.1***	***2131.9***	***33.30***	***28.2***	
611	N1128		0.00000	4.3	4996.8	2096.8	30.28	26.0	
612	N1132		0.00000	5.0	3595.6	1466.4	27.92	22.9	
613	***N1137***		***0.00620***	***4.2***	***3779.2***	***2156.0***	***35.66***	***31.4***	
614	***N1138***		***0.00228***	***10.0***	***4159.6***	***2156.3***	***33.19***	***23.2***	
615	N1139		0.00000	10.0	3716.6	2014.6	26.37	16.4	
616	***N1140***		***0.00324***	***15.0***	***3484.8***	***2156.0***	***30.05***	***15.0***	
617	***N1141***		***0.00272***	***7.0***	***3584.3***	***1942.6***	***27.14***	***20.1***	
618	N1142		0.00000	13.0	3600.5	2156.0	32.25	19.3	
619	N1144		0.00000	12.0	3370.7	2303.4	29.27	17.3	
620	N1145		0.00000	12.0	3239.5	2334.5	29.12	17.1	
621	N1146		0.00000	12.0	3229.7	2289.2	29.24	17.2	
622	N1147		0.00000	12.0	3410.6	2294.6	29.27	17.3	
623	N1148		0.00000	10.0	3261.4	2407.9	28.80	18.8	
624	***N1151***		***0.00324***	***5.0***	***3429.8***	***2156.0***	***29.66***	***24.7***	
625	N1152		0.00000	9.4	3379.4	2237.3	29.53	20.1	
626	N1153		0.00000	12.0	3266.9	2253.7	29.43	17.4	
627	N1154		0.00000	15.0	3429.8	2188.6	29.62	14.6	
628	N1156		0.00000	5.0	3522.5	1933.0	27.21	22.2	
629	N1158		0.00000	5.0	3466.9	1744.3	27.45	22.4	
630	N1160		0.00000	5.0	3309.0	1741.4	27.62	22.6	
631	***N1162***		***0.00162***	***10.0***	***3665.7***	***1834.0***	***26.88***	***16.9***	
632	N1163		0.00000	5.0	3613.1	1669.7	27.36	22.4	
633	N1164		0.00000	10.0	3763.0	1913.3	20.74	10.7	
634	N1165		0.00000	10.0	3783.4	1919.1	20.74	10.7	
635	***N1166***		***0.00411***	***3.9***	***3691.2***	***1924.3***	***20.74***	***16.8***	
636	N1167		0.00000	10.0	3621.9	1839.3	26.96	17.0	
637	N1168		0.00000	10.0	3648.2	2025.1	26.37	16.4	
638	N1169		0.00000	10.0	3814.1	1955.7	20.74	10.7	
639	N1171		0.00000	10.0	4291.2	2011.5	32.97	23.0	
640	N1172		0.00000	10.0	4290.4	2087.9	32.97	23.0	

Table 3C-2 Node Data (10/10)

NO	Node No.	Head at Source, m	Nodal Demand, m^3/s	Ground Elevation, m	X Coordinate	Y Coordinate	Total Head, m	Effective Head, m	Supply at Source (m^3/s)
641	N1176		0.00000	10.0	4718.9	2053.5	31.95	21.9	
642	N1177		0.00000	10.0	4614.8	2036.8	31.95	21.9	
643	***N1178***		***0.00274***	***10.0***	***4388.3***	***2148.4***	***32.87***	***22.9***	
644	N1179		0.00000	10.0	4446.3	1969.1	31.37	21.4	
645	N1180		0.00000	10.0	4291.0	2386.5	33.89	23.9	
646	N1181		0.00000	10.0	4290.4	2154.8	32.97	23.0	
647	***N1183***		***0.00246***	***10.0***	***4214.1***	***2154.8***	***33.05***	***23.1***	
648	N1187		0.00000	10.0	4214.1	2181.9	33.14	23.1	
649	N1189		0.00000	10.0	4251.5	2072.0	32.97	23.0	
650	N1191		0.00000	10.0	4650.0	2242.6	33.59	23.6	
651	***N1198***		***0.00010***	***10.0***	***4030.5***	***1946.9***	***20.74***	***10.7***	
652	N1200		0.00000	10.0	4310.2	1939.9	32.97	23.0	
653	N1201		0.00000	8.0	4699.0	1709.5	29.87	21.9	
654	***N1204***		***0.00010***	***5.0***	***4460.6***	***1925.3***	***31.00***	***26.0***	
655	N1207		0.00000	5.0	3762.6	1377.6	28.12	23.1	
656	***N1208***		***0.00505***	***5.0***	***3982.6***	***1392.1***	***28.11***	***23.1***	
657	N1209		0.00000	5.0	3424.9	1059.6	28.09	23.1	
658	N1210		0.00000	5.0	3428.4	794.8	28.09	23.1	
659	N1211		0.00000	5.0	3617.8	1047.7	28.09	23.1	
660	***N1212***		***0.00052***	***5.0***	***3680.9***	***946.0***	***28.01***	***23.0***	
661	***N1214***		***0.00343***	***5.0***	***3430.1***	***1350.9***	***28.10***	***23.1***	
662	***N1215***		***0.00340***	***3.7***	***3603.8***	***1393.1***	***28.12***	***24.4***	
663	***N1216***		***0.00350***	***5.0***	***3254.7***	***1253.6***	***28.19***	***23.2***	
664	N1221		0.00000	5.0	3612.5	689.6	28.09	23.1	
665	N1224		0.00000	5.0	4435.1	1292.4	28.39	23.4	
666	N1226		0.00000	5.0	4422.2	1128.5	28.39	23.4	
667	***N1227***		***0.00463***	***4.4***	***4641.1***	***1344.9***	***28.51***	***24.1***	
668	N1228		0.00000	5.0	4615.2	1455.7	28.91	23.9	
669	N1229		0.00000	5.0	5017.7	1536.0	28.55	23.6	
670	N1230		0.00000	5.0	5059.8	1474.6	28.55	23.5	
671	***N1234***		***0.00290***	***10.0***	***5855.3***	***2022.1***	***27.95***	***18.0***	
672	***N1238***		***0.00926***	***10.0***	***5170.4***	***2094.0***	***28.84***	***18.8***	
673	N1239		0.00000	10.0	5000.0	2154.6	30.28	20.3	
674	N1240		0.00000	10.0	5011.3	2196.8	30.28	20.3	
675	N1241		0.00000	10.0	4998.6	2249.0	30.28	20.3	
676	N1245		0.00000	10.0	5457.6	2119.1	28.47	18.5	
677	***N1246***		***0.00424***	***5.0***	***5235.9***	***1671.0***	***28.59***	***23.6***	
678	N1249		0.00000	8.0	4910.5	1913.7	30.74	22.7	
679	N1250		0.00000	5.0	5119.2	1944.0	28.75	23.8	
680	N1253		0.00000	10.0	6287.9	1942.8	27.95	18.0	
681	N1256		0.00000	5.0	5031.8	1281.7	28.50	23.5	
682	N1257		0.00000	5.0	5117.7	1283.5	28.53	23.5	
683	N1258		0.00000	5.0	5068.6	1213.4	28.53	23.5	
684	N1260		0.00000	5.0	5096.6	1350.1	28.54	23.5	
685	***N1261***		***0.00052***	***5.0***	***5021.2***	***1202.8***	***28.14***	***23.1***	
686	N1262		0.00000	5.0	4989.7	1220.4	28.14	23.1	
687	N1263		0.00000	5.0	5061.6	1267.7	28.50	23.5	
688	***N1500***	***41.50***	***0.00000***	***24.0***	***2690.3***	***3606.8***	***41.50***	***17.5***	***0.57028***
689	N1300		0.00000	15.0	3584.4	2892.5	35.64	20.6	
690	N1301		0.00000	4.0	2819.3	2631.8	36.28	32.3	
691	***N1302***		***0.00040***	***25.0***	***3451.5***	***3726.8***	***37.96***	***13.0***	
692	N1304		0.00000	24.0	2659.5	3606.0	41.30	17.3	
693	N1305		0.00000	20.0	4989.8	3223.5	33.58	13.6	
694	N1306		0.00000	18.0	5532.0	3742.5	32.32	14.3	
695	N1307		0.00000	10.0	2634.6	3259.6	39.67	29.7	
696	N1308		0.00000	5.0	5093.6	1249.1	28.53	23.5	
697	NV2_1		0.00000	10.1	2567.6	3427.9	0.00	(10.1)	
698	NV2_2		0.00000	10.1	2567.6	3427.9	40.63	30.6	
699	NV3_1		0.00000	7.5	2887.7	2805.8	36.74	29.2	
700	NV3_2		0.00000	7.5	2887.7	2805.8	0.00	(7.5)	
701	***N1309***		***0.01491***	***10.0***	***2932.5***	***2606.7***	***29.02***	***19.0***	
702	N1310		0.00000	11.5	2048.5	3989.3	30.22	18.7	
703	N1311		0.00000	12.0	2371.9	3641.8	32.39	20.4	
704	N1313		0.00000	2.00	2803.7	2890.8	37.79	35.8	
705	***N1314***		***0.00146***	***20.03***	***3024.8***	***3064.5***	***37.37***	***17.34***	
706	N1315		0.00000	17.04	4576.7	3194.1	35.54	18.50	
707	N1083		0.00000	15.00	4996.5	3505.5	32.60	17.60	
707	N173		0.00000	22.00	2749.5	3700.5	40.39	18.39	

Table 3C-3 Pipe Data (1/10)

No	Pipe No.	From Node No.	To Node No.	Demand (m^3/s)	Type (P- Pipe V-Valve)	C Value	Length, m	Diameter, m	Flow rate (m^3/s)	Head Loss, m	Friction Gradient, m/km	Velocity, m/s
1	P2	N4	N5	0.000	P	90	84.2	0.075	0.00045	0.04	0.51	0.103
2	P6	N12	N13	0.000	P	90	61.1	0.050	-0.00015	-0.03	-0.47	-0.076
3	P7	N14	N15	0.000	P	130	121.8	0.100	0.00231	0.16	1.29	0.294
4	P13	N26	N27	0.000	P	90	81.2	0.050	0.00100	1.29	15.90	0.511
5	P17	N34	N35	0.000	P	90	111.5	0.050	0.00072	0.97	8.67	0.368
6	P18	N36	N37	0.000	P	90	64.2	0.050	-0.00099	-0.99	-15.49	-0.504
7	P19	N38	N39	0.000	P	90	91.4	0.075	0.00165	0.51	5.55	0.374
8	P22	N44	N45	0.000	P	130	69.6	0.100	0.00128	0.03	0.43	0.163
9	P23	N46	N47	0.000	P	90	126.1	0.050	0.00134	3.41	27.01	0.681
10	P27	N53	N54	0.000	P	90	165.1	0.038	0.00000	0.00	0.00	0.000
11	P28	N55	N56	0.000	P	90	103.2	0.050	0.00047	0.40	3.87	0.238
12	P30	N59	N47	0.000	P	130	61.3	0.100	0.00225	0.08	1.23	0.287
13	P53	N81	N82	0.000	P	130	463.2	0.150	0.00000	0.00	0.00	0.000
14	P56	N86	N87	0.000	P	90	36.0	0.050	0.00072	0.31	8.67	0.368
15	P57	N50	N86	0.000	P	130	14.4	0.150	0.01061	0.04	3.00	0.601
16	P61	N81	N41	0.000	P	130	62.0	0.150	-0.00134	0.00	-0.06	-0.076
17	P62	N81	N46	0.000	P	90	41.3	0.050	0.00134	1.11	27.01	0.681
18	P71	N96	N55	0.000	P	90	96.9	0.050	0.00047	0.37	3.87	0.238
19	P72	N86	N97	0.000	P	90	76.6	0.050	0.00121	1.72	22.41	0.615
20	P74	N97	N96	0.000	P	90	34.2	0.050	0.00121	0.77	22.41	0.615
21	P76	N100	N101	0.000	P	130	156.0	0.150	-0.01452	-0.84	-5.36	-0.822
22	P79	N106	N107	0.000	P	130	54.0	0.100	0.01033	1.11	20.58	1.316
23	P81	N98	N110	0.000	P	130	45.8	0.100	0.00591	0.33	7.31	0.752
24	P90	N125	N119	0.000	P	90	58.3	0.038	0.00052	1.05	18.07	0.460
25	P96	N135	N133	0.000	P	120	107.0	0.300	-0.02732	-0.07	-0.68	-0.387
26	P106	N142	N140	0.000	P	90	130.5	0.038	0.00008	0.08	0.60	0.073
27	P108	N143	N144	0.000	P	90	107.4	0.038	0.00011	0.10	0.96	0.094
28	P116	N153	N148	0.000	P	90	32.9	0.075	-0.00077	-0.04	-1.34	-0.174
29	P127	N143	N156	0.000	P	90	70.2	0.038	0.00006	0.02	0.29	0.049
30	P129	N121	N162	0.000	P	130	79.0	0.100	0.00000	0.00	0.00	0.000
31	P130	N119	N163	0.000	P	90	68.1	0.038	0.00000	0.00	0.00	0.000
32	P132	N130	N164	0.000	P	90	92.9	0.038	-0.00019	-0.26	-2.77	-0.167
33	P133	N140	N130	0.000	P	90	19.8	0.038	-0.00068	-0.59	-29.84	-0.604
34	P136	N166	N167	0.000	P	90	81.4	0.038	-0.00019	-0.23	-2.77	-0.167
35	P139	N123	N121	0.000	P	130	56.1	0.100	0.00000	0.00	0.00	0.000
36	P140	N167	N168	0.000	P	130	52.0	0.100	-0.00891	-0.81	-15.66	-1.135
37	P144	N170	N171	0.000	P	120	390.0	0.300	-0.01650	-0.10	-0.27	-0.233
38	P145	N171	N117	0.000	P	120	232.0	0.300	-0.02154	-0.10	-0.44	-0.305
39	P149	N174	N175	0.000	P	90	46.0	0.038	-0.00015	-0.09	-1.86	-0.135
40	P150	N176	N174	0.000	P	90	75.8	0.038	-0.00015	-0.14	-1.86	-0.135
41	P156	N181	N183	0.000	P	130	96.7	0.100	-0.00369	-0.30	-3.07	-0.470
42	P159	N179	N185	0.000	P	90	41.8	0.075	-0.00233	-0.44	-10.46	-0.527
43	P160	N183	N186	0.000	P	90	32.7	0.038	0.00000	0.00	0.00	0.000
44	P161	N185	N183	0.000	P	90	36.0	0.075	-0.00233	-0.38	-10.46	-0.527
45	P162	N187	N176	0.000	P	90	20.6	0.038	-0.00015	-0.04	-1.86	-0.135
46	P163	N188	N187	0.000	P	90	29.2	0.038	-0.00015	-0.05	-1.86	-0.135
47	P164	N189	N188	0.000	P	90	19.4	0.038	-0.00015	-0.04	-1.86	-0.135
48	P172	N193	N195	0.000	P	90	34.8	0.038	0.00000	0.00	0.00	0.000
49	P174	N112	N98	0.000	P	130	77.0	0.150	-0.00803	-0.14	-1.79	-0.454
50	P175	N101	N98	0.000	P	130	17.5	0.150	-0.01452	-0.09	-5.36	-0.822
51	P179	N199	N200	0.000	P	90	100.7	0.075	0.00000	0.00	0.00	0.000
52	P181	N201	N202	0.000	P	90	93.3	0.075	0.00000	0.00	0.00	0.000
53	P182	N201	N199	0.000	P	90	33.0	0.075	0.00058	0.03	0.81	0.132
54	P189	N209	N211	0.000	P	130	56.1	0.150	0.00353	0.02	0.39	0.200
55	P190	N212	N106	0.000	P	130	29.2	0.100	0.01326	0.95	32.64	1.688
56	P192	N214	N215	0.000	P	130	131.9	0.100	0.00128	0.06	0.43	0.163
57	P193	N216	N217	0.000	P	130	32.8	0.100	-0.00545	-0.21	-6.31	-0.695
58	P196	N221	N222	0.000	P	130	103.1	0.150	0.00078	0.00	0.02	0.044
59	P198	N222	N225	0.000	P	130	92.2	0.150	0.00000	0.00	0.00	0.000
60	P200	N216	N228	0.000	P	130	75.5	0.100	0.00217	0.09	1.15	0.276
61	P201	N228	N226	0.000	P	130	103.5	0.100	0.00217	0.12	1.15	0.276
62	P206	N234	N232	0.000	P	130	72.8	0.100	0.00217	0.08	1.15	0.276
63	P217	N241	N242	0.000	P	90	159.9	0.038	0.00000	0.00	0.00	0.000
64	P218	N243	N244	0.000	P	90	75.8	0.038	0.00000	0.00	0.00	0.000
65	P222	N243	N241	0.000	P	90	63.6	0.038	0.00000	0.00	0.00	0.000
66	P224	N249	N243	0.000	P	90	114.1	0.038	0.00000	0.00	0.00	0.000
67	P226	N106	N249	0.000	P	130	46.3	0.100	0.00292	0.09	1.99	0.372
68	P229	N251	N252	0.000	P	90	135.8	0.038	0.00000	0.00	0.00	0.000
69	P232	N253	N251	0.000	P	90	69.1	0.038	0.00065	1.89	27.40	0.577
70	P233	N211	N253	0.000	P	130	58.3	0.150	0.00353	0.02	0.39	0.200
71	P235	N256	N257	0.000	P	90	66.7	0.050	0.00054	0.33	4.99	0.273
72	P242	N267	N260	0.000	P	90	106.1	0.038	0.00074	3.70	34.83	0.656
73	P244	N267	N269	0.000	P	90	130.0	0.075	0.00186	0.90	6.95	0.422
74	P245	N217	N215	0.000	P	130	63.0	0.100	-0.00359	-0.18	-2.91	-0.457
75	P247	N270	N271	0.000	P	130	39.1	0.100	-0.00359	-0.11	-2.91	-0.457
76	P248	N215	N270	0.000	P	130	130.9	0.100	-0.00231	-0.17	-1.29	-0.294
77	P249	N270	N44	0.000	P	130	47.3	0.100	0.00128	0.02	0.43	0.163
78	P250	N271	N47	0.000	P	130	47.2	0.100	-0.00359	-0.14	-2.91	-0.457
79	P253	N273	N272	0.000	P	130	34.0	0.100	0.00134	0.02	0.47	0.170
80	P254	N255	N273	0.000	P	130	37.5	0.100	0.00134	0.02	0.47	0.170
81	P257	N275	N276	0.000	P	90	81.7	0.050	-0.00121	-1.83	-22.41	-0.615
82	P258	N277	N276	0.000	P	90	38.9	0.050	0.00121	0.87	22.41	0.615
83	P262	N280	N277	0.000	P	90	92.3	0.050	0.00121	2.07	22.41	0.615
84	P263	N280	N56	0.000	P	90	71.5	0.050	-0.00047	-0.28	-3.87	-0.238
85	P268	N282	N285	0.000	P	90	96.6	0.038	0.00021	0.32	3.29	0.183
86	P270	N275	N36	0.000	P	90	47.2	0.050	-0.00099	-0.73	-15.49	-0.504
87	P271	N286	N275	0.000	P	90	60.1	0.038	0.00021	0.20	3.29	0.183

Table 3C-3 Pipe Data (2/10)

No	Pipe No.	From Node No.	To Node No.	Demand (m^3/s)	Type (P- Pipe V-Valve)	C Value	Length, m	Diameter, m	Flow rate (m^3/s)	Head Loss, m	Friction Gradient, m/km	Velocity, m/s
88	P272	N285	N286	0.000	P	90	54.2	0.038	0.00021	0.18	3.29	0.183
89	P284	N295	N205	0.000	P	130	77.7	0.100	0.00134	0.04	0.47	0.170
90	P285	N296	N297	0.000	P	90	131.3	0.050	0.00000	0.00	0.00	0.000
91	P286	N298	N299	0.000	P	130	66.6	0.150	-0.01070	-0.20	-3.05	-0.605
92	P287	N300	N301	0.000	P	90	79.2	0.038	0.00000	0.00	0.00	0.000
93	P288	N297	N207	0.000	P	130	34.1	0.150	0.01226	0.13	3.92	0.694
94	P289	N302	N303	0.000	P	90	114.3	0.038	0.00013	0.16	1.42	0.117
95	P291	N306	N100	0.000	P	130	193.6	0.150	-0.01318	-0.87	-4.48	-0.746
96	P294	N110	N311	0.000	P	130	104.9	0.100	0.00591	0.77	7.31	0.752
97	P304	N311	N320	0.000	P	90	22.1	0.038	0.00052	0.40	18.07	0.460
98	P305	N319	N312	0.000	P	130	16.1	0.100	-0.01151	-0.41	-25.14	-1.466
99	P306	N311	N319	0.000	P	130	15.4	0.100	0.00174	0.01	0.77	0.222
100	P313	N328	N325	0.000	P	90	51.4	0.050	0.00000	0.00	0.00	0.000
101	P317	N297	N209	0.000	P	130	52.6	0.150	0.00353	0.02	0.39	0.200
102	P324	N333	N306	0.000	P	130	85.2	0.150	-0.01318	-0.38	-4.48	-0.746
103	P327	N333	N302	0.000	P	90	72.8	0.038	0.00013	0.10	1.42	0.117
104	P329	N301	N334	0.000	P	90	50.4	0.038	0.00000	0.00	0.00	0.000
105	P333	N339	N340	0.000	P	130	91.7	0.100	0.00050	0.01	0.08	0.064
106	P342	N349	N298	0.000	P	130	44.5	0.150	-0.00955	-0.11	-2.47	-0.540
107	P344	N350	N300	0.000	P	90	37.3	0.038	0.00000	0.00	0.00	0.000
108	P350	N354	NV3_1	0.000	P	90	61.1	0.038	0.00000	0.00	0.00	0.000
109	P351	N356	N357	0.000	P	130	84.6	0.150	-0.00536	-0.07	-0.85	-0.303
110	P354	N362	N358	0.000	P	130	65.9	0.150	0.00536	0.06	0.85	0.303
111	P356	N361	N345	0.000	P	90	37.1	0.038	0.00000	0.00	0.00	0.000
112	P361	N17	N365	0.000	P	90	205.1	0.075	-0.00068	-0.22	-1.07	-0.154
113	P362	N356	N18	0.000	P	90	229.5	0.075	0.00088	0.40	1.72	0.199
114	P364	N368	N354	0.000	P	90	125.9	0.075	-0.00625	-8.19	-65.04	-1.414
115	P365	N369	N354	0.000	P	90	18.2	0.075	0.00380	0.47	25.98	0.861
116	P366	N369	N356	0.000	P	90	26.4	0.075	-0.00380	-0.69	-25.98	-0.861
117	P367	N368	N366	0.000	P	90	114.5	0.075	0.00014	0.01	0.06	0.032
118	P368	N38	N368	0.000	P	90	48.9	0.075	-0.00368	-1.19	-24.38	-0.832
119	P373	N373	N374	0.000	P	90	254.6	0.075	0.00145	1.12	4.39	0.329
120	P374	N375	N376	0.000	P	90	123.8	0.050	-0.00057	-0.68	-5.52	-0.288
121	P375	N377	N378	0.000	P	90	60.3	0.050	-0.00006	-0.01	-0.08	-0.030
122	P376	N378	N373	0.000	P	130	100.7	0.150	-0.00862	-0.21	-2.04	-0.488
123	P382	N387	N388	0.000	P	90	169.8	0.075	0.00321	3.22	18.98	0.727
124	P383	N389	N387	0.000	P	90	289.8	0.075	0.00444	10.01	34.52	1.004
125	P386	N394	N395	0.000	P	90	166.0	0.050	0.00000	0.00	0.00	0.000
126	P387	N396	N397	0.000	P	90	100.4	0.075	-0.00244	-1.15	-11.46	-0.553
127	P393	N408	N409	0.000	P	90	104.2	0.050	0.00000	0.00	0.00	0.000
128	P394	N402	N410	0.000	P	90	136.8	0.075	0.00172	0.83	5.99	0.390
129	P395	N411	N35	0.000	P	90	216.2	0.050	-0.00072	-1.87	-8.67	-0.368
130	P396	N412	N411	0.000	P	90	125.3	0.075	-0.00072	-0.15	-1.20	-0.164
131	P399	N414	N415	0.000	P	90	190.9	0.050	0.00052	0.91	4.76	0.266
132	P402	N387	N402	0.000	P	90	53.6	0.075	0.00421	1.68	31.28	0.952
133	P403	N402	N414	0.000	P	90	103.4	0.050	0.00052	0.49	4.76	0.266
134	P404	N404	N408	0.000	P	90	192.7	0.075	0.00194	1.44	7.50	0.440
135	P407	N407	N404	0.000	P	90	190.5	0.075	0.00194	1.43	7.50	0.440
136	P408	N420	N422	0.000	P	90	257.4	0.050	0.00058	1.46	5.68	0.293
137	P409	N407	N420	0.000	P	130	98.6	0.100	0.00480	0.49	4.98	0.611
138	P410	N407	N423	0.000	P	90	55.6	0.075	0.00026	0.01	0.18	0.059
139	P411	N422	N424	0.000	P	90	100.8	0.050	0.00058	0.57	5.68	0.293
140	P413	N427	N398	0.000	P	130	142.3	0.100	0.00240	0.20	1.38	0.306
141	P414	N426	N427	0.000	P	90	129.7	0.075	-0.00076	-0.17	-1.31	-0.171
142	P415	N428	N427	0.000	P	130	26.8	0.100	0.00213	0.03	1.11	0.271
143	P417	N398	N400	0.000	P	130	35.3	0.050	0.00149	0.59	16.67	0.757
144	P418	N395	N429	0.000	P	90	62.4	0.050	0.00000	0.00	0.00	0.000
145	P426	N410	N438	0.000	P	90	86.5	0.075	0.00172	0.40	5.99	0.390
146	P427	N436	N434	0.000	P	90	50.8	0.050	0.00000	0.00	0.00	0.000
147	P428	N438	N408	0.000	P	90	9.8	0.075	-0.00194	-0.07	-7.50	-0.440
148	P429	N438	N436	0.000	P	90	64.4	0.075	0.00081	0.10	1.50	0.184
149	P430	N410	N439	0.000	P	90	89.9	0.038	0.00000	0.00	0.00	0.000
150	P452	N457	N458	0.000	P	90	250.9	0.050	0.00000	0.00	0.00	0.000
151	P456	N464	N465	0.000	P	130	118.0	0.100	0.00218	0.14	1.16	0.277
152	P457	N458	N466	0.000	P	90	105.4	0.050	0.00000	0.00	0.00	0.000
153	P472	N464	N482	0.000	P	90	109.2	0.050	0.00000	0.00	0.00	0.000
154	P473	N464	N479	0.000	P	130	172.4	0.100	-0.00218	-0.20	-1.16	-0.277
155	P481	N466	N488	0.000	P	90	18.5	0.050	0.00000	0.00	0.00	0.000
156	P487	N376	N377	0.000	P	90	69.1	0.050	-0.00006	-0.01	-0.08	-0.030
157	P492	N373	N459	0.000	P	160	117.0	0.075	-0.00457	-1.47	-12.60	-1.036
158	P495	N497	N499	0.000	P	130	121.8	0.150	-0.00622	-0.14	-1.12	-0.352
159	P496	N500	N457	0.000	P	90	92.3	0.075	0.00299	1.54	16.64	0.677
160	P497	N501	N502	0.000	P	90	165.1	0.050	0.00050	0.72	4.35	0.254
161	P499	N505	N503	0.000	P	90	29.2	0.075	-0.00593	-1.72	-59.09	-1.343
162	P500	N505	N506	0.000	P	90	136.3	0.050	-0.00092	-1.83	-13.41	-0.466
163	P501	N507	N462	0.000	P	130	180.1	0.050	0.00149	3.00	16.67	0.757
164	P506	N394	N506	0.000	P	90	95.8	0.050	0.00092	1.28	13.41	0.466
165	P507	N502	N396	0.000	P	90	76.8	0.075	-0.00244	-0.88	-11.46	-0.553
166	P511	N457	N503	0.000	P	90	174.5	0.075	0.00299	2.90	16.64	0.677
167	P515	N516	N517	0.000	P	90	83.2	0.050	-0.00005	0.00	-0.05	-0.023
168	P518	N518	N501	0.000	P	90	67.1	0.050	-0.00041	-0.20	-3.04	-0.209
169	P519	N518	N516	0.000	P	90	70.9	0.050	-0.00040	-0.20	-2.89	-0.203
170	P526	N499	N522	0.000	P	130	50.8	0.150	-0.01230	-0.20	-3.95	-0.696
171	P533	N500	N526	0.000	P	130	72.0	0.150	-0.00531	-0.06	-0.83	-0.301
172	P536	N528	N500	0.000	P	130	39.2	0.150	-0.00618	-0.04	-1.10	-0.350
173	P539	N531	N532	0.000	P	130	130.5	0.100	-0.00736	-1.43	-10.99	-0.937
174	P540	N533	N534	0.000	P	90	176.1	0.075	0.00128	0.61	3.45	0.289

Table 3C-3 Pipe Data (3/10)

No	Pipe No.	From Node No.	To Node No.	Demand (m^3/s)	*Type* (P- Pipe V-Valve)	C Value	Length, m	Diameter, m	Flow rate (m^3/s)	Head Loss, m	*Friction* Gradient, m/km	Velocity, m/s
175	P542	N537	N533	0.000	P	90	34.0	0.075	0.00128	0.12	3.45	0.289
176	P546	N543	N544	0.000	P	90	101.6	0.050	0.00000	0.00	0.00	0.000
177	P548	N541	N546	0.000	P	90	116.5	0.050	0.00013	0.04	0.38	0.068
178	P549	N389	N547	0.000	P	90	149.4	0.038	0.00068	4.40	29.46	0.600
179	P556	N551	N389	0.000	P	90	168.2	0.075	-0.00317	-3.12	-18.55	-0.718
180	P558	N558	N556	0.000	P	90	29.8	0.050	0.00093	0.41	13.71	0.472
181	P559	N37	N559	0.000	P	90	119.0	0.050	-0.00099	-1.84	-15.49	-0.504
182	P560	N37	N560	0.000	P	90	28.1	0.050	0.00000	0.00	0.00	0.000
183	P561	N559	N556	0.000	P	90	91.4	0.050	-0.00099	-1.42	-15.49	-0.504
184	P567	N565	N566	0.000	P	90	162.8	0.050	0.00054	0.81	4.99	0.273
185	P568	N555	N565	0.000	P	90	131.8	0.050	0.00054	0.66	4.99	0.273
186	P572	N569	N564	0.000	P	90	38.8	0.075	-0.00107	-0.10	-2.50	-0.243
187	P584	N577	N381	0.000	P	90	38.3	0.050	-0.00232	-2.87	-74.94	-1.181
188	P585	N388	N381	0.000	P	90	84.0	0.075	0.00321	1.59	18.98	0.727
189	P588	N580	N581	0.000	P	90	108.5	0.050	0.00109	2.01	18.49	0.555
190	P590	N581	N577	0.000	P	90	46.9	0.050	-0.00232	-3.52	-74.94	-1.181
191	P600	N591	N592	0.000	P	90	142.6	0.050	-0.00049	-0.60	-4.19	-0.249
192	P601	N590	N593	0.000	P	90	30.3	0.075	0.00000	0.00	0.00	0.000
193	P605	N592	N595	0.000	P	90	84.5	0.050	-0.00284	-9.22	-109.11	-1.447
194	P612	N600	N601	0.000	P	130	98.3	0.100	-0.00908	-1.59	-16.21	-1.156
195	P613	N602	N603	0.000	P	90	43.3	0.050	0.00000	0.00	0.00	0.000
196	P614	N604	N605	0.000	P	90	163.2	0.050	-0.00114	-3.29	-20.17	-0.581
197	P617	N601	N610	0.000	P	90	111.5	0.075	0.00325	2.16	19.36	0.735
198	P621	N610	N602	0.000	P	90	32.3	0.050	0.00000	0.00	0.00	0.000
199	P622	N613	N614	0.000	P	90	143.1	0.050	-0.00096	-2.08	-14.55	-0.487
200	P632	N625	N621	0.000	P	90	24.4	0.075	0.00140	0.10	4.08	0.317
201	P636	N629	N630	0.000	P	90	32.5	0.050	0.00061	0.21	6.36	0.311
202	P641	N631	N606	0.000	P	130	138.0	0.100	-0.00621	-1.11	-8.02	-0.790
203	P649	N605	N601	0.000	P	130	46.7	0.100	-0.01266	-1.40	-29.97	-1.612
204	P651	N631	N638	0.000	P	90	65.0	0.075	0.00146	0.29	4.39	0.329
205	P656	N641	N638	0.000	P	90	18.7	0.075	0.00004	0.00	0.01	0.009
206	P658	N614	N638	0.000	P	90	17.2	0.050	-0.00048	-0.07	-3.99	-0.242
207	P659	N29	N631	0.000	P	130	27.0	0.100	0.00028	0.00	0.03	0.036
208	P663	N645	N646	0.000	P	90	101.5	0.050	-0.00114	-2.04	-20.06	-0.579
209	P665	N646	N649	0.000	P	130	107.1	0.100	0.00387	0.36	3.34	0.492
210	P667	N646	N650	0.000	P	130	94.0	0.100	-0.00634	-0.78	-8.33	-0.807
211	P668	N648	N600	0.000	P	130	84.8	0.100	-0.00908	-1.37	-16.21	-1.156
212	P669	N650	N648	0.000	P	130	36.9	0.100	-0.00634	-0.31	-8.33	-0.807
213	P671	N652	N537	0.000	P	90	114.5	0.075	0.00128	0.39	3.45	0.289
214	P674	N653	N532	0.000	P	130	18.0	0.100	-0.00470	-0.09	-4.79	-0.598
215	P676	N653	N654	0.000	P	130	49.7	0.100	0.00470	0.24	4.79	0.598
216	P677	N654	N649	0.000	P	130	31.0	0.100	0.00470	0.15	4.79	0.598
217	P678	N655	N645	0.000	P	90	131.5	0.050	0.00073	1.17	8.90	0.373
218	P685	N665	N604	0.000	P	90	27.1	0.050	-0.00114	-0.55	-20.17	-0.581
219	P693	N609	N668	0.000	P	90	77.2	0.050	0.00000	0.00	0.00	0.000
220	P705	N534	N677	0.000	P	90	104.3	0.050	0.00151	3.54	33.99	0.771
221	P706	N678	N679	0.000	P	130	184.8	0.160	-0.01640	-0.91	-4.90	-0.816
222	P711	N687	N688	0.000	P	130	51.2	0.075	0.00034	0.01	0.15	0.077
223	P719	N688	N696	0.000	P	90	84.3	0.050	0.00000	0.00	0.00	0.000
224	P723	N688	N698	0.000	P	90	30.9	0.075	0.00034	0.01	0.30	0.077
225	P730	N703	N704	0.000	P	90	79.3	0.050	0.00000	0.00	0.00	0.000
226	P733	N706	N707	0.000	P	90	87.1	0.075	0.00201	0.70	8.01	0.456
227	P734	N706	N703	0.000	P	90	33.3	0.050	0.00000	0.00	0.00	0.000
228	P741	N712	N683	0.000	P	90	51.2	0.075	0.00034	0.02	0.30	0.077
229	P750	N678	N681	0.000	P	90	53.4	0.075	0.00149	0.25	4.60	0.338
230	P751	N681	N719	0.000	P	90	83.9	0.050	0.00000	0.00	0.00	0.000
231	P754	N724	N725	0.000	P	130	112.6	0.100	0.00265	0.19	1.66	0.337
232	P755	N726	N727	0.000	P	130	77.2	0.100	-0.00222	-0.09	-1.20	-0.283
233	P756	N728	N725	0.000	P	90	82.4	0.050	-0.00291	-9.37	-113.77	-1.481
234	P757	N677	N728	0.000	P	90	47.4	0.050	0.00151	1.61	33.99	0.771
235	P758	N725	N726	0.000	P	130	69.2	0.100	-0.00222	-0.08	-1.20	-0.283
236	P759	N729	N531	0.000	P	130	54.5	0.100	-0.00736	-0.60	-10.99	-0.937
237	P760	N727	N729	0.000	P	130	60.9	0.100	-0.00222	-0.07	-1.20	-0.283
238	P763	N734	N724	0.000	P	130	96.7	0.100	0.00265	0.16	1.66	0.337
239	P764	N735	N734	0.000	P	130	35.1	0.100	0.00285	0.07	1.90	0.363
240	P765	N679	N736	0.000	P	130	79.1	0.150	0.00718	0.12	1.46	0.406
241	P766	N676	N735	0.000	P	130	55.4	0.100	0.00285	0.11	1.90	0.363
242	P767	N679	N676	0.000	P	130	77.6	0.100	0.00337	0.20	2.60	0.430
243	P782	N745	N744	0.000	P	90	78.6	0.050	0.00021	0.07	0.86	0.106
244	P789	N748	N375	0.000	P	90	176.3	0.075	0.00053	0.12	0.68	0.120
245	P800	N761	N762	0.000	P	90	183.1	0.075	-0.00277	-2.64	-14.41	-0.626
246	P801	N763	N764	0.000	P	90	83.7	0.050	0.00000	0.00	0.00	0.000
247	P802	N765	N766	0.000	P	90	162.4	0.050	-0.00039	-0.44	-2.72	-0.197
248	P803	N767	N768	0.000	P	130	120.0	0.150	-0.00781	-0.20	-1.70	-0.442
249	P804	N769	N767	0.000	P	130	74.8	0.150	-0.00781	-0.13	-1.70	-0.442
250	P806	N771	N772	0.000	P	90	110.4	0.050	0.00000	0.00	0.00	0.000
251	P807	N773	N774	0.000	P	90	146.1	0.050	0.00000	0.00	0.00	0.000
252	P812	N782	N783	0.000	P	130	107.7	0.100	0.00500	0.58	5.38	0.637
253	P820	N795	N792	0.000	P	130	123.0	0.100	-0.00112	-0.04	-0.34	-0.143
254	P822	N796	N797	0.000	P	130	53.4	0.100	-0.00125	-0.02	-0.42	-0.160
255	P824	N798	N796	0.000	P	130	57.4	0.100	-0.00112	-0.02	-0.34	-0.143
256	P828	N800	N801	0.000	P	130	199.7	0.100	0.00095	0.05	0.25	0.121
257	P830	N801	N802	0.000	P	130	102.0	0.100	0.00095	0.03	0.25	0.121
258	P834	N805	N806	0.000	P	130	107.5	0.100	-0.00294	-0.22	-2.01	-0.375
259	P836	N809	N807	0.000	P	130	84.2	0.100	-0.00132	-0.04	-0.46	-0.168
260	P837	N810	N811	0.000	P	90	94.7	0.050	0.00005	0.01	0.07	0.027
261	P839	N814	N815	0.000	P	130	92.7	0.150	-0.00592	-0.09	-1.02	-0.335

Table 3C-3 Pipe Data (4/10)

No	Pipe No.	From Node No.	To Node No.	Demand (m^3/s)	Type (P- Pipe V-Valve)	C Value	Length, m	Diameter, m	Flow rate (m^3/s)	Head Loss, m	Friction Gradient, m/km	Velocity, m/s
262	P840	N816	N817	0.000	P	90	125.9	0.075	0.00000	0.00	0.00	0.000
263	P843	N822	N823	0.000	P	130	33.0	0.150	-0.01911	-0.29	-8.91	-1.081
264	P845	N826	N827	0.000	P	90	136.4	0.075	0.00000	0.00	0.00	0.000
265	P851	N837	N835	0.000	P	120	82.0	0.300	-0.01776	-0.03	-0.31	-0.251
266	P852	N838	N837	0.000	P	120	142.3	0.250	-0.03531	-0.38	-2.67	-0.719
267	P860	N844	N10	0.000	P	130	94.2	0.100	-0.00090	-0.02	-0.23	-0.115
268	P862	N845	N847	0.000	P	130	61.1	0.100	0.00179	0.05	0.81	0.228
269	P864	N847	N848	0.000	P	130	89.3	0.100	0.00179	0.07	0.81	0.228
270	P865	N849	N844	0.000	P	130	53.0	0.100	0.00179	0.04	0.81	0.228
271	P866	N848	N849	0.000	P	130	25.3	0.100	0.00179	0.02	0.81	0.228
272	P870	N852	N846	0.000	P	130	66.6	0.100	-0.00258	-0.11	-1.58	-0.329
273	P873	N855	N856	0.000	P	130	151.0	0.100	0.00130	0.07	0.44	0.165
274	P879	N855	N854	0.000	P	130	39.3	0.100	0.00010	0.00	0.00	0.013
275	P888	N823	N862	0.000	P	90	77.7	0.075	0.00051	0.05	0.64	0.117
276	P889	N823	N863	0.000	P	90	19.4	0.050	0.00000	0.00	0.00	0.000
277	P891	N869	N870	0.000	P	130	103.8	0.100	0.00500	0.56	5.38	0.637
278	P895	N869	N829	0.000	P	120	56.0	0.250	-0.03269	-0.13	-2.32	-0.666
279	P903	N879	N877	0.000	P	130	69.2	0.100	-0.00294	-0.14	-2.01	-0.375
280	P906	N880	N881	0.000	P	90	35.1	0.050	0.00094	0.49	14.09	0.479
281	P916	N892	N893	0.000	P	90	100.2	0.075	-0.00018	-0.01	-0.09	-0.040
282	P917	N894	N892	0.000	P	90	142.3	0.075	-0.00273	-2.00	-14.09	-0.619
283	P939	N816	N916	0.000	P	130	114.7	0.150	-0.00753	-0.18	-1.59	-0.426
284	P940	N915	N916	0.000	P	130	12.4	0.100	0.00383	0.04	3.28	0.488
285	P943	N918	N822	0.000	P	130	135.2	0.150	-0.01879	-1.17	-8.63	-1.063
286	P964	N935	N933	0.000	P	90	147.6	0.050	0.00000	0.00	0.00	0.000
287	P968	N936	N931	0.000	P	90	100.2	0.075	-0.00018	-0.01	-0.09	-0.040
288	P969	N925	N931	0.000	P	90	16.0	0.075	0.00088	0.03	1.72	0.199
289	P970	N936	N938	0.000	P	90	71.4	0.050	0.00000	0.00	0.00	0.000
290	P971	N939	N940	0.000	P	90	49.2	0.050	0.00000	0.00	0.00	0.000
291	P972	N939	N941	0.000	P	90	41.9	0.050	0.00000	0.00	0.00	0.000
292	P974	N893	N935	0.000	P	90	80.3	0.050	0.00000	0.00	0.00	0.000
293	P975	N942	N762	0.000	P	90	204.6	0.050	0.00003	0.01	0.03	0.017
294	P976	N943	N942	0.000	P	90	106.3	0.050	0.00003	0.00	0.03	0.017
295	P979	N762	N945	0.000	P	90	60.9	0.075	-0.00273	-0.86	-14.09	-0.619
296	P980	N894	N946	0.000	P	90	121.2	0.050	0.00000	0.00	0.00	0.000
297	P981	N945	N947	0.000	P	90	94.8	0.050	0.00000	0.00	0.00	0.000
298	P982	N945	N894	0.000	P	90	39.6	0.075	-0.00273	-0.56	-14.09	-0.619
299	P984	N950	N890	0.000	P	130	92.0	0.100	0.00063	0.01	0.12	0.081
300	P986	N952	N953	0.000	P	130	86.7	0.150	-0.01312	-0.39	-4.44	-0.742
301	P996	N961	N962	0.000	P	90	73.4	0.075	0.00000	0.00	0.00	0.000
302	P998	N965	N966	0.000	P	90	69.3	0.075	0.00000	0.00	0.00	0.000
303	P1000	N890	N961	0.000	P	90	89.7	0.075	0.00000	0.00	0.00	0.000
304	P1001	N965	N968	0.000	P	90	53.2	0.075	0.00000	0.00	0.00	0.000
305	P1002	N963	N965	0.000	P	90	34.2	0.075	0.00000	0.00	0.00	0.000
306	P1003	N961	N963	0.000	P	90	36.6	0.075	0.00000	0.00	0.00	0.000
307	P1005	N970	N969	0.000	P	130	45.6	0.100	0.00222	0.05	1.19	0.282
308	P1015	N978	N952	0.000	P	130	76.2	0.150	-0.01335	-0.35	-4.59	-0.755
309	P1021	N983	N984	0.000	P	90	69.7	0.050	-0.00064	-0.48	-6.93	-0.326
310	P1024	N989	N990	0.000	P	90	54.4	0.075	-0.00068	-0.06	-1.07	-0.154
311	P1026	N991	N992	0.000	P	130	68.6	0.100	-0.00004	0.00	0.00	-0.006
312	P1027	N992	N950	0.000	P	130	72.1	0.100	0.00063	0.01	0.12	0.081
313	P1028	N992	N989	0.000	P	90	17.1	0.075	-0.00068	-0.02	-1.07	-0.154
314	P1029	N990	N885	0.000	P	90	16.3	0.075	-0.00068	-0.02	-1.07	-0.154
315	P1030	N892	N991	0.000	P	130	10.9	0.100	0.00108	0.00	0.32	0.137
316	P1033	N994	N982	0.000	P	130	85.9	0.100	0.00238	0.12	1.36	0.303
317	P1034	N982	N987	0.000	P	90	89.8	0.075	-0.00078	-0.12	-1.38	-0.176
318	P1035	N987	N994	0.000	P	90	21.1	0.075	0.00035	0.01	0.31	0.078
319	P1036	N982	N948	0.000	P	90	66.4	0.075	0.00222	0.63	9.56	0.502
320	P1044	N983	N985	0.000	P	130	77.9	0.100	-0.00262	-0.13	-1.63	-0.334
321	P1045	N766	N763	0.000	P	90	53.1	0.050	-0.00039	-0.14	-2.72	-0.197
322	P1048	N1000	N1001	0.000	P	90	39.5	0.075	0.00341	0.84	21.21	0.772
323	P1049	N1001	N1002	0.000	P	90	177.6	0.050	0.00000	0.00	0.00	0.000
324	P1050	N1003	N1004	0.000	P	130	33.0	0.150	-0.00481	-0.02	-0.69	-0.272
325	P1053	N1008	N1009	0.000	P	90	191.2	0.075	0.00049	0.11	0.58	0.110
326	P1057	N1015	N1014	0.000	P	90	240.0	0.050	-0.00014	-0.10	-0.42	-0.072
327	P1058	N1014	N1011	0.000	P	90	89.9	0.075	0.00261	1.16	12.95	0.591
328	P1063	N1021	N1022	0.000	P	90	32.0	0.050	-0.00031	-0.06	-1.84	-0.159
329	P1064	N1023	N1024	0.000	P	130	135.0	0.100	-0.00132	-0.06	-0.46	-0.168
330	P1070	N1028	N1027	0.000	P	130	59.7	0.100	0.00132	0.03	0.46	0.168
331	P1071	N1028	N1023	0.000	P	130	79.5	0.100	-0.00132	-0.04	-0.46	-0.168
332	P1073	N1022	N1029	0.000	P	90	71.2	0.050	-0.00031	-0.13	-1.84	-0.159
333	P1074	N1018	N1030	0.000	P	90	134.7	0.050	0.00000	0.00	0.00	0.000
334	P1075	N1018	N1031	0.000	P	90	73.2	0.050	0.00078	0.74	10.09	0.400
335	P1084	N1040	N1016	0.000	P	90	342.5	0.050	0.00060	2.10	6.15	0.306
336	P1085	N1019	N1041	0.000	P	90	64.3	0.050	0.00060	0.40	6.15	0.306
337	P1086	N1041	N1040	0.000	P	90	57.7	0.050	0.00060	0.35	6.15	0.306
338	P1088	N1043	N1021	0.000	P	90	23.6	0.050	-0.00031	-0.04	-1.84	-0.159
339	P1093	N1001	N1016	0.000	P	90	164.0	0.075	0.00053	0.11	0.68	0.121
340	P1095	N1048	N1049	0.000	P	90	139.9	0.050	0.00000	0.00	0.00	0.000
341	P1096	N1050	N1048	0.000	P	90	79.6	0.050	-0.00014	-0.03	-0.42	-0.072
342	P1099	N1050	N1051	0.000	P	90	30.7	0.075	-0.00164	-0.17	-5.49	-0.372
343	P1103	N1015	N1048	0.000	P	90	112.1	0.050	0.00014	0.05	0.42	0.072
344	P1104	N1056	N1057	0.000	P	130	83.7	0.150	-0.00762	-0.14	-1.63	-0.431
345	P1105	N1058	N1059	0.000	P	90	268.7	0.050	-0.00017	-0.17	-0.62	-0.089
346	P1106	N768	N1060	0.000	P	130	162.0	0.150	-0.00515	-0.13	-0.79	-0.291
347	P1108	N1063	N1064	0.000	P	90	168.5	0.050	0.00000	0.00	0.00	0.000
348	P1111	N1069	N1070	0.000	P	90	169.8	0.050	0.00000	0.00	0.00	0.000

Table 3C-3 Pipe Data (5/10)

No	Pipe No.	From Node No.	To Node No.	Demand (m^3/s)	Type (P- Pipe V-Valve)	C Value	Length, m	Diameter, m	Flow rate (m^3/s)	Head Loss, m	Friction Gradient, m/km	Velocity, m/s
349	P1112	N1071	N1072	0.000	P	90	60.4	0.038	0.00015	0.10	1.69	0.128
350	P1113	N1057	N1071	0.000	P	130	181.7	0.150	-0.00762	-0.30	-1.63	-0.431
351	P1116	N1075	N1063	0.000	P	130	124.9	0.150	-0.00886	-0.27	-2.15	-0.502
352	P1130	N1086	N814	0.000	P	130	70.9	0.150	-0.00592	-0.07	-1.02	-0.335
353	P1135	N1063	N1089	0.000	P	90	82.0	0.038	0.00058	1.77	21.63	0.507
354	P1139	N1091	N1093	0.000	P	90	156.9	0.050	0.00060	0.97	6.17	0.306
355	P1140	N1094	N1003	0.000	P	90	151.1	0.075	0.00034	0.04	0.30	0.077
356	P1141	N1074	N1095	0.000	P	90	105.9	0.038	0.00000	0.00	0.00	0.000
357	P1142	N1091	N1094	0.000	P	90	41.0	0.075	0.00034	0.01	0.30	0.077
358	P1144	N1071	N1096	0.000	P	130	39.4	0.150	-0.00007	0.00	0.00	-0.004
359	P1146	N1069	N1098	0.000	P	130	46.3	0.150	-0.00886	-0.10	-2.15	-0.502
360	P1148	N1098	N1075	0.000	P	130	35.5	0.150	-0.00886	-0.08	-2.15	-0.502
361	P1149	N1096	N1097	0.000	P	90	67.6	0.075	0.00061	0.06	0.87	0.137
362	P1153	N1070	N1102	0.000	P	90	45.7	0.050	0.00000	0.00	0.00	0.000
363	P1154	N1103	N1104	0.000	P	90	75.4	0.038	0.00015	0.13	1.69	0.128
364	P1157	N1105	N1103	0.000	P	90	138.5	0.038	0.00015	0.23	1.69	0.128
365	P1159	N1072	N1106	0.000	P	90	73.6	0.038	0.00015	0.12	1.69	0.128
366	P1162	N768	N1058	0.000	P	90	149.2	0.050	-0.00017	-0.09	-0.62	-0.089
367	P1163	N1002	N1108	0.000	P	90	89.1	0.050	0.00000	0.00	0.00	0.000
368	P1165	N1111	N1059	0.000	P	130	54.6	0.150	-0.00745	-0.09	-1.56	-0.422
369	P1166	N1059	N1056	0.000	P	130	88.8	0.150	-0.00762	-0.14	-1.63	-0.431
370	P1167	N1112	N1113	0.000	P	130	155.1	0.100	0.00230	0.20	1.28	0.293
371	P1168	N1111	N1112	0.000	P	130	17.0	0.100	0.00230	0.02	1.28	0.293
372	P1175	N1116	N1117	0.000	P	130	104.4	0.100	0.00230	0.13	1.28	0.293
373	P1180	N1122	N1123	0.000	P	90	63.3	0.075	-0.00129	-0.22	-3.49	-0.291
374	P1181	N1122	N1124	0.000	P	90	131.1	0.075	0.00129	0.46	3.49	0.291
375	P1183	N1127	N1128	0.000	P	130	366.4	0.100	0.00631	3.02	8.26	0.803
376	P1188	N1137	N1138	0.000	P	130	380.4	0.100	0.00554	2.47	6.50	0.705
377	P1189	N1137	N1139	0.000	P	90	154.7	0.050	0.00206	9.28	60.03	1.048
378	P1190	N1140	N1141	0.000	P	90	235.5	0.050	0.00088	2.91	12.36	0.446
379	P1191	N1142	N1140	0.000	P	130	115.7	0.100	0.00991	2.20	19.05	1.262
380	P1193	N1145	N1146	0.000	P	90	46.4	0.050	-0.00038	-0.12	-2.63	-0.193
381	P1194	N1144	N1147	0.000	P	90	40.8	0.050	0.00000	0.00	0.00	0.000
382	P1195	N760	N1148	0.000	P	90	130.6	0.050	-0.00036	-0.31	-2.38	-0.183
383	P1196	N760	N776	0.000	P	130	26.6	0.100	-0.00084	-0.01	-0.20	-0.107
384	P1197	N5	N760	0.000	P	130	87.1	0.100	0.00045	0.01	0.06	0.058
385	P1199	N26	N1145	0.000	P	90	35.4	0.050	-0.00061	-0.22	-6.31	-0.310
386	P1200	N1148	N26	0.000	P	90	41.5	0.050	-0.00036	-0.10	-2.38	-0.183
387	P1206	N1153	N1152	0.000	P	90	113.7	0.038	-0.00011	-0.11	-0.94	-0.093
388	P1207	N15	N24	0.000	P	130	16.0	0.100	0.00231	0.02	1.29	0.294
389	P1208	N24	N1153	0.000	P	90	41.8	0.038	-0.00011	-0.04	-0.94	-0.093
390	P1209	N1146	N24	0.000	P	90	54.6	0.050	-0.00038	-0.14	-2.63	-0.193
391	P1210	N1151	N1154	0.000	P	90	32.6	0.038	0.00012	0.04	1.18	0.105
392	P1213	N1140	N1151	0.000	P	130	55.0	0.100	0.00579	0.39	7.05	0.737
393	P1214	N1137	N761	0.000	P	90	342.9	0.075	0.00283	5.15	15.03	0.641
394	P1215	N1137	N1142	0.000	P	130	178.7	0.100	0.00991	3.40	19.05	1.262
395	P1216	N1141	N1156	0.000	P	130	62.6	0.100	-0.00214	-0.07	-1.12	-0.272
396	P1220	N1158	N1160	0.000	P	130	157.9	0.100	-0.00214	-0.18	-1.12	-0.272
397	P1223	N1162	N1163	0.000	P	130	172.5	0.100	-0.00348	-0.47	-2.75	-0.443
398	P1224	N1164	N1165	0.000	P	130	21.3	0.150	0.00010	0.00	0.00	0.006
399	P1225	N1166	N1164	0.000	P	130	72.7	0.150	0.00010	0.00	0.00	0.006
400	P1226	N1141	N1167	0.000	P	90	109.9	0.050	0.00030	0.18	1.66	0.151
401	P1227	N1166	N1162	0.000	P	90	93.8	0.050	-0.00216	-6.14	-65.47	-1.098
402	P1228	N1168	N1139	0.000	P	90	69.2	0.075	0.00000	0.00	0.00	0.000
403	P1229	N1166	N1139	0.000	P	90	93.8	0.050	-0.00206	-5.63	-60.03	-1.048
404	P1230	N1167	N1162	0.000	P	90	44.1	0.050	0.00030	0.07	1.66	0.151
405	P1232	N1165	N1169	0.000	P	130	47.7	0.100	0.00010	0.00	0.00	0.013
406	P1235	N1171	N1172	0.000	P	90	76.4	0.075	0.00000	0.00	0.00	0.000
407	P1238	N1176	N1177	0.000	P	90	105.5	0.050	0.00000	0.00	0.00	0.000
408	P1239	N1178	N1179	0.000	P	90	188.5	0.075	0.00201	1.51	7.99	0.455
409	P1240	N1176	N1123	0.000	P	90	85.3	0.075	0.00245	0.99	11.55	0.556
410	P1241	N1180	N765	0.000	P	90	191.4	0.075	-0.00123	-0.61	-3.21	-0.278
411	P1242	N1178	N1181	0.000	P	130	98.1	0.100	-0.00203	-0.10	-1.02	-0.259
412	P1244	N764	N773	0.000	P	90	39.0	0.050	0.00000	0.00	0.00	0.000
413	P1245	N1138	N1183	0.000	P	130	54.5	0.100	0.00326	0.13	2.44	0.416
414	P1250	N1183	N1187	0.000	P	90	27.1	0.075	-0.00123	-0.09	-3.21	-0.278
415	P1253	N1181	N1183	0.000	P	130	76.3	0.100	-0.00203	-0.08	-1.02	-0.259
416	P1254	N1172	N1189	0.000	P	90	42.0	0.050	0.00000	0.00	0.00	0.000
417	P1255	N1181	N1172	0.000	P	90	66.9	0.075	0.00000	0.00	0.00	0.000
418	P1258	N765	N771	0.000	P	90	76.5	0.050	0.00038	0.20	2.60	0.192
419	P1260	N1127	N1178	0.000	P	130	244.4	0.100	0.00272	0.43	1.74	0.345
420	P1261	N1191	N1127	0.000	P	90	112.1	0.050	0.00038	0.29	2.60	0.192
421	P1262	N1127	N1176	0.000	P	90	116.9	0.075	0.00245	1.35	11.55	0.556
422	P1272	N1171	N1200	0.000	P	90	74.1	0.075	0.00000	0.00	0.00	0.000
423	P1273	N1124	N1201	0.000	P	90	117.5	0.075	0.00129	0.41	3.49	0.291
424	P1281	N1207	N1208	0.000	P	130	220.4	0.150	0.00070	0.00	0.02	0.039
425	P1282	N1209	N1210	0.000	P	90	264.8	0.050	0.00000	0.00	0.00	0.000
426	P1283	N1211	N1212	0.000	P	90	119.7	0.075	0.00052	0.08	0.66	0.118
427	P1285	N1214	N1215	0.000	P	130	178.7	0.150	-0.00183	-0.02	-0.12	-0.104
428	P1286	N13	N1216	0.000	P	90	100.7	0.050	-0.00015	-0.05	-0.47	-0.076
429	P1294	N1132	N1215	0.000	P	130	73.7	0.100	-0.00348	-0.20	-2.75	-0.443
430	P1295	N1215	N1207	0.000	P	130	159.6	0.150	0.00070	0.00	0.02	0.039
431	P1303	N1224	N1226	0.000	P	90	164.4	0.075	0.00000	0.00	0.00	0.000
432	P1304	N1227	N1224	0.000	P	130	212.6	0.150	0.00435	0.12	0.58	0.246
433	P1305	N1228	N1227	0.000	P	90	113.8	0.075	0.00129	0.40	3.49	0.291
434	P1308	N1229	N1230	0.000	P	130	74.4	0.100	0.00052	0.01	0.08	0.067
435	P1313	N1238	N1128	0.000	P	130	173.7	0.100	-0.00631	-1.43	-8.26	-0.803

Table 3C-3 Pipe Data (6/10)

No	Pipe No.	From Node No.	To Node No.	Demand (m^3/s)	Type (P- Pipe V-Valve)	C Value	Length, m	Diameter, m	Flow rate (m^3/s)	Head Loss, m	Friction Gradient, m/km	Velocity, m/s
436	P1315	N1239	N1240	0.000	P	90	43.6	0.050	0.00000	0.00	0.00	0.000
437	P1316	N1240	N1241	0.000	P	90	53.7	0.050	0.00000	0.00	0.00	0.000
438	P1317	N1128	N1239	0.000	P	90	58.0	0.050	0.00000	0.00	0.00	0.000
439	P1326	N1122	N1249	0.000	P	90	141.2	0.050	0.00000	0.00	0.00	0.000
440	P1333	N1253	N1234	0.000	P	130	439.8	0.100	0.00000	0.00	0.00	0.000
441	P1337	N1257	N1308	0.000	P	130	41.9	0.100	0.00052	0.00	0.08	0.067
442	P1340	N1230	N1260	0.000	P	130	129.8	0.100	0.00052	0.01	0.08	0.067
443	P1341	N1260	N1257	0.000	P	130	69.9	0.100	0.00052	0.01	0.08	0.067
444	P1342	N1261	N1262	0.000	P	90	36.1	0.050	0.00000	0.00	0.00	0.000
445	P1343	N1261	N1263	0.000	P	90	76.4	0.050	-0.00052	-0.36	-4.76	-0.266
446	P2000	N98	N1500	0.000	P	120	10.0	0.50	-0.57028	-0.16	-15.71	-2.904
447	P1353	N356	N365	0.000	P	90	28.2	0.08	0.00068	0.03	1.07	0.154
448	P1354	N1179	N1204	0.000	P	90	45.8	0.08	0.00201	0.37	7.99	0.455
449	P961_2	N1300	N931	0.000	P	90	78.0	0.05	-0.00087	-0.96	-12.33	-0.445
450	P1356	N941	N1300	0.000	P	90	49.3	0.05	0.00000	0.00	0.00	0.000
451	P1357	N729	N530	0.000	P	130	446.0	0.10	0.00318	1.04	2.32	0.404
452	P2100	N98	N312	0.000	P	120	185.0	0.50	0.26582	0.71	3.83	1.354
453	P2103	N354	N1301	0.000	P	120	147.0	0.40	0.13326	0.47	3.16	1.061
454	P2115	N311	N108	0.000	P	130	224.0	0.10	0.01121	5.36	23.94	1.428
455	P2117	N119	N1311	0.000	P	130	157.0	0.10	-0.00090	-0.04	-0.23	-0.115
456	P2118	N119	N128	0.000	P	130	418.0	0.10	0.00143	0.22	0.53	0.182
457	P2119	N311	N312	0.000	P	130	34.0	0.10	-0.00757	-0.39	-11.58	-0.964
458	P2120	N852	N1302	0.000	P	130	300.0	0.10	0.00040	0.02	0.05	0.051
459	P2121	N354	N931	0.000	P	120	850.0	0.30	0.01280	0.14	0.17	0.181
460	P2122	N931	N892	0.000	P	120	481.0	0.30	0.00850	0.04	0.08	0.120
461	P2128	N679	N1215	0.000	P	130	1283.0	0.10	0.00206	1.34	1.04	0.263
462	P2130	N312	N297	0.000	P	120	430.0	0.30	0.07220	1.78	4.13	1.022
463	P2131	N297	N265	0.000	P	120	866.0	0.30	0.06065	2.59	2.99	0.858
464	P2138	N407	N427	0.000	P	130	306.0	0.20	0.01951	0.70	2.28	0.621
465	P2144	N712	N679	0.000	P	130	850.0	0.20	-0.02908	-4.06	-4.77	-0.926
466	P2145	N142	N1310	0.000	P	130	178.0	0.10	-0.00435	-0.74	-4.16	-0.554
467	P2146	N373	N500	0.000	P	130	614.0	0.20	-0.02359	-1.99	-3.24	-0.751
468	P2147	N373	N750	0.000	P	130	646.0	0.15	0.00650	0.78	1.21	0.368
469	P2148	N698	N712	0.000	P	130	403.0	0.20	-0.00615	-0.11	-0.27	-0.196
470	P2154	N688	N823	0.000	P	120	193	0.50	-0.14497	-0.24	-1.25	-0.738
471	P2155	N823	N855	0.000	P	120	375.0	0.30	0.02350	0.19	0.52	0.332
472	P2156	N177	N1304	0.000	P	120	138.0	0.50	-0.08452	-0.06	-0.46	-0.430
473	P2157	N98	N1304	0.000	P	120	8.0	0.50	0.08452	0.04	5.53	1.196
474	P2158	N177	N199	0.000	P	130	213.0	0.20	0.02834	0.97	4.55	0.902
475	P2159	N199	N22	0.000	P	130	481.0	0.15	0.00411	0.25	0.52	0.232
476	P2160	N183	N177	0.000	P	120	257.0	0.30	-0.05325	-0.60	-2.35	-0.753
477	P2161	N183	N115	0.000	P	120	525.0	0.30	0.04415	0.87	1.66	0.625
478	P2162	N115	N137	0.000	P	120	242.0	0.30	0.04415	0.40	1.66	0.625
479	P2163	N128	N137	0.000	P	130	303.0	0.10	-0.01119	-7.22	-23.84	-1.424
480	P2165	N765	N1127	0.000	P	130	495.0	0.20	0.02019	1.20	2.43	0.643
481	P2170	N1215	N1227	0.000	P	130	1150.0	0.10	-0.00112	-0.39	-0.34	-0.143
482	P2173	N22	N823	0.000	P	120	837.0	0.50	0.18527	1.64	1.96	0.944
483	P2175	N107	N168	0.000	P	130	58.6	0.10	0.00718	0.62	10.50	0.915
484	P2176	N168	N123	0.000	P	130	75.8	0.10	0.00000	0.00	0.00	0.000
485	P2177	N240	N102	0.000	P	130	199.3	0.10	0.00838	2.78	13.97	1.067
486	P2178	N98	N22	0.000	P	120	682.0	0.50	0.18431	1.33	1.94	0.939
487	P2179	N1301	N1309	0.000	P	130	120.9	0.10	0.01842	7.26	59.99	2.346
488	P2180	N4	N760	0.000	P	130	182.0	0.10	0.00098	0.05	0.27	0.125
489	P2181	N760	N26	0.000	P	130	176.0	0.10	-0.00318	-0.41	-2.32	-0.405
490	P2182	N26	N24	0.000	P	130	142	0.10	-0.00393	-0.49	-3.45	-0.501
491	P2183	N24	N1152	0.000	P	130	158.0	0.10	-0.00193	-0.15	-0.93	-0.246
492	P2184	N1152	N1151	0.000	P	130	112.0	0.10	-0.00215	-0.13	-1.13	-0.274
493	P1128	N1086	N1085	0.000	P	130	163.2	0.15	0.00029	0.00	0.00	0.017
494	P2186	N1085	N1305	0.000	P	130	6.4	0.15	-0.01342	-0.03	-4.64	-0.760
495	P2187	N1305	N1080	0.000	P	130	352.0	0.20	0.00978	0.22	0.64	0.311
496	P2190	N1104	N1071	0.000	P	130	511.5	0.15	-0.00790	-0.89	-1.74	-0.447
497	P2191	N795	N869	0.000	P	130	582.0	0.15	-0.01426	-3.02	-5.18	-0.807
498	P2192	N795	N796	0.000	P	130	386.0	0.15	-0.00316	-0.12	-0.32	-0.179
499	P2193	N785	N796	0.000	P	130	266.0	0.15	0.00355	0.11	0.40	0.201
500	P2194	N800	N785	0.000	P	130	968.0	0.15	0.00269	0.23	0.24	0.152
501	P2195	N807	N869	0.000	P	130	1052.0	0.15	-0.00840	-2.05	-1.95	-0.475
502	P2200	N807	N800	0.000	P	130	1094.0	0.15	0.00389	0.51	0.47	0.220
503	P2201	N1071	N1091	0.000	P	120	339.0	0.30	0.02674	0.22	0.66	0.378
504	P2202	N1091	N1003	0.000	P	120	211.0	0.30	0.01649	0.06	0.27	0.233
505	P2208	N1306	N1019	0.000	P	130	484.0	0.15	0.00457	0.31	0.63	0.259
506	P2101_2	N1307	N1313	0.000	P	120	450.0	0.40	0.15499	1.88	4.18	1.233
507	P1337_2	N1308	N1258	0.000	P	130	43.7	0.10	0.00000	0.00	0.00	0.000
508	P2211	N1308	N1263	0.000	P	90	36.7	0.08	0.00052	0.02	0.66	0.118
509	P2212	N1263	N1256	0.000	P	90	33.2	0.08	0.00000	0.00	0.00	0.000
510	P295_2	NV2_2	N312	0.000	P	90	50.1	0.04	0.00000	0.00	0.00	0.000
511	V2	NV2_1	NV2_2	0.000	V	##########		0.04	0.00000	-40.63		
512	P350_2	NV3_2	N355	0.000	P	90	61.1	0.04	0.00000	0.00	0.00	0.000
513	V3	NV3_1	NV3_2	0.000	V	##########		0.04	0.00000	36.74		
514	P2213	N1305	N1071	0.000	P	120	427.1	0.30	0.05102	0.93	2.17	0.722
515	P2205	N1306	N1014	0.000	P	120	232.7	0.30	0.00797	0.02	0.07	0.113
516	P2179_2	N1309	N4	0.000	P	130	174.1	0.10	0.00351	0.49	2.80	0.447
517	P2216	N333	N303	0.000	P	130	200.0	0.10	0.00235	0.27	1.33	0.300
518	P2145_2	N1310	N128	0.000	P	130	156	0.10	-0.00780	-1.91	-12.24	-0.993
519	P2217	N130	N1310	0.000	P	130	26.0	0.10	-0.00652	-0.23	-8.79	-0.830
520	P2218	N373	N755	0.000	P	120	406.1	0.08	0.00231	2.46	6.07	0.523
521	P2117_2	N1311	N108	0.000	P	130	104.0	0.10	-0.01121	-2.49	-23.94	-1.428
522	P2219	N1311	N168	0.000	P	130	12.4	0.10	0.01031	0.25	20.49	1.313

Table 3C-3 Pipe Data (7/10)

No	Pipe No.	From Node No.	To Node No.	Demand (m^3/s)	Type (P- Pipe V-Valve)	C Value	Length, m	Diameter, m	Flow rate (m^3/s)	Head Loss, m	Friction Gradient, m/km	Velocity, m/s
523	P2220	N167	N1310	0.000	P	130	502.0	0.10	0.00307	1.10	2.19	0.391
524	P2222	N130	N153	0.000	P	130	440.0	0.10	0.00341	1.17	2.65	0.434
525	P2300	N153	N63	0.000	P	130	823.0	0.10	0.00082	0.16	0.19	0.105
526	P2301	N427	N397	0.000	P	130	305.0	0.20	0.01445	0.40	1.31	0.460
527	P2303	N1071	N768	0.000	P	130	569.0	0.10	0.00248	0.84	1.47	0.316
528	P2304	N312	N1307	0.000	P	120	230.2	0.40	0.15499	0.96	4.18	1.233
529	101_2_2	N1313	N354	0.000	P	120	254.0	0.40	0.15353	1.04	4.11	1.222
530	P2305	N1313	N1314	0.000	P	130	751.0	0.10	0.00146	0.41	0.55	0.186
531	P2306	N199	N170	0.000	P	130	491.4	0.20	0.02256	1.47	2.99	0.718
532	P2307	N984	N1315	0.000	P	130	885.0	0.15	0.00472	0.59	0.67	0.267
533	P4000	N750	N748	0.000	P	130	229.0	0.15	-0.00049	0.00	-0.01	-0.028
534	P4001	N748	N378	0.000	P	130	285.0	0.15	-0.00856	-0.57	-2.02	-0.484
535	P4002	N750	N479	0.000	P	130	611.0	0.10	0.00331	1.53	2.50	0.421
536	P4003	N479	N477	0.000	P	90	218.0	0.05	0.00113	4.29	19.69	0.574
537	P4004	N465	N467	0.000	P	90	395.0	0.08	0.00218	3.66	9.27	0.493
538	P4005	N375	N477	0.000	P	90	304.0	0.05	0.00110	5.70	18.76	0.559
539	P4006	N477	N487	0.000	P	90	174.0	0.05	-0.00110	-3.27	-18.77	-0.559
540	P4007	N494	N487	0.000	P	90	199.0	0.05	0.00110	3.74	18.77	0.559
541	P4008	N376	N494	0.000	P	90	136.8	0.05	-0.00051	-0.62	-4.51	-0.259
542	P4009	N494	N459	0.000	P	90	204.0	0.08	-0.00161	-1.07	-5.27	-0.363
543	P4010	N374	N755	0.000	P	90	307.0	0.08	0.00145	1.35	4.39	0.329
544	P4011	N755	N758	0.000	P	90	288.0	0.08	0.00377	7.34	25.50	0.852
545	P4012	N459	N528	0.000	P	130	428.2	0.15	-0.00618	-0.47	-1.10	-0.350
546	P4013	N526	N497	0.000	P	130	180.0	0.15	-0.00531	-0.15	-0.83	-0.301
547	P4014	N497	N501	0.000	P	90	430.0	0.08	0.00091	0.79	1.84	0.206
548	P4015	N499	N516	0.000	P	90	402.0	0.05	0.00035	0.92	2.30	0.180
549	P4016	N518	N433	0.000	P	90	488.0	0.08	0.00081	0.72	1.48	0.183
550	P4017	N517	N393	0.000	P	90	156.0	0.05	0.00049	0.67	4.27	0.251
551	P4018	N393	N450	0.000	P	90	221.0	0.05	0.00049	0.94	4.27	0.251
552	P4019	N431	N450	0.000	P	90	110.3	0.05	-0.00049	-0.47	-4.27	-0.251
553	P4020	N433	N381	0.000	P	90	266.0	0.05	0.00058	1.52	5.71	0.294
554	P4021	N431	N381	0.000	P	90	86.4	0.05	0.00049	0.37	4.27	0.251
555	P4022	N517	N692	0.000	P	90	238.0	0.05	-0.00054	-1.20	-5.04	-0.275
556	P4023	N692	N698	0.000	P	90	265.0	0.05	-0.00054	-1.34	-5.04	-0.275
557	P4024	N522	N712	0.000	P	130	386.0	0.15	-0.01230	-1.52	-3.95	-0.696
558	P4025	N687	N683	0.000	P	90	259.0	0.08	-0.00034	-0.08	-0.30	-0.077
559	P4026	N535	N698	0.000	P	90	200.8	0.05	-0.00109	-3.71	-18.49	-0.555
560	P4027	N535	N579	0.000	P	90	113.0	0.05	0.00109	2.09	18.49	0.555
561	P4028	N579	N585	0.000	P	90	103.0	0.05	0.00109	1.90	18.49	0.555
562	P4029	N580	N585	0.000	P	90	90.0	0.05	-0.00109	-1.66	-18.49	-0.555
563	P4030	N712	N711	0.000	P	130	225.0	0.15	-0.01491	-1.27	-5.63	-0.844
564	P4031	N711	N678	0.000	P	130	335.0	0.15	-0.01491	-1.89	-5.63	-0.844
565	P4032	N681	N676	0.000	P	90	201.0	0.05	-0.00052	-0.95	-4.73	-0.265
566	P4033	N681	N706	0.000	P	90	382.0	0.08	0.00201	3.06	8.01	0.456
567	P4034	N696	N702	0.000	P	90	72.0	0.05	0.00000	0.00	0.00	0.000
568	P4035	N707	N534	0.000	P	90	196.0	0.08	0.00024	0.03	0.15	0.053
569	N4036	N736	N744	0.000	P	130	484.0	0.15	0.00718	0.71	1.46	0.406
570	P4037	N734	N745	0.000	P	90	439.0	0.05	0.00021	0.38	0.86	0.106
571	P4038	N744	N1216	0.000	P	130	295.0	0.15	0.00739	0.45	1.54	0.418
572	P4039	N530	N12	0.000	P	90	340.0	0.05	-0.00015	-0.16	-0.47	-0.076
573	P4040	N1216	N1214	0.000	P	130	201.0	0.15	0.00373	0.09	0.43	0.211
574	P4041	N1215	N1211	0.000	P	130	350.0	0.10	0.00052	0.03	0.08	0.067
575	P4042	N1211	N1209	0.000	P	90	195.0	0.05	0.00000	0.00	0.00	0.000
576	P4043	N1210	N1221	0.000	P	90	243.0	0.05	0.00000	0.00	0.00	0.000
577	P4044	N1208	N1224	0.000	P	130	472.0	0.15	-0.00435	-0.27	-0.58	-0.246
578	P4045	N1227	N1229	0.000	P	130	439.0	0.20	-0.00367	-0.05	-0.10	-0.117
579	P4046	N1228	N1201	0.000	P	90	277.0	0.08	-0.00129	-0.97	-3.49	-0.291
580	P4047	N1204	N1123	0.000	P	130	298.0	0.15	0.00191	0.04	0.13	0.108
581	P4048	N1160	N1214	0.000	P	130	426.0	0.10	-0.00214	-0.48	-1.12	-0.272
582	P4049	N1156	N1158	0.000	P	130	215.0	0.10	-0.00214	-0.24	-1.12	-0.272
583	P4050	N1169	N1198	0.000	P	130	229.0	0.15	0.00010	0.00	0.00	0.006
584	P4051	N1229	N1246	0.000	P	130	257.0	0.20	-0.00419	-0.03	-0.13	-0.134
585	P4052	N1246	N1250	0.000	P	130	297.0	0.20	-0.00904	-0.16	-0.55	-0.288
586	P4053	N1250	N1238	0.000	P	130	162.0	0.20	-0.00904	-0.09	-0.55	-0.288
587	P4054	N1238	N1245	0.000	P	130	289.0	0.10	0.00229	0.37	1.27	0.292
588	P4055	N1245	N1234	0.000	P	130	410.0	0.10	0.00229	0.52	1.27	0.292
589	P4056	N1246	N1234	0.000	P	90	720.0	0.08	0.00061	0.63	0.88	0.138
590	P4058	N655	N670	0.000	P	90	159.0	0.05	0.00078	1.57	9.89	0.395
591	P4059	N670	N530	0.000	P	90	187.0	0.05	0.00039	0.51	2.75	0.198
592	P4060	N670	N656	0.000	P	90	103.3	0.05	0.00039	0.28	2.74	0.197
593	P4061	N656	N645	0.000	P	90	125.6	0.05	-0.00056	-0.69	-5.46	-0.287
594	P4062	N661	N656	0.000	P	90	108.4	0.05	0.00036	0.25	2.35	0.182
595	P4063	N665	N661	0.000	P	90	140.0	0.05	0.00075	1.28	9.18	0.380
596	P4064	N606	N661	0.000	P	90	230.3	0.08	0.00228	2.32	10.07	0.516
597	P4065	N665	N648	0.000	P	90	107.0	0.05	-0.00117	-2.27	-21.24	-0.598
598	P4066	N605	N606	0.000	P	130	130.0	0.10	0.01060	2.81	21.59	1.350
599	P4067	N29	N609	0.000	P	90	127.0	0.05	0.00000	0.00	0.00	0.000
600	P4068	N601	N615	0.000	P	90	170.3	0.08	0.00396	4.76	27.94	0.896
601	P4069	N615	N614	0.000	P	90	222.8	0.05	0.00048	0.91	4.08	0.245
602	P4070	N625	N613	0.000	P	90	245.0	0.05	0.00009	0.04	0.18	0.046
603	P4071	N39	N630	0.000	P	90	249.0	0.05	0.00080	2.61	10.48	0.408
604	P4072	N627	N629	0.000	P	90	108.0	0.05	0.00100	1.72	15.90	0.511
605	P4073	N27	N627	0.000	P	90	90.4	0.05	0.00100	1.44	15.90	0.511
606	P4074	N1145	N1144	0.000	P	90	142.0	0.05	-0.00023	-0.15	-1.04	-0.117
607	P4075	N1152	N1154	0.000	P	90	75.0	0.04	-0.00012	-0.09	-1.18	-0.105
608	P4076	N1152	N1144	0.000	P	90	67.2	0.04	0.00023	0.27	3.94	0.202
609	P4077	N641	N24	0.000	P	90	134.0	0.04	-0.00004	-0.02	-0.16	-0.035

Table 3C-3 Pipe Data (8/10)

No	Pipe No.	From Node No.	To Node No.	Demand (m^3/s)	Type (P- Pipe V-Valve)	C Value	Length, m	Diameter, m	Flow rate (m^3/s)	Head Loss, m	Friction Gradient, m/km	Velocity, m/s
610	P4078	N615	N625	0.000	P	90	134.0	0.08	0.00348	2.95	21.99	0.787
611	P4079	N39	N621	0.000	P	90	75.0	0.08	-0.00140	-0.31	-4.08	-0.317
612	P4080	N4	N366	0.000	P	90	163.0	0.08	-0.00014	-0.01	-0.06	-0.032
613	P4081	N4	N3	0.000	P	130	122.0	0.10	0.00117	0.04	0.36	0.149
614	P4082	N3	N760	0.000	P	130	125.2	0.10	0.00030	0.00	0.03	0.039
615	P4083	N776	N779	0.000	P	90	235.0	0.05	-0.00084	-2.69	-11.45	-0.428
616	P4084	N38	N351	0.000	P	90	175.0	0.05	0.00095	2.53	14.45	0.485
617	P4085	N351	N353	0.000	P	90	192.0	0.05	0.00014	0.08	0.43	0.072
618	P4086	N353	N33	0.000	P	90	149.0	0.08	0.00014	0.01	0.06	0.032
619	P4087	N33	N566	0.000	P	90	155.0	0.08	0.00014	0.01	0.06	0.032
620	P4088	N566	N569	0.000	P	90	151.0	0.08	-0.00107	-0.38	-2.50	-0.243
621	P4089	N543	N564	0.000	P	90	155.0	0.08	0.00107	0.39	2.50	0.243
622	P4090	N546	N543	0.000	P	90	97.3	0.08	0.00107	0.24	2.50	0.243
623	P4091	N610	N546	0.000	P	90	360.0	0.08	0.00325	6.97	19.36	0.735
624	P4092	N541	N649	0.000	P	130	497.0	0.10	-0.00676	-4.67	-9.39	-0.861
625	P4093	N652	N532	0.000	P	90	251.0	0.05	-0.00118	-5.38	-21.44	-0.601
626	P4094	N595	N599	0.000	P	90	112.0	0.08	0.00010	0.00	0.03	0.022
627	P4095	N599	N538	0.000	P	90	167.0	0.08	0.00010	0.00	0.03	0.022
628	P4096	N538	N652	0.000	P	90	84.0	0.08	0.00010	0.00	0.03	0.022
629	P4097	N595	N541	0.000	P	130	115.0	0.10	-0.00294	-0.23	-2.01	-0.374
630	P4098	N570	N590	0.000	P	90	200.0	0.08	0.00000	0.00	0.00	0.000
631	P4099	N551	N570	0.000	P	90	220.0	0.08	0.00311	3.93	17.87	0.704
632	P4100	N556	N553	0.000	P	90	175.0	0.05	-0.00006	-0.02	-0.09	-0.032
633	P4101	N553	N551	0.000	P	90	162.0	0.05	-0.00006	-0.02	-0.09	-0.032
634	P4102	N389	N558	0.000	P	90	200.0	0.05	0.00093	2.74	13.71	0.472
635	P4103	N591	N576	0.000	P	90	115.0	0.05	0.00049	0.48	4.19	0.249
636	P4104	N581	N576	0.000	P	90	343.0	0.05	-0.00049	-1.44	-4.19	-0.249
637	P4105	N402	N442	0.000	P	90	136.0	0.04	0.00000	0.00	0.00	0.000
638	P4106	N436	N433	0.000	P	90	195.0	0.08	0.00081	0.29	1.50	0.184
639	P4107	N434	N440	0.000	P	90	115.0	0.05	0.00000	0.00	0.00	0.000
640	P4108	N419	N446	0.000	P	90	94.0	0.05	0.00000	0.00	0.00	0.000
641	P4109	N395	N419	0.000	P	90	96.0	0.05	0.00000	0.00	0.00	0.000
642	P4110	N426	N397	0.000	P	90	175.0	0.08	0.00076	0.23	1.31	0.171
643	P4111	N420	N428	0.000	P	130	160.0	0.10	0.00213	0.18	1.11	0.271
644	P4112	N503	N502	0.000	P	90	194.5	0.08	-0.00294	-3.14	-16.15	-0.666
645	P4113	N394	N398	0.000	P	90	297.1	0.05	-0.00092	-3.98	-13.41	-0.466
646	P4114	N400	N507	0.000	P	90	116.0	0.05	0.00149	3.82	32.91	0.757
647	P4115	N505	N462	0.000	P	130	171.0	0.10	0.00279	0.31	1.83	0.356
648	P4116	N472	N462	0.000	P	90	236.0	0.05	-0.00054	-1.19	-5.06	-0.275
649	P4117	N467	N472	0.000	P	90	124.0	0.05	-0.00054	-0.63	-5.06	-0.275
650	P4118	N467	N471	0.000	P	90	234.0	0.05	0.00000	0.00	0.00	0.000
651	P4119	N404	N413	0.000	P	90	151.0	0.05	0.00000	0.00	0.00	0.000
652	P4120	N409	N417	0.000	P	90	68.0	0.05	0.00000	0.00	0.00	0.000
653	P4121	N412	N407	0.000	P	90	305.0	0.05	0.00072	2.64	8.67	0.368
654	P4122	N87	N90	0.000	P	90	184.2	0.05	0.00072	1.60	8.67	0.368
655	P4123	N90	N94	0.000	P	90	173.0	0.05	0.00072	1.50	8.67	0.368
656	P4124	N34	N94	0.000	P	90	126.0	0.05	-0.00072	-1.09	-8.67	-0.368
657	P4125	N96	N280	0.000	P	90	115.7	0.05	0.00074	1.05	9.07	0.377
658	P4126	N36	N288	0.000	P	90	151.0	0.05	0.00000	0.00	0.00	0.000
659	P4127	N260	N282	0.000	P	90	145.0	0.04	0.00074	5.05	34.83	0.656
660	P4128	N282	N256	0.000	P	90	60.0	0.05	0.00054	0.30	4.99	0.273
661	P4129	N257	N555	0.000	P	90	171.0	0.05	0.00054	0.85	4.99	0.273
662	P4130	N50	N265	0.000	P	130	215.0	0.15	-0.01287	-0.92	-4.29	-0.728
663	P4131	N263	N41	0.000	P	130	232.0	0.10	0.00134	0.11	0.47	0.170
664	P4132	N50	N59	0.000	P	130	50.0	0.10	0.00225	0.06	1.23	0.287
665	P4133	N267	N265	0.000	P	130	176.0	0.15	0.00578	0.17	0.98	0.327
666	P4134	N272	N263	0.000	P	130	175.0	0.10	0.00134	0.08	0.47	0.170
667	P4135	N262	N267	0.000	P	130	64.0	0.15	0.01226	0.25	3.92	0.694
668	P4136	N289	N255	0.000	P	130	132.0	0.10	0.00134	0.06	0.47	0.170
669	P4137	N291	N262	0.000	P	130	128.0	0.15	0.01226	0.50	3.92	0.694
670	P4138	N207	N291	0.000	P	130	391.0	0.15	0.01226	1.53	3.92	0.694
671	P4139	N205	N289	0.000	P	130	397.0	0.10	0.00134	0.19	0.47	0.170
672	P4140	N296	N348	0.000	P	90	161.0	0.05	0.00000	0.00	0.00	0.000
673	P4141	N328	N297	0.000	P	130	142.0	0.15	0.01308	0.63	4.42	0.740
674	P4142	N305	N295	0.000	P	130	200.0	0.10	0.00134	0.09	0.47	0.170
675	P4143	N307	N328	0.000	P	130	105.0	0.15	0.01308	0.46	4.42	0.740
676	P4144	N312	N307	0.000	P	130	155.0	0.15	0.01308	0.69	4.42	0.740
677	P4145	N100	N305	0.000	P	130	169.0	0.10	0.00134	0.08	0.47	0.170
678	P4146	N325	N331	0.000	P	90	90.0	0.05	0.00000	0.00	0.00	0.000
679	P4147	N209	N292	0.000	P	90	161.0	0.04	0.00000	0.00	0.00	0.000
680	P4148	N211	N219	0.000	P	90	174.4	0.04	0.00000	0.00	0.00	0.000
681	P4149	N253	N221	0.000	P	130	251.0	0.15	0.00078	0.01	0.02	0.044
682	P4150	N230	N216	0.000	P	130	224.0	0.10	-0.00329	-0.55	-2.47	-0.418
683	P4151	N240	N230	0.000	P	130	145.0	0.10	-0.00545	-0.92	-6.31	-0.695
684	P4152	N232	N230	0.000	P	130	134.0	0.10	0.00217	0.15	1.15	0.276
685	P4153	N226	N234	0.000	P	130	97.0	0.10	0.00217	0.11	1.15	0.276
686	P4154	N45	N214	0.000	P	130	141.4	0.10	0.00128	0.06	0.43	0.163
687	P4155	N269	N217	0.000	P	90	134.0	0.08	0.00186	0.93	6.95	0.422
688	P4156	N107	N102	0.000	P	90	299.0	0.04	0.00035	2.61	8.72	0.310
689	P4157	N319	N212	0.000	P	130	166.0	0.10	0.01326	5.42	32.64	1.688
690	P4158	N320	N213	0.000	P	90	149.0	0.04	0.00052	2.69	18.07	0.460
691	P4159	N213	N125	0.000	P	90	207.2	0.04	0.00052	3.74	18.07	0.460
692	P4160	N123	N194	0.000	P	90	249.1	0.04	0.00000	0.00	0.00	0.000
693	P4161	N121	N193	0.000	P	90	251.3	0.04	0.00000	0.00	0.00	0.000
694	P4162	N119	N192	0.000	P	90	229.0	0.04	0.00000	0.00	0.00	0.000
695	P4163	N164	N166	0.000	P	90	305.0	0.04	-0.00019	-0.84	-2.77	-0.167
696	P4164	N143	N142	0.000	P	90	203.0	0.04	-0.00016	-0.42	-2.08	-0.143

Table 3C-3 Pipe Data (9/10)

No	Pipe No.	From Node No.	To Node No.	Demand (m^3/s)	Type (P- Pipe V-Valve)	C Value	Length, m	Diameter, m	Flow rate (m^3/s)	Head Loss, m	Friction Gradient, m/km	Velocity, m/s
697	P4165	N102	N142	0.000	P	90	351.0	0.04	0.00015	0.66	1.88	0.136
698	P4166	N159	N156	0.000	P	90	150.0	0.04	-0.00006	-0.04	-0.29	-0.049
699	P4167	N77	N159	0.000	P	90	390.0	0.04	-0.00006	-0.11	-0.29	-0.049
700	P4168	N65	N77	0.000	P	90	314.0	0.04	-0.00006	-0.09	-0.29	-0.049
701	P4169	N70	N65	0.000	P	90	126.0	0.04	-0.00006	-0.04	-0.29	-0.049
702	P4170	N69	N76	0.000	P	90	113.0	0.05	0.00000	0.00	0.00	0.000
703	P4171	N144	N153	0.000	P	90	132.0	0.04	0.00011	0.13	0.96	0.094
704	P4172	N153	N53	0.000	P	90	129.0	0.08	0.00025	0.02	0.16	0.056
705	P4173	N53	N69	0.000	P	90	238.0	0.08	0.00025	0.04	0.16	0.056
706	P4174	N63	N70	0.000	P	90	371.0	0.08	-0.00030	-0.09	-0.24	-0.068
707	P39	N70	N69	0.000	P	90	58.0	0.08	-0.00025	-0.01	-0.16	-0.056
708	P4175	N148	N147	0.000	P	90	191.0	0.08	-0.00077	-0.26	-1.34	-0.174
709	P4176	N140	N147	0.000	P	90	204.0	0.08	0.00077	0.27	1.34	0.174
710	P4177	N137	N116	0.000	P	130	139.7	0.10	-0.00155	-0.09	-0.61	-0.197
711	P4178	N116	N113	0.000	P	130	127.0	0.10	-0.00155	-0.08	-0.61	-0.197
712	P4179	N113	N181	0.000	P	130	266.0	0.10	-0.00369	-0.82	-3.07	-0.470
713	P4180	N183	N175	0.000	P	90	153.5	0.04	0.00015	0.29	1.86	0.135
714	P4181	N179	N189	0.000	P	90	93.6	0.04	-0.00015	-0.17	-1.86	-0.135
715	P4182	N245	N240	0.000	P	130	265.5	0.10	0.00292	0.53	1.99	0.372
716	P4183	N249	N245	0.000	P	130	156.0	0.10	0.00292	0.31	1.99	0.372
717	P4184	N336	NV2_1	0.000	P	90	182.5	0.04	0.00000	0.00	0.00	0.000
718	P4185	N334	N336	0.000	P	90	151.0	0.04	0.00000	0.00	0.00	0.000
719	P4186	N299	N333	0.000	P	130	145.0	0.15	-0.01070	-0.44	-3.05	-0.605
720	P4187	N362	N349	0.000	P	130	116.2	0.15	-0.00955	-0.29	-2.47	-0.540
721	P4188	N345	N350	0.000	P	90	120.0	0.04	0.00000	0.00	0.00	0.000
722	P4189	N355	N361	0.000	P	90	113.0	0.04	0.00000	0.00	0.00	0.000
723	P4190	N357	N358	0.000	P	130	107.0	0.15	-0.00536	-0.09	-0.85	-0.303
724	P4191	N18	N928	0.000	P	90	182.0	0.08	0.00088	0.31	1.72	0.199
725	P4192	N17	N927	0.000	P	90	189.5	0.08	0.00068	0.20	1.07	0.154
726	P4193	N928	N925	0.000	P	90	328.0	0.08	0.00089	0.57	1.72	0.199
727	P4194	N919	N927	0.000	P	90	338.0	0.08	-0.00068	-0.36	-1.07	-0.154
728	P4195	N779	N921	0.000	P	90	172.0	0.05	-0.00084	-1.97	-11.45	-0.428
729	P4196	N921	N1300	0.000	P	90	201.5	0.05	-0.00087	-2.48	-12.33	-0.445
730	P4197	N921	N943	0.000	P	90	118.0	0.05	0.00003	0.00	0.03	0.017
731	P4198	N933	N944	0.000	P	90	88.0	0.05	0.00000	0.00	0.00	0.000
732	P4199	N885	N919	0.000	P	90	408.0	0.08	-0.00068	-0.44	-1.07	-0.154
733	P4200	N893	N936	0.000	P	90	219.0	0.08	-0.00018	-0.02	-0.09	-0.040
734	P4201	N890	N913	0.000	P	130	244.0	0.15	-0.00661	-0.31	-1.25	-0.374
735	P4202	N963	N967	0.000	P	90	82.5	0.08	0.00000	0.00	0.00	0.000
736	P4203	N987	N991	0.000	P	90	194.0	0.08	-0.00112	-0.53	-2.72	-0.254
737	P4204	N984	N997	0.000	P	130	104.0	0.10	0.00325	0.25	2.42	0.414
738	P4205	N985	N997	0.000	P	130	64.0	0.10	-0.00262	-0.10	-1.63	-0.334
739	P4206	N997	N982	0.000	P	130	97.5	0.10	-0.00094	-0.02	-0.25	-0.120
740	P4207	N984	N994	0.000	P	130	108.8	0.10	0.00204	0.11	1.02	0.259
741	P4208	N948	N970	0.000	P	130	144.0	0.10	0.00222	0.17	1.19	0.282
742	P4209	N969	N952	0.000	P	130	121.5	0.10	0.00222	0.14	1.19	0.282
743	P4211	N112	N337	0.000	P	130	386.0	0.10	0.00050	0.03	0.08	0.064
744	P4212	N340	N364	0.000	P	130	171.0	0.10	0.00050	0.01	0.08	0.064
745	P4213	N337	N339	0.000	P	130	207.0	0.10	0.00050	0.02	0.08	0.064
746	P4214	N23	N112	0.000	P	130	356.4	0.15	-0.00753	-0.57	-1.59	-0.426
747	P4216	N905	N900	0.000	P	130	187.3	0.10	0.00383	0.62	3.28	0.488
748	P4217	N900	N896	0.000	P	130	216.5	0.10	0.00383	0.71	3.28	0.488
749	P4218	N897	N901	0.000	P	130	198.1	0.10	-0.00369	-0.61	-3.07	-0.470
750	P4219	N896	N915	0.000	P	130	87.0	0.10	0.00383	0.29	3.28	0.488
751	P4220	N897	N916	0.000	P	130	115.2	0.10	0.00369	0.35	3.07	0.470
752	P4221	N823	N820	0.000	P	130	61.2	0.15	-0.00753	-0.10	-1.59	-0.426
753	P4222	N820	N816	0.000	P	130	85.9	0.15	-0.00753	-0.14	-1.59	-0.426
754	P4223	N862	N861	0.000	P	90	168.9	0.08	0.00000	0.00	0.00	0.000
755	P4224	N862	N854	0.000	P	90	225.0	0.08	0.00051	0.14	0.64	0.117
756	P4225	N854	N880	0.000	P	90	387.0	0.08	0.00062	0.35	0.90	0.140
757	P4226	N822	N826	0.000	P	90	168.4	0.08	0.00032	0.05	0.27	0.073
758	P4227	N826	N880	0.000	P	90	105.2	0.05	0.00032	0.20	1.94	0.164
759	P4228	N131	N137	0.000	P	120	91.9	0.30	-0.03159	-0.08	-0.90	-0.447
760	P4229	N133	N131	0.000	P	120	139.0	0.30	-0.03159	-0.12	-0.90	-0.447
761	P4230	N117	N135	0.000	P	120	154.0	0.30	-0.02154	-0.07	-0.44	-0.305
762	P4231	N834	N6	0.000	P	120	200.0	0.30	-0.03477	-0.21	-1.07	-0.492
763	P4232	N172	N170	0.000	P	120	236.0	0.30	-0.03477	-0.25	-1.07	-0.492
764	P4233	N6	N172	0.000	P	120	195.0	0.30	-0.03477	-0.21	-1.07	-0.492
765	P4234	N196	N198	0.000	P	130	201.0	0.10	-0.00090	-0.05	-0.23	-0.115
766	P4235	N10	N196	0.000	P	130	183.0	0.10	-0.00090	-0.04	-0.23	-0.115
767	P4236	N846	N198	0.000	P	130	341.4	0.10	0.00090	0.08	0.23	0.115
768	P4237	N858	N852	0.000	P	130	230.4	0.10	0.00130	0.10	0.44	0.165
769	P4238	N856	N858	0.000	P	130	92.0	0.10	0.00130	0.04	0.44	0.165
770	P4239	N835	N855	0.000	P	120	339.0	0.30	-0.01776	-0.10	-0.31	-0.251
771	P4240	N834	N837	0.000	P	120	174.0	0.30	0.02123	0.07	0.43	0.300
772	P4241	N863	N865	0.000	P	90	132.5	0.05	0.00000	0.00	0.00	0.000
773	P4242	N881	N884	0.000	P	90	58.1	0.05	0.00094	0.82	14.09	0.479
774	P4243	N884	N825	0.000	P	90	155.2	0.08	0.00094	0.30	1.96	0.213
775	P4244	N825	N956	0.000	P	90	83.0	0.08	0.00094	0.16	1.96	0.213
776	P4245	N956	N887	0.000	P	130	167.5	0.15	-0.01218	-0.65	-3.87	-0.699
777	P4246	N953	N956	0.000	P	130	172.0	0.15	-0.01312	-0.76	-4.44	-0.742
778	P4247	N976	N978	0.000	P	130	175.0	0.15	-0.01060	-0.52	-2.99	-0.600
779	P4248	N815	N976	0.000	P	130	102.9	0.15	-0.01060	-0.31	-2.99	-0.600
780	P4249	N1187	N1180	0.000	P	90	233.4	0.08	-0.00123	-0.75	-3.21	-0.278
781	P4250	N771	N1191	0.000	P	90	273.8	0.05	0.00038	0.71	2.60	0.192
782	P4251	N763	N983	0.000	P	90	207.3	0.05	-0.00039	-0.56	-2.72	-0.197
783	P4252	N815	N972	0.000	P	90	266.0	0.08	0.00154	1.30	4.90	0.350

Table 3C-3 Pipe Data (10/10)

No	Pipe No.	From Node No.	To Node No.	Demand (m^3/s)	Type (P- Pipe V-Valve)	C Value	Length, m	Diameter, m	Flow rate (m^3/s)	Head Loss, m	Friction Gradient, m/km	Velocity, m/s
784	P4253	N972	N819	0.000	P	90	235.4	0.05	0.00000	0.00	0.00	0.000
785	P4254	N972	N810	0.000	P	90	138.1	0.05	0.00005	0.01	0.07	0.027
786	P4255	N811	N1032	0.000	P	90	200.5	0.08	0.00078	0.28	1.40	0.178
787	P4256	N1081	N811	0.000	P	90	100.2	0.08	0.00073	0.12	1.23	0.165
788	P4257	N1032	N1034	0.000	P	90	119.0	0.08	0.00078	0.17	1.40	0.178
789	P4258	N1081	N1007	0.000	P	90	140.5	0.08	0.00008	0.00	0.02	0.017
790	P4259	N1007	N1037	0.000	P	90	60.4	0.08	0.00000	0.00	0.00	0.000
791	P4260	N1007	N1008	0.000	P	90	131.3	0.08	0.00008	0.00	0.02	0.017
792	P4261	N1084	N1008	0.000	P	90	73.3	0.08	0.00041	0.03	0.42	0.093
793	P4263	N1063	N1085	0.000	P	130	104.3	0.15	-0.00944	-0.25	-2.42	-0.534
794	P4264	N1089	N1074	0.000	P	90	86.0	0.04	0.00058	1.86	21.63	0.507
795	P4265	N1075	N1066	0.000	P	90	148.0	0.05	0.00000	0.00	0.00	0.000
796	P4266	N1098	N1068	0.000	P	90	89.4	0.05	0.00000	0.00	0.00	0.000
797	P4267	N1096	N1069	0.000	P	130	94.0	0.15	-0.00886	-0.20	-2.15	-0.502
798	P4268	N1097	N1091	0.000	P	90	188.5	0.08	0.00061	0.16	0.87	0.137
799	P4269	N1106	N1105	0.000	P	90	177.4	0.04	0.00015	0.30	1.69	0.128
800	P4270	N769	N1104	0.000	P	130	231.0	0.15	-0.00648	-0.28	-1.20	-0.367
801	P4271	N1238	N769	0.000	P	130	508.4	0.15	-0.01429	-2.64	-5.20	-0.808
802	P4272	N1060	N1111	0.000	P	130	60.0	0.15	-0.00515	-0.05	-0.79	-0.291
803	P4273	N1113	N1116	0.000	P	130	266.4	0.10	0.00230	0.34	1.28	0.293
804	P4274	N1117	N1118	0.000	P	130	430.0	0.10	0.00230	0.55	1.28	0.293
805	P4275	N1118	N1120	0.000	P	130	353.0	0.10	0.00230	0.45	1.28	0.293
806	P4276	N1044	N1046	0.000	P	90	93.6	0.08	0.00000	0.00	0.00	0.000
807	P4277	N1003	N1000	0.000	P	90	107.0	0.08	0.00341	2.27	21.21	0.772
808	P4278	N1019	N1018	0.000	P	90	80.1	0.05	0.00078	0.81	10.09	0.400
809	P4279	N1011	N1043	0.000	P	90	143.4	0.05	-0.00031	-0.26	-1.84	-0.159
810	P4280	N1019	N1029	0.000	P	90	204.0	0.05	0.00031	0.38	1.84	0.159
811	P4281	N1011	N1050	0.000	P	90	153.2	0.08	-0.00178	-0.98	-6.40	-0.404
812	P4282	N1051	N1055	0.000	P	90	221.9	0.08	0.00105	0.53	2.38	0.237
813	P4283	N1027	N800	0.000	P	130	511.0	0.10	0.00132	0.23	0.46	0.168
814	P4285	N802	N786	0.000	P	130	331.7	0.10	0.00095	0.08	0.25	0.121
815	P4286	N786	N785	0.000	P	130	291.4	0.10	0.00095	0.07	0.25	0.121
816	P4287	N807	N785	0.000	P	130	232.3	0.10	0.00378	0.74	3.20	0.481
817	P4288	N1024	N809	0.000	P	130	254.8	0.10	-0.00132	-0.12	-0.46	-0.168
818	P4289	N807	N805	0.000	P	130	145.4	0.10	-0.00294	-0.29	-2.01	-0.375
819	P4290	N872	N869	0.000	P	130	192.8	0.10	-0.00294	-0.39	-2.01	-0.375
820	P4291	N868	N872	0.000	P	130	165.2	0.10	-0.00294	-0.33	-2.01	-0.375
821	P4292	N806	N879	0.000	P	130	74.5	0.10	-0.00294	-0.15	-2.01	-0.375
822	P4293	N877	N868	0.000	P	130	262.0	0.10	-0.00294	-0.53	-2.01	-0.375
823	P4294	N783	N795	0.000	P	130	189.6	0.10	0.00500	1.02	5.38	0.637
824	P4295	N870	N782	0.000	P	130	160.0	0.10	0.00500	0.86	5.38	0.637
825	P4296	N792	N798	0.000	P	130	184.0	0.10	-0.00112	-0.06	-0.34	-0.143
826	P4297	N797	N785	0.000	P	130	199.5	0.10	-0.00125	-0.08	-0.42	-0.160
827	P4298	N546	N570	0.000	P	90	125.4	0.08	-0.00311	-2.24	-17.87	-0.704
828	P4299	N829	N838	0.000	P	120	307.8	0.25	-0.03531	-0.82	-2.67	-0.719
829	P4300	N846	N834	0.000	P	120	213.0	0.25	-0.00930	-0.05	-0.23	-0.190
830	P4284	N913	N918	0.000	P	130	52.8	0.15	-0.00661	-0.07	-1.25	-0.374
831	P913	N887	N918	0.000	P	130	54.8	0.15	-0.01218	-0.21	-3.87	-0.689
832	P652	N631	N14	0.000	P	130	67.5	0.10	0.00231	0.09	1.29	0.294
833	P4057	N532	N655	0.000	P	130	270.0	0.10	0.00405	0.98	3.63	0.515
834	P1204	N1151	N29	0.000	P	130	294.1	0.10	0.00028	0.01	0.03	0.036
835	P2142	N500	N712	0.000	P	130	865.0	0.20	-0.02002	-2.07	-2.39	-0.637
836	P2164	N1127	N1227	0.000	P	130	846.0	0.10	0.00514	4.79	5.66	0.655
837	P2168	N892	N984	0.000	P	120	381.0	0.30	0.03566	0.43	1.12	0.505
838	P2166	N765	N984	0.000	P	130	489.0	0.20	-0.02398	-1.53	-3.34	-0.763
839	P2196	N888	N1315	0.000	P	120	672.0	0.30	0.06950	2.59	3.85	0.983
840	P2185	N1315	N1305	0.000	P	120	451.0	0.30	0.07422	1.96	4.35	1.050
841	P2203	N1003	N1306	0.000	P	120	354.0	0.30	0.01254	0.06	0.16	0.177
842	P1059	N1016	N1014	0.000	P	90	257.7	0.08	-0.00253	-3.14	-12.20	-0.572
843	P2206	N1014	N1051	0.000	P	130	250.4	0.20	0.00269	0.01	0.06	0.086
844	P1054	N1009	N1003	0.000	P	90	57.9	0.08	0.00049	0.03	0.58	0.110
845	P2289	N1080	N1004	0.000	P	130	582.0	0.15	0.00769	0.96	1.65	0.435
846	P1090	N1009	N1044	0.000	P	90	148.4	0.08	0.00000	0.00	0.00	0.000
847	P4262	N1085	N1083	0.000	P	90	304.0	0.08	0.00122	0.96	3.15	0.275
848	P1125	N1084	N1083	0.000	P	90	108.4	0.08	-0.00041	-0.05	-0.42	-0.093
849	P1120	N1081	N1083	0.000	P	90	48.9	0.08	-0.00081	-0.07	-1.47	-0.182
850	P2152	N888	N892	0.000	P	120	416.0	0.30	0.06872	1.57	3.77	0.972
851	P2123	N892	N1137	0.000	P	120	919.0	0.30	0.03329	0.91	0.99	0.471
852	P2125	N1137	N1215	0.000	P	130	804.0	0.10	0.00675	7.54	9.37	0.860
853	P1234	N1163	N1132	0.000	P	130	204.0	0.10	-0.00348	-0.56	-2.75	-0.443
854	P2135	N265	N407	0.000	P	130	1596.0	0.20	0.03565	11.10	6.96	1.135
855	P2302	N397	N500	0.000	P	130	703.0	0.20	0.01276	0.73	1.04	0.406
856	P2150	N698	N387	0.000	P	130	974.0	0.20	0.00486	0.17	0.17	0.155
857	P2132	N265	N389	0.000	P	130	805.0	0.20	0.01505	1.14	1.41	0.479
858	P273	N265	N275	0.000	P	130	163.9	0.05	0.00288	9.27	56.55	1.466
859	P11	N23	N905	0.000	P	130	123.0	0.15	0.00753	0.20	1.59	0.426
860	P4215	N905	N901	0.000	P	130	225.0	0.10	0.00369	0.69	3.07	0.470
861	P173	N98	N173	0.000	P	90	133.0	0.08	0.00190	0.95	7.17	0.429
862	P180	N173	N201	0.000	P	90	120.0	0.08	0.00058	0.10	0.81	0.132
863	P152	N179	N173	0.000	P	90	157.7	0.08	-0.00131	-0.57	-3.63	-0.297
864	P2104	N1301	N601	0.000	P	120	547.0	0.40	0.11484	1.31	2.40	0.914
865	P2107	N601	N532	0.000	P	120	766.0	0.30	0.08129	3.94	5.15	1.150
866	P2108	N532	N679	0.000	P	120	497.0	0.30	0.06226	1.56	3.14	0.881

APPENDIX 3D

POWER SUPPLY FOR GOTHATUWA-KOLONNAWA PUMP HOUSE AND GOTHATUWA PUMP HOUSE

APPENDIX 3D POWER SUPPLY FOR GOTHATUWA-KOLONNAWA PUMP HOUSE AND FOR GOTHATUWA PUMP HOUSE

3D1 MOTOR STARTING METHOD

In consideration of limitation of allowable capacity for existing Ambatale substation or minimizing of required capacity for emergency generator at Gothatuwa new pump station, it is required to apply suitable motor starting which enable to reduce the big starting current of the motor.

165 kW x 4 (3 of duty, 1 of stand-by) and 130kW x3(2 of duty, 1 of stand-by) of motor capacity are provided at Gothatuwa-Kolonnawa Pump House and Gothatuwa Pump House respectively.

For the starting current compensation of above high voltage motor, **the auto-transformer starter(Condorfer) is recommendable.**

3D2 AUXILIARY SERVICE LOAD AT THE PUMP HOUSES

Auxiliary service loads such as the air-conditioners, the lighting and the control power source etc. are to be considered for the required power receiving capacity.

40kW and 10kW of above auxiliary service load are assumed for Gothatuwa-Kolonnawa Pump House and for Gothatuwa Pump House respectively.

3D3 REQUIRED POWER RECEIVING CAPACITY FOR GOTHTUWA-KOLONNAWA PUMP HOUSE

3D3.1 Assumed Condition

-Auto transformer tap(50%,65%,80%) to be applied----------80%
(considering the most severe case)
-Power factor of the pump motor ----------0.85
-Efficiency of the pump motor ----------0.9
-Power factor of the auxiliary service load----------0.85
-Efficiency of the auxiliary load ----------0.85

3D3.2 Required Capacity (P_n) to Supply against Maximum Normal Load

$P_N = (165 \times 3) / (0.85 \times 0.9) + 40 / (0.85 \times 0.85) = 702KVA$

3D3.3 Required Capacity (P_S) for Allowable 3.3KV System Voltage Regulation of less than 10% under Big Motor Starting

$P_1 = \{40 / (0.85 \times 0.85)\} \times 0.85 = 47$ kW

$Q_1 = 40 / (0.85 \times 0.85) \times \sqrt{1 - 0.85^2} = 29$ kvar

$P_2 = \{165 \times 2 / (0.9 \times 0.85)\} \times 0.85 = 367$ kW

$Q_2 = \{(165 \times 2) / (0.9 \times 0.85)\} \times \sqrt{1 - 0.85^2} = 228$ Kvar

$P_3 = 165 / (0.9 \times 0.85) \times 6 \times 0.8^2 \times 0.2 = 168$ kW

$Q_3 = 165 / (0.9 \times 0.85) \times 6 \times 0.8^2 \times \sqrt{1 - 0.2^2} = 811$ Kvar

$P_T = P_1 + P_2 + P_3 = 582$ kW

$Q_T = Q_1 + Q_2 + Q_3 = 1068$ Kvar

Say,

$P_S = 1068 \times 5.5 / 10 = 587$ kVA

Here,

P_1; Active power for auxilialy service load

Q_1; Reactive power for auxilialy service load

P_2; Active power for motor (normal running)

Q_2;Reactive power for motor (normal running)

P_3; Active power for starting motor

Q_3;Reactive power for starting motor

6; Multiple of motor starting current in case of direct starting (comparing with its rated current)

0.8; Tap of auto-transformer(decrease ratio of Condorfer starting against direct starting)

0.2; Power factor for starting motor

5.5; Expected impedance for associated receiving power transformer(%)

10; Allowable system voltage drop under motor starting(%)

3D3.4 Required Capacity for Receiving Power Transformer

As mentioned above item 3D3.2 and 3D3.3, P_N of 702 kVA and P_S of 587 kVA are determinded.

Bigger capacity between them is to be applied for required capacity of the transformer. Therefore, 700 kVA of transformer capacity is at least to be considered for Gothatuwa - Kolonnawa Pump House.

According to NWSDB plan for upstream substation, 3 sets of 500 kVA (11kV/415-240V) transformers, totally 1500 kVA, will be installed to supply the power for not only for Gothatuwa-Kolonnawa Pump House but also Ellie House Pump House.

3D4 REQUIRED POWER RECEIVING CAPACITY FOR GOTHATUWA PUMP HOUSE TRANSFORMER

3D4.1 Assumed condition

Same as condition mentioned above item 3.1

3D4.2 Required Capacity (P_N) to Supply against Maximum Normal Load

$P_N = (130 \times 2) / (0.85 \times 0.9) + 10 / (0.85 \times 0.85) = 354$ kVA

3D4.3 Required capacity (P_S) for Allowable 11KV System Voltage Regulation of less than 10% under Big Motor Starting

$P_1 = \{ 10 / (0.85 \times 0.85) \} \times 0.85 = 12$ kW

$Q_1 = 10 / (0.85 \times 0.85) \times \sqrt{1 - 0.85^2} = 7$ Kvar

$P_2 = \{ 130 \times 1 / (0.9 \times 0.85) \} \times 0.85 = 144$ kW

$Q_2 = \{ (130 \times 1) / (0.9 \times 0.85) \} \times \sqrt{1 - 0.85^2} = 90$ Kvar

$P_3 = 130 / (0.9 \times 0.85) \times 6 \times 0.8^2 \times 0.2 = 131$ kW

$Q_3 = 130 / (0.9 \times 0.85) \times 6 \times 0.8^2 \times \sqrt{1 - 0.2^2} = 639$ Kvar

$P_T = P_1 + P_2 + P_3 = 287$ kW

$Q_T = Q_1 + Q_2 + Q_3 = 736$ Kvar

Say,

$P_S = 736 \times 5.5 / 10 = 405$ kVA

Here,

P_1; Active power for auxilialy service load

Q_1; Reactive power for auxilialy service load

P_2; Active power for motor (normal running)

Q_2;Reactive power for motor (normal running)

P_3; Active power for starting motor

Q_3;Reactive power for starting motor

6; Multiple of motor starting current in case of direct starting (comparing with its rated current)

0.8; Tap of auto-transformer(decrease ratio of Condorfer starting against direct starting)

0.2; Power factor for starting motor

5.5; Expected impedance for associated receiving power transformer(%)

10; Allowable system voltage drop under motor starting(%)

3D4.4 Required Capacity for Receiving Power Transformer

As mentioned above item 3D4.2 and 3D4.3, P_N of 354 kVA and P_S of 405 kVA are determinded.

Bigger capacity between them is to be applied for required capacity of the transformer.

Therefore, 400 kVA of transformer capacity is at least need for Gothatuwa Pump House.

Note: Although above P_S of 405KVA exceeds 400KVA of transformer rated capacity, the transformer is sufficiently applicable because its slight excess of only 1% is within allowable overload limit(10% overload).

3D5 REQUIRED CAPACITY OF THE EMERGENCY GENERATOR AT GOTHATUWA PUMP HOUSE

Comparing with Ambatale pump station area, Gothatuwa area has no high reliable commercial power net work and its frequent power outage may, therefore, expected.

To provide stable water supply even if the commercial power outage occurrs, emergency generator which enable to supply the power to operate essential number of pump is to be provided and installed.

3D5.1 Emergency load

In general, half of number of pump under normal condition is considered for the pump to be operated under emergency condition.

Therefore, 140 kW in total (1 unit of 130 kW pump and 10 kW of station service load) shall be applied for the emergency load in Gothatuwa pump station.

3D5.2 Required Capacity for the Emergency Generator

Biggest value among capacities determinded by the following formulas is applied for the required generator capacity.

1) Capacity(P_{GI}) required to satisfy the supply against maximum emergency load

$$P_{GI} = \sum P_0 / (\eta_L \times \phi_L) \times \alpha$$

here,

ΣP_0 : Total sum of maximum emergency load; 140 kW

η_L : Total efficiency; 0.9

ϕ_L : Total power factor; 0.85

α : Demand factor ; 1.0

Say,

P_{G1}= (140 / 0.9 x 0.85) x 1.0 = 183 kVA

2) Capacity(P_{G2}) required to satisfy allowable voltage drop

$P_{G2}= P_m x \ \beta \ x C \ x \ Xd' x (1 - \Delta E) / \Delta E$

here,

P_m : Maximum motor output; 130 kW

β : Multiple of motor starting current in case of direct starting (Comparing with its rated current); 6

C : Factor depend on starting method; 0.64 (80% tap of Condorfer)

Xd' : Transient reactance of the generator; 0.25

ΔE : Allowable voltage drop; 0.25

Say,

P_{G2}= 130 x 6 x0.64 x 0.25 x (1 − 0.25) / 0.25 = 374 kVA

3) Capacity(P_{G3}) required to satisfy to start lastly the motor having maximum rated capacity

$P_{G3}= \{(\sum P_0 x \ \alpha / \eta_L - P_m / \eta_m) + P_m x \beta x C x \phi_S \} / (\gamma_G \ x \ \phi_G)$

here,

ΣP_0: Total sum of maximum emergency loads; 140 kW

α : Demand factor; 1.0

η_L: Total efficiency; 0.9

P_m : Maximum motor output; 130 kW

η_m: Efficiency of motor having maximum capacity; 0.9

β : Multiple of motor starting current in case of direct starting (Comparing with its rated current); 6

C : Factor depend on starting method; 0.64 (80% tap of Condorfer)

ϕ_S: Starting power factor of maximum capacity motor; 0.4

γ_G: Instantaneous over load factor for the generator; 1.5

ϕ_G: Power factor of the generator; 0.8

Say,

P_{G3}= (140 x 1.0 / 0.9 − 130 / 0.9 + 130 x 6 x 0.64 x 0.4) / (1.5 x 0.8)

= 176 kVA

Therefore, in consideration of full satisfaction for whole determined capacity items from above 1) to 3), 375 kVA emergency generator (diesel engine, water radiator cooling type) shall be furnished at Gothatuwa Pump House.

3D6 SUBSTATION FOR GOTHATUWA-KOLONNAWA PUMP HOUSE AND EXISTING ELLIE HOUSE PUMP HOUSE AT AMBATALE WTP

According to NWSDB's plan showing new substation to be installed for Existing Ellie House Pump House and for Gothatuwa-Kolonnawa Pump House, there will be 3 sets of 500 kVA (11 / 0.4 kV) including associated equipment such as switchgear and appropriate protective relays etc.

However, as a result of our study, 700 kVA is assumed as the required receiving power capacity for the Gothatuwa-Kolonnawa Pump House (in Ambatale) to transmit water to Gothatuwa and Kolonnawa area. Likewise, existing Ellie House Pump House must have 500 kVA of the required receiving power capacity.

The substation shall have function to supply necessary power to both pump stations.
Accordingly, the followings are to be considered;

1. Transformers

   11 / 0.4 KV, 3 phase, 700 kVA x 3sets (2 sets for operation, 1set for stand-by)

2. 11KV Circuit breakers and Isolators

   3P, 400A, 25 kA*

   cf) * required rupturing capacity

   $\{ 10,000,000 / (\sqrt{3} \times 11,000) \} \times 100 / 5 \times 2 = 20,995A$

   Say, 25 kA

   Here,

   10,000,000 : Rated capacity of TR in upstream S/S (10 MVA)

   5 : Assumed TR impedance (%)

   2 : Quantity of TR to be installed in parallel

3. 400V Circuit breakers and Isolators

   3P, 1250A*, 25KA**

   cf)* required rated capacity

   $700,000 / (\sqrt{3} \times 400) = 1010A$

   Say, 1250A

   Here,

   700,000 : Rated capacity of TR in the substation

   cf)** required rupturing capacity

   $\{ 700,000 / (\sqrt{3} \times 400) \} \times 100 / 5 = 20,207A$

   Say, 25KA

   Here,

   700,000 : Rated capacity of TR in the S/S (0.7MVA)

   5 : Assumed TR impedance (%)

CHAPTER 4

APPENDIX 4A

PILOT PROJECT FOR REDUCTION OF NON-REVENUE WATER

APPENDIX 4A-1

LIST OF TENEMENT GARDENS IN NRW REDUCTION PILOT PROJECT AREA

APPENDIX 4A-1 LIST OF TENEMENT GARDENS IN NRW REDUCTION PILOT PROJECT AREA

Serial No.	Name of Tenement Garden	No of households	No of Registered Customers	No of Unregistered Households
1	440, Grandpass Road	14	4	10
2	18, Awwal Zavia Road	17	4	13
3	30, Awwal Zavia Road	12	0	12
4	46, Awwal Zavia Road	7	3	4
5	48, Awwal Zavia Road	12	0	12
6	56, Awwal Zavia Road	20	11	9
7	164, Awwal Zavia Road	42	0	42
8	115 , Awwal Zavia Road	17	1	16
9	94, Awwal Zavia Road	9	1	8
10	50, Devos lane	48	25	23
11	51, Devos lane	34	11	23
12	52, Devos lane	21	7	14
13	53, Devos lane	5	2	3
14	54, Devos lane	30	9	21
15	55, Devos lane	6	2	4
16	56, Devos lane	3	0	3
17	57, Devos lane	16	7	9
18	58, Devos lane	132	8	124
19	12 + 109 Gemunu lane	6	1	5
20	14, Gemunu Avenue	10	5	5
21	15, Gemunu Avenue	6	1	5
22	16, Gemunu Avenue	20	0	20
23	48, Gemunu Patumaga	7	3	4
24	145, Swarna Chatiya Road	50	11	39
25	22, Swarna Chatiya Road	2	0	2
26	35, Swarna Chatiya Road	5	1	4
27	34, Swarna Chatiya Road	9	1	8
Total		560	118	442

APPENDIX 4A-2

NWSDB BILLING RECORDS OF REGISTERED CUSTOMERS (MAY TO AUGUST 2000)

List of Registered Customers in NRW Reduction Pilot Project Area

Serial No.	Pack No.	Account No	Address	Monthly billed water (m3) [1]					Meter Reading Condition			
				May.	Jun.	Jul.	Aug.	Average	Disconnected (V)	Originally Readable (Y)	Readable after Improvement [2]	Unreadable after Improvement (V)
1	331	005/13	4/2, Awwal Zavia Rd.,	7	6	7	9	7.25		Y		
2	331	010/16	6, Awwal Zavia Rd.,	34	19	22	24	24.75		Y		
3	331	015/11	8, Awwal Zavia Rd.,	11	1	1	1	3.50		Y		
4	331	020/14	10, Awwal Zavia Rd.,	13	17	18	18	16.50		Y		
5	331	025/19	12, Awwal Zavia Rd.,	20	20	20	20	20.00				V
6	331	027/17	14, Awwal Zavia Rd.,	22	22	22	22	22.00			I	
7	331	030/12	18/3, Awwal Zavia Rd.,	16	12	12	11	12.75		Y		
8	331	035/17	18/5, Awwal Zavia Rd.,	14	10	12	12	12.00		Y		
9	331	040/10	18/14, Awwal Zavia Rd.,	21	15	19	16	17.75		Y		
10	331	045/15	18/16, Awwal Zavia Rd.,	20	22	10	10	15.50		Y		
11	331	050/17	18/19, Awwal Zavia Rd.,	31	30	39	32	33.00		Y		
12	331	055/12	20, Awwal Zavia Rd.,	25	20	26	29	25.00		Y		
13	331	060/15	22, Awwal Zavia Rd.,	40	40	40	40	40.00				V
14	331	065/10	24, Awwal Zavia Rd.,	22	16	24	14	19.00		Y		
15	331	070/13	26, Awwal Zavia Rd.,	28	26	38	35	31.75		Y		
16	331	075/18	28, Awwal Zavia Rd.,	40	40	40	40	40.00				V
17	331	080/11	28A, Awwal Zavia Rd.,	40	40	40	40	40.00				V
18	331	085/16	32, Awwal Zavia Rd.,	28	32	31	25	29.00		Y		
19	331	090/19	32A, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
20	331	095/14	32/1, Awwal Zavia Rd.,	25	25	25	25	25.00			R	
21	331	100/17	32/2, Awwal Zavia Rd.,	43	41	38	34	39.00		Y		
22	331	105/12	32/2/A, Awwal Zavia Rd.,	22	18	18	15	18.25		Y		
23	331	110/15	32/5, Awwal Zavia Rd.,	21	30	35	35	30.25		Y		
24	331	115/10	34, Awwal Zavia Rd.,	40	40	40	40	40.00			R	
25	331	120/13	36, Awwal Zavia Rd.,	63	30	37	38	42.00		Y		
26	331	125/18	38, Awwal Zavia Rd.,	86	77	74	76	78.25		Y		
27	331	130/11	40, Awwal Zavia Rd.,	57	17	57	57	47.00			R	
28	331	135/16	42, Awwal Zavia Rd.,	13	11	17	31	18.00		Y		
29	331	140/19	44, Awwal Zavia Rd.,	20	20	20	20	20.00				V
30	331	145/14	46, Awwal Zavia Rd.,	16	16	16	16	16.00		Y		
31	331	150/16	46/7, Awwal Zavia Rd.,	40	40	40	40	40.00				V
32	331	155/11	46/8, Awwal Zavia Rd.,	21	16	20	17	18.50		Y		
33	331	160/14	46/9, Awwal Zavia Rd.,	10	10	10	9	9.75		Y		
34	331	165/19	50, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
35	331	170/12	52, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
36	331	171/11	52A, Awwal Zavia Rd.,	22	22	22	22	22.00			I	
37	331	172/10	52B, Awwal Zavia Rd.,	22	22	22	22	22.00			I	
38	331	175/17	54, Awwal Zavia Rd.,	20	20	20	20	20.00			R	

Serial No.	Pack No.	Account No	Address	Monthly billed water (m3) [1]					Meter Reading Condition			
				May.	Jun.	Jul.	Aug.	Average	Disconnected (V)	Originally Readable (Y)	Readable after Improvement [2]	Unreadable after Improvement (V)
39	331	180/10	56, Awwal Zavia Rd.,	7	7	7	7	7.00			R	
40	331	185/15	56/1, Awwal Zavia Rd.,	32	28	33	35	32.00		Y		
41	331	190/18	56/2, Awwal Zavia Rd.,	14	14	62	34	31.00		Y		
42	331	195/13	56/3, Awwal Zavia Rd.,	20	20	20	20	20.00			R	
43	331	200/16	56/4, Awwal Zavia Rd.,	9	9	9	9	9.00			R	
44	331	205/11	56/5, Awwal Zavia Rd.,	34	49	7	25	28.75		Y		
45	331	210/14	56/6, Awwal Zavia Rd.,	19	17	14	11	15.25		Y		
46	331	215/19	56/10, Awwal Zavia Rd.,	4	4	4	4	4.00			R	
47	331	220/12	56/12, Awwal Zavia Rd.,	22	18	21	15	19.00		Y		
48	331	225/17	56/18, Awwal Zavia Rd.,	13	11	12	11	11.75		Y		
49	331	230/10	56/19, Awwal Zavia Rd.,	10	8	11	9	9.50		Y		
50	331	231/19	110 A, Awwal Zavia Rd.,	132	22	22	22	49.50				V
51	331	235/15	56/20, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
52	331	240/18	58, Awwal Zavia Rd.,	38	38	38	38	38.00			R	
53	331	245/13	60, Awwal Zavia Rd.,	24	23	28	28	25.75		Y		
54	331	255/10	64, Awwal Zavia Rd.,	57	51	55	51	53.50		Y		
55	331	260/13	66, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
56	331	265/18	68, Awwal Zavia Rd.,	23	22	27	25	24.25		Y		
57	331	275/16	70, Awwal Zavia Rd.,	40	41	41	41	40.75		Y		
58	331	280/19	72, Awwal Zavia Rd.,	30	28	32	32	30.50		Y		
59	331	285/14	74, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
60	331	290/17	76, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
61	331	295/12	78, Awwal Zavia Rd.,	40	40	40	40	40.00				V
62	331	300/15	80, Awwal Zavia Rd.,	40	40	40	40	40.00				V
63	331	305/10	82, Awwal Zavia Rd.,	13	13	13	12	12.75		Y		
64	331	310/13	84, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
65	331	315/18	86, Awwal Zavia Rd.,	25	21	22	21	22.25		Y		
66	331	320/11	90, Awwal Zavia Rd.,	76	66	10	54	51.50		Y		
67	331	325/16	92, Awwal Zavia Rd.,	53	38	56	46	48.25		Y		
68	331	327/14	94/8, Awwal Zavia Rd., A.D.A Razak	22	22	22	22	22.00				V
69	331	330/19	110, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
70	331	335/14	114, Awwal Zavia Rd.,	40	40	40	40	40.00			I	
71	331	340/17	116, Awwal Zavia Rd.,	20	20	20	20	20.00			R	
72	331	345/12	118, Awwal Zavia Rd.,	7	7	11	14	9.75		Y		
73	331	350/14	120, Awwal Zavia Rd.,	32	36	38	47	38.25		Y		
74	331	355/19	122, Awwal Zavia Rd.,	13	11	17	12	13.25		Y		
75	331	360/12	122/1, Awwal Zavia Rd.,	37	30	35	35	34.25			R	
76	331	365/17	124, Awwal Zavia Rd.,	20	20	20	20	20.00				V
77	331	367/15	126 Awwal Zavia Rd.,	22	22	22	22	22.00				V

Serial No.	Pack No.	Account No	Address	Monthly billed water (m3) [1]					Meter Reading Condition			
				May.	Jun.	Jul.	Aug.	Average	Disconnected (V)	Originally Readable (Y)	Readable after Improvement [2]	Unreadable after Improvement (V)
78	331	370/10	128, Awwal Zavia Rd.,	16	17	17	17	16.75		Y		
79	331	375/15	130, Awwal Zavia Rd.,	50	52	52	50	51.00		Y		
80	331	376/14	140/2, Awwal Zavia Rd.,	32	33	14	30	27.25		Y		
81	331	377/13	140/4, Awwal Zavia Rd.,	20	20	20	20	20.00			R	
82	331	378/12	140/6A, Awwal Zavia Rd., A. M. A Cader	20	20	20	20	20.00		Y		
83	331	379/11	140/6, Awwal Zavia Rd., M.D.B.N. Perera	25	25	25	25	25.00		Y		
84	331	380/18	146, Awwal Zavia Rd.,	29	14	25	21	22.25		Y		
85	331	382/99	140/6B, Awwal Zavia Rd.,	30	30	30	30	30.00			I	
86	331	385/13	148, Awwal Zavia Rd.,	11	8	11	10	10.00		Y		
87	331	390/16	150, Awwal Zavia Rd.,	25	25	25	25	25.00			R	
88	331	395/11	154, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
89	331	400/14	156, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
90	331	405/19	158, Awwal Zavia Rd.,	20	20	20	20	20.00			R	
91	331	410/12	160, Awwal Zavia Rd.,	14	11	15	12	13.00		Y		
92	331	415/17	162, Awwal Zavia Rd.,	9	8	9	9	8.75				V
93	331	420/10	164, Awwal Zavia Rd.,	40	40	40	40	40.00				V
94	331	425/72	M.C.Building	120	120	120	120	120.00				V
95	331	430/18	141, Awwal Zavia Rd.,	23	21	27	22	23.25		Y		
96	331	435/13	139/5, Awwal Zavia Rd.,	16	15	17	13	15.25		Y		
97	331	440/16	135, Awwal Zavia Rd.,	20	20	20	20	20.00			R	
98	331	445/11	131, Awwal Zavia Rd.,	7	7	7	7	7.00				V
99	331	450/13	125, Awwal Zavia Rd.,	11	5	6	6	7.00		Y		
100	331	455/18	123, Awwal Zavia Rd.,	2	2	2	2	2.00		Y		
101	331	460/11	115/3, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
102	331	465/16	105A, Awwal Zavia Rd.,	16	32	28	29	26.25		Y		
103	331	470/19	105, Awwal Zavia Rd.,	14	14	14	14	14.00			R	
104	331	475/14	103A, Awwal Zavia Rd.,	20	20	20	20	20.00				V
105	331	476/13	103, Awwal Zavia Rd.,	132	22	22	22	49.50				V
106	331	480/17	101, Awwal Zavia Rd., P.M. Amarulla	1	1	1	1	1.00				V
107	331	485/12	99/3, Awwal Zavia Rd.,	20	20	20	20	20.00			R	
108	331	490/15	99/2, Awwal Zavia Rd.,	53	53	53	53	53.00			R	
109	331	495/10	99/1, Awwal Zavia Rd.,	65	52	40	43	50.00		Y		
110	331	496/19	99/1A, Awwal Zavia Rd.,	22	22	22	22	22.00			I	
111	331	500/13	99, Awwal Zavia Rd.,	14	9	22	22	16.75		Y		
112	331	505/18	97/1, Awwal Zavia Rd.,	20	20	20	20	20.00			R	
113	331	510/11	97, Awwal Zavia Rd.,	58	50	43	43	48.50		Y		
114	331	515/16	93, Awwal Zavia Rd.,	24	17	21	18	20.00		Y		
115	331	520/19	91, Awwal Zavia Rd.,	35	30	26	27	29.50		Y		
116	331	525/14	89, Awwal Zavia Rd.,	27	27	27	27	27.00			R	

Serial No.	Pack No.	Account No	Address	Monthly billed water (m3) [1]					Meter Reading Condition			
				May.	Jun.	Jul.	Aug.	Average	Disconnected (V)	Originally Readable (Y)	Readable after Improvement [2]	Unreadable after Improvement (V)
117	331	530/17	87, Awwal Zavia Rd.,	36	36	36	36	36.00				V
118	331	535/12	85, Awwal Zavia Rd.,	41	33	37	38	37.25		Y		
119	331	540/15	83, Awwal Zavia Rd.,	35	40	46	46	41.75				V
120	331	545/10	81, Awwal Zavia Rd.,	40	41	41	17	34.75		Y		
121	331	550/12	79A, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
122	331	555/17	79, Awwal Zavia Rd.,	34	34	34	34	34.00			R	
123	331	560/10	77, Awwal Zavia Rd.,	34	30	36	36	34.00		Y		
124	331	565/15	75, Awwal Zavia Rd.,	32	24	27	24	26.75		Y		
125	331	570/18	73, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
126	331	575/13	71, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
127	331	580/16	67, Awwal Zavia Rd.,	35	22	27	32	29.00		Y		
128	331	585/11	65, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
129	331	590/14	63, Awwal Zavia Rd.,	40	40	40	40	40.00				V
130	331	591/13	61, Awwal Zavia Rd., A. U. Zareena	18	23	44	37	30.50		Y		
131	331	595/19	61A, Awwal Zavia Rd., A. R. Ahamed	18	19	40	43	30.00		Y		
132	331	600/12	59, Awwal Zavia Rd.,	21	19	25	23	22.00		Y		
133	331	605/17	57, Awwal Zavia Rd.,	35	31	36	34	34.00		Y		
134	331	610/10	55, Awwal Zavia Rd.,	40	40	46	46	43.00		Y		
135	331	615/15	53A, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
136	331	620/18	53, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
137	331	625/13	51, Awwal Zavia Rd.,	31	24	30	28	28.25		Y		
138	331	630/16	51A, Awwal Zavia Rd.,	23	25	23	25	24.00		Y		
139	331	635/11	49, Awwal Zavia Rd.,	17	15	18	15	16.25		Y		
140	331	640/14	47, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
141	331	645/19	45, Awwal Zavia Rd.,	24	24	24	24	24.00				V
142	331	650/11	43, Awwal Zavia Rd.,	30	31	29	33	30.75		Y		
143	331	655/16	41, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
144	331	660/19	39, Awwal Zavia Rd.,	26	24	26	21	24.25		Y		
145	331	665/14	35, Awwal Zavia Rd.,	24	4	11	10	12.25				V
146	331	670/17	33, Awwal Zavia Rd.,	26	26	26	26	26.00		Y		
147	331	675/12	31, Awwal Zavia Rd.,	0	0	0	0	0.00	V			
148	331	680/15	29, Awwal Zavia Rd.,	20	20	20	20	20.00		Y		
149	331	685/10	27, Awwal Zavia Rd.,	71	62	79	62	68.50		Y		
150	331	690/13	25/A, Awwal Zavia Rd., H. Umma	40	26	33	34	33.25		Y		
151	331	695/18	23/2, Awwal Zavia Rd.,	13	12	14	11	12.50		Y		
152	331	700/11	23/1, Awwal Zavia Rd.,	40	40	40	40	40.00				V
153	331	705/16	23, Awwal Zavia Rd.,	40	40	40	40	40.00				V
154	331	710/19	21, Awwal Zavia Rd.,	183	154	174	169	170.00		Y		
155	331	715/14	19B, Awwal Zavia Rd.,	0	0	0	0	0.00	V			

Serial No.	Pack No.	Account No	Address	Monthly billed water (m3) [1]					Meter Reading Condition			
				May.	Jun.	Jul.	Aug.	Average	Disconnected (レ)	Originally Readable (Y)	Readable after Improvement [2]	Unreadable after Improvement (レ)
156	331	720/17	19A, Awwal Zavia Rd.,	20	20	20	20	20.00				レ
157	331	725/12	19, Awwal Zavia Rd.,	9	8	8	6	7.75		Y		
158	331	730/15	17, Awwal Zavia Rd.,	0	0	0	0	0.00	レ			
159	331	735/10	9, Awwal Zavia Rd.,	31	28	32	28	29.75		Y		
160	331	740/13	5, Awwal Zavia Rd.,	22	20	23	21	21.50		Y		
161	331	10/31/331/T 2	62, Awwal Zavia Rd.,	0	0	0	0	0.00		Y		
162	331	10/31/331/T 3	140/7, Awwal Zavia Rd.,	0	0	0	0	0.00		Y		
163	837	021/19	No 15 Molawatta Rd.	22	22	22	22	22.00			I	
164	837	035/13	No 7, Molawatta Rd.	10	16	13	19	14.50		Y		
165	837	040/16	No 5, Molawatta Rd.	22	22	22	22	22.00			I	
166	837	105/18	No 2/1, Gemunu lane ,	40	43	43	43	42.25			R	
167	837	110/11	No 2/2, Gemunu lane ,	32	29	34	34	32.25		Y		
168	837	115/16	No2/4, Gemunu lane	20	8	9	9	11.50		Y		
169	837	120/19	No 2/6 , Gemunu Lane,	16	16	16	16	16.00			R	
170	837	125/14	No 11, Gemunu lane ,	11	11	11	11	11.00				レ
171	837	130/17	No 4, Gemunu Lane ,	0	0	0	0	0.00	レ			
172	837	135/12	No 17, Gemunu Lane,	17	17	20	20	18.50		Y		
173	837	140/15	No 6, Gemunu Lane ,	16	17	20	20	18.25		Y		
174	837	141/14	No 7 Gemunu lane ,	10	9	11	11	10.25		Y		
175	837	145/10	No 4/5, Gemunu Lane	30	30	30	30	30.00			R	
176	837	150/12	No 12A, Gemunu lane ,	30	30	30	30	30.00			I	
177	837	155/17	No12B , Gemunu lane ,	24	17	20	20	20.25		Y		
178	837	160/10	No 14/1, Gemunu Lane,	10	10	10	10	10.00			R	
179	837	165/15	No 14/2 Gemunu Lane,	34	20	23	23	25.00		Y		
180	837	170/18	No 14/8A Gemunu Lane,	9	10	10	10	9.75		Y		
181	837	175/13	No14/9 Gemunu Lane	0	0	0	0	0.00	レ			
182	837	180/16	No14/10 Gemunu Lane,	11	11	11	11	11.00			R	
183	837	185/11	No 18, Gemunu Lane ,	0	0	0	0	0.00	レ			
184	837	186/10	No 20, Gemunu lane	30	30	30	30	30.00				レ
185	837	190/14	No 28A Gemunu lane	7	6	7	7	6.75		Y		
186	837	193/94	No 28 , Gemunu Lane	30	30	30	30	30.00				レ
187	837	195/19	No 28B , Gemunu Lane	7	8	8	8	7.75		Y		
188	837	200/12	No 30 , Gemunu Lane	14	14	14	14	14.00			R	
189	837	205/17	No 30/2, Gemunu lane ,	25	25	25	25	25.00		Y		
190	837	210/10	No 30/4, Gemunu Lane , Col14	22	22	22	22	22.00		Y		
191	837	215/15	No 30/5, Gemunu Lane, col14	41	28	32	32	33.25		Y		
192	837	220/18	No 48/7 , Gemunu Lane , Col14	20	20	20	20	20.00		Y		
193	837	225/13	No 48/3 , Gemunu Lane , Col14	21	21	21	21	21.00		Y		

Serial No.	Pack No.	Account No	Address	Monthly billed water (m3) [1]					Meter Reading Condition			
				May.	Jun.	Jul.	Aug.	Average	Disconnected (↓)	Originally Readable (Y)	Readable after Improvement [2]	Unreadable after Improvement (↓)
194	837	226/12	No 48/4, Gemunu lane,	19	7	8	8	10.50		Y		
195	837	230/16	No 54, Gemunu Lane,	20	20	20	20	20.00				↓
196	837	231/15	No T55, Gemunu Lane,	22	22	22	22	22.00				↓
197	837	235/11	No 68/8, Gemunu Lane,	31	31	31	31	31.00		Y		
198	837	245/19	No140/5, Gemunu Lane,	27	27	27	27	27.00			R	
199	837	260/19	No 140/1, Gemunu Lane,	17	17	17	17	17.00			R	
200	837	265/14	No140/7, Gemunu Lane,	20	36	41	41	34.50		Y		
201	837	300/11	No T68/20, Gemunu Lane,	22	22	22	22	22.00			I	
202	837	305/16	No T68/24, Gemunu Lane,	22	22	22	22	22.00				↓
203	837	310/19	No T68/25, Gemunu Lane,	22	22	22	22	22.00			I	
204	837	315/14	No T68/46, Gemunu Lane,	22	22	22	22	22.00			I	
205	837	320/17	No T68/49, Gemunu Lane,	22	22	22	22	22.00				↓
206	837	325/12	No T68/50A, Gemunu Lane,	22	22	22	22	22.00			I	
207	579	005/17	5,Swarna Chaithya Rd.,	30	30	42	30	33.00		Y		
208	579	006/16	7,Swarna Chaithya Rd.,	22	22	22	22	22.00			I	
209	579	010/10	9,Swarna Chaithya Rd.,	2	2	2	2	2.00			R	
210	579	015/15	11,Swarna Chaithya Rd.,	19	20	6	10	13.75		Y		
211	579	020/18	15,Swarna Chaithya Rd.,	20	10	13	9	13.00		Y		
212	579	025/13	17,Swarna Chaithya Rd.,	23	20	22	24	22.25		Y		
213	579	030/16	19,Swarna Chaithya Rd.,	47	47	47	47	47.00				↓
214	579	035/11	21,Swarna Chaithya Rd.,	24	24	24	24	24.00				↓
215	579	040/14	23,Swarna Chaithya Rd.,	21	22	13	13	17.25		Y		
216	579	045/19	25,Swarna Chaithya Rd.,	10	13	45	29	24.25		Y		
217	579	050/11	33,Swarna Chaithya Rd.,	25	24	24	26	24.75		Y		
218	579	055/16	35/3,Swarna Chaithya Rd.,	20	20	20	20	20.00			R	
219	579	060/19	37,Swarna Chaithya Rd.,	15	15	15	15	15.00			R	
220	579	065/14	39,Swarna Chaithya Rd.,	10	13	10	10	10.75		Y		
221	579	070/12	51,Swarna Chaithya Rd.,	12	11	12	12	11.75				↓
222	579	075/12	41-53,Swarna Chaithya Rd., CAB	30	30	30	30	30.00				↓
223	579	080/15	59,Swarna Chaithya Rd.,	5	5	5	5	5.00			R	
224	579	085/10	63,Swarna Chaithya Rd.,	15	14	12	14	13.75		Y		
225	579	090/13	65,Swarna Chaithya Rd.,	26	27	28	29	27.50			R	
226	579	095/18	67,Swarna Chaithya Rd.,	28	16	17	16	19.25		Y		
227	579	100/11	69,Swarna Chaithya Rd.,	24	24	24	24	24.00			I	
228	579	105/16	71,Swarna Chaithya Rd.,	22	33	30	33	29.50		Y		
229	579	110/19	73,Swarna Chaithya Rd.,	16	16	17	33	20.50		Y		
230	579	115/14	85,Swarna Chaithya Rd.,	20	20	20	20	20.00			R	
231	579	120/17	109/1,Swarna Chaithya Rd.,	17	17	17	17	17.00			I	
232	579	125/12	115,Swarna Chaithya Rd.,	0	0	0	0	0.00	↓			

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				May.	Jun.	Jul.	Aug.	Average	Disconnected (レ)	Originally Readable (Y)	Readable after Improvement [2]	Unreadable after Improvement (レ)
233	579	130/15	115/1/1,Swarna Chaithya Rd.,	0	0	0	0	0.00	レ			
234	579	135/10	117,Swarna Chaithya Rd.,	20	20	0	8	12.00				レ
235	579	136/19	145/4,Swarna Chaithya Rd.,	22	22	22	22	22.00			I	
236	579	140/13	121,Swarna Chaithya Rd.,	87	88	93	155	105.75		Y		
237	579	141/12	145/1,Swarna Chaithya Rd.,	22	22	22	22	22.00			I	
238	579	142/11	T 85,Swarna Chaithya Rd.,	22	22	22	22	22.00			I	
239	579	145/18	145A,Swarna Chaithya Rd.,	10	10	10	10	10.00			R	
240	579	146/17	145/3 B,Swarna Chaithya Rd.,	22	22	22	22	22.00			I	
241	579	150/10	145/3A,Swarna Chaithya Rd.,	23	25	28	30	26.50			C	
242	579	161/17	145/16,Swarna Chaithya Rd.,	132	22	22	22	49.50			I	
243	579	165/96	145/17,Swarna Chaithya Rd.,	30	30	30	30	30.00				レ
244	579	170/16	145/18,Swarna Chaithya Rd., K.D. Punnawathie	5	3	2	3	3.25			R	
245	579	171/15	145/18,Swarna Chaithya Rd., K.D. Dayawathie	22	22	22	22	22.00			I	
246	579	172/14	145/18,Swarna Chaithya Rd., R. Karunawathie	22	22	22	22	22.00			I	
247	579	175/11	164,Swarna Chaithya Rd.,	0	0	0	0	0.00	レ			
248	579	180/14	162,Swarna Chaithya Rd.,	0	0	0	0	0.00	レ			
249	579	190/12	158,Swarna Chaithya Rd.,	0	0	0	0	0.00	レ			
250	579	195/17	156,Swarna Chaithya Rd.,	23	25	25	29	25.50		Y		
251	579	200/10	154,Swarna Chaithya Rd.,	25	22	16	21	21.00		Y		
252	579	205/15	152,Swarna Chaithya Rd.,	92	92	92	92	92.00		Y		
253	579	206/14	145/15/B/B,Swarna Chaithya Rd.,	22	22	22	22	22.00			I	
254	579	210/18	150,Swarna Chaithya Rd.,	0	0	0	0	0.00	レ			
255	579	211/17	145/15/C,Swarna Chaithya Rd.,	22	22	22	22	22.00			I	
256	579	215/13	144,Swarna Chaithya Rd.,	0	0	0	0	0.00	レ			
257	579	220/16	Jayanthi Vidyalaya (School)	40	40	40	40	40.00				レ
258	579	221/15	148,Swarna Chaithya Rd.,	22	22	22	22	22.00				レ
259	579	225/11	90, Swarna Chaithya Rd., Jayathilakaramaya Temple	80	35	20	17	38.00		Y		
260	579	230/14	66,Swarna Chaithya Rd.,	30	32	36	34	33.00		Y		
261	579	235/19	64,Swarna Chaithya Rd.,	25	25	25	25	25.00			R	
262	579	240/12	60/2,Swarna Chaithya Rd.,	20	18	19	20	19.25		Y		
263	579	245/17	60/1,Swarna Chaithya Rd.,	40	30	36	33	34.75		Y		
264	579	250/19	60,Swarna Chaithya Rd.,	1	1	21	19	10.50		Y		
265	579	255/14	58,Swarna Chaithya Rd.,	20	20	20	6	16.50		Y		
266	579	260/17	54,Swarna Chaithya Rd.,	15	28	44	46	33.25		Y		
267	579	265/12	52/2,Swarna Chaithya Rd.,	10	2	6	7	6.25		Y		
268	579	270/15	48,Swarna Chaithya Rd.,	13	30	64	25	33.00		Y		
269	579	275/10	44,Swarna Chaithya Rd.,	20	20	20	20	20.00			R	
270	579	280/13	42/4,Swarna Chaithya Rd.,	23	23	23	23	23.00			R	
271	579	285/18	34/6,Swarna Chaithya Rd.,	22	14	17	19	18.00		Y		

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				May.	Jun.	Jul.	Aug.	Average	Disconnected (V)	Originally Readable (Y)	Readable after Improvement [2]	Unreadable after Improvement (V)
272	579	290/11	16,Swarna Chaithya Rd.,	19	20	20	20	19.75			R	
273	579	295/16	14,Swarna Chaithya Rd.,	19	22	25	21	21.75		Y		
274	579	296/15	14/15 G,Swarna Chaithya Rd., MHF Zinaya	22	22	22	22	22.00			I	
275	575	430/10	368,Grandpass Rd.,	0	0	0	0	0.00	V			
276	575	435/15	372,Grandpass Rd.,	126	126	126	126	126.00		Y		
277	575	440/18	372B,Grandpass Rd.,	112	61	65	81	79.75		Y		
278	575	445/13	376,Grandpass Rd.,	20	20	20	2	15.50		Y		
279	575	450/15	378,Grandpass Rd.,	8	5	7	15	8.75		Y		
280	575	455/10	382,Grandpass Rd.,	0	0	0	0	0.00	V			
281	575	460/13	386,Grandpass Rd.,	0	0	0	0	0.00	V			
282	575	465/18	390,Grandpass Rd.,	20	20	20	15	18.75				V
283	575	470/11	392,Grandpass Rd.,	4	2	2	5	3.25		Y		
284	575	475/16	396,Grandpass Rd.,	20	20	20	20	20.00				V
285	575	480/19	404,Grandpass Rd.,	0	0	0	0	0.00	V			
286	575	485/14	406,Grandpass Rd.,	0	0	0	1	0.25		Y		
287	575	490/17	410,Grandpass Rd.,	42	18	19	31	27.50		Y		
288	575	495/12	412,Grandpass Rd.,	0	0	0	0	0.00	V			
289	575	500/15	414,Grandpass Rd.,	21	21	7	20	17.25		Y		
290	575	505/10	418,Grandpass Rd.,	20	20	20	20	20.00		Y		
291	575	510/13	420,Grandpass Rd.,	19	23	26	26	23.50		Y		
292	575	515/18	422,Grandpass Rd.,	14	16	18	18	16.50		Y		
293	575	520/11	428,Grandpass Rd.,	93	59	79	101	83.00		Y		
294	575	525/16	430,Grandpass Rd.,	9	4	5	8	6.50		Y		
295	575	530/19	432,Grandpass Rd.,	0	0	0	0	0.00	V			
296	575	535/14	440,Grandpass Rd., G.G. Peiris	100	50	21	10	45.25		Y		
297	575	540/17	440/2,Grandpass Rd.,	21	18	9	18	16.50		Y		
298	575	545/16	440/4,Grandpass Rd.,	0	0	0	0	0.00	V			
299	575	550/14	440/10,Grandpass Rd.,	25	16	18	24	20.75		Y		
300	575	555/19	440/12,Grandpass Rd.,	0	0	0	0	0.00	V			
301	575	560/12	444,Grandpass Rd., Letchumi Jewellers	17	10	10	24	15.25		Y		
302	575	565/17	444,Grandpass Rd., Sirisala Stores	0	0	0	0	0.00	V			
303	575	566/16	446,Grandpass Rd.,	36	16	31	37	30.00				V
304	575	570/10	450,Grandpass Rd.,	10	10	10	10	10.00				V
305	575	10/31/575/T 2	408,Grandpass Rd., R.M.K. Waragoda (Jeweraly Shop)	0	0	0	0	0.00			I	
306	575	11/31/575/0 12/15	438,Grandpass Rd.,	72	72	72	72	72.00		Y		
307	575	11/31/575/0 13/30	448,Grandpass Rd., Hotel de Grandpass	127	127	127	127	127.00		Y		
308	835	005/13	24/1, De Vos Lane,	5	6	14	13	9.50		Y		
309	835	010/16	24/2, De Vos Lane,	17	17	17	17	17.00			R	
310	835	015/11	26, De Vos Lane,	6	5	6	6	5.75		Y		

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				May.	Jun.	Jul.	Aug.	Average	Disconnected (-)	Originally Readable (Y)	Readable after Improvement [2]	Unreadable after Improvement (-)
311	835	020/14	28, De Vos Lane,	31	31	31	31	31.00			R	
312	835	025/19	30, De Vos Lane,	48	34	41	38	40.25		Y		
313	835	030/12	32, De Vos Lane,	42	33	22	30	31.75		Y		
314	835	035/17	34, De Vos Lane,	26	27	27	32	28.00		Y		
315	835	040/10	36, De Vos Lane,	33	33	4	12	20.50		Y		
316	835	045/15	38, De Vos Lane,	41	41	41	41	41.00			R	
317	835	050/17	40, De Vos Lane,	38	30	45	38	37.75		Y		
318	835	055/12	40/4, De Vos Lane,	13	12	21	19	16.25		Y		
319	835	060/15	42, De Vos Lane,	10	10	10	10	10.00		Y		
320	835	065/10	44/1, De Vos Lane,	43	30	41	41	38.75		Y		
321	835	070/13	44/2, De Vos Lane,	35	19	22	19	23.75		Y		
322	835	075/18	44/5, De Vos Lane,	23	18	22	20	20.75		Y		
323	835	080/11	44/7, De Vos Lane,	20	20	20	20	20.00			R	
324	835	085/16	44/10, De Vos Lane,	10	10	10	10	10.00		Y		
325	835	090/19	44/11, De Vos Lane,	20	20	20	20	20.00			R	
326	835	095/14	44/12, De Vos Lane,	21	22	22	11	19.00		Y		
327	835	100/17	50, De Vos Lane,	18	14	17	17	16.50		Y		
328	835	105/12	50/1, De Vos Lane,	14	16	20	20	17.50		Y		
329	835	110/15	50/2, De Vos Lane,	46	46	35	11	34.50		Y		
330	835	115/10	50/3, De Vos Lane,	42	30	42	39	38.25		Y		
331	835	120/13	50/4, De Vos Lane,	16	13	17	15	15.25		Y		
332	835	122/11	50/5, De Vos Lane,	61	138	24	21	61.00		Y		
333	835	125/18	50/6, De Vos Lane,	30	22	25	20	24.25		Y		
334	835	130/11	50/7, De Vos Lane,	10	22	19	20	17.75		Y		
335	835	135/16	50/8, De Vos Lane,	33	33	33	28	31.75		Y		
336	835	140/19	50/15, De Vos Lane,	11	11	11	11	11.00		Y		
337	835	145/14	50/16, De Vos Lane,	23	14	28	15	20.00			R	
338	835	150/16	50/17, De Vos Lane,	63	63	63	63	63.00		Y		
339	835	155/11	50/19, De Vos Lane,	20	20	20	20	20.00			R	
340	835	160/14	50/20, De Vos Lane,	13	14	14	14	13.75		Y		
341	835	165/19	50/22, De Vos Lane,	28	28	29	55	35.00		Y		
342	835	170/12	50/23, De Vos Lane,	14	14	19	14	15.25		Y		
343	835	175/17	50/24, De Vos Lane,	38	37	45	32	38.00		Y		
344	835	180/10	50/25, De Vos Lane,	22	29	35	18	26.00		Y		
345	835	185/15	50/27, De Vos Lane,	26	2	2	2	8.00		Y		
346	835	190/18	50/28, De Vos Lane,	53	45	56	44	49.50		Y		
347	835	195/13	50/30, De Vos Lane,	21	19	22	19	20.25		Y		
348	835	200/16	50/31, De Vos Lane,	34	26	32	22	28.50		Y		

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				May.	Jun.	Jul.	Aug.	Average	Disconnected (✓)	Originally Readable (Y)	Readable after Improvement [2]	Unreadable after Improvement (✓)
349	835	205/11	50/32, De Vos Lane,	21	21	21	21	21.00		Y		
350	835	210/14	50/33, De Vos Lane,	9	8	6	9	8.00		Y		
351	835	215/14	54, De Vos Lane,	3	3	3	3	3.00		Y		
352	835	219/15	56/5, De Vos Lane,	10	7	9	10	9.00		Y		
353	835	220/12	56/4, De Vos Lane,	15	16	16	16	15.75			R	
354	835	225/17	56/6, De Vos Lane,	33	30	41	32	34.00		Y		
355	835	230/10	56/7, De Vos Lane,	7	10	4	5	6.50		Y		
356	835	235/15	70/31, De Vos Lane,	9	9	9	9	9.00				✓
357	835	240/18	56/23, De Vos Lane,	15	13	16	15	14.75			R	
358	835	245/13	56/25, De Vos Lane,	37	10	4	4	13.75		Y		
359	835	250/15	56/29, De Vos Lane,	20	20	20	20	20.00			R	
360	835	255/10	56/30, De Vos Lane,	21	16	21	15	18.25		Y		
361	835	256/19	56/31, De Vos Lane,	40	40	40	40	40.00			I	
362	835	260/13	56/38, De Vos Lane,	6	6	6	6	6.00			R	
363	835	265/18	56/39, De Vos Lane,	25	18	16	11	17.50		Y		
364	835	270/11	58, De Vos Lane,	17	17	18	21	18.25		Y		
365	835	275/16	64, De Vos Lane,	0	0	0	0	0.00	✓			
366	835	280/19	68, De Vos Lane,	20	20	20	20	20.00			R	
367	835	285/14	70/7, De Vos Lane,	10	10	10	10	10.00			R	
368	835	290/17	70/8, De Vos Lane,	20	20	20	20	20.00		Y		
369	835	295/12	70/9, De Vos Lane,	6	4	4	4	4.50		Y		
370	835	300/15	70/10, De Vos Lane,	17	17	17	17	17.00			R	
371	835	305/10	70/32, De Vos Lane,	37	10	35	25	26.75		Y		
372	835	310/13	70/37, De Vos Lane,	25	9	22	26	20.50		Y		
373	835	315/18	70/38, De Vos Lane,	17	38	35	33	30.75		Y		
374	835	320/11	72, De Vos Lane,	20	20	20	20	20.00			R	
375	835	325/19	159, De Vos Lane,	17	15	19	24	18.75		Y		
376	835	330/19	157, De Vos Lane,	20	16	24	19	19.75		Y		
377	835	335/14	155, De Vos Lane,	15	12	4	27	14.50		Y		
378	835	340/17	153A, De Vos Lane,	30	32	35	33	32.50		Y		
379	835	341/16	137, De Vos Lane,	55	55	55	55	55.00			R	
380	835	343/14	153/A, De Vos Lane, P. Perera	0	0	0	0	0.00		Y		
381	835	345/12	153, De Vos Lane, C. N.M.M Casim	19	27	34	48	32.00		Y		
382	835	350/14	151A, De Vos Lane,	2	2	2	2	2.00		Y		
383	835	355/19	151, De Vos Lane,	14	14	14	14	14.00				✓
384	835	360/12	149, De Vos Lane,	0	0	0	0	0.00	✓			
385	835	362/10	147, De Vos Lane,	22	22	22	22	22.00			R	
386	835	365/19	139, De Vos Lane,	30	30	30	30	30.00			R	

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				May.	Jun.	Jul.	Aug.	Average	Disconnected (L)	Originally Readable (Y)	Readable after Improvement [2]	Unreadable after Improvement (L)
387	835	370/10	73, De Vos Lane,	28	28	28	28	28.00			R	
388	835	375/15	71, De Vos Lane,	36	36	36	36	36.00			R	
389	835	380/18	69/17/A, De Vos Lane,	20	20	20	20	20.00		Y		
390	835	385/13	69/17, De Vos Lane,	37	20	21	24	25.50		Y		
391	835	390/16	69/16, De Vos Lane,	12	8	10	13	10.75		Y		
392	835	395/11	69/12, De Vos Lane,	20	20	20	20	20.00			R	
393	835	400/14	69/11, De Vos Lane,	10	8	9	11	9.50		Y		
394	835	405/19	69/10, De Vos Lane,	11	10	12	12	11.25		Y		
395	835	410/12	69/9, De Vos Lane,	24	20	28	24	24.00		Y		
396	835	415/17	65/1/2, De Vos Lane, A.L. Mohamed	48	32	39	38	39.25		Y		
397	835	420/10	65/1/1, De Vos Lane, S. Singham	64	48	66	50	57.00		Y		
398	835	425/15	65, De Vos Lane,	29	23	33	28	28.25		Y		
399	835	430/18	63, De Vos Lane,	25	28	24	20	24.25		Y		
400	835	435/13	61, De Vos Lane,	15	13	14	25	16.75		Y		
401	835	440/16	59, De Vos Lane,	37	28	37	41	35.75		Y		
402	835	445/11	57, De Vos Lane,	42	42	42	42	42.00			C	
403	835	450/13	55, De Vos Lane,	20	18	8	41	21.75		Y		
404	835	455/18	53, De Vos Lane,	52	34	35	29	37.50		Y		
405	835	460/11	51, De Vos Lane,	40	40	40	40	40.00		Y		
406	835	465/16	49, De Vos Lane,	15	15	15	15	15.00				L
407	835	470/19	43/1, De Vos Lane,	19	13	17	14	15.75		Y		
408	835	475/14	43, De Vos Lane,	3	3	3	3	3.00		Y		
409	835	480/17	41, De Vos Lane,	8	7	9	5	7.25				L
410	835	485/12	39, De Vos Lane,	9	10	12	12	10.75		Y		
411	835	490/15	31/2, De Vos Lane,	26	26	26	26	26.00				L
412	835	495/10	31, De Vos Lane,	0	0	0	0	0.00	L			
413	835	11/31/835/0 01/16	Volanka Pvt. Ltd.	170	159	151	159	159.75		Y		
			Total	*10165*	*8996*	*9423*	*9394*	*9494.50*	*45*	*225*	*92*	*51*

1) - Consumption data is based on billing record for the period of May to August 2000 available at NWSDB
- *13 domestic customers billed Rs.400 every month are assumed to have consumed 40 m3 per month*
- 1 commercial customer billed Rs.3500 every month is assumed to have consumed 120 m3 per month
- 3 domestic customers billed Rs.35 every month are assumed to have consumed 10 m3 per month

2) - I: meter Installed
- R: meter Replaced
- C: meter Cleaned

APPENDIX 4A-3

RECORDS OF METER READING ON REGISTERED CUSTOMERS

SUMMARY OF METER READING RESULT FOR REGISTERED CUSTOMERS

Summary of 1st & 2nd Meter Reading Result

	Number of Registered Customers to be investigated	Number of Readable Water Meters	Number of Meter Reading Conducted	Monthly Billed Water (m3)		Actual Consumption (m3)	
				Consumption per 1 Customer	Total Consumption	Consumption per 1 Customer	Total Consumption
Customer Billed through Meter Reading	225	225	184	26.58	5979.50	35.80	8055.98
Customer Billed by Estimate	143	92	88	24.58	3515.00	31.71	4534.97
Total	***368***	***317***	***272***	***25.80***	***9,494.50***	***34.21***	***12,590.95***

Summary of 3rd & 4th Meter Reading Result

Number of Registered Customers to be investigated	Number of Readable Water Meters	Number of Meter Reading Conducted	Monthly Consumption before Leak Repair Work (m3)		Monthly Consumption after Leak Repair Work (m3)	
			Consumption per 1 Customer	Total Consumption	Consumption per 1 Customer	Total Consumption
368	***317***	***268***	***34.21***	***12,590.95***	***39.04***	***14,365.04***

RECORD OF METER READING ON REGISTERED CUSTOMERS

Serial No.	Pack No.	Account. No	Address	Average monthly billed water (m3)	Before Improvement (Y)	After Improvement (Y)	1st Reading	2nd Reading			3rd Reading	4th Reading		
							27-Nov-00	29-Nov-00			11-Dec-00	12-Dec-00		
							Reading	Reading	Balance	Monthly consumption	Reading	Reading	Balance	Monthly consumption
1	331	005/13	4/2, Awwal Zavia Rd.,	7.25	Y		162	163	1	15.25	166	166	0	0.00
2	331	010/16	6, Awwal Zavia Rd.,	24.75	Y		-	-	-	-	705	706	1	30.50
3	331	015/11	8, Awwal Zavia Rd.,	3.50	Y		552	552	0	0.00	552	552	0	0.00
4	331	020/14	10, Awwal Zavia Rd.,	16.50	Y		663	664	1	15.25	666	671	5	152.50
5	331	027/17	14, Awwal Zavia Rd.,	22.00		Y	21	23	2	30.50	35	36	1	30.50
6	331	030/12	18/3, Awwal Zavia Rd.,	12.75	Y		344	345	1	15.25	350	351	1	30.50
7	331	035/17	18/5, Awwal Zavia Rd.,	12.00	Y		435	436	1	15.25	440	441	1	30.50
8	331	040/10	18/14, Awwal Zavia Rd.,	17.75	Y		650	651	1	15.25	659	659	0	0.00
9	331	045/15	18/16, Awwal Zavia Rd.,	15.50	Y		4083	4084	1	15.25	4088	4088	0	0.00
10	331	050/17	18/19, Awwal Zavia Rd.,	33.00	Y		1041	1044	3	45.75	1059	1060	1	30.50
11	331	055/12	20, Awwal Zavia Rd.,	25.00	Y		721	722	1	15.25	733	733	0	0.00
12	331	065/10	24, Awwal Zavia Rd.,	19.00	Y		3956	3957	1	15.25	3963	3964	1	30.50
13	331	070/13	26, Awwal Zavia Rd.,	31.75	Y		5614	5615	1	15.25	5630	5634	4	122.00
14	331	085/16	32, Awwal Zavia Rd.,	29.00	Y		1380	1381	1	15.25	1391	1393	2	61.00
15	331	095/14	32/1, Awwal Zavia Rd.,	25.00		Y	58	62	4	61.00	86	88	2	61.00
16	331	100/17	32/2, Awwal Zavia Rd.,	39.00	Y		4939	4941	2	30.50	12	13	1	30.50
17	331	105/12	32/2/A, Awwal Zavia Rd.,	18.25	Y		2997	2998	1	15.25	3006	3006	0	0.00
18	331	110/15	32/5, Awwal Zavia Rd.,	30.25	Y		-	6475	-	-	6476	6478	2	61.00
19	331	115/10	34, Awwal Zavia Rd.,	40.00		Y	88	92	4	61.00	117	119	2	61.00
20	331	120/13	36, Awwal Zavia Rd.,	42.00	Y		3069	3073	4	61.00	3094	3096	2	61.00
21	331	125/18	38, Awwal Zavia Rd.,	78.25	Y		653	660	7	106.75	677	677	0	0.00
22	331	130/11	40, Awwal Zavia Rd.,	47.00		Y	39	40	1	15.25	44	44	0	0.00

Serial No.	Pack No.	Account. No	Address	Average monthly billed water (m3)	Before Improvement (Y)	After Improvement (Y)	1st Reading	2nd Reading			3rd Reading	4th Reading		
							27-Nov-00	29-Nov-00			11-Dec-00	12-Dec-00		
							Reading	Reading	Balance	Monthly consumption	Reading	Reading	Balance	Monthly consumption
23	331	135/16	42, Awwal Zavia Rd.,	18.00	Y		4291	4292	1	15.25	4321	4323	2	61.00
24	331	145/14	46, Awwal Zavia Rd.,	16.00	Y		3365	-	-	-	3365	-	-	-
25	331	155/11	46/8, Awwal Zavia Rd.,	18.50	Y		5333	5334	1	15.25	5343	5344	1	30.50
26	331	160/14	46/9, Awwal Zavia Rd.,	9.75	Y		438	439	1	15.25	443	444	1	30.50
27	331	171/11	52A, Awwal Zavia Rd.,	22.00		Y	5	5	0	0.00	7	8	1	30.50
28	331	172/10	52B, Awwal Zavia Rd.,	22.00		Y	29	30	1	15.25	42	42	0	0.00
29	331	175/17	54, Awwal Zavia Rd.,	20.00		Y	29	31	2	30.50	41	42	1	30.50
30	331	180/10	56, Awwal Zavia Rd.,	7.00		Y	33	35	2	30.50	46	47	1	30.50
31	331	185/15	56/1, Awwal Zavia Rd.,	32.00	Y		903	905	2	30.50	918	919	1	30.50
32	331	190/18	56/2, Awwal Zavia Rd.,	31.00	Y		5401	5403	2	30.50	-	-	-	-
33	331	195/13	56/3, Awwal Zavia Rd.,	20.00		Y	34	35	1	15.25	42	42	0	0.00
34	331	200/16	56/4, Awwal Zavia Rd.,	9.00		Y	22	24	2	30.50	31	32	1	30.50
35	331	205/11	56/5, Awwal Zavia Rd.,	28.75	Y		4413	4415	2	30.50	4429	4430	1	30.50
36	331	210/14	56/6, Awwal Zavia Rd.,	15.25	Y		2673	2675	2	30.50	2687	2688	1	30.50
37	331	215/19	56/10, Awwal Zavia Rd.,	4.00		Y	48	51	3	45.75	67	68	1	30.50
38	331	220/12	56/12, Awwal Zavia Rd.,	19.00	Y		608	609	1	15.25	611	611	0	0.00
39	331	225/17	56/18, Awwal Zavia Rd.,	11.75	Y		1955	1956	1	15.25	1968	1968	0	0.00
40	331	230/10	56/19, Awwal Zavia Rd.,	9.50	Y		1295	1299	4	61.00	1304	1304	0	0.00
41	331	240/18	58, Awwal Zavia Rd.,	38.00		Y	64	67	3	45.75	81	92	11	335.50
42	331	245/13	60, Awwal Zavia Rd.,	25.75	Y		714	715	1	15.25	728	729	1	30.50
43	331	255/10	64, Awwal Zavia Rd.,	53.50	Y		7405	7409	4	61.00	7462	7465	3	91.50
44	331	265/18	68, Awwal Zavia Rd.,	24.25	Y		-	-	-	-	5532	5535	3	91.50
45	331	275/16	70, Awwal Zavia Rd.,	40.75	Y		-	7238	-	-	-	-	-	-

Serial No.	Pack No.	Account. No	Address	Average monthly billed water (m3)	Before Improvement (Y)	After Improvement (Y)	1st Reading	2nd Reading			3rd Reading	4th Reading		
							27-Nov-00	29-Nov-00			11-Dec-00	12-Dec-00		
							Reading	Reading	Balance	Monthly consumption	Reading	Reading	Balance	Monthly consumption
46	331	280/19	72, Awwal Zavia Rd.,	30.50	Y		1219	1222	3	45.75	1244	1245	1	30.50
47	331	305/10	82, Awwal Zavia Rd.,	12.75	Y		4398	4399	1	15.25	4407	4408	1	30.50
48	331	315/18	86, Awwal Zavia Rd.,	22.25	Y		5917	5919	2	30.50	5928	5928	0	0.00
49	331	320/11	90, Awwal Zavia Rd.,	51.50	Y		-	7407	-	-	7407	-	-	-
50	331	325/16	92, Awwal Zavia Rd.,	48.25	Y		-	914	-	-	937	940	3	91.50
51	331	335/14	114, Awwal Zavia Rd.,	40.00		Y	72	74	2	30.50	96	97	1	30.50
52	331	340/17	116, Awwal Zavia Rd.,	20.00		Y	74	76	2	30.50	86	87	1	30.50
53	331	345/12	118, Awwal Zavia Rd.,	9.75	Y		3079	3080	1	15.25	3084	3084	0	0.00
54	331	350/14	120, Awwal Zavia Rd.,	38.25	Y		8209	8212	3	45.75	8232	8234	2	61.00
55	331	355/19	122, Awwal Zavia Rd.,	13.25	Y		5337	5339	2	30.50	5348	5350	2	61.00
56	331	360/12	122/1, Awwal Zavia Rd.,	34.25		Y	66	71	5	76.25	102	104	2	61.00
57	331	370/10	128, Awwal Zavia Rd.,	16.75	Y		6613	6614	1	15.25	6622	6622	0	0.00
58	331	375/15	130, Awwal Zavia Rd.,	51.00	Y		170	172	2	30.50	185	185	0	0.00
59	331	376/14	140/2, Awwal Zavia Rd.,	27.25	Y		4229	4232	3	45.75	4244	4248	4	122.00
60	331	377/13	140/4, Awwal Zavia Rd.,	20.00		Y	32	34	2	30.50	44	45	1	30.50
61	331	378/12	140/6A, Awwal Zavia Rd., A. M. A Cader	20.00	Y		58	61	3	45.75	84	86	2	61.00
62	331	379/11	140/6, Awwal Zavia Rd., M.D.B.N. Perera	25.00	Y		-	-	-	-	-	-	-	-
63	331	380/18	146, Awwal Zavia Rd.,	22.25	Y		3450	3455	5	76.25	3474	3475	1	30.50
64	331	382/99	140/6B, Awwal Zavia Rd.,	30.00		Y	36	39	3	45.75	53	54	1	30.50
65	331	385/13	148, Awwal Zavia Rd.,	10.00	Y		3936	3940	4	61.00	3948	3948	0	0.00
66	331	390/16	150, Awwal Zavia Rd.,	25.00		Y	44	46	2	30.50	61	62	1	30.50
67	331	405/19	158, Awwal Zavia Rd.,	20.00		Y	81	86	5	76.25	116	118	2	61.00
68	331	410/12	160, Awwal Zavia Rd.,	13.00	Y		3036	3037	1	15.25	3044	3045	1	30.50

Serial No.	Pack No.	Account. No	Address	Average monthly billed water (m3)	Before Improvement (Y)	After Improvement (Y)	1st Reading	2nd Reading			3rd Reading	4th Reading		
							27-Nov-00	29-Nov-00			11-Dec-00	12-Dec-00		
							Reading	Reading	Balance	Monthly consumption	Reading	Reading	Balance	Monthly consumption
69	331	430/18	141, Awwal Zavia Rd.,	23.25	Y		754	756	2	30.50	765	766	1	30.50
70	331	435/13	139/5, Awwal Zavia Rd.,	15.25	Y		803	808	5	76.25	821	823	2	61.00
71	331	440/16	135, Awwal Zavia Rd.,	20.00		Y	11	12	1	15.25	16	16	0	0.00
72	331	450/13	125, Awwal Zavia Rd.,	7.00	Y		766	767	1	15.25	772	773	1	30.50
73	331	455/18	123, Awwal Zavia Rd.,	2.00	Y		-	1583	-	-	1584	1584	0	0.00
74	331	465/16	105A, Awwal Zavia Rd.,	26.25	Y		6186	6188	2	30.50	6199	6199	0	0.00
75	331	470/19	105, Awwal Zavia Rd.,	14.00		Y	33	36	3	45.75	54	55	1	30.50
76	331	485/12	99/3, Awwal Zavia Rd.,	20.00		Y	11	12	1	15.25	16	19	3	91.50
77	331	490/15	99/2, Awwal Zavia Rd.,	53.00		Y	30	31	1	15.25	35	35	0	0.00
78	331	495/10	99/1, Awwal Zavia Rd.,	50.00	Y		-	-	-	-	-	-	-	-
79	331	496/19	99/1A, Awwal Zavia Rd.,	22.00		Y	43	44	1	15.25	64	65	1	30.50
80	331	500/13	99, Awwal Zavia Rd.,	16.75	Y		477	479	2	30.50	484	485	1	30.50
81	331	505/18	97/1, Awwal Zavia Rd.,	20.00		Y	51	54	3	45.75	69	70	1	30.50
82	331	510/11	97, Awwal Zavia Rd.,	48.50	Y		4187	4190	3	45.75	4208	4210	2	61.00
83	331	515/16	93, Awwal Zavia Rd.,	20.00	Y		2124	2125	1	15.25	2133	2134	1	30.50
84	331	520/19	91, Awwal Zavia Rd.,	29.50	Y		6077	6079	2	30.50	6094	6094	0	0.00
85	331	525/14	89, Awwal Zavia Rd.,	27.00		Y	86	90	4	61.00	119	122	3	91.50
86	331	535/12	85, Awwal Zavia Rd.,	37.25	Y		2836	2840	4	61.00	2865	2867	2	61.00
87	331	545/10	81, Awwal Zavia Rd.,	34.75	Y		6284	6287	3	45.75	6305	6306	1	30.50
88	331	555/17	79, Awwal Zavia Rd.,	34.00		Y	28	29	1	15.25	39	40	1	30.50
89	331	560/10	77, Awwal Zavia Rd.,	34.00	Y		758	761	3	45.75	776	777	1	30.50
90	331	565/15	75, Awwal Zavia Rd.,	26.75	Y		3318	3322	4	61.00	3344	3346	2	61.00
91	331	580/16	67, Awwal Zavia Rd.,	29.00	Y		1874	1876	2	30.50	1893	1895	2	61.00

Serial No.	Pack No.	Account. No	Address	Average monthly billed water (m3)	Before Improvement (Y)	After Improvement (Y)	1st Reading	2nd Reading			3rd Reading	4th Reading		
							27-Nov-00	29-Nov-00			11-Dec-00	12-Dec-00		
							Reading	Reading	Balance	Monthly consumption	Reading	Reading	Balance	Monthly consumption
92	331	591/13	61, Awwal Zavia Rd., A. U. Zareena	30.50	Y		388	389	1	15.25	403	405	2	61.00
93	331	595/19	61A, Awwal Zavia Rd., A. R. Ahamed	30.00	Y		-	-	-	-	-	-	-	-
94	331	600/12	59, Awwal Zavia Rd.,	22.00	Y		584	585	1	15.25	589	589	0	0.00
95	331	605/17	57, Awwal Zavia Rd.,	34.00	Y		905	908	3	45.75	923	924	1	30.50
96	331	610/10	55, Awwal Zavia Rd.,	43.00	Y		200	203	3	45.75	225	227	2	61.00
97	331	625/13	51, Awwal Zavia Rd.,	28.25	Y		4669	4673	4	61.00	4694	4695	1	30.50
98	331	630/16	51A, Awwal Zavia Rd.,	24.00	Y		3806	3808	2	30.50	3822	3823	1	30.50
99	331	635/11	49, Awwal Zavia Rd.,	16.25	Y		-	-	-	-	3443	3444	1	30.50
100	331	650/11	43, Awwal Zavia Rd.,	30.75	Y		7552	7555	3	45.75	7530	7531	1	30.50
101	331	660/19	39, Awwal Zavia Rd.,	24.25	Y		6673	6675	2	30.50	6685	6687	2	61.00
102	331	670/17	33, Awwal Zavia Rd.,	26.00	Y		4740	4746	6	91.50	4782	-	-	-
103	331	680/15	29, Awwal Zavia Rd.,	20.00	Y		3307	3307	0	0.00	3308	3308	0	0.00
104	331	685/10	27, Awwal Zavia Rd.,	68.50	Y		221	228	7	106.75	246	247	1	30.50
105	331	690/13	25/A, Awwal Zavia Rd., H. Umma	33.25	Y		441	442	1	15.25	454	455	1	30.50
106	331	695/18	23/2, Awwal Zavia Rd.,	12.50	Y		1721	1722	1	15.25	1729	1730	1	30.50
107	331	710/19	21, Awwal Zavia Rd.,	170.00	Y		2907	2927	20	305.00	3031	3040	9	274.50
108	331	725/12	19, Awwal Zavia Rd.,	7.75	Y		196	197	1	15.25	200	200	0	0.00
109	331	735/10	9, Awwal Zavia Rd.,	29.75	Y		1975	1978	3	45.75	1991	1992	1	30.50
110	331	740/13	5, Awwal Zavia Rd.,	21.50	Y		2573	2574	1	15.25	2583	2584	1	30.50
111	331	10/31/331/T 2	62, Awwal Zavia Rd.,	N.A.	Y		3703	3705	2	30.50	3713	3713	0	0.00
112	331	10/31/331/T 3	140/7, Awwal Zavia Rd.,	N.A.	Y		3316	3317	1	15.25	3322	3323	1	30.50
113	837	021/19	No 15 Molawatta Rd.	22.00		Y	20	22	2	30.50	31	31	0	0.00
114	837	035/13	No 7, Molawatta Rd.	14.50	Y		1477	1478	1	15.25	1484	1484	0	0.00

Serial No.	Pack No.	Account. No	Address	Average monthly billed water (m3)	Before Improvement (Y)	After Improvement (Y)	1st Reading	2nd Reading			3rd Reading	4th Reading		
							27-Nov-00	29-Nov-00			11-Dec-00	12-Dec-00		
							Reading	Reading	Balance	Monthly consumption	Reading	Reading	Balance	Monthly consumption
115	837	040/16	No 5, Molawatta Rd.	22.00		Y	16	17	1	15.25	23	23	0	0.00
116	837	105/18	No 2/1, Gemunu lane ,	42.25		Y	34	37	3	45.75	52	-	-	-
117	837	110/11	No 2/2, Gemunu lane ,	32.25	Y		-	-	-	-	-	-	-	-
118	837	115/16	No2/4, Gemunu lane	11.50	Y		2740	-	-	-	2740	-	-	-
119	837	120/19	No 2/6 , Gemunu Lane,	16.00		Y	19	20	1	15.25	29	29	0	0.00
120	837	135/12	No 17, Gemunu Lane,	18.50	Y		800	-	-	-	800	-	-	-
121	837	140/15	No 6, Gemunu Lane ,	18.25	Y		4343	4345	2	30.50	4357	4357	0	0.00
122	837	141/14	No 7 Gemunu lane ,	10.25	Y		70	71	1	15.25	73	73	0	0.00
123	837	145/10	No 4/5, Gemunu Lane	30		—			1	15.25	52	53	1	30.50
124	837	150/12	No 12A, Gemunu lane ,	30.00		Y	13	14	1	15.25	19	20	1	30.50
125	837	155/17	No12B , Gemunu lane ,	20.25	Y		974	976	2	30.50	983	983	0	0.00
126	837	160/10	No 14/1, Gemunu Lane,	10.00		Y	26	27	1	15.25	38	39	1	30.50
127	837	165/15	No 14/2 Gemunu Lane,	25.00	Y		749	750	1	15.25	759	759	0	0.00
128	837	170/18	No 14/8A Gemunu Lane,	9.75	Y		542	544	2	30.50	547	547	0	0.00
129	837	180/16	No14/10 Gemunu Lane,	11.00		Y	25	27	2	30.50	34	35	1	30.50
130	837	190/14	No 28A Gemunu lane	6.75	Y		-	-	-	-	-	-	-	-
131	837	195/19	No 28B , Gemunu Lane	7.75	Y		1072	1073	1	15.25	1084	1086	2	61.00
132	837	200/12	No 30 , Gemunu Lane	14.00		Y	9	10	1	15.25	19	19	0	0.00
133	837	205/17	No 30/2, Gemunu lane ,	25.00	Y		-	-	-	-	-	-	-	-
134	837	210/10	No 30/4, Gemunu Lane,	22.00	Y		2263	2265	2	30.50	2271	2272	1	30.50
135	837	215/15	No 30/5, Gemunu Lane,	33.25	Y		2049	2050	1	15.25	2061	2062	1	30.50
136	837	220/18	No 48/7 , Gemunu Lane,	20.00	Y		407	-	-	-	407	-	-	-
137	837	225/13	No 48/3 , Gemunu Lane,	21.00	Y		1445	1445	0	0.00	1445	1445	0	0.00

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							27-Nov-00	29-Nov-00			11-Dec-00	12-Dec-00		
							Reading	Reading	Balance	Monthly consumption	Reading	Reading	Balance	Monthly consumption
138	837	226/12	No 48/4, Gemunu lane,	10.50	Y		265	266	1	15.25	272	272	0	0.00
139	837	235/11	No 68/8, Gemunu Lane,	31.00	Y		-	-	-	-	-	-	-	-
140	837	245/19	No140/5, Gemunu Lane,	27.00		Y	45	45	0	0.00	64	65	1	30.50
141	837	260/19	No 140/1, Gemunu Lane,	17.00		Y	4768	4769	1	15.25	4775	4776	1	30.50
142	837	265/14	No140/7, Gemunu Lane,	34.50	Y		3315	3317	2	30.50	3322	3323	1	30.50
143	837	300/11	No T68/20, Gemunu Lane,	22.00		Y	18	22	4	61.00	30	31	1	30.50
144	837	310/19	No T68/25, Gemunu Lane,	22.00		Y	42	44	2	30.50	58	58	0	0.00
145	837	315/14	No T68/46, Gemunu Lane,	22.00		Y	-	-	-	-	-	-	-	-
146	837	325/12	No T68/50A, Gemunu Lane,	22.00		Y	3	4	1	15.25	6	7	1	30.50
147	579	005/17	5,Swarna Chaithya Rd.,	33.00	Y		1850	1854	4	61.00	1875	1878	3	91.50
148	579	006/16	7,Swarna Chaithya Rd.,	22.00		Y	30	31	1	15.25	40	41	1	30.50
149	579	010/10	9,Swarna Chaithya Rd.,	2.00		Y	90	91	1	15.25	96	96	0	0.00
150	579	015/15	11,Swarna Chaithya Rd.,	13.75	Y		2124	2125	1	15.25	2132	2132	0	0.00
151	579	020/18	15,Swarna Chaithya Rd.,	13.00	Y		1756	1758	2	30.50	1762	1762	0	0.00
152	579	025/13	17,Swarna Chaithya Rd.,	22.25	Y		6811	6813	2	30.50	6815	6816	1	30.50
153	579	040/14	23,Swarna Chaithya Rd.,	17.25	Y		8851	8853	2	30.50	8863	8864	1	30.50
154	579	045/19	25,Swarna Chaithya Rd.,	24.25	Y		2594	2596	2	30.50	2600	2601	1	30.50
155	579	050/11	33,Swarna Chaithya Rd.,	24.75	Y		3998	4000	2	30.50	4011	4012	1	30.50
156	579	055/16	35/3,Swarna Chaithya Rd.,	20.00		Y	7	8	1	15.25	10	11	1	30.50
157	579	060/19	37,Swarna Chaithya Rd.,	15.00		Y	1555	1556	1	15.25	1559	-	-	-
158	579	065/14	39,Swarna Chaithya Rd.,	10.75	Y		3368	3370	2	30.50	3375	3376	1	30.50
159	579	080/15	59,Swarna Chaithya Rd.,	5.00		Y	7	7	0	0.00	10	11	1	30.50
160	579	085/10	63,Swarna Chaithya Rd.,	13.75	Y		2767	2768	1	15.25	2770	2773	3	91.50

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							Reading	Reading	Balance	Monthly consumption	Reading	Reading	Balance	Monthly consumption
161	579	090/13	65,Swarna Chaithya Rd.,	27.50		Y	30	33	3	45.75	45	47	2	61.00
162	579	095/18	67,Swarna Chaithya Rd.,	19.25	Y		5209	5210	1	15.25	-	5218	-	-
163	579	100/11	69,Swarna Chaithya Rd.,	24.00		Y	52	54	2	30.50	71	72	1	30.50
164	579	105/16	71,Swarna Chaithya Rd.,	29.50	Y		190	192	2	30.50	207	208	1	30.50
165	579	110/19	73,Swarna Chaithya Rd.,	20.50	Y		1113	1114	1	15.25	-	1119	-	-
166	579	115/14	85,Swarna Chaithya Rd.,	20.00		Y	40	44	4	61.00	-	63	-	-
167	579	120/17	109/1,Swarna Chaithya Rd.,	17.00		Y	121	129	8	122.00	169	172	3	91.50
168	579	136/19	145/4,Swarna Chaithya Rd.,	22.00		Y	109	117	8	122.00	156	158	2	61.00
169	579	140/13	121,Swarna Chaithya Rd.,	105.75	Y		5408	5417	9	137.25	5478	5482	4	122.00
170	579	141/12	145/1,Swarna Chaithya Rd.,	22.00		Y	15	16	1	15.25	22	23	1	30.50
171	579	142/11	T 85,Swarna Chaithya Rd.,	22.00		Y	10	11	1	15.25	-	-	-	-
172	579	145/18	145A,Swarna Chaithya Rd.,	10.00		Y	25	26	1	15.25	33	34	1	30.50
173	579	146/17	145/3 B,Swarna Chaithya Rd.,	22.00		Y	99984	99985	1	15.25	99980	-	-	-
174	579	150/10	145/3A,Swarna Chaithya Rd.,	26.50		Y	1613	1614	1	15.25	-	1627	-	-
175	579	161/17	145/16,Swarna Chaithya Rd.,	49.50		Y	35	37	2	30.50	46	46	0	0.00
176	579	170/16	145/18,Swarna Chaithya Rd., K.D. Punnawathie	3.25		Y	16	17	1	15.25	21	21	0	0.00
177	579	171/15	145/18,Swarna Chaithya Rd., K.D. Dayawathie	22.00		Y	29	31	2	30.50	45	46	1	30.50
178	579	172/14	145/18,Swarna Chaithya Rd., R. Karunawathie	22.00		Y	105	106	1	15.25	112	113	1	30.50
179	579	195/17	156,Swarna Chaithya Rd.,	25.50	Y		1599	1602	3	45.75	1619	1620	1	30.50
180	579	200/10	154,Swarna Chaithya Rd.,	21.00	Y		-	1370	-	-	1374	-	-	-
181	579	205/15	152,Swarna Chaithya Rd.,	92.00	Y		-	-	-	-	-	-	-	-
182	579	206/14	145/15/B/B,Swarna Chaithya Rd.,	22.00		Y	99963	99962	3	45.75	99944	99943	1	30.50
183	579	211/17	145/15/C,Swarna Chaithya Rd.,	22.00		Y	33	37	4	61.00	65	67	2	61.00

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							Reading	Reading	Balance	Monthly consumption	Reading	Reading	Balance	Monthly consumption
184	579	225/11	90, Swarna Chaithya Rd., Jayathilakaramaya Temple	38.00	Y		1353	1355	2	30.50	1367	1368	1	30.50
185	579	230/14	66,Swarna Chaithya Rd.,	33.00	Y		190	192	2	30.50	209	210	1	30.50
186	579	235/19	64,Swarna Chaithya Rd.,	25.00		Y	1481	1483	2	30.50	1500	-	-	-
187	579	240/12	60/2,Swarna Chaithya Rd.,	19.25	Y		4204	4206	2	30.50	4210	4211	1	30.50
188	579	245/17	60/1,Swarna Chaithya Rd.,	34.75	Y		1024	1026	2	30.50	1040	1041	1	30.50
189	579	250/19	60,Swarna Chaithya Rd.,	10.50	Y		111	112	1	15.25	119	119	0	0.00
190	579	255/14	58,Swarna Chaithya Rd.,	16.50	Y		42	43	1	15.25	48	50	2	61.00
191	579	260/17	54,Swarna Chaithya Rd.,	33.25	Y		250	253	3	45.75	271	273	2	61.00
192	579	265/12	52/2,Swarna Chaithya Rd.,	6.25	Y		6280	6281	1	15.25	6287	6288	1	30.50
193	579	270/15	48,Swarna Chaithya Rd.,	33.00	Y		6189	6195	6	91.50	6199	6200	1	30.50
194	579	275/10	44,Swarna Chaithya Rd.,	20.00		Y	30	32	2	30.50	44	45	1	30.50
195	579	280/13	42/4,Swarna Chaithya Rd.,	23.00		Y	45	48	3	45.75	65	66	1	30.50
196	579	285/18	34/6,Swarna Chaithya Rd.,	18.00	Y		3480	3481	1	15.25	3487	3488	1	30.50
197	579	290/11	16,Swarna Chaithya Rd.,	19.75		Y	1294	1295	1	15.25	1297	1299	2	61.00
198	579	295/16	14,Swarna Chaithya Rd.,	21.75	Y		454	457	3	45.75	468	469	1	30.50
199	579	296/15	14/15 G,Swarna Chaithya Rd., MHF Zinaya	22.00		Y	0	-	-	-	-	-	-	-
200	575	435/15	372,Grandpass Rd.,	126.00	Y		-	-	-	-	-	-	-	-
201	575	440/18	372B,Grandpass Rd.,	79.75	Y		2135	2146	11	167.75	2183	2191	8	244.00
202	575	445/13	376,Grandpass Rd.,	15.50	Y		11	12	1	15.25	11	11	0	0.00
203	575	450/15	378,Grandpass Rd.,	8.75	Y		1372	1374	2	30.50	1376	1377	1	30.50
204	575	470/11	392,Grandpass Rd.,	3.25	Y		895	897	2	30.50	898	898	0	0.00
205	575	485/14	406,Grandpass Rd.,	0.25	Y		3808	3809	1	15.25	-	-	-	-
206	575	490/17	410,Grandpass Rd.,	27.50	Y		1856	1858	2	30.50	1868	1869	1	30.50

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207	575	500/15	414,Grandpass Rd.,	17.25	Y		3931	3932	1	15.25	3937	3937	0	0.00
208	575	505/10	418,Grandpass Rd.,	20.00	Y		58	62	4	61.00	83	84	1	30.50
209	575	510/13	420,Grandpass Rd.,	23.50	Y		861	862	1	15.25	868	868	0	0.00
210	575	515/18	422,Grandpass Rd.,	16.50	Y		859	861	2	30.50	870	871	1	30.50
211	575	520/11	428,Grandpass Rd.,	83.00	Y		841	846	5	76.25	879	881	2	61.00
212	575	525/16	430,Grandpass Rd.,	6.50	Y		1026	1028	2	30.50	1030	1030	0	0.00
213	575	535/14	440,Grandpass Rd., G.G. Peiris	45.25	Y		2201	-	-	-	2227	2229	2	61.00
214	575	540/17	440/2,Grandpass Rd.,	16.50	Y		2216	2217	1	15.25	-	-	-	-
215	575	550/14	440/10,Grandpass Rd.,	20.75	Y		1328	1330	2	30.50	1341	1342	1	30.50
216	575	560/12	444,Grandpass Rd., Letchumi Jewellers	15.25	Y		2183	2184	1	15.25	2192	2193	1	30.50
217	575	10/31/575/T2	408,Grandpass Rd., R.M.K. Waragoda (Jeweraly Shop)	N.A.		Y	18	22	4	61.00	45	49	4	122.00
218	575	11/31/575/012/15	438,Grandpass Rd.,	72.00	Y		2900	2903	3	45.75	2922	2923	1	30.50
219	575	11/31/575/013/30	448,Grandpass Rd., Hotel de Grandpass	127.00	Y		618	627	9	137.25	119	126	7	213.50
220	835	005/13	24/1, De Vos Lane,	9.50	Y		1163	1164	1	15.25	1170	1170	0	0.00
221	835	010/16	24/2, De Vos Lane,	17.00		Y	11	12	1	15.25	17	17	0	0.00
222	835	015/11	26, De Vos Lane,	5.75	Y		120	121	1	15.25	122	122	0	0.00
223	835	020/14	28, De Vos Lane,	31.00		Y	34	35	1	15.25	43	44	1	30.50
224	835	025/19	30, De Vos Lane,	40.25	Y		2942	2946	4	61.00	2964	2966	2	61.00
225	835	030/12	32, De Vos Lane,	31.75	Y		6303	6307	4	61.00	6327	6329	2	61.00
226	835	035/17	34, De Vos Lane,	28.00	Y		4724	4727	3	45.75	4735	4740	5	152.50
227	835	040/10	36, De Vos Lane,	20.50	Y		5465	5467	2	30.50	5470	5471	1	30.50
228	835	045/15	38, De Vos Lane,	41.00		Y	87	92	5	76.25	121	123	2	61.00
229	835	050/17	40, De Vos Lane,	37.75	Y		2590	2593	3	45.75	2610	2612	2	61.00

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							Reading	Reading	Balance	Monthly consumption	Reading	Reading	Balance	Monthly consumption
230	835	055/12	40/4, De Vos Lane,	16.25	Y		840	841	1	15.25	849	850	1	30.50
231	835	060/15	42, De Vos Lane,	10.00	Y		325	327	2	30.50	337	338	1	30.50
232	835	065/10	44/1, De Vos Lane,	38.75	Y		2180	2183	3	45.75	2199	2200	1	30.50
233	835	070/13	44/2, De Vos Lane,	23.75	Y		2015	2017	2	30.50	2030	2031	1	30.50
234	835	075/18	44/5, De Vos Lane,	20.75	Y		3783	3784	1	15.25	3794	3795	1	30.50
235	835	080/11	44/7, De Vos Lane,	20.00		Y	2	-	-	-	2	-	-	-
236	835	085/16	44/10, De Vos Lane,	10.00	Y		-	4948	-	-	4952	-	-	-
237	835	090/19	44/11, De Vos Lane,	20.00		Y	11	12	1	15.25	16	17	1	30.50
238	835	095/14	44/12, De Vos Lane,	19.00	Y		4110	4111	1	15.25	-	4118	-	-
239	835	100/17	50, De Vos Lane,	16.50	Y		3179	3180	1	15.25	3187	3188	1	30.50
240	835	105/12	50/1, De Vos Lane,	17.50	Y		6324	6326	2	30.50	6335	6336	1	30.50
241	835	110/15	50/2, De Vos Lane,	34.50	Y		-	-	-	-	4545	4546	1	30.50
242	835	115/10	50/3, De Vos Lane,	38.25	Y		827	830	3	45.75	848	850	2	61.00
243	835	120/13	50/4, De Vos Lane,	15.25	Y		-	-	-	-	4239	4240	1	30.50
244	835	122/11	50/5, De Vos Lane,	61.00	Y		23	24	1	15.25	253	255	2	61.00
245	835	125/18	50/6, De Vos Lane,	24.25	Y		-	-	-	-	5687	5689	2	61.00
246	835	130/11	50/7, De Vos Lane,	17.75	Y		7099	7101	2	30.50	7109	7110	1	30.50
247	835	135/16	50/8, De Vos Lane,	31.75	Y		-	-	-	-	-	-	-	-
248	835	140/19	50/15, De Vos Lane,	11.00	Y		24	26	2	30.50	35	35	0	0.00
249	835	145/14	50/16, De Vos Lane,	20.00		Y	5416	5418	2	30.50	5424	5425	1	30.50
250	835	150/16	50/17, De Vos Lane,	63.00	Y		111	113	2	30.50	132	133	1	30.50
251	835	155/11	50/19, De Vos Lane,	20.00		Y	19	20	1	15.25	28	28	0	0.00
252	835	160/14	50/20, De Vos Lane,	13.75	Y		2585	2586	1	15.25	2592	2593	1	30.50

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253	835	165/19	50/22, De Vos Lane,	35.00	Y		6410	6413	3	45.75	6428	6431	3	91.50
254	835	170/12	50/23, De Vos Lane,	15.25	Y		5903	5905	2	30.50	5916	5917	1	30.50
255	835	175/17	50/24, De Vos Lane,	38.00	Y		228	-	-	-	243	245	2	61.00
256	835	180/10	50/25, De Vos Lane,	26.00	Y		2407	2408	1	15.25	2412	2412	0	0.00
257	835	185/15	50/27, De Vos Lane,	8.00	Y		5784	5787	3	45.75	5789	5790	1	30.50
258	835	190/18	50/28, De Vos Lane,	49.50	Y		6234	6237	3	45.75	6257	6259	2	61.00
259	835	195/13	50/30, De Vos Lane,	20.25	Y		2307	2309	2	30.50	2317	2317	0	0.00
260	835	200/16	50/31, De Vos Lane,	28.50	Y		-	-	-	-	4481	4482	1	30.50
261	835	205/11	50/32, De Vos Lane,	21.00	Y		71	73	2	30.50	84	85	1	30.50
262	835	210/14	50/33, De Vos Lane,	8.00	Y		1099	1099	0	0.00	1100	1100	0	0.00
263	835	215/14	54, De Vos Lane,	3.00	Y		-	263	-	-	270	276	6	183.00
264	835	219/15	56/5, De Vos Lane,	9.00	Y		138	-	-	-	142	143	1	30.50
265	835	220/12	56/4, De Vos Lane,	15.75		Y	19	20	1	15.25	28	29	1	30.50
266	835	225/17	56/6, De Vos Lane,	34.00	Y		4458	4460	2	30.50	4473	4474	1	30.50
267	835	230/10	56/7, De Vos Lane,	6.50	Y		2402	2403	1	15.25	2405	2405	0	0.00
268	835	240/18	56/23, De Vos Lane,	14.75		Y	22	24	2	30.50	34	35	1	30.50
269	835	245/13	56/25, De Vos Lane,	13.75	Y		-	-	-	-	-	-	-	-
270	835	250/15	56/29, De Vos Lane,	20.00		Y	14	15	1	15.25	20	20	0	0.00
271	835	255/10	56/30, De Vos Lane,	18.25	Y		1829	1831	2	30.50	1841	1841	0	0.00
272	835	256/19	56/31, De Vos Lane,	40.00		Y	20	21	1	15.25	31	32	1	30.50
273	835	260/13	56/38, De Vos Lane,	6.00		Y	37	40	3	45.75	54	55	1	30.50
274	835	265/18	56/39, De Vos Lane,	17.50	Y		1541	1542	1	15.25	1548	1548	0	0.00
275	835	270/11	58, De Vos Lane,	18.25	Y		884	886	2	30.50	900	901	1	30.50

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							Reading	Reading	Balance	Monthly consumption	Reading	Reading	Balance	Monthly consumption
276	835	280/19	68, De Vos Lane,	20.00		Y	15	16	1	15.25	22	23	1	30.50
277	835	285/14	70/7, De Vos Lane,	10.00		Y	0	0	0	0.00	0	0	0	0.00
278	835	290/17	70/8, De Vos Lane,	20.00	Y		-	783	-	-	-	-	-	-
279	835	295/12	70/9, De Vos Lane,	4.50	Y		385	389	4	61.00	389	-	-	-
280	835	300/15	70/10, De Vos Lane,	17.00		Y	24	26	2	30.50	-	33	-	-
281	835	305/10	70/32, De Vos Lane,	26.75	Y		4497	4499	2	30.50	4511	4512	1	30.50
282	835	310/13	70/37, De Vos Lane,	20.50	Y		7001	7003	2	30.50	7020	7022	2	61.00
283	835	315/18	70/38, De Vos Lane,	30.75	Y		5735	-	-	-	-	-	-	-
284	835	320/11	72, De Vos Lane,	20.00		Y	16	17	1	15.25	25	26	1	30.50
285	835	325/19	159, De Vos Lane,	18.75	Y		672	675	3	45.75	688	689	1	30.50
286	835	330/19	157, De Vos Lane,	19.75	Y		5172	5174	2	30.50	5182	5183	1	30.50
287	835	335/14	155, De Vos Lane,	14.50	Y		6065	6069	4	61.00	6076	6077	1	30.50
288	835	340/17	153A, De Vos Lane,	32.50	Y		918	920	2	30.50	924	925	1	30.50
289	835	341/16	137, De Vos Lane,	55.00		Y	48	52	4	61.00	72	73	1	30.50
290	835	343/14	153/A, De Vos Lane, P. Perera	0.00	Y		0	0	-	-	-	-	-	-
291	835	345/12	153, De Vos Lane, C. N.M.M Casim	32.00	Y		177	181	4	61.00	202	203	1	30.50
292	835	350/14	151A, De Vos Lane,	2.00	Y		-	6755	-	-	6758	6759	1	30.50
293	835	362/10	147, De Vos Lane,	22.00		Y	11	12	1	15.25	16	17	1	30.50
294	835	365/19	139, De Vos Lane,	30.00		Y	37	39	2	30.50	51	53	2	61.00
295	835	370/10	73, De Vos Lane,	28.00		Y	251	256	5	76.25	298	302	4	122.00
296	835	375/15	71, De Vos Lane,	36.00		Y	77	79	2	30.50	93	96	3	91.50
297	835	380/18	69/17/A, De Vos Lane,	20.00	Y		352	352	0	0.00	352	352	0	0.00
298	835	385/13	69/17, De Vos Lane,	25.50	Y		1514	1516	2	30.50	1526	1526	0	0.00

Serial No.	Pack No.	Account. No	Address	Average monthly billed water (m3)	Before Improvement (Y)	After Improvement (Y)	1st Reading	2nd Reading			3rd Reading	4th Reading		
							27-Nov-00	29-Nov-00			11-Dec-00	12-Dec-00		
							Reading	Reading	Balance	Monthly consumption	Reading	Reading	Balance	Monthly consumption
299	835	390/16	69/16, De Vos Lane,	10.75	Y		953	954	1	15.25	961	962	1	30.50
300	835	395/11	69/12, De Vos Lane,	20.00		Y	89	94	5	76.25	126	130	4	122.00
301	835	400/14	69/11, De Vos Lane,	9.50	Y		560	561	1	15.25	568	568	0	0.00
302	835	405/19	69/10, De Vos Lane,	11.25	Y		4716	4717	1	15.25	4724	4725	1	30.50
303	835	410/12	69/9, De Vos Lane,	24.00	Y		669	671	2	30.50	680	681	1	30.50
304	835	415/17	65/1/2, De Vos Lane, A.L. Mohamed	39.25	Y		7063	7064	1	15.25	-	7098	-	-
305	835	420/10	65/1/1, De Vos Lane, S. Singham	57.00	Y		8275	8276	1	15.25	-	8283	-	-
306	835	425/15	65, De Vos Lane,	28.25	Y		7027	7029	2	30.50	-	7055	-	-
307	835	430/18	63, De Vos Lane,	24.25	Y		5772	5773	1	15.25	5783	-	-	-
308	835	435/13	61, De Vos Lane,	16.75	Y		-	-	-	-	-	-	-	-
309	835	440/16	59, De Vos Lane,	35.75	Y		9152	9157	5	76.25	-	9179	-	-
310	835	445/11	57, De Vos Lane,	42.00		Y	7019	-	-	-	7020	7029	9	274.50
311	835	450/13	55, De Vos Lane,	21.75	Y		3443	3445	2	30.50	3457	3458	1	30.50
312	835	455/18	53, De Vos Lane,	37.50	Y		7196	7198	2	30.50	7220	7223	3	91.50
313	835	460/11	51, De Vos Lane,	40.00	Y		-	-	-	-	-	-	-	-
314	835	470/19	43/1, De Vos Lane,	15.75	Y		2593	2594	2	30.50	2600	2601	1	30.50
315	835	475/14	43, De Vos Lane,	3.00	Y		-	-	-	-	-	-	-	-
316	835	485/12	39, De Vos Lane,	10.75	Y		-	-	-	-	3	4	1	30.50
317	835	11/31/835/001/16	Volanka Pvt. Ltd.	159.75	Y		406	426	20	305.00	550	562	12	366.00

Note:

(1) Water meter of Serial No. 16 had been replaced with new one before 3rd reading

(2) Water meter of Serial No. 173 and 182 were fixed in reverse direction