

参考資料-8 タフィーラ県の配水システムの水力計算結果

1) タフィーラ市

NODE Tafieleh city					LINK Tafieleh city							
ID	Elevation m	Head m	Demand m ³ /d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m ³ /d	Velocity m/s	Unit head loss m/km	Status
Junc 1	1000.0	1071.2	14.1	71.2	Pipe 1	270.78	150	100	-6.9	0	0	Open
Junc 2	970.0	1071.2	21.0	101.2	Pipe 2	749.24	150	100	-22.3	0.01	0	Open
Junc 3	960.0	1071.2	29.4	111.2	Pipe 3	74.54	150	100	-102.3	0.07	0.08	Open
Junc 4	945.0	1071.3	36.4	126.3	Pipe 4	124.05	150	100	-131.7	0.09	0.13	Open
Junc 5	940.0	1071.4	60.4	131.4	Pipe 5	76.59	150	100	-188.1	0.12	0.26	Open
Junc 6	935.0	1071.5	35.2	136.5	Pipe 6	138.83	150	100	-219.9	0.14	0.34	Open
Junc 7	930.0	1071.8	38.4	141.8	Pipe 7	127.86	150	100	-251.7	0.16	0.44	Open
Junc 8	930.0	1072.2	18.1	142.2	Pipe 8	201.47	150	100	-286.9	0.19	0.56	Open
Junc 9	940.0	1072.6	13.5	132.6	Pipe 9	123.42	150	100	-322.1	0.21	0.69	Open
Junc 10	950.0	1073.2	20.2	123.2	Pipe 11	50.19	150	100	-335.6	0.22	0.75	Open
Junc 11	970.0	1073.9	20.7	103.9	Pipe 12	115.62	150	100	-349.1	0.23	0.8	Open
Junc 12	980.0	1074.8	20.7	94.8	Pipe 13	79.22	150	100	-362.6	0.24	0.86	Open
Junc 13	995.0	1075.7	54.8	80.7	Pipe 14	69.69	150	100	-382.8	0.25	0.95	Open
Junc 14	1000.0	1084.8	22.9	84.8	Pipe 15	54.71	150	100	-443.4	0.29	1.25	Open
Junc 15	1000.0	1077.5	22.9	77.5	Pipe 16	128.38	150	100	-463.6	0.3	1.36	Open
Junc 16	1005.0	1078.6	22.9	73.6	Pipe 17	41.13	150	100	-505	0.33	1.59	Open
Junc 17	1015.0	1081.6	22.5	66.6	Pipe 18	154.67	150	100	-623.4	0.41	2.35	Open
Junc 18	1020.0	1082.4	22.5	62.4	Pipe 19	118.16	150	100	-644.1	0.42	2.49	Open
Junc 19	1020.0	1084.3	22.5	64.3	Pipe 20	110.94	150	100	-695.9	0.46	2.88	Open
Junc 20	1010.0	1087.9	29.1	77.9	Pipe 21	116.93	150	100	-750.7	0.49	3.31	Open
Junc 21	1005.0	1089.7	29.1	84.7	Pipe 22	148.56	150	100	-1009.1	0.66	5.73	Open
Junc 22	1005.0	1091.7	29.1	86.7	Pipe 23	168.23	150	100	-1032	0.68	5.97	Open
Junc 23	1000.0	1091.8	29.1	91.8	Pipe 24	197	150	100	-1042.8	0.68	6.09	Open
Junc 24	995.0	1091.9	34.5	96.9	Pipe 25	77.86	150	100	-1065.3	0.7	6.33	Open
Junc 25	990.0	1092.5	5.4	102.5	Pipe 26	150.35	150	100	-1092.4	0.72	6.64	Open
Junc 26	1010.0	1090.5	29.1	80.5	Pipe 27	166.18	150	100	-1121.5	0.73	6.97	Open
Junc 27	1025.0	1089.4	29.1	64.4	Pipe 29	169.78	150	100	-1150.6	0.75	7.31	Open
Junc 28	1025.0	1088.4	27.1	63.4	Pipe 30	870.42	100	100	-14.1	0.02	0.02	Open
Junc 29	1020.0	1087.9	22.5	67.9	Pipe 31	182.12	100	100	-35.1	0.05	0.08	Open
Junc 30	1010.0	1086.7	10.8	76.7	Pipe 32	232.45	100	100	-64.5	0.1	0.25	Open
Junc 31	1005.0	1085.7	22.9	80.7	Pipe 33	263.44	100	100	-100.9	0.15	0.58	Open
Junc 32	1000.0	1082.7	51.1	82.7	Pipe 34	78.84	100	100	-161.3	0.24	1.38	Open
Junc 33	1000.0	1084.4	54.8	84.4	Pipe 35	137.81	100	100	-196.5	0.29	1.99	Open
Junc 34	990.0	1084.1	51.8	94.1	Pipe 36	124.08	100	100	-234.9	0.35	2.78	Open
Junc 35	985.0	1083.8	20.7	98.8	Pipe 37	147.67	100	100	-253	0.37	3.19	Open
Junc 36	975.0	1083.5	57.3	108.5	Pipe 38	154.79	100	100	-266.5	0.39	3.51	Open
Junc 37	975.0	1083.4	20.7	108.4	Pipe 39	182	100	100	-286.7	0.42	4.02	Open
Junc 38	960.0	1083.2	20.2	123.2	Pipe 40	192.7	100	100	-307.4	0.45	4.57	Open
Junc 39	955.0	1083.2	20.2	128.2	Pipe 41	183.99	100	100	-328.1	0.48	5.16	Open
Junc 40	950.0	1083.1	20.2	133.1	Pipe 42	261.76	100	100	-382.9	0.56	6.86	Open
Junc 41	940.0	1083.0	13.5	143.0	Pipe 43	145.36	100	100	-405.8	0.6	7.64	Open
Junc 42	930.0	1082.9	13.5	152.9	Pipe 44	205.86	100	100	-571.89	0.84	14.43	Open
Junc 43	930.0	1082.9	13.5	152.9	Pipe 45	67.17	100	100	-513.94	0.76	11.84	Open
Junc 44	930.0	1082.8	35.2	152.8	Pipe 46	145.67	100	100	-536.44	0.79	12.81	Open
Junc 45	940.0	1082.7	35.2	142.7	Pipe 47	207.23	100	100	-631.61	0.93	17.34	Open
Junc 46	940.0	1082.6	31.8	142.6	Pipe 48	69.57	100	100	-801.49	1.18	26.95	Open
Junc 47	945.0	1082.6	31.8	137.6	Pipe 49	45.99	100	100	-1037.4	1.53	43.46	Open
Junc 48	950.0	1082.6	56.4	132.6	Pipe 50	116.44	50	100	206.81	1.22	64.18	Open
Junc 49	960.0	1082.6	29.4	122.6	Pipe 51	73.21	50	100	177.71	1.05	48.46	Open
Junc 50	965.0	1082.5	80.0	117.5	Pipe 52	131.55	50	100	121.01	0.71	23.79	Open
Junc 51	990.0	1082.5	15.4	92.5	Pipe 53	216.73	50	100	64.31	0.38	7.38	Open
Junc 52	1000.0	1082.5	6.9	82.5	Pipe 54	119.48	50	100	5.41	0.03	0.08	Open
Junc 53	995.0	1082.6	40.4	87.6	Pipe 55	60.87	50	100	-74.89	0.44	9.78	Open
Junc 54	985.0	1083.3	20.7	98.3	Pipe 56	165.95	50	100	-97.79	0.58	16.03	Open
Junc 55	1010.0	1082.2	40.4	72.2	Pipe 57	43.19	50	100	-143.19	0.84	32.48	Open
Junc 56	990.0	1082.7	20.7	92.7	Pipe 58	201.86	50	100	22.5	0.13	1.05	Open
Junc 57	1010.0	1076.8	51.8	66.8	Pipe 61	74.17	50	100	19.8	0.12	0.83	Open
Junc 58	1020.0	1073.5	51.8	53.5	Pipe 62	126.17	50	100	-2.7	0.02	0.02	Open
Junc 59	1030.0	1071.9	40.4	41.9	Pipe 63	140.11	50	100	-61.6	0.36	6.81	Open
Junc 60	1055.0	1071.3	40.4	16.3	Pipe 64	130.94	50	100	-140.77	0.83	31.48	Open
Junc 61	1000.0	1077.2	22.9	77.2	Pipe 65	192.93	50	100	50.07	0.3	4.64	Open
Junc 62	980.0	1074.6	22.9	94.6	Pipe 66	153.9	50	100	-72.68	0.43	9.25	Open
Junc 63	980.0	1074.0	80.3	94.0	Pipe 10	110.88	50	100	-80.45	0.47	11.17	Open
Junc 64	985.0	1074.0	58.9	89.0	Pipe 28	113.37	50	100	184.4	1.09	51.89	Open
Junc 65	1000.0	1075.6	56.7	75.6	Pipe 59	119.66	50	100	132.6	0.78	28.18	Open
Junc 66	995.0	1078.7	56.7	83.7	Pipe 60	141.39	50	100	80.8	0.48	11.26	Open
Junc 67	1005.0	1082.3	29.1	77.3	Pipe 67	108.51	50	100	61.1	0.36	6.71	Open
Junc 68	1015.0	1077.0	22.5	62.0	Pipe 68	180.68	50	100	40.4	0.24	3.12	Open
Junc 69	1020.0	1082.8	22.5	62.8	Pipe 69	110.06	50	100	20.7	0.12	0.9	Open
Junc 70	1015.0	1082.8	22.5	67.8	Pipe 70	178.46	50	100	40.4	0.24	3.12	Open
Junc 71	1015.0	1082.8	58.9	67.8	Pipe 71	172.25	50	100	40.4	0.24	3.12	Open
Junc 72	1010.0	1083.7	29.1	73.7	Pipe 72	191.99	25	110	18.8	0.44	18.55	Open
Junc 73	990.0	1092.5	5.4	102.5	Pipe 73	91.04	25	110	69.6	1.64	209.46	Open
Junc 74	1015.0	1090.7	5.4	75.7	Pipe 74	72.66	25	110	33.8	0.8	54.97	Open
Junc 75	1025.0	1089.7	5.4	64.7	Pipe 75	56.24	250	100	-1066.5	0.25	0.53	Open
Junc 76	1030.0	1066.6	33.8	36.6	Pipe 76	77.94	250	100	-2246.2	0.53	2.09	Open
Junc 77	1050.0	1086.1	18.8	36.1	Pipe 78	10.6	250	110	-2286.1	0.54	1.82	Open
Junc 78	1035.0	1070.6	35.8	35.6	Pipe 79	114.65	250	110	-2390.7	0.56	1.97	Open
Junc 79	1000.0	1092.7	34.5	92.7	Pipe 80	84.65	250	110	-2467.2	0.58	2.09	Open
Junc 80	1005.0	1093.0	34.5	88.0	Pipe 81	83.99	250	110	-2557.2	0.6	2.23	Open

ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 81	1015.0	1093.1	25.1	78.1	Pipe 82	75.66	250	110	-2582.3	0.61	2.27	Open
Junc 82	1015.0	1093.3	25.1	78.3	Pipe 83	259.03	250	100	2280.7	0.54	2.15	Open
Junc 83	1020.0	1093.5	29.2	73.5	Pipe 84	56.79	250	110	-2865.24	0.68	2.76	Open
Junc 84	1025.0	1093.7	29.2	68.7	Pipe 85	80.52	250	110	-2944.86	0.69	2.9	Open
Junc 85	1025.0	1094.0	31.4	69.0	Pipe 86	33.31	250	110	-3623.12	0.85	4.26	Open
Junc 86	1030.0	1094.3	31.4	64.3	Pipe 87	73.69	250	110	-3679.94	0.87	4.38	Open
Junc 87	1040.0	1094.8	31.4	54.8	Pipe 88	97.63	250	110	-3711.34	0.88	4.45	Open
Junc 88	1040.0	1094.9	31.4	54.9	Pipe 89	27.54	250	110	-3742.74	0.88	4.52	Open
Junc 89	1040.0	1095.0	31.4	55.0	Pipe 90	18.57	250	110	-4419.8	1.04	6.15	Open
Junc 90	1040.0	1094.3	31.4	54.3	Pipe 91	68.14	100	110	535.77	0.79	10.72	Open
Junc 91	1040.0	1093.3	25.7	53.3	Pipe 92	102.72	100	110	504.37	0.74	9.58	Open
Junc 92	1040.0	1092.5	25.7	52.5	Pipe 93	87.23	100	110	478.67	0.71	8.7	Open
Junc 93	1035.0	1092.0	35.3	57.0	Pipe 94	95.32	100	110	390.11	0.57	5.95	Open
Junc 94	1035.0	1091.7	35.3	56.7	Pipe 95	59.7	100	110	354.81	0.52	4.99	Open
Junc 95	1035.0	1091.5	36.2	56.5	Pipe 96	65.96	100	110	241.17	0.36	2.44	Open
Junc 96	1035.0	1091.4	36.2	56.4	Pipe 97	69.29	100	110	204.97	0.3	1.81	Open
Junc 97	1040.0	1091.2	36.2	51.2	Pipe 98	137.73	100	110	168.77	0.25	1.26	Open
Junc 98	1035.0	1091.1	34.5	56.1	Pipe 99	110.79	100	110	132.57	0.2	0.81	Open
Junc 99	1035.0	1091.1	34.5	56.1	Pipe 100	96.6	100	110	98.07	0.14	0.46	Open
Junc 100	1040.0	1091.4	31.7	51.4	Pipe 101	85.44	150	110	-836.58	0.55	3.39	Open
Junc 101	1045.0	1091.7	31.7	46.7	Pipe 102	29.53	150	110	-899.09	0.59	3.88	Open
Junc 102	1050.0	1092.1	40.2	42.1	Pipe 103	96.59	150	110	-930.79	0.61	4.14	Open
Junc 103	1050.0	1092.0	40.2	42.0	Pipe 104	7.08	200	110	4536.29	1.67	19.14	Open
Junc 104	1050.0	1091.1	40.2	41.1	Pipe 105	76.55	200	110	3493.73	1.29	11.8	Open
Junc 105	1050.0	1090.6	40.2	40.6	Pipe 106	77.02	200	110	2479.03	0.91	6.25	Open
Junc 106	1045.0	1090.1	40.2	45.1	Pipe 107	74.12	200	110	2438.83	0.9	6.06	Open
Junc 107	1045.0	1089.5	25.2	44.5	Pipe 108	104.08	200	110	2398.63	0.88	5.88	Open
Junc 108	1050.0	1089.0	25.2	39.0	Pipe 109	97.79	200	110	2370.1	0.87	5.75	Open
Junc 109	1045.0	1088.4	21.9	43.4	Pipe 110	101.57	200	110	2344.9	0.86	5.64	Open
Junc 110	1045.0	1087.9	21.9	42.9	Pipe 111	87.52	200	110	2323	0.86	5.54	Open
Junc 111	1035.0	1087.2	21.9	52.2	Pipe 112	124.02	200	110	2301.1	0.85	5.44	Open
Junc 112	1040.0	1086.9	41.9	46.9	Pipe 113	12.72	250	110	-4986.97	1.18	7.69	Open
Junc 113	1040.0	1086.3	229.6	46.3	Pipe 114	122.97	250	110	-5018.37	1.18	7.78	Open
Junc 114	1035.0	1085.9	18.4	50.9	Pipe 115	289.21	250	110	-5024.37	1.18	7.8	Open
Junc 115	1040.0	1085.6	21.0	45.6	Pipe 116	160.45	250	110	-5050.07	1.19	7.87	Open
Junc 116	1045.0	1085.3	21.0	40.3	Pipe 117	128.08	50	110	99.2	0.58	13.8	Open
Junc 117	1045.0	1085.2	21.0	40.2	Pipe 118	84.01	50	110	93.8	0.55	12.44	Open
Junc 118	1045.0	1085.0	21.0	40.0	Pipe 119	32.57	25	110	-21	0.5	22.77	Open
Junc 119	1040.0	1084.7	24.1	44.7	Pipe 120	40.58	50	110	15.7	0.09	0.45	Open
Junc 120	1035.0	1084.5	24.1	49.5	Pipe 121	16.84	50	110	0.82	0	0	Open
Junc 121	1030.0	1084.4	24.1	54.4	Pipe 122	31.58	50	110	-16.98	0.1	0.53	Open
Junc 122	1030.0	1084.2	16.3	54.2	Pipe 123	63.05	50	110	-58.98	0.35	5.27	Open
Junc 123	1030.0	1084.1	16.3	54.1	Pipe 124	86.25	50	110	-107.45	0.63	16	Open
Junc 124	1030.0	1084.0	16.3	54.0	Pipe 125	29.59	50	110	-223.3	1.32	62	Open
Junc 125	1030.0	1083.6	26.5	53.6	Pipe 126	136.88	50	110	-416.14	2.45	196.38	Open
Junc 126	1030.0	1082.6	34.0	52.6	Pipe 127	55.51	25	110	-24.16	0.57	29.52	Open
Junc 127	1032.0	1081.6	20.7	49.6	Pipe 128	94.48	50	110	20.52	0.12	0.75	Open
Junc 128	1035.0	1081.2	20.7	46.2	Pipe 130	114.83	50	110	-168.84	1	36.95	Open
Junc 129	1030.0	1081.1	20.7	51.1	Pipe 131	141.02	50	110	136	0.8	24.75	Open
Junc 130	1030.0	1081.0	18.6	51.0	Pipe 132	164.57	50	110	110.3	0.65	16.79	Open
Junc 131	1030.0	1080.8	18.6	50.8	Pipe 133	120.58	25	110	42.3	1	83.28	Open
Junc 132	1025.0	1080.8	12.9	55.8	Pipe 134	90.06	25	110	25.7	0.61	33.1	Open
Junc 133	1025.0	1080.7	10.8	55.7	Pipe 135	91.41	25	110	-28.84	0.68	40.97	Open
Junc 134	1030.0	1080.7	17.7	50.7	Pipe 136	86.83	20	110	-10.8	0.4	19.7	Open
Junc 135	1030.0	1080.7	17.7	50.7	Pipe 137	95	50	110	-81.94	0.48	9.68	Open
Junc 136	1035.0	1080.4	24.6	45.4	Pipe 138	98.04	50	110	-78.7	0.46	8.99	Open
Junc 137	1002.0	1042.0	34.5	40.0	Pipe 139	114.73	50	110	-57.49	0.34	5.02	Open
Junc 138	995.0	1044.8	25.1	49.8	Pipe 140	65.37	50	110	-73.11	0.43	7.84	Open
Junc 139	995.0	1044.7	31.8	49.7	Pipe 141	83.82	50	110	-104.51	0.62	15.2	Open
Junc 140	995.0	1044.6	31.8	49.6	Pipe 142	38.99	100	110	-645.66	0.95	15.14	Open
Junc 141	985.0	1044.6	16.9	59.6	Pipe 143	63.46	50	110	36.42	0.21	2.16	Open
Junc 142	980.0	1044.4	16.9	64.4	Pipe 144	97.77	50	110	18.62	0.11	0.62	Open
Junc 143	968.0	1036.4	24.1	68.4	Pipe 145	69.64	50	110	21	0.12	0.78	Open
Junc 144	975.0	1041.4	18.0	66.4	Pipe 148	46.02	50	110	-41.55	0.24	2.75	Open
Junc 145	995.0	1045.8	24.8	50.8	Pipe 149	22.12	50	110	33.49	0.2	1.85	Open
Junc 146	1000.0	1055.5	24.8	55.5	Pipe 150	63.68	50	110	212.43	1.25	56.53	Open
Junc 147	1005.0	1056.4	67.1	51.4	Pipe 151	127.64	50	110	-75.79	0.45	8.38	Open
Junc 148	1005.0	1060.6	33.7	55.6	Pipe 152	24.93	50	110	-142.07	0.84	26.83	Open
Junc 149	1010.0	1062.3	33.7	52.3	Pipe 153	86.61	50	110	-192.27	1.13	46.99	Open
Junc 150	1015.0	1065.6	33.7	50.6	Pipe 154	84.18	50	110	-257.84	1.52	80.92	Open
Junc 151	975.0	1028.7	21.5	53.7	Pipe 155	52.54	100	110	-411.06	0.61	6.56	Open
Junc 152	980.0	1021.5	31.8	41.5	Pipe 156	106.13	100	110	-460.87	0.68	8.11	Open
Junc 153	1010.0	1053.6	25.1	43.6	Pipe 157	44.83	25	110	-34.5	0.81	57.1	Open
Junc 154	998.0	1050.0	25.1	52.0	Pipe 158	47.01	50	110	-94.1	0.55	12.51	Open
Junc 155	990.0	1047.3	16.9	57.3	Pipe 159	84.07	50	110	27.13	0.16	1.25	Open
Junc 156	1035.0	1082.9	29.2	47.9	Pipe 160	82.99	50	110	26.41	0.16	1.19	Open
Junc 157	1030.0	1078.8	29.2	48.8	Pipe 161	135.78	50	110	-5.39	0.03	0.06	Open
Junc 158	1035.0	1078.2	21.0	43.2	Pipe 162	20.3	50	110	94.3	0.56	12.56	Open
Junc 159	1055.0	1077.1	21.0	22.1	Pipe 163	113.45	100	110	573.9	0.85	12.17	Open
Junc 160	1065.0	1080.7	29.2	15.7	Pipe 164	30.34	100	110	523.7	0.77	10.27	Open
Junc 161	1060.0	1091.5	24.0	31.5	Pipe 165	113.51	50	110	133.49	0.79	23.91	Open
Junc 162	1055.0	1092.1	29.2	37.1	Pipe 166	143.95	50	110	116.59	0.69	18.61	Open
Junc 163	1055.0	1092.6	31.4	37.6	Pipe 167	270.62	25	110	24.1	0.57	29.38	Open
Junc 164	1045.0	1093.9	31.4	48.9	Pipe 169	254.89	25	110	-18	0.42	17.11	Open
Junc 165	1045.0	1092.6	29.2	47.6	Pipe 170	113.92	25	110	-42.8	1.01	85.12	Open
Junc 166	1040.0	1092.0	29.2	52.0	Pipe 171	134.72	50	110	-67.6	0.4	6.78	Open
Junc 167	1030.0	1079.5	35.3	49.5	Pipe 172	172.05	50	110	-134.7	0.79	24.31	Open
Junc 168	1025.0	1074.4	35.3	49.4	Pipe 173	70.9	50	110	-137	0.81	25.09	Open

ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 169	1025.0	1074.0	35.3	49.0	Pipe 174	85.77	50	110	-170.7	1.01	37.7	Open
Junc 170	1025.0	1076.1	35.3	51.1	Pipe 175	14.59	50	110	-408.13	2.41	189.44	Open
Junc 171	1165.0	1182.8	66.6	17.8	Pipe 176	82.22	50	110	205.45	1.21	53.14	Open
Junc 172	1145.0	1180.9	15.0	35.9	Pipe 177	61.67	50	110	171.75	1.01	38.13	Open
Junc 173	1120.0	1180.0	15.0	60.0	Pipe 178	22.53	50	110	125.15	0.74	21.22	Open
Junc 174	1105.0	1178.3	4.8	73.3	Pipe 179	19.96	100	110	831.14	1.22	24.16	Open
Junc 175	1100.0	1178.1	4.8	78.1	Pipe 180	30.56	100	110	796.64	1.17	22.34	Open
Junc 176	1090.0	1177.6	25.2	87.6	Pipe 181	146.6	100	110	685.44	1.01	16.91	Open
Junc 177	1080.0	1177.0	4.8	97.0	Pipe 182	57.02	100	110	653.74	0.96	15.49	Open
Junc 178	1080.0	1176.5	4.8	96.5	Pipe 183	16.49	100	110	628.84	0.93	14.41	Open
Junc 179	1085.0	1173.2	4.8	88.2	Pipe 184	69.05	100	110	-52.14	0.08	0.14	Open
Junc 180	1090.0	1172.4	6.9	82.4	Pipe 185	98.58	100	110	-373.24	0.55	5.49	Open
Junc 181	1065.0	1167.8	25.7	102.8	Pipe 186	26.31	100	110	535.91	0.79	10.72	Open
Junc 182	1085.0	1135.0	24.0	50.0	Pipe 187	53.33	100	110	98.55	0.15	0.47	Open
Junc 183	1085.0	1116.3	25.7	31.3	Pipe 188	71.96	100	110	-475.31	0.7	8.58	Open
Junc 184	1090.0	1105.9	42.3	15.9	Pipe 189	53.89	100	110	-521.91	0.77	10.21	Open
Junc 185	1070.0	1103.5	42.3	33.5	Pipe 190	61.93	100	110	-934.3	1.38	30.01	Open
Junc 186	1110.0	1144.6	25.7	34.6	Pipe 191	46.01	100	110	-974.5	1.44	32.45	Open
Junc 187	1110.0	1141.8	42.3	31.8	Pipe 192	85.65	100	110	1002.36	1.48	34.18	Open
Junc 188	1115.0	1131.8	42.3	16.8	Pipe 193	69.89	100	110	955.76	1.41	31.3	Open
Junc 189	1120.0	1138.8	25.7	18.8	Pipe 194	29.96	50	110	-31.4	0.19	1.64	Open
Junc 190	1090.0	1105.0	42.3	15.0	Pipe 195	81.49	50	110	-65.1	0.38	6.32	Open
Junc 191	1070.0	1101.3	42.3	31.3	Pipe 196	127.22	50	110	14.83	0.09	0.41	Open
Junc 192	1090.0	1103.3	10.8	13.3	Pipe 197	12.42	50	110	-59.03	0.35	5.28	Open
Junc 193	1070.0	1101.8	10.7	31.8	Pipe 198	112.14	50	110	-26.62	0.16	1.21	Open
Junc 194	1070.0	1103.9	17.8	33.9	Pipe 199	76.01	50	110	-55.82	0.33	4.76	Open
Junc 195	1070.0	1103.4	42.3	33.4	Pipe 200	55.96	50	110	-85.02	0.5	10.37	Open
Junc 196	1070.0	1108.1	24.0	38.1	Pipe 201	61.81	50	110	-114.22	0.67	17.91	Open
Junc 197	1060.0	1103.5	17.8	43.5	Pipe 202	60.19	50	110	-143.42	0.85	27.31	Open
Junc 198	1070.0	1103.6	17.8	33.6	Pipe 203	60.73	50	110	-34.45	0.2	1.95	Open
Junc 199	1060.0	1103.5	17.8	43.5	Pipe 204	71.11	50	110	-51.35	0.3	4.07	Open
Junc 200	1050.0	1073.5	21.0	23.5	Pipe 205	97.31	50	110	-180.95	1.07	42	Open
Junc 201	1045.0	1072.7	21.0	27.7	Pipe 206	56.14	50	110	527.27	3.11	304.41	Open
Junc 202	1060.0	1103.5	21.0	43.5	Pipe 207	121.14	50	110	299.71	1.77	106.94	Open
Junc 203	1070.0	1104.2	17.8	34.2	Pipe 208	63.64	50	110	274.51	1.62	90.88	Open
Junc 204	1070.0	1106.3	24.0	36.3	Pipe 209	83.12	50	110	227.91	1.34	64.39	Open
Junc 207	1055.0	1075.4	21.0	20.4	Pipe 210	112.53	50	110	181.31	1.07	42.15	Open
Junc 208	1050.0	1074.3	21.0	24.3	Pipe 211	56.01	50	110	152.11	0.9	30.45	Open
Junc 209	1090.0	1099.6	6.9	9.6	Pipe 212	33.5	50	110	79.3	0.47	9.11	Open
Junc 210	1065.0	1098.3	25.7	33.3	Pipe 213	17.08	50	110	177.3	1.05	40.44	Open
Junc 211	1060.0	1096.1	6.0	36.1	Pipe 214	54.26	50	110	148.1	0.87	28.98	Open
Junc 212	1040.0	1095.1	31.4	55.1	Pipe 215	54.83	50	110	101.5	0.6	14.4	Open
Junc 213	1085.0	1097.7	4.8	12.7	Pipe 216	79.71	50	110	390.76	2.3	174.77	Open
Junc 214	1080.0	1095.9	4.8	15.9	Pipe 217	66.89	50	110	170.37	1	37.57	Open
Junc 215	1075.0	1094.9	31.7	19.9	Pipe 218	67.35	50	110	123.77	0.73	20.79	Open
Junc 216	1070.0	1093.6	31.7	23.6	Pipe 219	37.57	50	110	167.37	0.99	36.35	Open
Junc 217	1060.0	1092.8	31.7	32.8	Pipe 220	94.17	50	110	138.17	0.81	25.49	Open
Junc 218	1030.0	1090.6	34.5	60.6	Pipe 221	155.02	50	110	259.51	1.53	81.9	Open
Junc 219	1035.0	1089.9	31.7	54.9	Pipe 222	67.93	50	110	21.71	0.13	0.83	Open
Junc 220	1030.0	1087.4	31.7	57.4	Pipe 223	80.21	50	110	-18.49	0.11	0.61	Open
Junc 221	1020.0	1086.5	33.7	66.5	Pipe 224	83.64	50	110	-163.19	0.96	34.69	Open
Junc 222	1025.0	1086.3	33.7	61.3	Pipe 225	71.84	50	110	64.3	0.38	6.18	Open
Junc 223	1030.0	1086.3	46.6	56.3	Pipe 226	115.86	50	110	-291.79	1.72	101.76	Open
Junc 224	1040.0	1086.9	46.6	46.9	Pipe 227	130.85	50	110	-331.99	1.96	129.23	Open
Junc 225	1040.0	1086.6	46.6	46.6	Pipe 228	77.11	50	110	-372.19	2.19	159.7	Open
Junc 226	1035.0	1086.6	46.6	51.6	Pipe 229	99.52	50	110	-40.2	0.24	2.59	Open
Junc 227	1030.0	1087.2	46.6	57.2	Pipe 230	152.73	50	110	-80.4	0.47	9.35	Open
Junc 228	1035.0	1087.7	40.2	52.7	Pipe 231	40.56	50	110	197.6	1.16	49.44	Open
Junc 229	1045.0	1089.0	46.6	44.0	Pipe 232	119.26	50	110	128.6	0.76	22.31	Open
Junc 230	1045.0	1089.6	40.2	44.6	Pipe 233	126.44	50	110	64.3	0.38	6.18	Open
Junc 231	1015.0	1068.3	33.7	53.3	Pipe 234	85.02	50	110	-203.73	1.2	52.32	Open
Junc 232	1010.0	1064.0	33.7	54.0	Pipe 235	40.38	50	110	-647.28	3.82	445.05	Open
Junc 233	1010.0	1061.6	46.6	51.6	Pipe 236	12.42	50	110	-59.03	0.35	5.28	Open
Junc 234	1000.0	1061.1	33.7	61.1	Pipe 237	116.35	25	110	-33.7	0.79	54.67	Open
Junc 235	1000.0	1061.1	33.7	61.1	Pipe 238	62.86	25	110	31.8	0.75	49.1	Open
Junc 236	1000.0	1061.1	33.7	61.1	Pipe 239	70	25	110	99.2	2.34	403.75	Open
Junc 237	1000.0	1060.6	33.7	60.6	Pipe 240	72.91	50	110	173.79	1.02	38.98	Open
Junc 238	990.0	1032.8	33.7	42.8	Pipe 241	62.95	50	110	127.19	0.75	21.86	Open
Junc 239	990.0	1026.5	33.7	36.5	Pipe 242	69.13	50	110	196.9	1.16	49.11	Open
Junc 240	990.0	1029.7	31.8	39.7	Pipe 243	115.93	25	110	79.3	1.87	266.71	Open
Junc 241	1005.0	1061.3	29.2	56.3	Pipe 244	132.57	25	110	62.4	1.47	171.1	Open
Junc 242	1005.0	1061.6	29.2	56.6	Pipe 245	38.87	25	110	45.5	1.07	95.33	Open
Junc 243	1010.0	1062.2	29.2	52.2	Pipe 246	610.12	20	110	21.4	0.79	69.91	Open
Junc 244	1005.0	1063.3	29.2	58.3	Pipe 247	238.16	50	110	83.4	0.49	10.01	Open
Junc 245	1010.0	1065.0	29.2	55.0	Pipe 248	252.82	25	110	49.2	1.16	110.18	Open
Junc 246	1010.0	1065.1	16.9	55.1	Pipe 249	133.29	25	110	24.6	0.58	30.52	Open
Junc 247	1015.0	1065.4	34.2	50.4	Pipe 250	203.6	20	110	10.8	0.4	19.7	Open
Junc 248	1020.0	1066.2	46.6	46.2	Pipe 251	137.28	20	110	-6.9	0.25	8.59	Open
Junc 249	1025.0	1067.7	29.2	42.7	Pipe 252	224.45	20	110	-19.2	0.71	57.19	Open
Junc 250	1035.0	1068.7	29.2	33.7	Pipe 253	86.25	25	110	-49.8	1.17	112.68	Open
Junc 251	1030.0	1070.4	29.2	40.4	Pipe 254	197.89	20	110	15.3	0.56	37.56	Open
Junc 252	1025.0	1075.2	46.6	50.2	Pipe 255	94.67	25	110	62.85	1.48	173.42	Open
Junc 253	1025.0	1080.5	46.6	55.5	Pipe 256	55.51	25	110	27.55	0.65	37.65	Open
Junc 254	1040.0	1072.6	46.6	32.6	Pipe 257	110.36	25	110	-7.75	0.18	3.59	Open
Junc 255	1040.0	1070.1	46.6	30.1	Pipe 258	58.51	25	110	-43.05	1.01	86.02	Open
Junc 256	1015.0	1069.5	46.6	54.5	Pipe 259	46.83	25	110	-78.35	1.85	260.79	Open
Junc 257	1030.0	1068.4	29.2	38.4	Pipe 260	149.9	50	110	325.96	1.92	124.92	Open
Junc 258	1035.0	1069.8	46.6	34.8	Pipe 261	130.68	50	110	254.85	1.5	79.2	Open
Junc 259	1030.0	1075.4	40.2	45.4	Pipe 262	106.32	50	110	130.62	0.77	22.97	Open
Junc 260	1030.0	1058.5	40.2	28.5	Pipe 263	702.04	100	110	-902.1	1.33	28.12	Open

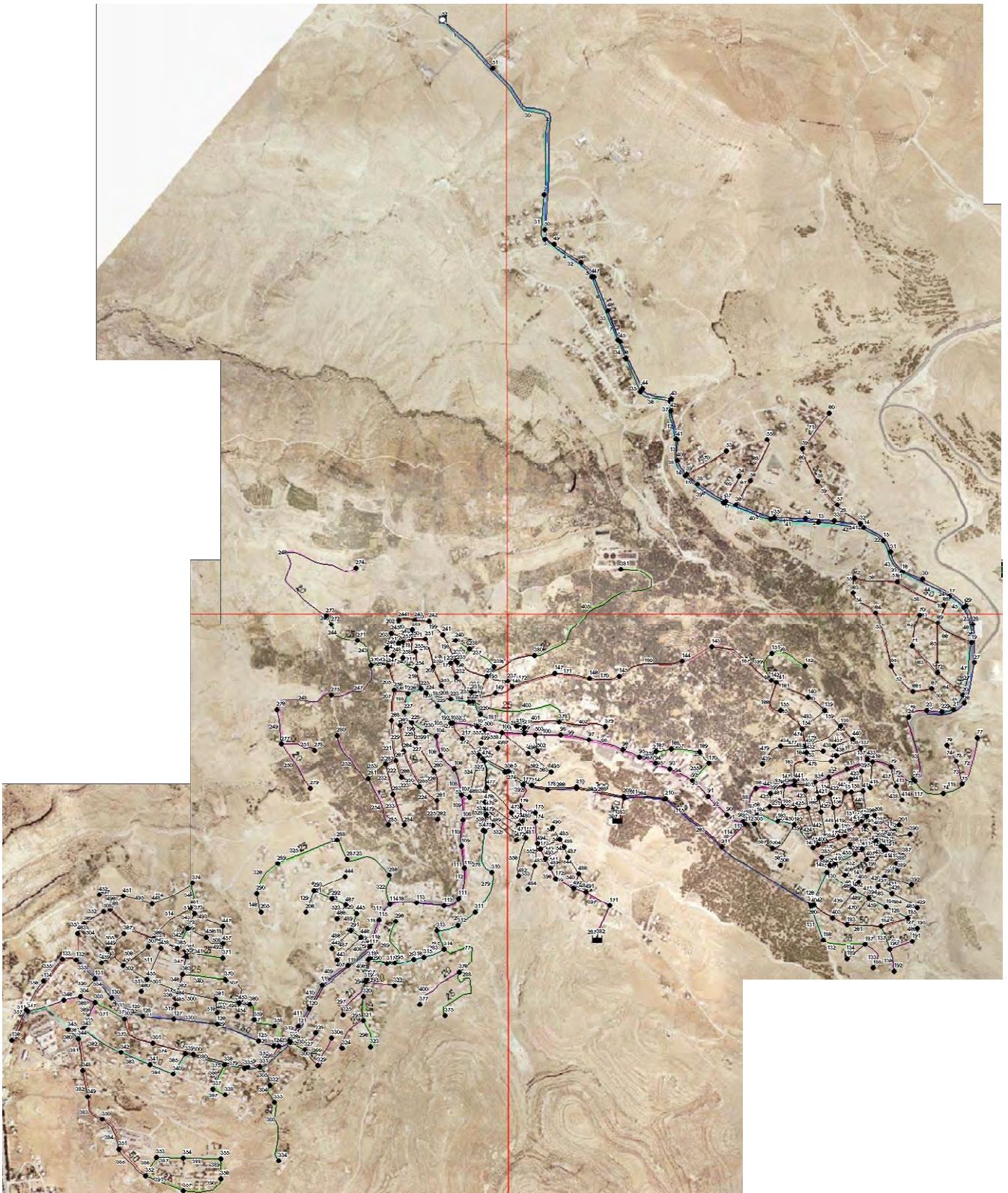
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 261	1025.0	1046.7	64.3	21.7	Pipe 264	154.21	100	110	-927.8	1.37	29.63	Open
Junc 262	1025.0	1046.3	64.3	21.3	Pipe 265	187.32	150	110	-934.7	0.61	4.17	Open
Junc 263	1020.0	1042.1	40.2	22.1	Pipe 266	111.63	100	110	-939.5	1.38	30.32	Open
Junc 264	1020.0	1042.4	40.2	22.4	Pipe 267	97.28	150	110	-944.3	0.62	4.25	Open
Junc 265	1015.0	1043.8	64.3	28.8	Pipe 268	182.74	250	110	5849.23	1.38	10.33	Open
Junc 266	1010.0	1043.8	40.2	33.8	Pipe 269	174.23	250	110	5844.43	1.38	10.32	Open
Junc 267	1010.0	1043.8	40.2	33.8	Pipe 270	103.37	250	110	5706.35	1.35	9.87	Open
Junc 268	1015.0	1056.5	40.2	41.5	Pipe 271	112.02	250	110	5674.65	1.34	9.77	Open
Junc 269	1025.0	1067.4	29.2	42.4	Pipe 272	88.89	250	110	5538.98	1.31	9.34	Open
Junc 270	995.0	1062.0	34.2	67.0	Pipe 273	70.87	250	110	5507.28	1.3	9.24	Open
Junc 271	985.0	1031.1	16.9	46.1	Pipe 274	85.66	150	110	1648.2	1.08	11.92	Open
Junc 272	975.0	1008.4	16.9	33.4	Pipe 275	88.23	150	110	1616.5	1.06	11.49	Open
Junc 273	970.0	1004.7	24.1	34.7	Pipe 276	105.52	150	110	1584.8	1.04	11.08	Open
Junc 274	925.0	992.0	21.4	37.0	Pipe 277	25.75	150	110	1484	0.97	9.81	Open
Junc 275	975.0	1059.6	34.2	84.6	Pipe 278	178.97	150	110	1332.8	0.87	8.04	Open
Junc 276	940.0	1031.7	24.6	91.7	Pipe 279	176.51	150	110	1310.9	0.86	7.8	Open
Junc 277	950.0	1027.7	6.9	77.7	Pipe 280	83.09	150	110	1298.6	0.85	7.66	Open
Junc 278	965.0	1026.5	6.9	61.5	Pipe 281	83.56	150	110	1286.3	0.84	7.53	Open
Junc 279	950.0	1023.7	10.8	73.7	Pipe 282	77.08	150	110	1244.4	0.82	7.08	Open
Junc 280	980.0	1019.3	19.2	39.3	Pipe 283	84.18	150	110	1145.7	0.75	6.08	Open
Junc 281	985.0	1032.1	15.3	47.1	Pipe 284	40.79	150	110	1103.8	0.72	5.67	Open
Junc 282	1005.0	1041.8	19.2	36.8	Pipe 285	106.01	150	110	1061.9	0.7	5.28	Open
Junc 283	1005.0	1039.1	64.3	34.1	Pipe 286	73.64	150	110	1040.9	0.68	5.09	Open
Junc 284	1000.0	1038.4	64.3	38.4	Pipe 289	181.17	50	110	-41.9	0.25	2.8	Open
Junc 285	990.0	1024.7	15.3	34.7	Pipe 290	99.72	50	110	-83.8	0.49	10.1	Open
Junc 286	1015.0	1082.9	18.4	67.9	Pipe 291	43.94	50	110	-133.7	0.79	23.98	Open
Junc 287	985.0	1079.1	18.4	94.1	Pipe 292	113.59	20	110	-24.8	0.91	91.87	Open
Junc 288	970.0	1077.9	15.3	107.9	Pipe 293	78.7	50	110	28.9	0.17	1.41	Open
Junc 289	970.0	1004.0	45.9	34.0	Pipe 294	57.41	25	110	76.6	1.81	250.13	Open
Junc 290	960.0	993.5	24.6	33.5	Pipe 295	95.12	25	110	47.7	1.12	104.04	Open
Junc 291	1040.0	1079.5	21.0	39.5	Pipe 296	108.34	20	110	9.4	0.35	15.24	Open
Junc 292	1015.0	1052.7	18.4	37.7	Pipe 297	164.13	20	110	-28.9	1.06	121.96	Open
Junc 293	1005.0	1033.4	45.9	28.4	Pipe 298	156.93	20	110	-9.4	0.35	15.24	Open
Junc 294	1050.0	1084.2	21.0	34.2	Pipe 299	130.04	20	110	-9.4	0.35	15.24	Open
Junc 295	1065.0	1083.2	41.9	18.2	Pipe 300	77.77	20	110	-25.7	0.95	98.14	Open
Junc 296	1055.0	1082.7	41.9	27.7	Pipe 301	76.51	20	110	24.1	0.89	87.12	Open
Junc 297	1060.0	1084.1	28.9	24.1	Pipe 302	62.76	20	110	-66.1	2.44	564.47	Open
Junc 298	1040.0	1082.9	16.3	42.9	Pipe 303	239.46	25	110	-16.9	0.4	15.23	Open
Junc 299	1050.0	1082.2	26.5	32.2	Pipe 304	75.53	25	110	-29.2	0.69	41.92	Open
Junc 300	1065.0	1081.1	34.7	16.1	Pipe 305	86.24	25	110	-45.5	1.07	95.33	Open
Junc 301	1060.0	1080.9	34.7	20.9	Pipe 306	151.69	100	110	-778.3	1.15	21.4	Open
Junc 302	1040.0	1080.9	18.6	40.9	Pipe 309	18.98	200	110	1566.8	0.58	2.67	Open
Junc 303	1045.0	1076.7	18.6	31.7	Pipe 312	65.85	200	110	1318.8	0.49	1.94	Open
Junc 304	1040.0	1077.2	18.6	37.2	Pipe 313	48.26	200	110	1302.5	0.48	1.9	Open
Junc 305	1060.0	1074.9	18.6	14.9	Pipe 314	65.56	200	110	2279.2	0.84	5.35	Open
Junc 306	1075.0	1175.9	31.7	100.9	Pipe 315	105.72	200	110	2237.3	0.82	5.17	Open
Junc 307	1070.0	1174.9	31.7	104.9	Pipe 316	103.51	200	110	2007.7	0.74	4.23	Open
Junc 308	1070.0	1173.2	25.2	103.2	Pipe 317	75.05	200	110	1852.6	0.68	3.64	Open
Junc 309	1075.0	1172.2	25.2	97.2	Pipe 318	92.51	200	110	1831.6	0.67	3.57	Open
Junc 310	1060.0	1170.7	21.9	110.7	Pipe 319	48.23	50	110	243.8	1.44	72.95	Open
Junc 311	1045.0	1169.4	12.3	124.4	Pipe 320	52.28	50	110	138.8	0.82	25.7	Open
Junc 312	1050.0	1168.7	12.3	118.7	Pipe 321	74.01	25	110	78.4	1.85	261.13	Open
Junc 313	1065.0	1168.1	41.9	103.1	Pipe 322	119.56	50	110	136.7	0.81	24.99	Open
Junc 314	1070.0	1167.5	41.9	97.5	Pipe 323	198.03	50	110	118.3	0.7	19.12	Open
Junc 315	1070.0	1167.0	41.9	97.0	Pipe 324	87.94	50	110	99.9	0.59	13.98	Open
Junc 316	1070.0	1166.8	41.9	96.8	Pipe 325	245.75	25	110	84.6	1.99	300.66	Open
Junc 317	1060.0	1166.2	21.0	106.2	Pipe 326	148.25	25	110	38.7	0.91	70.63	Open
Junc 318	1060.0	1165.9	21.0	105.9	Pipe 327	20.21	150	110	1184.2	0.78	6.46	Open
Junc 319	1060.0	1163.0	28.9	103.0	Pipe 328	60.15	150	110	1167.9	0.76	6.3	Open
Junc 320	1070.0	1148.7	28.9	78.7	Pipe 329	171.48	150	110	1141.4	0.75	6.03	Open
Junc 321	1080.0	1138.8	28.9	58.8	Pipe 330	167.97	150	110	1107.4	0.73	5.71	Open
Junc 322	1080.0	1152.6	24.8	72.6	Pipe 331	118.75	100	110	282.3	0.42	3.27	Open
Junc 323	1090.0	1137.1	9.4	47.1	Pipe 332	46.48	100	110	261.6	0.39	2.84	Open
Junc 324	1075.0	1136.4	9.4	61.4	Pipe 333	94.33	100	110	186.72	0.28	1.52	Open
Junc 325	1070.0	1143.0	28.9	73.0	Pipe 334	99.03	100	110	168.12	0.25	1.25	Open
Junc 326	1030.0	1164.0	16.3	134.0	Pipe 335	102.13	100	110	120.56	0.18	0.68	Open
Junc 327	1035.0	1128.6	16.3	93.6	Pipe 337	87.8	50	110	-24.1	0.14	1	Open
Junc 328	1040.0	1121.9	24.1	81.9	Pipe 338	68.38	50	110	-58.1	0.34	5.12	Open
Junc 329	1050.0	1121.0	16.3	71.0	Pipe 339	43.46	50	110	-92.1	0.54	12.03	Open
Junc 330	1060.0	1119.0	9.4	59.0	Pipe 340	168.79	50	110	68.15	0.4	6.88	Open
Junc 331	1045.0	1160.8	26.5	115.8	Pipe 341	143.12	50	110	-54.88	0.32	4.61	Open
Junc 332	1055.0	1152.6	16.3	97.6	Pipe 342	86.64	50	110	91.55	0.54	11.89	Open
Junc 333	1065.0	1149.4	12.3	84.4	Pipe 343	61.96	50	110	58.03	0.34	5.11	Open
Junc 334	1115.0	1145.8	16.9	30.8	Pipe 344	103.35	25	110	17.54	0.41	16.31	Open
Junc 335	1055.0	1159.7	26.5	104.7	Pipe 345	28.86	100	110	763	1.12	20.63	Open
Junc 336	1065.0	1158.4	26.5	93.4	Pipe 346	69.59	100	110	380.45	0.56	5.68	Open
Junc 337	1075.0	1145.1	26.5	70.1	Pipe 347	68.92	100	110	291.6	0.43	3.47	Open
Junc 338	1075.0	1143.3	26.5	68.3	Pipe 348	37.35	50	110	200.52	1.18	50.8	Open
Junc 339	1065.0	1156.4	34.7	91.4	Pipe 349	100.92	50	110	90.87	0.54	11.73	Open
Junc 340	1080.0	1155.3	34.7	75.3	Pipe 350	203.45	50	110	62.96	0.37	5.94	Open
Junc 341	1075.0	1154.3	34.7	79.3	Pipe 352	88.97	25	110	-12.9	0.3	9.23	Open
Junc 342	1060.0	1153.2	29.1	93.2	Pipe 353	44.41	25	110	12.9	0.3	9.23	Open
Junc 343	1065.0	1151.7	18.6	86.7	Pipe 354	53.18	100	110	107.66	0.16	0.55	Open
Junc 344	1070.0	1151.4	29.1	81.4	Pipe 355	109.23	100	110	96.86	0.14	0.45	Open
Junc 345	1060.0	1150.7	100.0	90.7	Pipe 356	133.37	100	110	79.16	0.12	0.31	Open
Junc 346	1040.0	1077.2	17.7	37.2	Pipe 357	278.14	50	110	24.6	0.15	1.04	Open
Junc 347	1035.0	1080.0	17.7	45.0	Pipe 358	149.48	25	110	19.16	0.45	19.2	Open
Junc 348	1085.0	1150.9	29.1	65.9	Pipe 360	50.81	50	110	-100	0.59	14.01	Open
Junc 349	1095.0	1150.6	29.1	55.6	Pipe 361	41.25	100	110	-448.5	0.66	7.71	Open

ID	Elevation m	Head m	Demand m ³ /d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m ³ /d	Velocity m/s	Unit head loss m/km	Status
Junc 350	1100.0	1150.2	24.8	50.2	Pipe 362	170.86	100	110	-467.1	0.69	8.31	Open
Junc 351	1115.0	1149.9	24.8	34.9	Pipe 363	122.59	100	110	-496.2	0.73	9.3	Open
Junc 352	1125.0	1149.6	49.2	24.6	Pipe 364	94.97	100	110	-530.9	0.78	10.54	Open
Junc 353	1115.0	1149.0	3.6	34.0	Pipe 365	89.72	100	110	-565.6	0.83	11.85	Open
Junc 354	1115.0	1148.3	3.6	33.3	Pipe 366	105.55	25	110	53	1.25	126.46	Open
Junc 355	1115.0	1147.5	21.4	32.5	Pipe 367	51.13	25	110	26.5	0.62	35.03	Open
Junc 356	1120.0	1147.3	84.6	27.3	Pipe 368	62.71	25	110	11.82	0.28	7.86	Open
Junc 357	1125.0	1147.8	49.2	22.8	Pipe 369	99.39	25	110	18.6	0.44	18.19	Open
Junc 358	1017.0	1039.8	24.1	22.8	Pipe 371	132.02	25	110	-25.38	0.6	32.33	Open
Junc 359	1020.0	1039.9	34.0	19.9	Pipe 372	38.04	50	110	54.18	0.32	4.5	Open
Junc 360	1015.0	1040.3	34.0	25.3	Pipe 373	161.33	50	110	10.2	0.06	0.2	Open
Junc 361	1015.0	1042.4	34.0	27.4	Pipe 374	162.14	50	110	-24.5	0.14	1.03	Open
Junc 362	1010.0	1049.4	20.7	39.4	Pipe 375	212.76	50	110	-59.2	0.35	5.3	Open
Junc 363	995.0	1049.0	20.7	54.0	Pipe 376	70.46	50	110	-85.7	0.51	10.52	Open
Junc 364	985.0	1015.0	18.1	30.0	Pipe 377	81.88	50	110	-102	0.6	14.53	Open
Junc 365	985.0	1013.1	18.1	28.1	Pipe 378	58.88	100	110	706.3	1.04	17.88	Open
Junc 366	985.0	1011.9	18.1	26.9	Pipe 379	79.93	100	110	679.8	1	16.65	Open
Junc 367	995.0	1041.5	12.9	46.5	Pipe 380	154.68	100	110	600.3	0.88	13.23	Open
Junc 368	990.0	1010.7	12.9	20.7	Pipe 381	125.22	100	110	319.4	0.47	4.11	Open
Junc 369	1005.0	1041.9	12.9	36.9	Pipe 382	103.46	100	110	290.3	0.43	3.44	Open
Junc 370	995.0	1047.9	34.0	52.9	Pipe 383	116.2	100	110	261.2	0.38	2.83	Open
Junc 371	980.0	1014.3	20.5	34.3	Pipe 384	137.23	100	110	236.4	0.35	2.35	Open
Junc 372	970.0	1012.1	18.1	42.1	Pipe 385	146.21	100	110	211.6	0.31	1.92	Open
Junc 373	965.0	1011.8	20.5	46.8	Pipe 386	83.85	50	110	70.37	0.41	7.31	Open
Junc 374	950.0	1009.2	15.9	59.2	Pipe 387	102.89	50	110	66.77	0.39	6.63	Open
Junc 375	1140.0	1157.3	24.8	17.3	Pipe 388	142.12	50	110	63.17	0.37	5.98	Open
Junc 376	1105.0	1166.4	7.2	61.4	Pipe 389	78.99	50	110	41.77	0.25	2.78	Open
Junc 377	1115.0	1147.7	24.8	32.7	Pipe 390	170.39	50	110	-42.83	0.25	2.91	Open
Junc 378	1030.0	1088.3	34.5	58.3	Pipe 391	155.59	50	110	-92.03	0.54	12.01	Open
Junc 379	1025.0	1077.1	36.2	52.1	Pipe 392	92.11	200	110	-2597.3	0.96	6.81	Open
Junc 380	985.0	1058.8	80.9	73.8	Pipe 393	67.56	200	110	-2654	0.98	7.09	Open
Junc 381	920.0	1048.4	9.2	128.4	Pipe 394	38.03	200	110	-2658.8	0.98	7.11	Open
Junc 384	1065.0	1087.4	24.0	22.4	Pipe 395	141.76	200	110	-2708.6	1	7.36	Open
Junc 385	1065.0	1106.2	24.0	41.2	Pipe 396	46.76	200	110	-2732.05	1.01	7.48	Open
Junc 386	1065.0	1104.2	17.8	39.2	Pipe 397	104.24	200	110	-2871.2	1.06	8.2	Open
Junc 387	1065.0	1072.7	17.8	7.7	Pipe 398	146.02	25	110	-31.8	0.75	49.1	Open
Junc 388	1065.0	1072.6	17.8	7.6	Pipe 399	122.96	25	110	-53.3	1.26	127.78	Open
Junc 389	1063.0	1071.9	17.8	8.9	Pipe 77	233.35	50	110	56.8	0.33	4.91	Open
Junc 390	1045.0	1071.8	21.0	26.8	Pipe 288	294.32	25	110	24.8	0.58	30.98	Open
Junc 391	1060.0	1073.0	17.8	13.0	Pipe 400	203.6	20	110	24.8	0.91	91.87	Open
Junc 392	1060.0	1087.3	26.8	27.3	Pipe 401	171.29	50	110	79.5	0.47	9.16	Open
Junc 393	1065.0	1091.2	17.8	26.2	Pipe 402	180.61	25	110	36.2	0.85	62.42	Open
Junc 394	1068.0	1103.5	17.8	35.5	Pipe 403	394.16	25	110	8.8	0.21	4.55	Open
Junc 395	1055.0	1103.5	21.0	48.5	Pipe 404	205.67	50	110	90.1	0.53	11.55	Open
Junc 396	1050.0	1074.8	21.0	24.8	Pipe 405	707.42	20	110	9.2	0.34	14.64	Open
Junc 397	1015.0	1069.8	34.5	54.8	Pipe 406	85.07	50	110	159.2	0.94	33.13	Open
Junc 398	1045.0	1093.0	31.4	48.0	Pipe 407	510.86	150	110	860.7	0.56	3.58	Open
Junc 399	1035.0	1092.9	31.4	57.9	Pipe 408	111.85	200	110	1412.1	0.52	2.2	Open
Junc 400	1062.0	1091.5	24.0	29.5	Pipe 409	124.61	200	110	1391.1	0.51	2.14	Open
Junc 401	1030.0	1089.2	29.2	59.2	Pipe 410	102.86	200	110	1367	0.5	2.08	Open
Junc 402	1070.0	1103.7	17.8	33.7	Pipe 411	81.81	200	110	1342.9	0.49	2.01	Open
Junc 403	1084.0	1099.3	25.7	15.3	Pipe 412	25.66	50	100	-235.5	1.39	81.63	Open
Junc 405	1070.0	1103.7	17.8	33.7	Pipe 287	143.35	200	110	2937.8	1.08	8.56	Open
Junc 406	1075.0	1103.7	24.0	28.7	Pipe 307	105.39	300	110	10906.2	1.79	13.48	Open
Junc 407	1067.0	1103.5	17.8	36.5	Pipe 311	9.45	25	110	-36.86	0.87	64.53	Open
Junc 408	1055.0	1073.4	21.0	18.4	Pipe 308	49.43	50	110	285.82	1.68	97.93	Open
Junc 409	1057.0	1074.3	21.0	17.3	Pipe 370	118.7	25	110	17.55	0.41	16.33	Open
Junc 410	1071.0	1105.6	24.0	34.6	Pipe 414	19.83	50	110	267.22	1.58	86.46	Open
Junc 411	1065.0	1103.9	17.8	38.9	Pipe 415	27.18	50	110	130.92	0.77	23.07	Open
Junc 412	1060.0	1073.1	17.8	13.1	Pipe 416	72.39	25	110	21	0.5	22.77	Open
Junc 413	1010.0	1086.4	21.0	76.4	Pipe 417	67.36	50	110	53.4	0.31	4.38	Open
Junc 414	1015.0	1085.1	21.0	70.1	Pipe 418	38.77	50	110	35.6	0.21	2.07	Open
Junc 415	1032.0	1074.2	21.0	42.2	Pipe 419	38.62	25	110	17.8	0.42	16.76	Open
Junc 416	1005.0	1092.9	34.5	87.9	Pipe 420	45.54	25	110	44.6	1.05	91.86	Open
Junc 418	1030.0	1090.6	21.0	60.6	Pipe 421	107.91	25	110	26.8	0.63	35.77	Open
Junc 419	1055.0	1082.1	29.2	27.1	Pipe 423	68.89	25	110	29.2	0.69	41.92	Open
Junc 420	1040.0	1086.0	29.2	46.0	Pipe 424	147.17	100	110	315.35	0.46	4.02	Open
Junc 421	1030.0	1086.6	29.2	56.6	Pipe 425	51.67	25	110	5.97	0.14	2.22	Open
Junc 422	1030.0	1086.5	29.2	56.5	Pipe 426	62.14	50	110	115.3	0.68	18.23	Open
Junc 423	1020.0	1077.5	21.0	57.5	Pipe 427	65.22	50	110	94.3	0.56	12.56	Open
Junc 424	1065.0	1082.6	29.2	17.6	Pipe 429	132.22	25	110	25.7	0.61	33.1	Open
Junc 425	1045.0	1092.3	29.2	47.3	Pipe 430	61.1	25	110	2.89	0.07	0.58	Open
Junc 426	1025.0	1093.9	29.2	68.9	Pipe 431	56.11	25	110	-26.3	0.62	34.53	Open
Junc 427	1065.0	1095.3	17.8	30.3	Pipe 432	104.64	25	110	5.18	0.12	1.71	Open
Junc 428	1062.0	1095.5	17.8	33.5	Pipe 433	41.17	25	110	-12.62	0.3	8.86	Open
Junc 429	1060.0	1098.8	19.7	38.8	Pipe 434	31.9	50	110	89	0.52	11.29	Open
Junc 430	1003.0	1053.1	25.1	50.1	Pipe 435	16.1	50	110	71.2	0.42	7.46	Open
Junc 432	1005.0	1053.3	25.1	48.3	Pipe 436	42.46	25	110	45.28	1.07	94.47	Open
Junc 433	1005.0	1039.5	34.5	34.5	Pipe 437	77.4	25	110	42	0.99	82.19	Open
Junc 434	1004.0	1040.7	26.4	36.7	Pipe 438	56.76	25	110	21	0.5	22.77	Open
Junc 435	1008.0	1050.6	25.1	42.6	Pipe 439	101.32	25	110	21	0.5	22.77	Open
Junc 436	1007.0	1038.9	25.1	31.9	Pipe 440	100.01	25	110	10.22	0.24	6	Open
Junc 437	1004.0	1040.2	25.1	36.2	Pipe 441	76.32	25	110	34.5	0.81	57.1	Open
Junc 438	1005.0	1051.3	25.1	46.3	Pipe 442	117.23	25	110	-15.03	0.35	12.25	Open
Junc 439	1010.0	1037.2	26.4	27.2	Pipe 443	34.93	25	110	25.43	0.6	32.45	Open
Junc 440	1000.0	1042.6	34.5	42.6	Pipe 444	45.82	25	110	-7.05	0.17	3.01	Open
Junc 441	1025.0	1055.0	29.2	30.0	Pipe 445	57.92	25	110	21	0.5	22.77	Open
Junc 442	1035.0	1077.2	21.0	42.2	Pipe 446	58.05	25	110	-14.17	0.33	10.99	Open
Junc 443	1040.0	1078.9	21.0	38.9	Pipe 447	59.25	25	110	-50.42	1.19	115.29	Open

ID	Elevation m	Head m	Demand m3/d	Pressure m
Junc 444	1003.0	1031.0	18.4	28.0
Junc 445	1028.0	1077.1	21.0	49.1
Junc 446	1040.0	1081.8	21.0	41.8
Junc 447	962.0	1010.8	20.5	48.8
Junc 448	970.0	1009.2	15.9	39.2
Junc 449	1005.0	1042.3	12.9	37.3
Junc 450	1005.0	1043.0	12.9	38.0
Junc 451	972.0	1010.4	17.9	38.4
Junc 452	985.0	1008.9	17.9	23.9
Junc 453	1015.0	1040.8	34.0	25.8
Junc 454	1022.0	1037.8	34.0	15.8
Junc 455	1007.0	1044.7	20.7	37.7
Junc 456	968.0	1011.0	20.5	43.0
Junc 457	972.0	1011.1	20.5	39.1
Junc 458	990.0	1042.5	18.1	52.5
Junc 459	1015.0	1041.6	12.9	26.6
Junc 460	1013.0	1043.6	20.7	30.6
Junc 461	962.0	1010.9	18.1	48.9
Junc 462	1022.0	1039.5	34.0	17.5
Junc 463	1010.0	1041.5	12.9	31.5
Junc 464	1020.0	1050.0	20.7	30.0
Junc 465	1020.0	1080.4	20.7	60.4
Junc 466	1030.0	1074.4	21.0	44.4
Junc 467	1025.0	1075.7	21.0	50.7
Junc 468	1055.0	1089.5	25.2	34.5
Junc 469	1080.0	1168.8	25.2	88.8
Junc 470	1090.0	1158.7	25.2	68.7
Junc 471	1090.0	1158.0	25.2	68.0
Junc 472	1085.0	1158.3	25.2	73.3
Junc 473	1090.0	1161.0	25.2	71.0
Junc 474	1070.0	1093.8	31.7	23.8
Junc 475	1070.0	1093.0	25.2	23.0
Junc 476	1070.0	1093.1	25.2	23.1
Junc 477	1073.0	1173.8	25.2	100.8
Junc 478	1070.0	1172.9	25.2	102.9
Junc 479	1070.0	1172.7	25.2	102.7
Junc 480	1095.0	1174.8	4.8	79.8
Junc 481	1095.0	1172.4	4.8	77.4
Junc 482	1095.0	1168.6	21.9	73.6
Junc 483	1120.0	1175.0	15.0	55.0
Junc 484	1120.0	1173.8	15.0	53.8
Junc 485	1133.0	1180.7	4.8	47.7
Junc 486	1155.0	1181.3	15.0	26.3
Junc 487	1150.0	1180.8	15.0	30.8
Junc 488	1140.0	1180.7	15.0	40.7
Junc 489	1138.0	1180.6	15.0	42.6
Junc 490	1120.0	1180.6	4.8	60.6
Junc 491	1158.0	1181.9	33.0	23.9
Junc 492	1157.0	1181.5	15.0	24.5
Junc 493	1125.0	1180.3	15.0	55.3
Junc 494	1120.0	1178.9	15.0	58.9
Junc 495	1070.0	1093.7	34.5	23.7
Junc 496	1050.0	1092.1	34.5	42.1
Junc 498	1050.0	1088.2	31.7	38.2
Junc 499	1050.0	1088.9	31.7	38.9
Junc 500	1043.0	1091.6	31.7	48.6
Junc 502	1050.0	1087.4	34.5	37.4
Junc 503	1033.0	1091.1	34.5	58.1
Junc 504	1055.0	1092.3	6.0	37.3
Junc 505	1042.0	1094.3	31.4	52.3
Junc 506	1065.0	1092.1	6.0	27.1
Junc 507	990.0	1040.9	18.1	50.9
Junc 508	995.0	1041.1	12.9	46.1
Junc 509	985.0	1048.8	18.1	63.8
Junc 205	970.0	992.7	14.1	22.7
Junc 206	1005.0	1032.4	14.1	27.4
Junc 404	1085.0	1148.1	0.0	63.1
Resvr 382	1184.0	1184.0	-2937.8	0.0
Resvr 383	1101.0	1101.0	-10906.2	0.0

ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Pipe 448	75.09	25	110	14.22	0.34	11.06	Open
Pipe 449	42.29	25	110	-14.98	0.35	12.18	Open
Pipe 450	61.09	25	110	-8.11	0.19	3.84	Open
Pipe 451	50.03	100	110	423.5	0.62	6.93	Open
Pipe 452	47.36	100	110	373.75	0.55	5.5	Open
Pipe 453	32.34	50	110	324.84	1.91	124.13	Open
Pipe 454	32.65	50	110	89.4	0.53	11.38	Open
Pipe 455	42.02	25	110	-0.25	0.01	0.01	Open
Pipe 456	30.57	50	110	99.7	0.59	13.93	Open
Pipe 457	19.72	250	110	2522.7	0.59	2.18	Open
Pipe 459	75.23	50	110	21.78	0.13	0.83	Open
Pipe 460	21.01	50	110	-157.75	0.93	32.57	Open
Pipe 461	81.76	25	110	-16.76	0.4	14.97	Open
Pipe 462	40.48	250	110	3577.16	0.84	4.16	Open
Pipe 463	59.28	25	110	-6.14	0.14	2.33	Open
Pipe 464	114.38	25	110	-23.94	0.56	29.01	Open
Pipe 465	53.17	25	110	-43.64	1.03	88.22	Open
Pipe 466	58.44	25	110	13.46	0.32	9.99	Open
Pipe 467	36.06	50	110	57.1	0.34	4.96	Open
Pipe 468	13.48	50	110	-93.94	0.55	12.48	Open
Pipe 469	59.28	50	110	50.44	0.3	3.94	Open
Pipe 470	134.8	25	110	45.4	1.07	94.95	Open
Pipe 471	57.62	25	110	-56.26	1.33	141.26	Open
Pipe 472	52.39	50	110	235.68	1.39	68.52	Open
Pipe 473	26.39	50	110	241.63	1.42	71.76	Open
Pipe 474	67.7	50	110	189.67	1.12	45.83	Open
Pipe 476	155.52	50	110	205.93	1.21	53.37	Open
Pipe 477	98.62	25	110	52.8	1.24	125.57	Open
Pipe 478	96.83	25	110	25.1	0.59	31.68	Open
Pipe 479	102.47	25	110	26.4	0.62	34.78	Open
Pipe 480	64.82	25	110	25.1	0.59	31.68	Open
Pipe 481	97.6	25	110	25.1	0.59	31.68	Open
Pipe 482	77.24	25	110	25.1	0.59	31.68	Open
Pipe 483	112.66	25	110	31.08	0.73	47.07	Open
Pipe 484	71.05	50	110	-153.7	0.91	31.04	Open
Pipe 485	23.43	100	110	473.5	0.7	8.52	Open
Pipe 486	101.28	25	110	21	0.5	22.77	Open
Pipe 487	127.48	25	110	21	0.5	22.77	Open
Pipe 488	45.05	50	110	201.8	1.19	51.4	Open
Pipe 489	71.21	50	110	159.8	0.94	33.36	Open
Pipe 490	130.36	25	110	18.4	0.43	17.82	Open
Pipe 492	56.45	25	110	34.38	0.81	56.74	Open
Pipe 493	120.27	25	110	-11.69	0.28	7.7	Open
Pipe 494	177.11	25	110	1.64	0.04	0.2	Open
Pipe 495	115.53	25	110	-14.26	0.34	11.12	Open
Pipe 496	71.34	50	110	50.06	0.3	3.89	Open
Pipe 497	92.16	25	110	17.9	0.42	16.94	Open
Pipe 498	54.3	25	110	34	0.8	55.57	Open
Pipe 499	75	50	110	125.95	0.74	21.47	Open
Pipe 500	146.74	50	110	193.95	1.14	47.76	Open
Pipe 501	127.73	50	110	167.9	0.99	36.56	Open
Pipe 502	104.94	50	110	108.4	0.64	16.26	Open
Pipe 503	88.5	50	110	77.4	0.46	8.71	Open
Pipe 504	130.13	50	110	38.7	0.23	2.41	Open
Pipe 505	87.13	25	110	12.9	0.3	9.23	Open
Pipe 506	121.39	25	110	18.1	0.43	17.29	Open
Pipe 507	126.06	25	110	-34.15	0.81	56.02	Open
Pipe 508	76.54	25	110	5.08	0.12	1.64	Open
Pipe 509	82.53	25	110	-15.42	0.36	12.86	Open
Pipe 511	131.47	25	110	-18.1	0.43	17.29	Open
Pipe 512	75.62	25	110	12.9	0.3	9.23	Open
Pipe 513	51.56	25	110	20.7	0.49	22.17	Open
Pipe 514	189.44	25	110	-9.81	0.23	5.54	Open
Pipe 516	52.22	25	110	34	0.8	55.57	Open
Pipe 517	26.53	25	110	25.83	0.61	33.41	Open
Pipe 518	67.44	25	110	8.81	0.21	4.55	Open
Pipe 519	54.83	100	110	804.4	1.19	22.74	Open
Pipe 520	89.08	25	110	28.97	0.68	41.31	Open
Pipe 521	64.16	25	110	-1.46	0.03	0.16	Open
Pipe 522	59.73	25	110	96.8	2.28	385.85	Open
Pipe 523	60.88	25	110	21	0.5	22.77	Open
Pipe 524	166.63	25	110	21.87	0.52	24.55	Open
Pipe 525	31.43	25	110	-3.33	0.08	0.75	Open
Pipe 527	172.48	50	110	50.4	0.3	3.94	Open
Pipe 528	109.88	50	110	25.2	0.15	1.09	Open
Pipe 529	135.3	20	110	25.2	0.93	94.63	Open
Pipe 530	153.38	20	110	25.2	0.93	94.63	Open
Pipe 531	157.38	20	110	25.2	0.93	94.63	Open
Pipe 532	152.7	20	110	25.2	0.93	94.63	Open
Pipe 533	35.71	20	110	25.2	0.93	94.63	Open
Pipe 534	55.91	150	110	1534.4	1	10.44	Open
Pipe 535	21.47	150	110	1433.6	0.94	9.2	Open
Pipe 536	63.86	150	110	1383.2	0.91	8.61	Open
Pipe 537	19.47	250	110	5592.55	1.32	9.51	Open
Pipe 538	50.03	200	110	2766.79	1.02	7.66	Open
Pipe 539	79.13	200	110	2747.05	1.01	7.56	Open
Pipe 540	60.13	20	110	4.74	0.17	4.28	Open
Pipe 541	79.93	20	110	-3.97	0.15	3.05	Open

ID	Length m	Diameter mm	Roughness	Flow m ³ /d	Velocity m/s	Unit head loss m/km	Status
Pipe 542	83.06	20	110	-5.33	0.2	5.33	Open
Pipe 543	84.99	25	110	12.25	0.29	8.39	Open
Pipe 544	79.28	50	110	61.15	0.36	5.63	Open
Pipe 545	40.76	50	110	42.18	0.25	2.83	Open
Pipe 546	34	50	110	21.85	0.13	0.84	Open
Pipe 547	53.42	25	110	4.8	0.11	1.48	Open
Pipe 548	85.33	50	110	71.41	0.42	7.51	Open
Pipe 549	42.23	200	110	2721.02	1	7.43	Open
Pipe 550	40.61	200	110	2711.35	1	7.38	Open
Pipe 551	83.82	200	110	2663.6	0.98	7.14	Open
Pipe 552	89.13	25	110	30	0.71	44.08	Open
Pipe 553	95.5	25	110	15	0.35	12.21	Open
Pipe 554	58.38	25	110	31.5	0.74	48.24	Open
Pipe 555	66.91	25	110	26.7	0.63	35.52	Open
Pipe 556	154.57	25	110	21.9	0.52	24.61	Open
Pipe 557	54.42	25	110	31.7	0.75	48.81	Open
Pipe 558	65.21	25	110	31.7	0.75	48.81	Open
Pipe 559	126.87	50	110	-64.29	0.38	6.12	Open
Pipe 561	64.33	25	110	34.5	0.81	57.1	Open
Pipe 562	115.86	50	110	-98.79	0.58	13.64	Open
Pipe 563	91.44	50	110	-133.29	0.79	23.79	Open
Pipe 564	41.87	100	110	29.07	0.04	0.05	Open
Pipe 565	68.69	150	110	835.69	0.55	3.39	Open
Pipe 566	129.22	25	110	-5.47	0.13	1.89	Open
Pipe 567	123.05	25	110	-17.47	0.41	16.19	Open
Pipe 568	108.76	25	110	6	0.14	2.24	Open
Pipe 569	34.39	100	110	596.78	0.88	13.08	Open
Pipe 129	88.45	25	110	14.1	0.33	10.89	Open
Pipe 146	74.27	25	110	14.1	0.33	10.89	Open
Valve 147	#N/A	100	#N/A	603.1	0.89	38.7	Active
Valve 336	#N/A	100	#N/A	783.7	1.15	30.38	Active
Valve 351	#N/A	100	#N/A	273.5	0.4	33.77	Active
Valve 310	#N/A	100	#N/A	766.1	1.13	13.06	Active

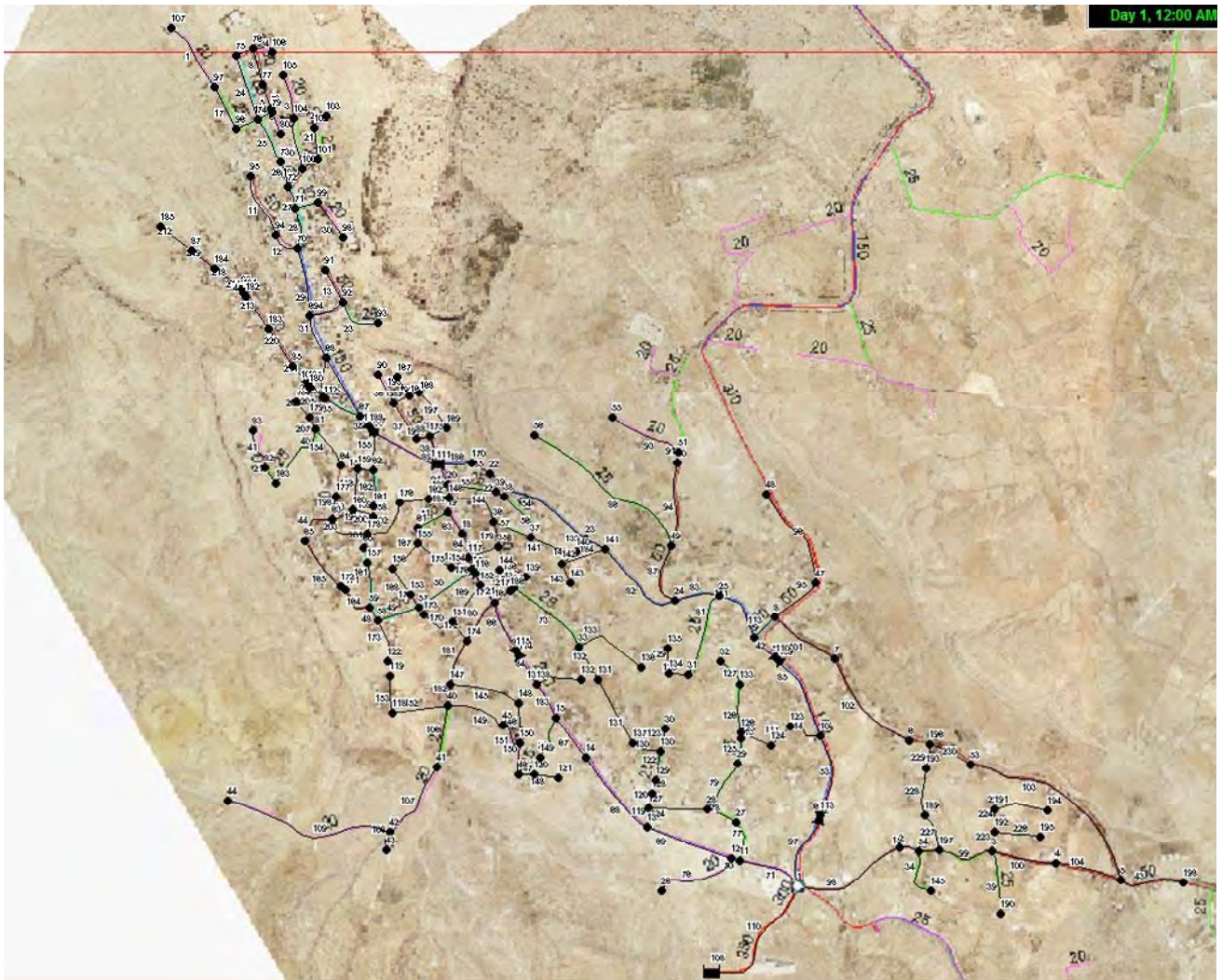


2) ブセイラ

NODE Bsaira					LINK Bsaira							
ID	Elevation m	Head m	Demand m ³ /d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m ³ /d	Velocity m/s	Unit head loss m/km	Status
Junc 1	1265.0	1300.8	0.0	35.8	Pipe 1	267.1	20	110	-7.2	0.3	9.3	Open
Junc 2	1265.0	1299.1	51.6	34.1	Pipe 2	61.6	25	110	-22.8	0.5	26.5	Open
Junc 3	1265.0	1298.3	17.9	33.3	Pipe 3	161.6	25	110	-20.0	0.5	20.8	Open
Junc 4	1265.0	1294.1	56.4	29.1	Pipe 4	79.8	25	110	-20.0	0.5	20.8	Open
Junc 5	1250.0	1292.9	31.8	42.9	Pipe 5	92.1	50	110	22.8	0.1	0.9	Open
Junc 6	1210.0	1228.2	17.8	18.2	Pipe 6	85.8	25	110	-22.8	0.5	26.5	Open
Junc 7	1195.0	1228.4	35.8	33.4	Pipe 7	68.7	50	110	-108.6	0.6	16.3	Open
Junc 8	1185.0	1229.6	28.2	44.6	Pipe 8	135.7	50	110	42.8	0.3	2.9	Open
Junc 9	1195.0	1233.8	28.2	38.8	Pipe 9	68.7	50	110	-68.4	0.4	6.9	Open
Junc 10	1227.0	1269.9	13.8	42.9	Pipe 10	80.6	50	110	-134.0	0.8	24.1	Open
Junc 11	1275.0	1297.0	67.8	22.0	Pipe 11	240.0	50	110	-95.4	0.6	12.8	Open
Junc 12	1275.0	1296.4	2.3	21.4	Pipe 12	106.2	50	110	-171.8	1.0	38.1	Open
Junc 13	1260.0	1291.4	11.9	31.4	Pipe 13	138.0	50	110	-157.2	0.9	32.4	Open
Junc 14	1255.0	1286.2	16.0	31.2	Pipe 14	132.7	50	110	-275.2	1.6	91.3	Open
Junc 15	1258.0	1283.5	16.0	25.5	Pipe 17	173.6	50	110	-53.0	0.3	4.3	Open
Junc 16	1225.0	1272.1	16.2	47.1	Pipe 18	86.8	50	110	-111.2	0.7	17.1	Open
Junc 17	1210.0	1240.0	15.1	30.0	Pipe 19	57.6	50	110	45.6	0.3	3.3	Open
Junc 18	1195.0	1238.6	24.8	43.6	Pipe 20	188.1	50	110	-42.8	0.3	2.9	Open
Junc 19	1185.0	1237.7	24.8	52.7	Pipe 21	113.3	50	110	45.6	0.3	3.3	Open
Junc 20	1175.0	1236.7	15.3	61.7	Pipe 22	86.0	50	110	97.8	0.6	13.4	Open
Junc 21	1170.0	1236.0	15.3	66.0	Pipe 23	174.7	25	110	37.2	0.9	65.7	Open
Junc 22	1175.0	1233.8	21.2	58.8	Pipe 24	240.7	50	110	-165.2	1.0	35.5	Open
Junc 23	1175.0	1231.9	60.2	56.9	Pipe 25	176.5	100	110	-380.2	0.6	5.7	Open
Junc 24	1175.0	1232.5	47.7	57.5	Pipe 26	93.6	100	110	-403.0	0.6	6.3	Open
Junc 25	1180.0	1232.9	47.7	52.9	Pipe 27	86.4	150	110	-613.4	0.4	1.9	Open
Junc 26	1255.0	1295.2	4.6	40.2	Pipe 28	148.2	150	110	-787.5	0.5	3.0	Open
Junc 27	1275.0	1294.5	12.3	19.5	Pipe 29	245.1	150	110	-1121.0	0.7	5.8	Open
Junc 28	1275.0	1293.0	12.3	18.0	Pipe 30	153.5	25	110	21.4	0.5	23.6	Open
Junc 29	1265.0	1289.3	9.4	24.3	Pipe 31	167.6	200	110	-1455.3	0.5	2.3	Open
Junc 30	1220.0	1261.0	10.6	41.0	Pipe 32	258.4	200	110	-1525.8	0.6	2.5	Open
Junc 31	1205.0	1231.0	15.3	26.0	Pipe 33	51.6	200	110	-2155.7	0.8	4.8	Open
Junc 32	1220.0	1258.6	15.3	38.6	Pipe 35	141.5	100	110	-602.9	0.9	13.3	Open
Junc 33	1235.0	1263.1	38.7	28.1	Pipe 36	129.0	50	110	-37.2	0.2	2.2	Open
Junc 34	1218.0	1268.8	16.2	50.8	Pipe 37	155.2	50	110	-85.0	0.5	10.4	Open
Junc 35	1203.0	1237.9	15.1	34.9	Pipe 38	101.8	50	110	-211.9	1.3	56.3	Open
Junc 36	1195.0	1236.9	15.1	41.9	Pipe 40	266.0	50	110	94.6	0.6	12.6	Open
Junc 37	1195.0	1235.0	15.1	40.0	Pipe 41	153.3	20	110	7.2	0.3	9.3	Open
Junc 38	1185.0	1235.3	21.2	50.3	Pipe 44	151.7	50	110	134.1	0.8	24.1	Open
Junc 39	1185.0	1235.4	21.2	50.4	Pipe 48	58.8	50	110	-53.6	0.3	4.4	Open
Junc 40	1225.0	1259.7	21.2	34.7	Pipe 49	158.9	50	110	-80.6	0.5	9.4	Open
Junc 41	1205.0	1258.6	24.6	53.6	Pipe 50	238.9	50	110	-94.6	0.6	12.6	Open
Junc 42	1235.0	1258.1	21.3	23.1	Pipe 51	122.1	25	110	-24.8	0.6	31.0	Open
Junc 43	1245.0	1258.1	2.3	13.1	Pipe 54	425.0	50	110	53.4	0.3	4.4	Open
Junc 44	1215.0	1252.3	7.2	37.3	Pipe 55	173.0	50	110	-72.2	0.4	7.7	Open
Junc 45	1230.0	1258.0	12.4	28.0	Pipe 56	191.3	50	110	29.9	0.2	1.5	Open
Junc 46	1240.0	1256.9	17.0	16.9	Pipe 57	145.3	50	110	-97.1	0.6	13.3	Open
Junc 47	1190.0	1227.1	85.0	37.1	Pipe 61	85.5	200	110	-2946.3	1.1	8.6	Open
Junc 48	1205.0	1224.5	10.8	19.5	Pipe 63	95.9	200	110	-3126.8	1.2	9.6	Open
Junc 49	1170.0	1225.7	89.8	55.7	Pipe 64	90.2	200	110	-3151.6	1.2	9.8	Open
Junc 50	1205.0	1225.1	3.6	20.1	Pipe 66	194.9	200	110	-3950.8	1.5	14.8	Open
Junc 51	1210.0	1225.0	3.6	15.0	Pipe 67	180.6	200	110	-4030.4	1.5	15.4	Open
Junc 55	1200.0	1214.2	28.2	14.2	Pipe 68	335.8	200	110	-4046.4	1.5	15.5	Open
Junc 56	1185.0	1208.5	22.6	23.5	Pipe 69	327.2	200	110	-4016.6	1.5	15.3	Open
Junc 57	1200.0	1237.0	19.4	37.0	Pipe 70	33.9	200	110	-4023.5	1.5	15.3	Open
Junc 58	1190.0	1235.5	17.7	45.5	Pipe 71	234.0	200	110	-4200.3	1.6	16.6	Open
Junc 59	1185.0	1235.2	17.7	50.2	Pipe 73	327.5	50	110	112.2	0.7	17.3	Open
Junc 60	1165.0	1194.2	18.3	29.2	Pipe 74	214.4	25	110	16.0	0.4	13.8	Open
Junc 61	1180.0	1233.9	24.8	53.9	Pipe 76	308.9	20	110	-4.6	0.2	4.1	Open
Junc 62	1140.0	1197.5	26.7	57.5	Pipe 77	149.9	50	110	109.0	0.6	16.4	Open
Junc 63	1145.0	1193.8	18.3	48.8	Pipe 78	113.3	50	110	96.7	0.6	13.2	Open
Junc 64	1125.0	1153.2	26.7	28.2	Pipe 79	198.7	25	110	18.8	0.4	18.6	Open
Junc 65	1140.0	1190.1	91.8	50.1	Pipe 81	320.3	50	110	-62.7	0.4	5.9	Open
Junc 66	1132.0	1198.3	27.1	66.3	Pipe 82	362.6	50	110	-30.3	0.2	1.5	Open
Junc 67	1130.0	1159.8	27.1	29.8	Pipe 83	168.3	100	110	-225.8	0.3	2.2	Open
Junc 68	1110.0	1159.1	59.1	49.1	Pipe 85	315.7	100	110	-594.8	0.9	13.0	Open
Junc 69	1100.0	1158.7	59.1	58.7	Pipe 86	658.1	25	110	-22.6	0.5	26.1	Open
Junc 70	1110.0	1157.3	161.8	47.3	Pipe 87	235.9	50	110	147.8	0.9	28.9	Open
Junc 71	1115.0	1156.8	76.4	41.8	Pipe 91	39.6	50	110	-31.8	0.2	1.7	Open
Junc 72	1115.0	1156.7	76.4	41.7	Pipe 93	275.7	25	110	-28.2	0.7	39.3	Open
Junc 73	1120.0	1156.1	22.8	36.1	Pipe 94	303.3	50	110	-35.4	0.2	2.1	Open
Junc 74	1125.0	1155.1	58.2	30.1	Pipe 95	194.8	50	110	95.8	0.6	12.9	Open
Junc 75	1135.0	1146.5	56.6	11.5	Pipe 96	385.6	25	110	10.8	0.3	6.6	Open
Junc 76	1135.0	1145.4	45.8	10.4	Pipe 97	266.1	100	110	-701.5	1.0	17.7	Open
Junc 77	1130.0	1145.0	20.0	15.0	Pipe 98	433.0	100	110	318.5	0.5	4.1	Open
Junc 78	1130.0	1144.9	22.8	14.9	Pipe 99	204.7	100	110	192.4	0.3	1.6	Open
Junc 79	1125.0	1154.9	22.8	29.9	Pipe 100	237.7	50	110	114.0	0.7	17.9	Open
Junc 80	1130.0	1152.6	22.8	22.6	Pipe 101	267.3	50	110	53.6	0.3	4.4	Open
Junc 81	1105.0	1153.4	14.7	48.4	Pipe 102	413.9	50	110	17.8	0.1	0.6	Open
Junc 82	1105.0	1139.0	53.6	34.0	Pipe 103	742.7	25	110	-14.5	0.3	11.5	Open
Junc 83	1088.0	1137.6	7.2	49.6	Pipe 104	243.4	50	110	-57.6	0.3	5.0	Open
Junc 84	1110.0	1157.9	14.7	47.9	Pipe 106	225.8	50	110	55.4	0.3	4.7	Open
Junc 85	1085.0	1124.5	59.1	39.5	Pipe 107	298.0	50	110	30.8	0.2	1.6	Open
Junc 86	1060.0	1089.6	38.8	29.6	Pipe 108	71.0	25	110	2.3	0.1	0.4	Open
Junc 87	1035.0	1085.5	70.6	50.5	Pipe 109	628.8	20	110	7.2	0.3	9.3	Open
Junc 88	1165.0	1193.5	22.7	28.5	Pipe 110	498.0	250	110	5220.3	1.2	8.4	Open

ID	Elevation m	Head m	Demand m ³ /d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m ³ /d	Velocity m/s	Unit head loss m/km	Status
Junc 89	1168.0	1191.9	27.1	23.9	Pipe 89	255.3	200	110	2608.0	1.0	6.9	Open
Junc 90	1165.0	1191.6	37.2	26.6	Pipe 90	48.9	200	110	3483.0	1.3	11.7	Open
Junc 91	1105.0	1142.1	157.2	37.1	Pipe 111	215.4	100	110	336.2	0.5	4.5	Open
Junc 92	1100.0	1146.6	80.8	46.6	Pipe 113	104.8	50	110	177.6	1.1	40.6	Open
Junc 93	1100.0	1135.1	37.2	35.1	Pipe 42	106.7	100	110	542.0	0.8	11.0	Open
Junc 94	1105.0	1153.2	76.4	48.2	Pipe 53	302.0	100	110	684.5	1.0	16.9	Open
Junc 95	1105.0	1150.1	95.4	45.1	Pipe 84	125.3	200	110	3974.5	1.5	15.0	Open
Junc 96	1105.0	1153.6	58.2	48.6	Pipe 114	127.4	50	110	75.9	0.5	8.4	Open
Junc 97	1100.0	1152.8	45.8	52.8	Pipe 117	97.2	50	110	58.0	0.3	5.1	Open
Junc 98	1090.0	1152.1	21.4	62.1	Pipe 118	118.8	50	110	40.1	0.2	2.6	Open
Junc 99	1100.0	1155.7	76.4	55.7	Pipe 119	69.1	50	110	-41.8	0.3	2.8	Open
Junc 100	1115.0	1154.7	22.8	39.7	Pipe 120	52.5	25	110	11.9	0.3	8.0	Open
Junc 101	1105.0	1154.2	22.8	49.2	Pipe 122	105.2	25	110	-10.6	0.3	6.4	Open
Junc 102	1105.0	1153.9	22.8	48.9	Pipe 123	84.2	25	110	10.6	0.3	6.4	Open
Junc 103	1100.0	1152.2	22.8	52.2	Pipe 124	213.3	50	110	-65.6	0.4	6.4	Open
Junc 104	1120.0	1154.2	22.8	34.2	Pipe 125	95.2	25	110	9.4	0.2	5.1	Open
Junc 105	1130.0	1150.8	20.0	20.8	Pipe 126	174.9	25	110	30.7	0.7	45.9	Open
Junc 106	1135.0	1143.8	20.0	8.8	Pipe 127	113.1	25	110	15.3	0.4	12.7	Open
Junc 107	1100.0	1150.4	7.2	50.4	Pipe 128	71.3	50	110	47.4	0.3	3.5	Open
Junc 53	1220.0	1284.3	18.0	64.3	Pipe 129	92.1	25	110	28.2	0.7	39.3	Open
Junc 109	1205.0	1265.8	26.4	60.8	Pipe 130	106.2	50	110	-31.8	0.2	1.7	Open
Junc 110	1205.0	1235.0	26.4	30.0	Pipe 131	264.8	50	110	-42.4	0.3	2.9	Open
Junc 111	1170.0	1200.0	15.3	30.0	Pipe 132	137.2	50	110	-54.3	0.3	4.5	Open
Junc 112	1110.0	1157.8	14.7	47.8	Pipe 133	275.0	25	110	19.2	0.5	19.3	Open
Junc 52	1245.0	1296.1	2.3	51.1	Pipe 134	166.9	25	110	11.9	0.3	8.0	Open
Junc 113	1245.0	1275.0	14.6	30.0	Pipe 135	59.6	25	110	14.3	0.3	11.2	Open
Junc 114	1245.0	1279.4	11.9	34.4	Pipe 136	104.5	25	110	-0.8	0.0	0.1	Open
Junc 115	1245.0	1275.0	11.9	30.0	Pipe 137	87.1	25	110	15.8	0.4	13.5	Open
Junc 116	1205.0	1270.6	15.1	65.6	Pipe 139	57.2	50	110	-2.8	0.0	0.0	Open
Junc 117	1205.0	1239.5	15.1	34.5	Pipe 140	68.8	50	110	70.4	0.4	7.3	Open
Junc 118	1210.0	1259.5	9.4	49.5	Pipe 141	176.5	50	110	112.0	0.7	17.3	Open
Junc 119	1205.0	1258.9	9.4	53.9	Pipe 142	164.2	25	110	7.1	0.2	3.1	Open
Junc 120	1243.0	1253.5	19.6	10.5	Pipe 143	75.9	50	110	38.7	0.2	2.4	Open
Junc 121	1245.0	1252.2	16.0	7.2	Pipe 144	215.3	50	110	-28.1	0.2	1.3	Open
Junc 122	1195.0	1234.6	9.4	39.6	Pipe 145	266.0	25	110	18.3	0.4	17.6	Open
Junc 123	1235.0	1268.8	17.9	33.8	Pipe 146	143.7	25	110	6.4	0.2	2.5	Open
Junc 124	1250.0	1268.3	17.9	18.3	Pipe 147	56.8	25	110	35.6	0.8	60.5	Open
Junc 125	1253.0	1288.8	9.4	35.8	Pipe 148	89.8	25	110	16.0	0.4	13.8	Open
Junc 126	1250.0	1268.0	9.4	18.0	Pipe 149	225.8	50	110	71.0	0.4	7.4	Open
Junc 127	1253.0	1291.6	11.9	38.6	Pipe 150	113.7	50	110	52.6	0.3	4.3	Open
Junc 128	1248.0	1291.2	11.9	43.2	Pipe 151	114.9	50	110	58.6	0.4	5.2	Open
Junc 129	1243.0	1260.9	10.6	17.9	Pipe 152	202.8	50	110	18.8	0.1	0.6	Open
Junc 130	1237.0	1261.5	10.6	24.5	Pipe 153	132.8	25	110	9.4	0.2	5.1	Open
Junc 131	1237.0	1262.5	11.9	25.5	Pipe 154	162.9	50	110	26.7	0.2	1.2	Open
Junc 132	1250.0	1280.0	11.9	30.0	Pipe 155	137.3	100	110	371.1	0.6	5.4	Open
Junc 133	1232.0	1260.0	15.3	28.0	Pipe 156	150.0	25	110	2.9	0.1	0.6	Open
Junc 134	1200.0	1230.7	19.2	30.7	Pipe 157	55.1	25	110	29.5	0.7	42.8	Open
Junc 135	1190.0	1227.1	28.2	37.1	Pipe 159	42.4	100	110	288.2	0.4	3.4	Open
Junc 136	1210.0	1257.8	19.2	47.8	Pipe 161	163.1	25	110	18.3	0.4	17.6	Open
Junc 137	1235.0	1261.7	10.6	26.7	Pipe 162	129.8	100	110	314.8	0.5	4.0	Open
Junc 138	1250.0	1281.3	11.9	31.3	Pipe 163	84.3	50	110	104.0	0.6	15.1	Open
Junc 139	1210.0	1268.1	15.1	58.1	Pipe 164	134.4	25	110	17.7	0.4	16.5	Open
Junc 140	1185.0	1231.9	38.8	46.9	Pipe 165	213.7	50	110	42.3	0.3	2.8	Open
Junc 141	1183.0	1231.9	19.2	48.9	Pipe 167	131.4	50	110	43.0	0.3	2.9	Open
Junc 142	1195.0	1231.4	38.8	36.4	Pipe 168	113.0	50	110	24.7	0.2	1.1	Open
Junc 143	1198.0	1231.3	38.7	33.3	Pipe 169	170.0	50	110	-13.7	0.1	0.4	Open
Junc 144	1210.0	1268.1	15.1	58.1	Pipe 170	124.8	25	110	19.4	0.5	19.6	Open
Junc 146	1180.0	1237.2	15.3	57.2	Pipe 171	59.2	25	110	-5.4	0.1	1.8	Open
Junc 147	1228.0	1262.4	21.2	34.4	Pipe 172	86.6	50	110	52.4	0.3	4.2	Open
Junc 148	1238.0	1257.7	11.9	19.7	Pipe 173	166.6	25	110	9.4	0.2	5.1	Open
Junc 149	1250.0	1280.5	16.0	30.5	Pipe 174	69.9	50	110	92.6	0.6	12.1	Open
Junc 150	1242.0	1257.4	12.4	15.4	Pipe 175	151.1	50	110	67.8	0.4	6.8	Open
Junc 151	1215.0	1271.2	19.4	56.2	Pipe 176	48.3	200	110	-3358.3	1.2	11.0	Open
Junc 152	1217.0	1271.2	16.2	54.2	Pipe 177	81.7	200	110	3485.4	1.3	11.8	Open
Junc 153	1200.0	1237.1	19.4	37.1	Pipe 178	95.8	50	110	-84.1	0.5	10.2	Open
Junc 154	1200.0	1238.6	24.8	38.6	Pipe 179	115.1	50	110	99.1	0.6	13.8	Open
Junc 155	1185.0	1237.6	24.8	52.6	Pipe 180	171.4	100	110	274.5	0.4	3.1	Open
Junc 156	1185.0	1237.2	18.3	52.2	Pipe 181	171.4	50	110	205.9	1.2	53.4	Open
Junc 157	1175.0	1232.4	18.3	57.4	Pipe 182	77.1	50	110	166.4	1.0	36.0	Open
Junc 158	1145.0	1196.8	18.3	51.8	Pipe 183	141.0	200	110	3998.4	1.5	15.2	Open
Junc 159	1135.0	1195.1	26.7	60.1	Pipe 184	78.9	50	110	-4.0	0.0	0.0	Open
Junc 160	1143.0	1195.1	26.7	52.1	Pipe 185	77.4	50	110	-74.6	0.4	8.1	Open
Junc 161	1145.0	1197.0	26.7	52.0	Pipe 186	122.1	50	110	-95.7	0.6	12.9	Open
Junc 162	1165.0	1193.5	15.3	28.5	Pipe 187	50.3	200	110	-3077.2	1.1	9.3	Open
Junc 163	1110.0	1150.0	33.8	40.0	Pipe 188	50.3	200	110	3033.8	1.1	9.1	Open
Junc 164	1097.0	1153.8	14.7	56.8	Pipe 189	67.8	50	110	81.6	0.5	9.6	Open
Junc 165	1095.0	1125.0	14.7	30.0	Pipe 190	49.0	50	110	107.6	0.6	16.1	Open
Junc 166	1173.0	1190.5	22.7	17.5	Pipe 191	62.4	25	110	20.7	0.5	22.1	Open
Junc 167	1160.0	1185.5	34.3	25.5	Pipe 192	35.7	25	110	-36.3	0.9	62.6	Open
Junc 168	1175.0	1192.7	22.7	17.7	Pipe 193	89.5	25	110	34.3	0.8	56.4	Open
Junc 169	1173.0	1193.6	22.7	20.6	Pipe 195	107.9	25	110	15.3	0.4	12.7	Open
Junc 170	1175.0	1234.4	21.2	59.4	Pipe 197	168.2	50	110	58.9	0.4	5.3	Open
Junc 171	1170.0	1233.0	17.7	63.0	Pipe 198	80.3	25	110	26.7	0.6	35.4	Open
Junc 172	1165.0	1189.5	42.3	24.5	Pipe 199	80.8	50	110	-127.8	0.8	22.1	Open
Junc 173	1205.0	1268.8	19.4	63.8	Pipe 200	62.4	50	110	142.2	0.8	26.9	Open
Junc 174	1225.0	1271.6	16.2	46.6	Pipe 201	54.5	25	110	18.3	0.4	17.6	Open
Junc 175	1168.0	1194.3	22.7	26.3	Pipe 202	187.1	50	110	30.6	0.2	1.6	Open
Junc 176	1155.0	1194.9	15.3	39.9	Pipe 203	167.2	50	110	75.0	0.4	8.2	Open
Junc 177	1135.0	1190.9	26.7	55.9	Pipe 205	90.9	50	110	165.2	1.0	35.5	Open

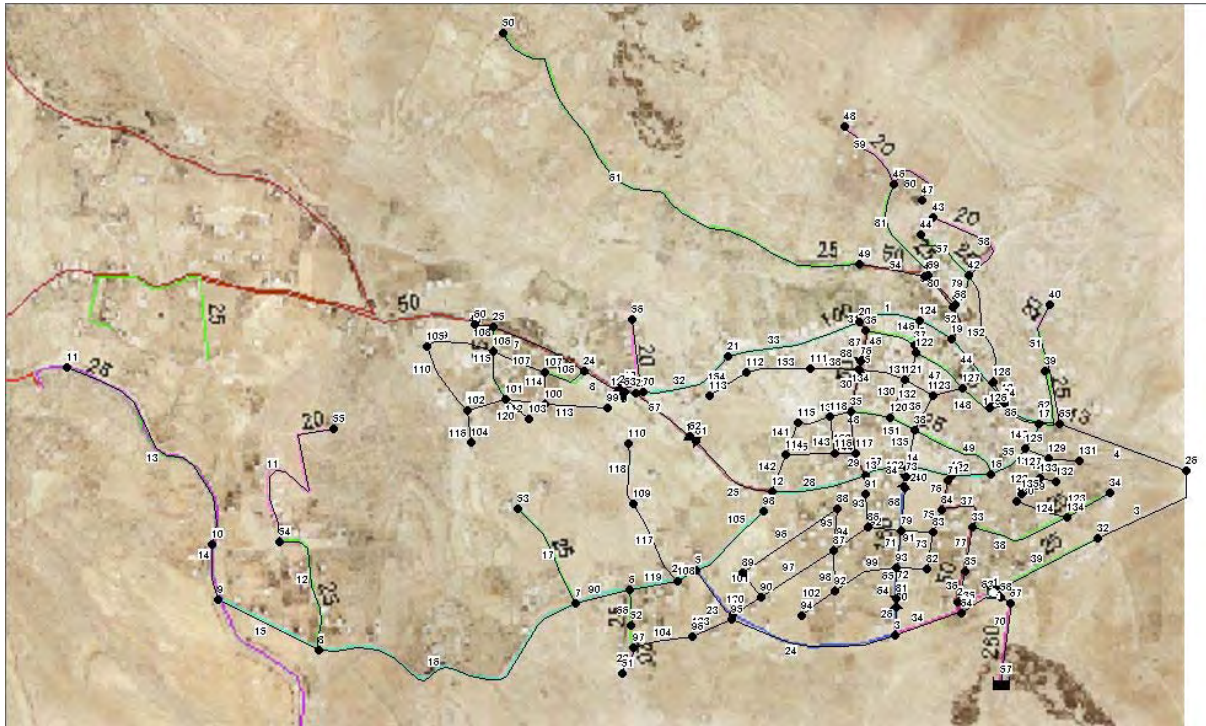
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 178	1155.0	1195.2	18.3	40.2	Pipe 206	74.5	25	110	14.7	0.4	11.7	Open
Junc 179	1103.0	1154.6	14.7	51.6	Pipe 207	50.1	50	110	135.9	0.8	24.7	Open
Junc 180	1095.0	1157.3	14.7	62.3	Pipe 208	167.6	25	110	-11.4	0.3	7.3	Open
Junc 181	1060.0	1090.1	38.8	30.1	Pipe 209	12.1	100	110	434.4	0.6	7.3	Open
Junc 182	1060.0	1090.9	74.6	30.9	Pipe 210	68.2	100	110	419.7	0.6	6.8	Open
Junc 183	1067.0	1103.5	59.1	36.5	Pipe 211	83.8	100	110	390.4	0.6	6.0	Open
Junc 184	1045.0	1086.6	38.8	41.6	Pipe 212	142.3	25	110	10.8	0.3	6.6	Open
Junc 185	1000.0	1084.5	10.8	84.5	Pipe 213	141.7	50	110	272.2	1.6	89.5	Open
Junc 186	1220.0	1269.3	16.2	49.3	Pipe 214	16.2	50	110	158.9	0.9	33.0	Open
Junc 187	1130.0	1198.0	27.1	68.0	Pipe 215	67.5	25	110	60.8	1.4	163.1	Open
Junc 188	1130.0	1160.0	27.1	30.0	Pipe 216	71.8	50	110	174.7	1.0	39.3	Open
Junc 189	1245.0	1291.1	9.0	46.1	Pipe 217	18.8	50	110	142.7	0.8	27.1	Open
Junc 191	1245.0	1298.1	9.0	53.1	Pipe 218	125.2	50	100	120.1	0.7	23.5	Open
Junc 192	1255.0	1298.1	9.0	43.1	Pipe 219	103.8	50	100	81.4	0.5	11.4	Open
Junc 193	1225.0	1285.7	10.6	60.7	Pipe 220	162.9	50	110	331.3	2.0	128.7	Open
Junc 194	1245.0	1293.1	12.3	48.1	Pipe 221	36.9	50	110	-51.0	0.3	4.0	Open
Junc 195	1255.0	1293.9	12.3	38.9	Pipe 222	11.1	150	100	2209.9	1.5	24.5	Open
Junc 196	1215.0	1284.7	10.6	69.7	Pipe 223	72.8	50	110	42.5	0.3	2.9	Open
Junc 197	1265.0	1298.7	9.0	33.7	Pipe 224	83.5	50	110	21.3	0.1	0.8	Open
Junc 54	1265.0	1298.8	9.0	33.8	Pipe 225	199.5	20	110	12.3	0.5	25.1	Open
Junc 145	1280.0	1298.7	23.0	18.7	Pipe 226	168.7	20	110	12.3	0.5	25.1	Open
Junc 190	1288.0	1298.2	18.0	10.2	Pipe 227	140.0	25	110	33.6	0.8	54.4	Open
Junc 198	1275.0	1291.2	11.3	16.2	Pipe 228	174.8	25	110	24.7	0.6	30.7	Open
Resvr 108	1305.0	1305.0	-5220.3	0.0	Pipe 229	91.2	25	110	14.1	0.3	10.8	Open
					Pipe 230	165.8	20	110	-3.5	0.1	2.4	Open
					Pipe 15	77.1	100	110	266.9	0.4	3.0	Open
					Pipe 16	71.9	100	110	235.0	0.4	2.3	Open
					Pipe 34	182.3	50	110	23.0	0.1	0.9	Open
					Pipe 39	227.3	50	110	18.0	0.1	0.6	Open
					Pipe 43	238.0	25	110	11.3	0.3	7.2	Open
					Pipe 45	15.0	50	110	197.6	1.2	49.5	Open
					Valve 115	#N/A	200	#N/A	2835.2	1.0	36.0	Active
					Valve 52	#N/A	100	#N/A	568.4	0.8	30.8	Active
					Valve 65	#N/A	100	#N/A	699.2	1.0	21.1	Active
					Valve 88	#N/A	200	#N/A	3962.6	1.5	4.4	Active
					Valve 92	#N/A	200	#N/A	3468.0	1.3	30.6	Active
					Valve 105	#N/A	100	#N/A	405.1	0.6	32.3	Active
					Valve 116	#N/A	200	#N/A	2182.8	0.8	38.0	Active



3) ガランダール

NODE Gharandal					LINK Gharandal							
ID	Elevation m	Demand m ³ /d	Head m	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m ³ /d	Velocity m/s	Unit head loss m/km	Status
Junc 1	1415.0	1468.1	0.0	53.1	Pipe 7	270.3	50	110	-80.2	0.5	9.3	Open
Junc 2	1408.0	1430.0	4.8	22.0	Pipe 8	108.5	100	110	-246.3	0.4	2.5	Open
Junc 3	1415.0	1466.6	4.8	51.6	Pipe 9	28.7	100	110	-295.6	0.4	3.6	Open
Junc 4	1405.0	1431.6	13.2	26.6	Pipe 10	224.9	25	110	28.2	0.7	39.3	Open
Junc 5	1380.0	1431.1	12.4	51.1	Pipe 11	557.5	20	110	-4.6	0.2	4.1	Open
Junc 6	1390.0	1423.9	12.4	33.9	Pipe 12	356.8	50	110	-50.6	0.3	4.0	Open
Junc 7	1390.0	1417.5	35.8	27.5	Pipe 13	679.6	25	110	-23.0	0.5	27.0	Open
Junc 8	1375.0	1396.4	52.8	21.4	Pipe 14	149.8	25	110	-30.2	0.7	44.6	Open
Junc 9	1355.0	1379.1	4.6	24.1	Pipe 15	297.0	25	110	-34.8	0.8	58.0	Open
Junc 10	1345.0	1372.5	7.2	27.5	Pipe 16	826.8	50	110	-138.2	0.8	25.5	Open
Junc 11	1300.0	1354.1	23.0	54.1	Pipe 17	301.4	25	110	10.8	0.3	6.6	Open
Junc 12	1365.0	1397.8	19.2	32.8	Pipe 20	88.5	20	110	7.2	0.3	9.3	Open
Junc 13	1365.0	1399.1	23.3	34.1	Pipe 21	56.6	100	110	-254.0	0.4	2.7	Open
Junc 14	1365.0	1399.9	43.6	34.9	Pipe 23	153.7	100	110	-285.6	0.4	3.3	Open
Junc 15	1365.0	1397.7	15.8	32.7	Pipe 24	452.2	50	110	-45.2	0.3	3.2	Open
Junc 16	1364.0	1396.2	15.9	32.2	Pipe 25	254.8	100	110	-327.4	0.5	4.3	Open
Junc 17	1345.0	1393.7	22.1	48.7	Pipe 26	74.8	200	110	2266.4	0.8	5.3	Open
Junc 18	1340.0	1361.8	22.1	21.8	Pipe 27	114.4	150	110	-1280.9	0.8	7.5	Open
Junc 19	1335.0	1362.0	48.9	27.0	Pipe 28	254.0	100	110	-355.7	0.5	5.0	Open
Junc 20	1330.0	1369.5	28.9	39.5	Pipe 29	65.3	150	110	901.9	0.6	3.9	Open
Junc 21	1330.0	1368.9	21.2	38.9	Pipe 30	114.4	100	110	602.8	0.9	13.3	Open
Junc 22	1315.0	1369.3	10.6	54.3	Pipe 31	27.5	100	110	193.4	0.3	1.6	Open
Junc 23	1310.0	1345.0	10.6	35.0	Pipe 32	260.2	50	110	-10.6	0.1	0.2	Open
Junc 24	1300.0	1344.7	45.9	44.7	Pipe 33	362.5	50	110	-31.8	0.2	1.7	Open
Junc 25	1275.0	1342.2	11.3	67.2	Pipe 34	183.9	200	110	-2316.4	0.9	5.5	Open
Junc 32	1400.0	1467.3	12.3	67.3	Pipe 35	102.3	200	110	-2321.2	0.9	5.5	Open
Junc 33	1385.0	1430.8	15.8	45.8	Pipe 36	84.1	25	110	-4.8	0.1	1.5	Open
Junc 34	1385.0	1428.8	12.3	43.8	Pipe 37	153.7	50	110	-69.5	0.4	7.1	Open
Junc 35	1350.0	1398.5	34.7	48.5	Pipe 38	269.9	50	110	44.1	0.3	3.1	Open
Junc 36	1330.0	1369.6	28.9	39.6	Pipe 39	311.6	100	110	248.5	0.4	2.6	Open
Junc 37	1343.0	1366.3	48.9	23.3	Pipe 40	122.2	50	110	116.9	0.7	18.7	Open
Junc 38	1360.0	1396.8	43.6	36.8	Pipe 44	208.6	50	110	-22.1	0.1	0.9	Open
Junc 39	1365.0	1390.5	17.9	25.5	Pipe 46	138.8	50	110	133.6	0.8	24.0	Open
Junc 40	1395.0	1436.2	17.9	41.2	Pipe 47	158.5	50	110	22.0	0.1	0.9	Open
Junc 41	1330.0	1360.7	48.9	30.7	Pipe 48	103.9	50	110	102.8	0.6	14.7	Open
Junc 42	1350.0	1418.9	19.4	68.9	Pipe 49	249.1	50	110	38.0	0.2	2.3	Open
Junc 43	1380.0	1413.4	19.4	33.4	Pipe 51	331.6	25	110	17.9	0.4	16.9	Open
Junc 44	1360.0	1415.5	19.4	55.5	Pipe 52	98.9	50	110	97.5	0.6	13.4	Open
Junc 45	1335.0	1360.3	19.4	25.3	Pipe 53	110.6	50	110	48.6	0.3	3.7	Open
Junc 46	1365.0	1415.5	0.0	50.5	Pipe 54	177.8	50	110	29.2	0.2	1.4	Open
Junc 47	1380.0	1412.2	19.4	32.2	Pipe 57	173.1	25	110	19.4	0.5	19.7	Open
Junc 48	1395.0	1407.2	28.2	12.2	Pipe 58	279.9	25	110	19.4	0.5	19.7	Open
Junc 49	1320.0	1360.0	24.6	40.0	Pipe 59	210.2	25	110	28.2	0.7	39.3	Open
Junc 50	1325.0	1358.3	4.6	33.3	Pipe 60	170.2	25	110	19.4	0.5	19.7	Open
Junc 51	1420.0	1460.9	7.2	40.9	Pipe 61	1229.0	25	110	4.6	0.1	1.4	Open
Junc 52	1405.0	1423.9	12.4	18.9	Pipe 70	217.4	200	110	2597.9	1.0	6.8	Open
Junc 53	1360.0	1415.4	10.8	55.4	Pipe 74	225.6	50	110	196.2	1.2	48.8	Open
Junc 54	1345.0	1395.0	46.0	50.0	Pipe 79	90.9	50	110	-115.9	0.7	18.4	Open
Junc 55	1295.0	1392.7	4.6	97.7	Pipe 80	108.0	50	110	67.0	0.4	6.7	Open
Junc 56	1290.0	1336.2	28.2	46.2	Pipe 81	284.7	50	110	47.6	0.3	3.5	Open
Junc 65	1345.0	1441.8	22.1	96.8	Pipe 82	103.7	50	110	101.1	0.6	14.3	Open
Junc 67	1415.0	1468.5	14.1	53.5	Pipe 83	29.5	200	110	2583.8	1.0	6.8	Open
Junc 68	1330.0	1417.2	48.9	87.2	Pipe 86	113.9	50	110	-13.3	0.1	0.3	Open
Junc 69	1335.0	1416.5	19.4	81.5	Pipe 87	83.0	100	110	355.9	0.5	5.0	Open
Junc 70	1315.0	1368.9	10.6	53.9	Pipe 90	147.6	50	110	184.8	1.1	43.7	Open
Junc 71	1370.0	1430.8	15.8	60.8	Pipe 55	117.6	50	110	123.2	0.7	20.6	Open
Junc 72	1370.0	1433.8	15.8	63.8	Pipe 62	187.8	25	110	17.9	0.4	16.9	Open
Junc 73	1370.0	1400.0	15.8	30.0	Pipe 66	93.8	50	110	12.4	0.1	0.3	Open
Junc 74	1340.0	1393.7	22.1	53.7	Pipe 67	183.9	100	110	306.2	0.5	3.8	Open
Junc 75	1340.0	1397.0	28.9	57.0	Pipe 43	49.8	25	110	11.3	0.3	7.2	Open
Junc 76	1340.0	1370.0	28.9	30.0	Pipe 63	28.7	200	110	2569.7	1.0	6.7	Open
Junc 61	1340.0	1396.7	10.6	56.7	Pipe 65	83.1	200	110	2256.8	0.8	5.3	Open
Junc 62	1340.0	1370.0	10.6	30.0	Pipe 68	116.6	200	110	1625.5	0.6	2.9	Open
Junc 63	1310.0	1369.2	10.6	59.2	Pipe 71	98.4	200	110	2160.8	0.8	4.9	Open
Junc 58	1415.0	1468.3	14.1	53.3	Pipe 72	83.1	25	110	15.8	0.4	13.5	Open
Junc 60	1275.0	1341.9	11.3	66.9	Pipe 73	97.3	25	110	11.0	0.3	6.9	Open
Junc 64	1410.0	1467.6	4.8	57.6	Pipe 75	63.2	50	110	101.2	0.6	14.3	Open
Junc 79	1383.0	1434.1	15.8	51.1	Pipe 76	81.2	25	110	15.8	0.4	13.5	Open
Junc 80	1405.0	1466.2	4.8	61.2	Pipe 77	117.9	25	110	9.6	0.2	5.3	Open
Junc 81	1405.0	1435.0	4.8	30.0	Pipe 91	84.5	50	110	106.0	0.6	15.6	Open
Junc 82	1395.0	1433.4	4.8	38.4	Pipe 92	88.7	100	110	413.5	0.6	6.6	Open
Junc 83	1383.0	1432.8	15.8	49.8	Pipe 93	91.2	25	110	23.3	0.6	27.6	Open
Junc 84	1373.0	1431.9	15.8	58.9	Pipe 94	109.8	100	110	367.0	0.5	5.3	Open
Junc 85	1395.0	1430.1	4.8	35.1	Pipe 95	110.7	25	110	20.2	0.5	21.2	Open
Junc 86	1382.0	1433.5	23.3	51.5	Pipe 96	302.8	25	110	-3.1	0.1	0.7	Open
Junc 87	1389.0	1432.9	23.3	43.9	Pipe 97	231.9	100	110	328.2	0.5	4.3	Open
Junc 88	1375.0	1430.6	23.3	55.6	Pipe 98	107.8	25	110	-4.8	0.1	1.5	Open
Junc 89	1390.0	1430.8	13.2	40.8	Pipe 99	179.8	50	110	75.4	0.4	8.3	Open
Junc 90	1402.0	1431.9	13.2	29.9	Pipe 100	86.1	100	110	298.8	0.4	3.6	Open
Junc 91	1372.0	1431.0	23.3	59.0	Pipe 101	81.0	25	110	16.3	0.4	14.2	Open
Junc 92	1402.0	1433.1	35.3	31.1	Pipe 102	108.8	50	110	35.3	0.2	2.0	Open
Junc 93	1383.0	1434.6	4.8	51.6	Pipe 103	115.7	50	110	32.0	0.2	1.7	Open
Junc 94	1405.0	1432.9	35.3	27.9	Pipe 104	160.1	25	110	19.6	0.5	20.0	Open

ID	Elevation m	Demand m3/d	Head m	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 95	1405.0	1465.1	13.2	60.1	Pipe 105	243.8	25	110	-19.2	0.5	19.3	Open
Junc 96	1403.0	1464.9	12.4	61.9	Pipe 106	121.2	50	110	120.2	0.7	19.7	Open
Junc 97	1410.0	1461.7	12.4	51.7	Pipe 107	149.4	25	110	7.1	0.2	3.1	Open
Junc 98	1370.0	1426.4	19.2	56.4	Pipe 108	64.9	50	110	57.6	0.3	5.1	Open
Junc 99	1310.0	1340.7	10.6	30.7	Pipe 109	184.2	25	110	9.1	0.2	4.8	Open
Junc 100	1303.0	1341.8	14.1	38.8	Pipe 110	206.2	25	110	-2.2	0.1	0.4	Open
Junc 101	1300.0	1341.5	23.5	41.5	Pipe 111	102.8	50	110	-49.3	0.3	3.8	Open
Junc 102	1300.0	1341.1	23.5	41.1	Pipe 112	107.4	50	110	-42.5	0.3	2.9	Open
Junc 103	1312.0	1338.9	14.1	26.9	Pipe 113	166.5	25	110	10.6	0.3	6.4	Open
Junc 104	1320.0	1338.7	23.5	18.7	Pipe 114	85.8	50	110	67.2	0.4	6.7	Open
Junc 105	1260.0	1341.0	11.3	81.0	Pipe 115	137.9	50	110	44.4	0.3	3.1	Open
Junc 106	1275.0	1341.9	11.3	66.9	Pipe 116	83.5	25	110	23.5	0.6	28.1	Open
Junc 107	1277.0	1342.3	45.9	65.3	Pipe 117	237.8	25	110	32.0	0.8	49.6	Open
Junc 108	1385.0	1430.9	12.4	45.9	Pipe 118	164.5	20	110	10.6	0.4	19.0	Open
Junc 109	1355.0	1419.1	21.4	64.1	Pipe 119	127.7	50	110	209.6	1.2	55.1	Open
Junc 110	1325.0	1416.0	10.6	91.0	Pipe 120	79.6	20	110	14.1	0.5	32.3	Open
Junc 111	1343.0	1395.7	28.9	52.7	Pipe 122	22.9	200	110	1593.9	0.6	2.8	Open
Junc 112	1337.0	1395.0	21.2	58.0	Pipe 123	133.5	25	110	12.3	0.3	8.5	Open
Junc 113	1335.0	1394.8	32.0	59.8	Pipe 124	139.9	25	110	15.9	0.4	13.6	Open
Junc 114	1358.0	1397.3	32.0	39.3	Pipe 125	67.8	50	110	74.4	0.4	8.1	Open
Junc 115	1353.0	1397.8	34.7	44.8	Pipe 126	79.5	25	110	4.6	0.1	1.4	Open
Junc 116	1360.0	1398.5	34.7	38.5	Pipe 127	56.9	50	110	47.7	0.3	3.6	Open
Junc 117	1358.0	1398.8	34.7	40.8	Pipe 128	65.5	25	110	15.9	0.4	13.6	Open
Junc 118	1353.0	1398.1	34.7	45.1	Pipe 129	44.1	25	110	15.9	0.4	13.6	Open
Junc 120	1357.0	1397.0	43.6	40.0	Pipe 130	108.5	25	110	18.6	0.4	18.1	Open
Junc 121	1350.0	1395.0	43.6	45.0	Pipe 131	81.3	50	110	70.9	0.4	7.4	Open
Junc 122	1343.0	1394.4	48.9	51.4	Pipe 132	88.0	50	110	11.1	0.1	0.2	Open
Junc 123	1355.0	1395.0	43.6	40.0	Pipe 133	79.0	50	110	79.1	0.5	9.1	Open
Junc 124	1335.0	1365.6	48.9	30.6	Pipe 134	124.3	50	110	107.0	0.6	15.9	Open
Junc 125	1353.0	1393.8	22.1	40.8	Pipe 135	104.0	50	110	152.5	0.9	30.6	Open
Junc 126	1345.0	1393.8	22.1	48.8	Pipe 136	104.6	50	110	111.6	0.7	17.2	Open
Junc 127	1345.0	1394.2	43.6	49.2	Pipe 138	129.1	50	110	82.1	0.5	9.7	Open
Junc 128	1338.0	1430.8	22.1	92.8	Pipe 139	59.1	50	110	69.7	0.4	7.2	Open
Junc 129	1360.0	1393.2	22.1	33.2	Pipe 140	88.0	50	110	44.4	0.3	3.1	Open
Junc 130	1375.0	1428.0	15.9	53.0	Pipe 141	88.7	25	110	9.7	0.2	5.5	Open
Junc 131	1368.0	1393.1	4.6	25.1	Pipe 142	106.5	25	110	-9.1	0.2	4.8	Open
Junc 132	1370.0	1392.4	15.9	22.4	Pipe 143	96.9	25	110	-9.4	0.2	5.1	Open
Junc 133	1362.0	1393.0	15.9	31.0	Pipe 144	57.1	50	110	57.3	0.3	5.0	Open
Junc 134	1390.0	1429.9	15.9	39.9	Pipe 145	129.3	25	110	13.2	0.3	9.7	Open
Junc 135	1370.0	1392.1	15.9	22.1	Pipe 146	65.3	50	110	-84.7	0.5	10.3	Open
Junc 26	1360.0	1466.6	0.0	106.6	Pipe 147	76.8	50	110	26.7	0.2	1.2	Open
Resvr 57	1470.0	1470.0	-2597.9	0.0	Pipe 148	91.6	50	110	57.5	0.3	5.0	Open
					Pipe 149	44.0	50	110	35.4	0.2	2.0	Open
					Pipe 150	110.2	150	110	810.0	0.5	3.2	Open
					Pipe 151	72.8	50	110	40.6	0.2	2.6	Open
					Pipe 152	304.6	50	110	174.1	1.0	39.1	Open
					Pipe 153	172.1	50	110	53.2	0.3	4.4	Open
					Pipe 154	116.0	50	110	32.0	0.2	1.7	Open
					Pipe 1	167.1	50	110	132.7	0.8	23.6	Open
					Pipe 2	97.5	50	110	168.5	1.0	36.8	Open
					Pipe 3	329.9	100	110	236.2	0.4	2.4	Open
					Pipe 4	359.4	50	110	-236.2	1.4	68.8	Open
					Valve 84	#N/A	200	#N/A	1609.7	0.6	33.8	Active
					Valve 88	#N/A	100	#N/A	384.8	0.6	27.0	Active
					Valve 19	#N/A	100	#N/A	316.8	0.5	26.7	Active
					Valve 64	#N/A	200	#N/A	2261.6	0.8	31.2	Active
					Valve 121	#N/A	100	#N/A	285.1	0.4	24.2	Active

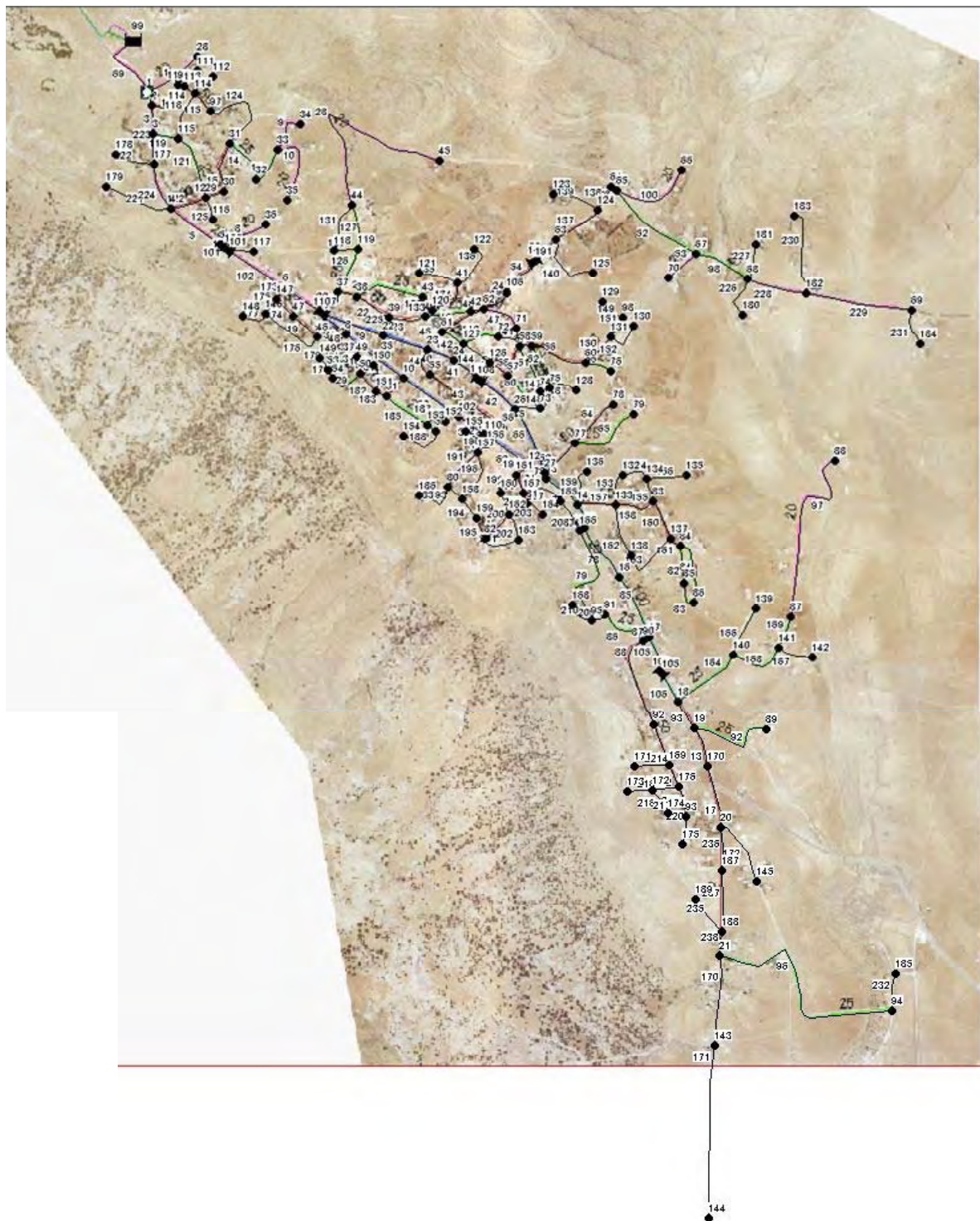


4) カデシエ

NODE Qhadesiyeh					LINK Qhadesiyeh							
ID	Elevation m	Head m	Demand m ³ /d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m ³ /d	Velocity m/s	Unit head loss m/km	Status
Junc 1	1580.0	1596.5	3.6	16.5	Pipe 1	214.4	20	110	3.4	0.1	2.3	Open
Junc 2	1575.0	1595.6	13.6	20.6	Pipe 2	48.9	200	110	4300.1	1.6	17.3	Open
Junc 3	1570.0	1594.0	30.0	24.0	Pipe 3	101.5	200	110	4160.9	1.5	16.3	Open
Junc 4	1550.0	1590.0	38.7	40.0	Pipe 5	211.6	200	110	3785.8	1.4	13.7	Open
Junc 5	1530.0	1587.1	18.7	57.1	Pipe 7	152.4	200	110	3544.9	1.3	12.1	Open
Junc 6	1505.0	1557.1	40.2	52.1	Pipe 8	177.0	50	110	20.0	0.1	0.7	Open
Junc 7	1495.0	1525.0	34.2	30.0	Pipe 9	146.0	20	110	-4.6	0.2	4.1	Open
Junc 8	1495.0	1523.7	34.2	28.7	Pipe 10	257.6	25	110	23.7	0.6	28.5	Open
Junc 9	1490.0	1522.9	34.2	32.9	Pipe 11	149.1	50	110	125.6	0.7	21.4	Open
Junc 10	1480.0	1521.3	36.7	41.3	Pipe 14	165.9	50	110	75.7	0.5	8.4	Open
Junc 11	1450.0	1484.9	46.4	34.9	Pipe 15	133.2	50	110	52.0	0.3	4.2	Open
Junc 12	1430.0	1484.0	15.0	54.0	Pipe 16	181.0	50	110	-77.4	0.5	8.7	Open
Junc 13	1430.0	1483.6	15.0	53.6	Pipe 19	105.2	50	110	29.7	0.2	1.5	Open
Junc 14	1440.0	1482.9	45.5	42.9	Pipe 20	88.4	100	110	305.3	0.5	3.8	Open
Junc 15	1440.0	1482.6	20.0	42.6	Pipe 21	68.4	50	110	195.9	1.2	48.6	Open
Junc 16	1435.0	1478.8	13.2	43.8	Pipe 22	132.2	50	110	85.5	0.5	10.5	Open
Junc 17	1425.0	1474.8	13.2	49.8	Pipe 23	129.1	50	110	61.5	0.4	5.7	Open
Junc 18	1405.0	1449.1	54.0	44.1	Pipe 25	158.2	50	110	-12.0	0.1	0.3	Open
Junc 19	1405.0	1448.7	31.8	43.7	Pipe 26	247.5	50	110	76.2	0.5	8.5	Open
Junc 20	1390.0	1447.8	50.0	57.8	Pipe 28	750.5	20	110	7.2	0.3	9.3	Open
Junc 21	1360.0	1436.2	57.6	76.2	Pipe 29	120.8	50	110	17.4	0.1	0.6	Open
Junc 22	1485.0	1522.9	43.7	37.9	Pipe 30	110.5	50	110	-64.6	0.4	6.2	Open
Junc 23	1470.0	1521.4	56.7	51.4	Pipe 31	77.9	50	110	-31.1	0.2	1.6	Open
Junc 24	1465.0	1521.1	73.4	56.1	Pipe 32	106.2	150	110	1683.2	1.1	12.4	Open
Junc 25	1455.0	1485.0	73.4	30.0	Pipe 33	65.3	150	110	1617.9	1.1	11.5	Open
Junc 26	1445.0	1483.9	73.4	38.9	Pipe 34	185.7	150	110	1391.2	0.9	8.7	Open
Junc 27	1430.0	1483.6	15.0	53.6	Pipe 36	62.2	50	110	-96.8	0.6	13.2	Open
Junc 28	1570.0	1596.0	3.4	26.0	Pipe 37	38.8	50	110	-192.5	1.1	47.1	Open
Junc 29	1545.0	1587.2	44.6	42.2	Pipe 38	214.5	150	110	1502.2	1.0	10.0	Open
Junc 30	1540.0	1584.9	84.6	44.9	Pipe 40	99.0	150	110	749.4	0.5	2.8	Open
Junc 31	1535.0	1583.4	23.7	48.4	Pipe 41	103.4	150	110	676.0	0.4	2.3	Open
Junc 32	1530.0	1582.0	23.7	52.0	Pipe 42	155.4	100	110	427.0	0.6	7.0	Open
Junc 33	1525.0	1581.4	23.7	56.4	Pipe 43	313.1	50	110	-56.4	0.3	4.9	Open
Junc 34	1515.0	1580.8	4.6	65.8	Pipe 44	102.4	50	110	-103.1	0.6	14.8	Open
Junc 35	1515.0	1574.1	23.7	59.1	Pipe 45	85.0	100	110	519.7	0.8	10.1	Open
Junc 36	1520.0	1559.9	20.0	39.9	Pipe 46	161.7	100	110	406.6	0.6	6.4	Open
Junc 37	1485.0	1524.7	54.2	39.7	Pipe 47	143.8	50	110	25.1	0.2	1.1	Open
Junc 38	1485.0	1521.3	34.2	36.3	Pipe 51	23.1	50	110	193.9	1.1	47.7	Open
Junc 39	1485.0	1520.0	53.7	35.0	Pipe 52	356.3	50	110	161.8	1.0	34.1	Open
Junc 40	1485.0	1519.2	33.7	34.2	Pipe 53	130.1	20	110	13.8	0.5	31.0	Open
Junc 41	1475.0	1518.7	32.2	43.7	Pipe 55	95.6	25	110	-25.8	0.6	33.3	Open
Junc 42	1480.0	1519.3	42.2	39.3	Pipe 56	199.9	50	110	-116.1	0.7	18.5	Open
Junc 43	1485.0	1519.3	43.7	34.3	Pipe 57	45.2	50	110	-107.2	0.6	15.9	Open
Junc 44	1480.0	1523.7	20.0	43.7	Pipe 58	115.5	50	110	-121.5	0.7	20.1	Open
Junc 45	1460.0	1516.7	7.2	56.7	Pipe 59	130.7	50	110	-175.6	1.0	39.7	Open
Junc 46	1495.0	1556.1	34.2	61.1	Pipe 60	160.7	50	110	-10.8	0.1	0.2	Open
Junc 47	1500.0	1556.3	15.2	56.3	Pipe 61	177.0	50	110	11.4	0.1	0.3	Open
Junc 48	1495.0	1523.6	31.1	28.6	Pipe 62	159.5	50	110	34.7	0.2	2.0	Open
Junc 49	1490.0	1521.1	31.1	31.1	Pipe 63	145.7	50	110	66.6	0.4	6.6	Open
Junc 50	1490.0	1520.3	21.1	30.3	Pipe 64	189.7	50	110	25.8	0.2	1.1	Open
Junc 51	1485.0	1519.4	26.7	34.4	Pipe 65	252.5	25	110	25.8	0.6	33.3	Open
Junc 52	1475.0	1518.6	22.4	43.6	Pipe 66	246.8	100	110	164.4	0.2	1.2	Open
Junc 53	1495.0	1520.4	16.1	25.4	Pipe 67	233.1	150	110	1333.5	0.9	8.1	Open
Junc 54	1495.0	1520.4	16.1	25.4	Pipe 68	155.9	150	110	1137.5	0.7	6.0	Open
Junc 55	1475.0	1519.9	46.7	44.9	Pipe 73	190.5	50	110	41.7	0.3	2.8	Open
Junc 56	1445.0	1518.3	56.4	73.3	Pipe 74	75.7	150	110	978.9	0.6	4.5	Open
Junc 57	1455.0	1479.8	43.4	24.8	Pipe 75	26.0	100	110	-82.8	0.1	0.3	Open
Junc 58	1460.0	1477.5	25.7	17.5	Pipe 76	143.2	150	110	1046.7	0.7	5.1	Open
Junc 59	1455.0	1476.8	25.7	21.8	Pipe 77	88.4	150	110	779.6	0.5	3.0	Open
Junc 60	1440.0	1473.1	51.3	33.1	Pipe 78	209.8	100	110	709.5	1.1	18.0	Open
Junc 61	1475.0	1520.5	53.7	45.5	Pipe 79	389.5	25	110	-20.1	0.5	21.1	Open
Junc 62	1475.0	1519.5	42.2	44.5	Pipe 82	126.4	25	110	30.2	0.7	44.7	Open
Junc 63	1445.0	1484.7	40.0	39.7	Pipe 83	90.3	25	110	3.8	0.1	1.0	Open
Junc 64	1420.0	1467.0	14.1	47.0	Pipe 84	220.5	25	110	-22.6	0.5	26.0	Open
Junc 65	1420.0	1465.9	22.1	45.9	Pipe 85	231.5	100	110	-696.3	1.0	17.4	Open
Junc 66	1425.0	1464.2	10.0	39.2	Pipe 86	167.8	25	110	-6.3	0.2	2.4	Open
Junc 67	1410.0	1453.7	50.2	43.7	Pipe 87	25.2	75	110	207.5	0.5	7.5	Open
Junc 68	1410.0	1451.1	31.8	41.1	Pipe 88	330.7	50	110	176.6	1.0	40.2	Open
Junc 69	1420.0	1437.8	16.0	17.8	Pipe 92	307.7	50	110	38.4	0.2	2.4	Open
Junc 70	1415.0	1449.7	13.8	34.7	Pipe 93	103.7	100	110	328.2	0.5	4.3	Open
Junc 71	1465.0	1519.3	42.2	54.3	Pipe 96	799.1	50	110	30.2	0.2	1.5	Open
Junc 72	1470.0	1519.4	42.2	49.4	Pipe 97	666.2	25	110	18.0	0.4	17.1	Open
Junc 73	1445.0	1479.8	51.3	34.8	Pipe 98	199.4	50	110	97.8	0.6	13.4	Open
Junc 74	1455.0	1477.5	41.3	22.5	Pipe 100	288.0	25	110	10.0	0.2	5.8	Open
Junc 75	1450.0	1477.1	41.3	27.1	Pipe 69	260.3	200	110	4307.1	1.6	17.4	Open
Junc 76	1435.0	1469.9	25.8	34.9	Pipe 101	22.6	200	110	3767.1	1.4	13.6	Open
Junc 77	1425.0	1482.7	15.0	57.7	Pipe 102	223.0	200	110	3679.5	1.4	13.0	Open
Junc 78	1430.0	1482.4	25.8	52.4	Pipe 105	134.7	100	110	475.6	0.7	8.6	Open
Junc 79	1420.0	1474.2	25.8	54.2	Pipe 106	108.6	100	110	455.6	0.7	7.9	Open
Junc 80	1455.0	1482.0	16.4	27.0	Pipe 112	15.4	150	110	1313.5	0.9	7.8	Open
Junc 81	1435.0	1481.1	20.0	46.1	Pipe 12	20.5	50	110	110.6	0.7	16.9	Open
Junc 82	1450.0	1480.6	30.0	30.6	Pipe 114	46.6	50	110	83.9	0.5	10.1	Open
Junc 83	1415.0	1471.6	20.0	56.6	Pipe 115	80.5	50	110	58.7	0.4	5.2	Open

ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 84	1415.0	1469.0	31.8	54.0	Pipe 116	72.9	25	110	6.7	0.2	2.7	Open
Junc 85	1420.0	1463.4	26.4	43.4	Pipe 117	85.8	20	110	5.0	0.2	4.7	Open
Junc 86	1410.0	1463.3	26.4	53.3	Pipe 118	173.7	25	110	0.2	0.0	0.0	Open
Junc 87	1380.0	1446.0	15.4	66.0	Pipe 119	91.7	50	110	138.5	0.8	25.6	Open
Junc 88	1390.0	1434.6	18.0	44.6	Pipe 121	230.3	50	110	118.7	0.7	19.2	Open
Junc 89	1390.0	1448.0	38.4	58.0	Pipe 122	124.8	50	110	127.9	0.8	22.1	Open
Junc 90	1425.0	1474.6	24.6	49.6	Pipe 123	66.1	50	110	162.0	1.0	34.2	Open
Junc 91	1430.0	1474.2	13.2	44.2	Pipe 124	315.7	25	110	-22.0	0.5	24.9	Open
Junc 92	1415.0	1461.3	56.4	46.3	Pipe 125	79.8	50	110	40.0	0.2	2.6	Open
Junc 93	1400.0	1456.4	40.2	56.4	Pipe 126	165.1	50	110	55.2	0.3	4.7	Open
Junc 94	1355.0	1435.0	20.2	80.0	Pipe 127	158.9	50	110	28.1	0.2	1.3	Open
Junc 95	1430.0	1474.3	8.2	44.3	Pipe 128	83.7	25	110	10.0	0.2	5.8	Open
Junc 96	1565.0	1592.4	15.0	27.4	Pipe 130	82.0	25	110	-7.1	0.2	3.0	Open
Junc 97	1540.0	1591.2	36.7	51.2	Pipe 131	177.7	20	110	0.9	0.0	0.2	Open
Junc 98	1425.0	1472.7	10.0	47.7	Pipe 132	57.4	50	110	32.5	0.2	1.7	Open
Junc 100	1530.0	1586.7	20.0	56.7	Pipe 133	30.3	50	110	39.7	0.2	2.5	Open
Junc 101	1530.0	1560.0	37.6	30.0	Pipe 134	152.1	50	110	42.2	0.3	2.8	Open
Junc 102	1470.0	1519.4	10.0	49.4	Pipe 135	140.8	25	110	5.0	0.1	1.6	Open
Junc 104	1420.0	1473.6	0.0	53.6	Pipe 136	169.8	25	110	5.0	0.1	1.6	Open
Junc 105	1420.0	1450.0	20.0	30.0	Pipe 137	179.5	50	110	238.0	1.4	69.8	Open
Junc 107	1495.0	1555.3	20.0	60.3	Pipe 138	94.5	50	110	208.0	1.2	54.4	Open
Junc 108	1455.0	1520.9	0.0	65.9	Pipe 139	168.2	25	110	10.0	0.2	5.8	Open
Junc 109	1455.0	1485.0	10.0	30.0	Pipe 140	236.6	20	110	7.2	0.3	9.3	Open
Junc 110	1455.0	1518.6	0.0	63.6	Pipe 141	99.8	50	110	-17.2	0.1	0.5	Open
Junc 111	1560.0	1591.9	6.7	31.9	Pipe 142	85.6	50	110	59.4	0.4	5.3	Open
Junc 112	1550.0	1591.2	5.0	41.2	Pipe 143	128.6	50	110	59.4	0.4	5.3	Open
Junc 113	1560.0	1592.1	20.0	32.1	Pipe 144	110.9	25	110	0.0	0.0	0.0	Open
Junc 114	1550.0	1591.6	20.0	41.6	Pipe 145	90.7	50	110	189.2	1.1	45.6	Open
Junc 115	1560.0	1591.6	20.0	31.6	Pipe 146	76.7	50	110	148.6	0.9	29.2	Open
Junc 116	1540.0	1587.0	40.0	47.0	Pipe 147	34.7	50	110	96.0	0.6	13.0	Open
Junc 117	1510.0	1559.5	10.0	49.5	Pipe 148	98.4	25	110	20.0	0.5	20.8	Open
Junc 118	1475.0	1523.7	8.0	48.7	Pipe 149	90.7	20	110	10.0	0.4	17.1	Open
Junc 119	1470.0	1523.9	20.0	53.9	Pipe 150	124.6	50	110	39.0	0.2	2.5	Open
Junc 120	1485.0	1519.2	30.0	34.2	Pipe 151	79.7	50	110	20.0	0.1	0.7	Open
Junc 121	1470.0	1518.5	5.0	48.5	Pipe 152	125.5	25	110	9.0	0.2	4.7	Open
Junc 122	1460.0	1518.5	5.0	58.5	Pipe 153	115.1	25	110	29.7	0.7	43.3	Open
Junc 123	1430.0	1471.2	10.0	41.2	Pipe 154	98.3	25	110	2.7	0.1	0.5	Open
Junc 124	1425.0	1472.1	20.0	47.1	Pipe 155	85.6	25	110	-17.3	0.4	15.9	Open
Junc 125	1430.0	1482.5	7.2	52.5	Pipe 156	138.0	20	110	10.0	0.4	17.1	Open
Junc 126	1460.0	1520.1	0.0	60.1	Pipe 157	135.5	50	110	211.6	1.3	56.1	Open
Junc 127	1465.0	1520.1	0.0	55.1	Pipe 158	141.6	50	110	139.6	0.8	26.0	Open
Junc 128	1445.0	1475.0	20.0	30.0	Pipe 159	151.7	25	110	10.0	0.2	5.8	Open
Junc 129	1430.0	1471.2	10.0	41.2	Pipe 160	143.7	50	110	102.3	0.6	14.6	Open
Junc 130	1430.0	1472.2	9.0	42.2	Pipe 161	45.8	50	110	84.6	0.5	10.3	Open
Junc 131	1435.0	1472.8	10.0	37.8	Pipe 162	186.4	25	110	32.3	0.8	50.4	Open
Junc 132	1425.0	1470.3	27.0	45.3	Pipe 163	217.6	25	110	-17.7	0.4	16.7	Open
Junc 133	1430.0	1475.3	10.0	45.3	Pipe 164	255.8	50	110	73.4	0.4	7.9	Open
Junc 134	1420.0	1470.2	10.0	50.2	Pipe 166	180.0	20	110	10.0	0.4	17.1	Open
Junc 135	1410.0	1467.9	10.0	57.9	Pipe 167	122.6	20	110	10.0	0.4	17.1	Open
Junc 136	1430.0	1482.0	10.0	52.0	Pipe 168	203.8	50	110	53.4	0.3	4.4	Open
Junc 137	1415.0	1469.5	0.0	54.5	Pipe 169	116.0	50	110	33.4	0.2	1.8	Open
Junc 138	1425.0	1465.9	50.0	40.9	Pipe 170	312.8	25	110	20.0	0.5	20.8	Open
Junc 139	1395.0	1444.0	10.0	49.0	Pipe 171	595.2	20	110	10.0	0.4	17.1	Open
Junc 140	1395.0	1447.1	10.0	52.1	Pipe 172	234.6	25	110	20.2	0.5	21.2	Open
Junc 141	1385.0	1446.2	10.0	61.2	Pipe 173	45.6	50	110	94.4	0.6	12.6	Open
Junc 142	1375.0	1444.1	10.0	69.1	Pipe 174	84.8	50	110	44.9	0.3	3.2	Open
Junc 143	1355.0	1429.7	10.0	74.7	Pipe 175	64.5	50	110	34.5	0.2	2.0	Open
Junc 144	1345.0	1419.5	10.0	74.5	Pipe 176	232.9	25	110	4.5	0.1	1.3	Open
Junc 145	1375.0	1442.8	20.2	67.8	Pipe 177	93.8	25	110	15.0	0.4	12.2	Open
Junc 146	1500.0	1556.4	15.0	56.4	Pipe 178	34.5	50	110	-33.5	0.2	1.9	Open
Junc 147	1505.0	1556.5	15.0	51.5	Pipe 179	49.2	25	110	15.0	0.4	12.2	Open
Junc 148	1490.0	1555.3	15.0	65.3	Pipe 180	59.4	25	110	15.0	0.4	12.1	Open
Junc 149	1490.0	1519.8	15.0	29.8	Pipe 181	92.4	25	110	0.0	0.0	0.0	Open
Junc 150	1485.0	1519.6	15.0	34.6	Pipe 182	81.3	50	110	78.2	0.5	8.9	Open
Junc 151	1490.0	1519.6	20.0	29.6	Pipe 183	42.5	50	110	58.1	0.3	5.1	Open
Junc 152	1475.0	1518.1	10.0	43.1	Pipe 184	86.7	25	110	21.0	0.5	22.7	Open
Junc 153	1480.0	1518.6	10.0	38.6	Pipe 185	171.4	50	110	52.4	0.3	4.2	Open
Junc 154	1480.0	1515.7	10.0	35.7	Pipe 186	38.8	50	110	32.4	0.2	1.7	Open
Junc 155	1465.0	1482.9	10.0	17.9	Pipe 187	89.4	25	110	10.0	0.2	5.8	Open
Junc 156	1450.0	1484.4	10.0	34.4	Pipe 188	167.8	20	110	10.0	0.4	17.1	Open
Junc 157	1450.0	1483.7	10.0	33.7	Pipe 189	21.6	50	110	129.7	0.8	22.7	Open
Junc 158	1455.0	1481.6	0.0	26.6	Pipe 190	42.7	50	110	109.7	0.7	16.6	Open
Junc 159	1450.0	1481.0	15.8	31.0	Pipe 191	162.3	50	110	85.6	0.5	10.5	Open
Junc 160	1440.0	1480.6	20.0	40.6	Pipe 192	85.1	20	110	10.0	0.4	17.1	Open
Junc 161	1435.0	1482.4	20.0	47.4	Pipe 193	66.3	50	110	59.2	0.4	5.3	Open
Junc 162	1440.0	1480.6	50.0	40.6	Pipe 194	79.6	50	110	73.3	0.4	7.9	Open
Junc 163	1445.0	1479.9	20.0	34.9	Pipe 195	75.3	50	110	57.5	0.3	5.0	Open
Junc 164	1440.0	1478.3	15.5	38.3	Pipe 196	189.0	25	110	14.1	0.3	10.9	Open
Junc 165	1440.0	1481.2	20.0	41.2	Pipe 197	55.2	50	110	143.6	0.9	27.4	Open
Junc 166	1440.0	1482.5	15.5	42.5	Pipe 199	83.6	25	110	20.9	0.5	22.5	Open
Junc 167	1430.0	1481.4	20.0	51.4	Pipe 200	82.3	25	110	0.9	0.0	0.1	Open
Junc 168	1430.0	1473.9	5.0	43.9	Pipe 201	132.6	25	110	9.4	0.2	5.1	Open
Junc 169	1410.0	1458.4	10.0	48.4	Pipe 202	94.4	25	110	10.6	0.3	6.5	Open
Junc 170	1395.0	1448.3	30.0	53.3	Pipe 203	72.1	20	110	15.5	0.6	38.5	Open
Junc 171	1415.0	1456.4	10.0	41.4	Pipe 204	16.0	50	110	50.1	0.3	3.9	Open
Junc 172	1415.0	1455.8	10.0	40.8	Pipe 205	67.6	50	110	102.7	0.6	14.7	Open
Junc 173	1410.0	1454.2	10.0	44.2	Pipe 206	41.7	50	110	77.2	0.5	8.7	Open

ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 174	1405.0	1455.8	10.0	50.8	Pipe 207	147.1	25	110	5.5	0.1	1.9	Open
Junc 175	1395.0	1454.4	20.0	59.4	Pipe 208	120.4	25	110	-14.5	0.3	11.5	Open
Junc 176	1405.0	1457.2	10.0	52.2	Pipe 209	51.4	25	110	6.9	0.2	2.9	Open
Junc 177	1565.0	1592.4	30.0	27.4	Pipe 210	95.6	20	110	5.0	0.2	4.7	Open
Junc 178	1545.0	1591.7	5.0	46.7	Pipe 211	147.9	50	110	120.2	0.7	19.7	Open
Junc 179	1535.0	1588.8	5.0	53.8	Pipe 212	85.1	50	110	100.2	0.6	14.1	Open
Junc 180	1400.0	1448.4	10.0	48.4	Pipe 213	108.0	50	110	72.6	0.4	7.7	Open
Junc 181	1420.0	1448.9	10.0	28.9	Pipe 214	120.2	20	110	10.0	0.4	17.1	Open
Junc 182	1420.0	1450.4	10.0	30.4	Pipe 215	89.4	25	110	17.6	0.4	16.4	Open
Junc 183	1430.0	1445.2	10.0	15.2	Pipe 216	93.5	25	110	-2.4	0.1	0.4	Open
Junc 184	1420.0	1435.6	10.0	15.6	Pipe 217	69.4	25	110	-12.4	0.3	8.6	Open
Junc 185	1360.0	1432.8	10.0	72.8	Pipe 218	90.8	20	110	10.0	0.4	17.1	Open
Junc 186	1450.0	1479.4	10.0	29.4	Pipe 220	95.2	25	110	20.0	0.5	20.8	Open
Junc 187	1380.0	1443.0	20.0	63.0	Pipe 221	241.8	20	110	5.0	0.2	4.7	Open
Junc 188	1365.0	1437.6	20.0	72.6	Pipe 222	139.8	20	110	5.0	0.2	4.7	Open
Junc 189	1380.0	1435.1	10.0	55.1	Pipe 223	104.2	200	110	3992.4	1.5	15.1	Open
Junc 190	1455.0	1518.6	0.0	63.6	Pipe 224	164.9	200	110	3957.4	1.5	14.9	Open
Junc 191	1455.0	1485.0	0.0	30.0	Pipe 225	66.8	25	110	29.7	0.7	43.2	Open
Junc 103	1465.0	1519.1	0.0	54.1	Pipe 226	153.6	20	110	10.0	0.4	17.1	Open
Junc 106	1465.0	1519.1	0.0	54.1	Pipe 227	124.5	20	110	10.0	0.4	17.1	Open
Resvr 99	1601.0	1601.0	-4307.1	0.0	Pipe 228	207.9	50	110	46.0	0.3	3.3	Open
					Pipe 229	371.6	25	110	26.0	0.6	33.8	Open
					Pipe 230	302.6	20	110	10.0	0.4	17.1	Open
					Pipe 231	127.9	20	110	10.0	0.4	17.1	Open
					Pipe 232	131.6	20	110	10.0	0.4	17.1	Open
					Pipe 233	150.9	20	110	10.0	0.4	17.1	Open
					Pipe 235	146.6	20	110	10.0	0.4	17.1	Open
					Pipe 236	149.2	50	110	157.8	0.9	32.6	Open
					Pipe 237	212.7	50	110	137.8	0.8	25.4	Open
					Pipe 238	83.3	50	110	107.8	0.6	16.1	Open
					Pipe 4	116.7	50	110	-18.1	0.1	0.6	Open
					Pipe 13	141.0	100	110	258.0	0.4	2.8	Open
					Pipe 17	221.2	100	110	228.0	0.3	2.2	Open
					Pipe 27	103.6	100	110	285.2	0.4	3.3	Open
					Pipe 35	162.0	150	110	1428.8	0.9	9.2	Open
					Pipe 39	110.7	150	110	1323.5	0.9	7.9	Open
					Pipe 48	44.0	50	110	-54.2	0.3	4.5	Open
					Pipe 49	102.2	100	110	285.2	0.4	3.3	Open
					Pipe 54	144.4	100	110	285.2	0.4	3.3	Open
					Pipe 24	4.3	100	110	285.2	0.4	3.3	Open
					Valve 6	#N/A	200	#N/A	3747.1	1.4	26.7	Active
					Valve 107	#N/A	100	#N/A	475.6	0.7	23.6	Active
					Valve 108	#N/A	200	#N/A	3524.9	1.3	30.3	Active
					Valve 111	#N/A	150	#N/A	676.0	0.4	35.9	Active
					Valve 113	#N/A	150	#N/A	1323.5	0.9	33.6	Active
					Valve 18	#N/A	100	#N/A	285.2	0.4	33.6	Active



参考資料－9 土壌の腐食性試験結果

(1) 腐食性判定結果

腐食性判定結果を次表に示す。点数が 10 点以上になると鑄鉄管に対しては腐食性を示すため防食対策が必要である。なお、参考のため、電蝕土壌腐食ハンドブックの比抵抗値による腐食性を参考のため下表に示す。

腐食性の判定

	比抵抗値 ($\Omega\text{-cm}$)	Redox	硫酸塩	水分	pH 値	判定
タフィーラ県タフィーラ市 (病院) R-1	1600～3400 やや激しい腐食度 0 点～8 点	無測定	痕跡 2 点	乾燥 0 点	強アルカリ性 腐食性 3 点	5～13 点
タフィーラ県タフィーラ市 (病院) R-3 (漏水頻繁発生箇所)	1600～3800 やや激しい腐食度 0 点～8 点	無測定	痕跡 2 点	乾燥 0 点	強アルカリ性 腐食性 3 点	5～13 点
ブセイラ R-2	1600～3200 やや激しい腐食度 0 点～8 点	無測定	痕跡 2 点	乾燥 0 点	強アルカリ性 腐食性 3 点	5～13 点

土壌比抵抗による腐食程度

腐食性	比抵抗値 ($\Omega\text{-cm}$)	例えの土壌
激しい	0 ～ 1, 0 0 0	腐葉土 沼地
やや激しい	1, 0 0 0 ～ 5, 0 0 0	畑 (誘導性薬品のある場所)
中程度	5, 0 0 0 ～ 1 0, 0 0 0	一般土壌 黒土 畑
小程度	1 0, 0 0 0 ～ 1 0 0, 0 0 0	乾燥土 小石まじりの土
極めて小程度	1 0 0, 0 0 0 以上	火山灰 砂利層

電蝕土壌腐食ハンドブックより

(2) 腐食性試験結果

Electrical Resistivity Survey

An electrical resistivity survey was conducted along the axis, assigned by the project study team, and as indicated on the drawings as required utilizing the Wenner configuration with the following spacings $a = 1\text{m}, 2\text{m}, 3\text{m}, 4\text{m}$ and 5m . This implies the following depths of penetration (h) = $0.6\text{m}, 1.2\text{m}, 1.8\text{m}, 2.4\text{m}$ and 3m in successive order.

This resistivity meter measures the voltage difference between the potential electrode pair in response to an "AC" current (= 200mA ; $10\text{-}40\text{-Hz}$) driven into the ground via the pair of current electrodes. The

resistance between the potential electrodes is determined via an interval bridge circuit in which a resistance is altered using potentiometer to give the same output voltage as measured across the potential electrodes. The " ρ_a " for the ground under the center (ground) electrode is then calculated from the measured resistance which in turn depends on the electrode geometrical factor this being " a " for a Wenner configuration.

The complete ERP field equipment consists of:

1. A YEW 3244 Resistivity Meter Box containing an AC potentiometer, a voltmeter and galvanometer.
2. Five steel electrodes each 10 cm in length.
3. External 12 V-DC/30 AH Car Storage liquid battery.
4. Two 330m and two 110m measuring lead wires.

The specifications of the YEW Resistivity Meter are:

Range 0-30 ohm; 0.5 ohm/division

(Multiplier dials: x0.01, x1.0, x10).

Accuracy : $\pm 1\%$ of full scale value below 10 ohms.
 $\pm 3\%$ of indicated value between 10-30 ohms.

O/P Voltage: Setting dials 150,300 and 600 V-DC.

Current : Up to 200 mA.

Frequency : 10-40 Hz.

The measured resistance at each electrode spacing represents the average resistance of the earth material between the earth's surface and a depth equal to about 2/3 of the current electrode spacing. At all measuring points both the electric current (I) and the voltage (V) were changed and the resistance was calculated

$$\text{As } R \text{ (ohms)} = V \text{ (volt)} / I \text{ (ampere)} \dots \dots \dots (1)$$

Laboratory testing on three samples from test pits were assigned by the project study team. The laboratory tests include the soil corrosive testing to aid in checking the corrosive potential of soil along the proposed pipelines route. The laboratory tests were conducted according to the following Standards:

No.	Type of Tests	Reference Standards	Number of Tests
1.	Moisture Content Determination	ASTM D 2216	3
2.	Chloride Content of Soil	BS: 1377, Part 3	3
3.	Sulphate Content of Soil	BS: 1377, Part 3	3
4.	pH value of Soil	BS: 1377, Part 3	3

(1) Results of Tafieleh

Soil Resistivity Measurement
At T.P. 1A / Along Axis R1-R1

Axis	Electrodes Spacing a (m)	Electrodes Depth, B (cm)	Voltage (V)	Current (mA)	Resistance Readings (R)	Specific Earth Resistance {(Ω -m)}
	1	10	12.0	150	2.5	16
	2	10	12.0	140	2.0	25
	3	10	12.0	160	1.8	34
	4	10	12.0	130	1.0	25
	5	10	12.0	100	0.5	16

Soil Resistivity Measurement
At T.P. 2A / Along Axis R2-R2

Axis	Electrodes Spacing a (m)	Electrodes Depth, B (cm)	Voltage (V)	Current (mA)	Resistance Readings (R)	Specific Earth Resistance {(Ω -m)}
	1	10	12.0	140	3.0	19
	2	10	12.0	130	2.0	25
	3	10	12.0	160	1.7	32
	4	10	12.0	140	0.75	19
	5	10	12.0	100	0.5	16

Soil Resistivity Measurement
At T.P. 3A / Along Axis R3-R3

Axis	Electrodes Spacing a (m)	Electrodes Depth, B (cm)	Voltage (V)	Current (mA)	Resistance Readings (R)	Specific Earth Resistance {(Ω -m)}
	1	10	12.0	140	3.5	22
	2	10	12.0	130	2.7	34
	3	10	12.0	150	2.0	38
	4	10	12.0	140	1.0	25
	5	10	12.0	140	0.5	16

Summary sheets of laboratory tests results are tabulated in Figure (3).

Summary of Tests Results

For

The Project Of Rehabilitation And Expansion Of

Water Facilities

In Southern Governorates Of Tafieleh And Ma'an / Jordan

(For Tafieleh Site)

Job No. : S2010/C20/06-F2

[illegible]

G.E.M.T

FIGURE 3

(2) Results of Ma'an

Soil Resistivity Measurement At T.P. 3 / Along Axis R1-R1

Axis	Electrodes Spacing a (m)	Electrodes Depth, B (cm)	Voltage (V)	Current (mA)	Resistance Readings (R)	Specific Earth Resistance {(Ω·m)
	1	10	12.0	150	3.0	19
	2	10	12.0	130	1.5	19
	3	10	12.0	150	1.0	19
	4	10	12.0	140	0.5	13
	5	10	12.0	140	0.15	5

Soil Resistivity Measurement At T.P. 5 / Along Axis R2-R2

Axis	Electrodes Spacing a (m)	Electrodes Depth, B (cm)	Voltage (V)	Current (mA)	Resistance Readings (R)	Specific Earth Resistance {(Ω -m)
	1	10	12.0	130	5.0	31
	2	10	12.0	100	3.0	38
	3	10	12.0	100	1.0	19
	4	10	12.0	110	0.05	1.3
	5	10	12.0	140	0.01	0.3

Soil Resistivity Measurement At T.P. 6 / Along Axis R3-R3

Axis	Electrodes Spacing a (m)	Electrodes Depth, B (cm)	Voltage (V)	Current (mA)	Resistance Readings (R)	Specific Earth Resistance {(Ω·m)}
	1	10	12.0	130	4.5	28
	2	10	12.0	100	3.5	44
	3	10	12.0	150	2.0	38
	4	10	12.0	140	1.0	25
	5	10	12.0	140	0.5	16

Summary sheet of laboratory tests results are tabulated in Figure (3).

[illegible]

G.E.M.T

FIGURE 3

参考資料－10 既存減圧装置の検討

現状使用されている減圧装置の実情を調査し以下の結果となった。

1) 現状の使用状況

地域：マアン支所ペトラ水道事務所

水道システム：2000 年、USAID の資金による米国 CDM の設計

減圧方法：

減圧槽： 4 箇所

減圧弁： 10 箇所

減圧槽用水位調整弁の価格：100mm 3,000USD

減圧弁：100mm 10,000 USD（スイス CLA VAL 製）

耐用年数：減圧水槽用水位調整弁は3年、水位調整弁（パイロット弁）は500 JD（約700 USD）

減圧弁 3-4 年（キャビテーションによる内部弁座の侵食）

100mm配管の減圧設備比較表

緒元	減圧弁	減圧水槽
(1) 構成品	減圧弁（φ100mm）	水槽（L7.4 x W2.7 x H2.75）＋水槽水位調整弁（φ100mm）
(2) 据付場所	任意（道路下、道路側道下）	同左
(3) 必要据付スペース（弁室）	約 7m ²	27M ²
(4) 1 次側圧力	12～20Bar.	同左
(4) 2 次側調整圧力	5Bar. 以下	0 Bar.
(5) 耐用年数	約 3-4 年	約 3-4 年 水位調整弁は約 3 年
(6) 維持管理技術力	パイロットバルブの調整	同左

現在使用されている減圧弁及び減圧水槽ともに故障の原因はキャビテーションによる弁座の侵食が激しく使用不能になる。CDM は対策として、減圧を分散する意味で、弁手前にオリフィスを入れて設計している箇所もあるが、現在の所、オリフィスをいれることで、配管に振動が起きたために撤去している。



写真 1 キャビテーションによる破損



キャビテーションによる破損

2) 減圧装置の検討

本計画での最も留意しなくてはならない問題はキャビテーション対策である。一般的にキャビテーション係数(σ)は以下の式で計算される。

$$\sigma = (H_2 + 10) / ((H_1 - H_2) + (v^2 / 2g))$$

H_1 : バルブの 1 次側水頭 (m)

H_2 : バルブの 2 次側水頭 (m)

V : 管内流速 (m/s)

g : 重力加速度 (9.8m/s²)

上記計算によるキャビテーション係数(σ)とは別にバルブ固有のキャビテーション係数(σ_2)がある。これらの関係は $\sigma > \sigma_2$ の場合においてはキャビテーションが起きないとされている。ペトラ水道システムでは 10 箇所の減圧弁 (口径 100mm x 8 箇所、150mm x 2 箇所) 及び 5 箇所 (流入管口径 100mm x 2 箇所及び 150mm x 3 箇所) による減圧装置が稼動しており、口径 100mm についての仕様および稼動状況は下表のとおりである。

ペトラ水道システムの減圧設備

減圧装置	1 次圧力水頭 (m)	2 次圧力水頭 (m)	圧力差 (m)	キャビテーション係数 (σ)	キャビテーションによる被害
弁 100mm	150	90	60	1.67	◎
弁 100mm	220	60	160	0.44	●
弁 100mm	170	100	70	1.57	◎
弁 100mm	130	30	100	0.40	○
水槽 (流入管口径 150mm)	200	0	200	0.05	●

注記) キャビテーションによる被害の状況

● : 大 ○ : 中 ◎ : 小

キャビテーションによる被害は、弁座部の侵食が多い。(写真参照) 上表ではこれらの侵食が 5 年以内に使用できないくらい進行したものを被害大としている。これらの取替え等メンテナンス費用 (人件費は除く) として、交換部品費が過去実績として年間平均 6,000JD の支出がかかるのである。新品に交換するためには実績、性能から最も優れている Cra Val 社(スイス)100mm の減圧弁の場合 10,000US\$が必要である。

3) 結論

減圧水槽の場合、2 次側水頭が 0m であるために、減圧弁に比して圧力差が大きくなり、固有キャビテーション係数を下回る事が多い。上記ペトラの場合、1 次側水頭が 100m を超える場合、 σ_2 が小数点以下と成りキャビテーションは確実に起きることになる。よって、本計画地域の特色として、1 次側圧力が高い場合、減圧水槽の使用は避けるべきである。

上記ペトラ水道は減圧弁、水位調整弁ともキャビテーション係数を無視して計画したものと思え

る。よって、本計画では減圧弁のキャビテーション係数（ σ_2 ）は0.5が境界であり、0.7以上とする。また、最適弁開度は流量、差圧によって決定するものとする。

参考資料－11 「ヨ」国負担工事費（管路工事費）の概算

地区毎口径毎の工事延長の推定(m)

管径	工種	タフィーラ市	ブセイラ	ガラन्दール	カデシヤ	合計
63mm（外径）	工事のみ	14,640	14,410	9,610	11,440	50,100
25mm（内径）	資材・工事	17,000	9,970	8,640	13,540	49,150
20mm（内径）	資材・工事	30,616	16,730	8,330	13,450	69,126
合計		47,616	26,700	16,970	26,990	118,276

「ヨ」国側配水管網更新事業費の推定(千 JD)

管径	工種	タフィーラ市	ブセイラ	ガラन्दール	カデシヤ	合計
63mm（外径）	工事のみ	702.7	691.7	461.3	549.1	2,405
25mm（内径）	資材・工事	714.0	418.7	362.9	568.7	2,064.3
20mm（内径）	資材・工事	1,224.6	669.2	333.2	538.0	2,765.0
合計		2,641.3	1,779.6	1,157.4	1,655.8	7,234.1

参考資料－12 マアン県対象地域の概略設計

1. 設計方針

(1) 基本方針

基本方針は、基本的にタフィーラ県の基本方針と同じである。以下に追加基本方針を示す。

1) 各対象地域に効果的な配水管理及び無収水管理のためのシステムの構築

マアン県の対象地域であるマアン市の給水地域は起伏の少ない平坦な地域に位置しているため、一部ポンプ配水地域を除き、給水圧に大きな差はない。マアン県対象地域において、漏水量の低減及び適切な配水管理を行い、給水状況を改善するため、以下の方策を採用する。

- ① 無収水及び配水管理を容易にするため配水区を分割する。
- ② 無収水及び配水管理を容易にするため配水モニタリングシステムを構築する。

(2) 実施機関の運営・維持管理能力に対する方針

工事完成後の送・配水施設の日常的な維持管理は、マアン県ではAqaba Water Company (AWC) マアン支所が担当する。Aqaba Water Company はWAJ が出資する企業体で、2010年7月からWAJ マアン支所の運営・維持管理の委託を受けている。

2. 基本計画（施設計画／機材計画）

(1) 設計条件

タフィーラ県の設計条件に加えて追加的に設定した設計条件を以下に示す。

1) 計画総人口及び給水人口

表 1 マアン県の将来人口増加率の推定値

	2009-2010	2011-2015	2016-2020	2021-2025
マアン県	2.0%	2.0%	1.7%	1.5%

表 2 マアン県の将来推定人口

項目	2010年	2015年	2020年	2025年
マアン県	116,000	128,100	139,400	150,200

表 3 タフィーラ県とマアン県のプロジェクト対象地域の将来推定人口

項目	2010 年	2015 年	2020 年	2025 年
マアン県事業対象地域（マアン市）	32,800	36,200	39,400	42,500

表 4 2004 年センサスによる水道普及率（％）

県	都市部	地方部	全域
マアン県	95.7	87.4	91.2

表 5 マアン県のプロジェクト対象地域の将来推定給水人口

項目	2010 年	2015 年	2020 年	2025 年
水道普及率	100 %	100 %	100 %	100 %
給水人口				
マアン県プロジェクト対象地域（マアン市）	32,800	36,200	39,400	42,500

2) 計画無収水率及び漏水率

表 6 マアン県全域の無収水率及びその変動

県	2007 年	2008 年	2007-2008 年の 無収水率の変動率
マアン県	53.4%	57.4%	4.0%

マアン県対象地域であるマアン市の 2007 年から 2009 年の総生産水量（総給水量）及び各戸水道メータ集計水量（有収水量）を基に、次表のとおり、一日平均給水量、無収水量、無収水率を算定した。更に、推定人口から、一人一日平均給水量及び有収水量を算出した。2009 年の無収水率は 61%と算定される。管網更新地域及び非更新地域の計画漏水率、計画無収水率及び管理損失率を表 8 に示す。

表 7 マアン市の総生産水量（総給水量）と各戸メータ集計水量（有収水量）の分析

年	年間総給水量 ($\text{m}^3/\text{年}$)	一日平均給水量 ($\text{m}^3/\text{日}$)	有収水量 ($\text{m}^3/\text{年}$)	無収水量 ($\text{m}^3/\text{年}$)	無収水率 (%)	推定人口 -	一人一日平均給水量 ($1/\text{人}/\text{日}$)	一人一日平均有収水量 ($1/\text{人}/\text{日}$)
2007	2,916,421	7,990	1,139,493	1,776,928	61	30,803	259	101
2008	3,285,435	9,001	1,247,515	2,037,920	62	31,450	286	109
2009	3,420,899	9,372	1,330,300	2,090,599	61	32,170	291	113
平均	3,207,585	8,788	1,239,103	1,968,482	61	31,474	279	108

表 8 管網更新地域及び非更新地域の計画漏水率、計画無収水率及び管理損失率

(単位：%)

項目	現状	管網更新地域				管網非更新地域		
	2010 年	2015 年	2020 年	2025 年	2015 年	2020 年	2025 年	
1. 計画漏水率(無効水率)	30	15	15	15	25	22.5	20	
2. 計画無収水率	61	40	35	25	50	40	25	

3) 計画一人一日平均使用水量及び給水量

マアン県の対象地域に関しては、現在の使用水量が 204 L と目標給水量を大きく上回っている。これは、高い無収水率及び夏季の高温と極端に乾燥した気候による水消費量の増加及び現地の水使用行動様式によるものと考えられる。水資源の希少なヨルダンでは効率的な水使用により実使用水量の低減が必要とされている。現在の水使用の行動様式をすぐに大幅に変更は不可能であるが、長期間においては変更可能と考える。従って、本事業では、マアン県の対象地域の一人一日平均使用水量を 2015 年で 200 L とし、その後 5 年間で約 10 L ずつ低減する計画とする。本事業における 2010 年から 2025 年までの管網更新地域の計画一人一日平均給水量及び計画一人一日平均使用水量を次表のとおり計画する。

表 9 管網更新地域の計画一人一日平均使用水量及び給水量

項目	単位	2010 年	2015 年	2020 年	2025 年
マアン					
計画一人一日平均使用量	L/人/日	204	200	190	180
計画一人一日平均給水量	L/人/日	291	235	224	212

4) 計画負荷率及び配水池容量

施設容量を決定するための計画負荷率及び配水池容量を以下のとおり設定する。

a) 計画負荷率（1/日最大係数）

マアン市の月変動係数の最大値（日最大係数）は 1.40 である。タフィーラ県と同様、本プロジェクトの日最大係数を 1.5 と設定する。

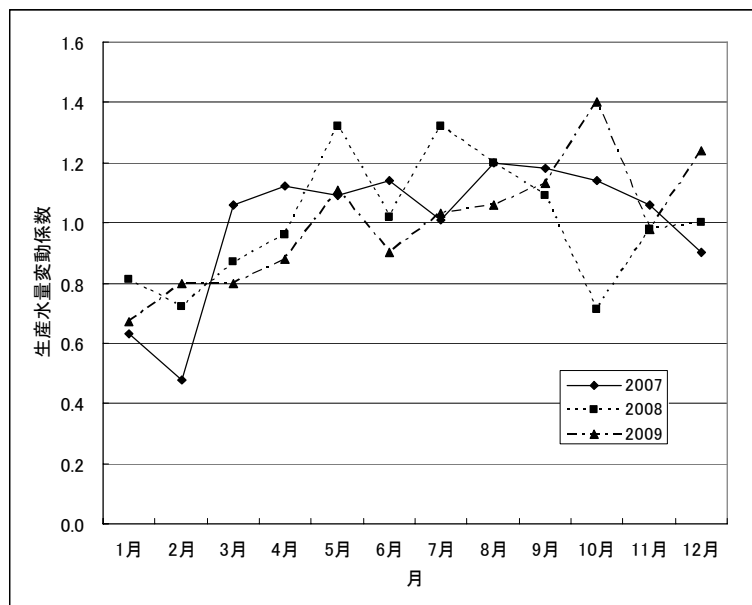


図 エラー! 指定したスタイルは使われていません。-1 各月の月間給水量を年間平均給水量で割った値の年間変動 (マアン市)

b) 時間係数

マアン市については夏季に給水制限を行っていることから正確な時間係数を求められていない。従い、給水制限を実施していなかった 12 月の実績値を用いて時間係数の算定値を採用した。WAJ 計画設計部の設計値は 1.5～2.0 であること、実績値が 2.0 前後の値であることから本計画では 2.0 とした。

表 10 パイロットプロジェクトにより推定された時間係数

県	測定月	時間係数
マアン	2006 年 12 月	2.06

出所：JICA 技術協力プロジェクト

5) 水需要量の計画条件のまとめ

対象地域の水需要量の計画条件を年次ごとに次表にまとめる。

表 11 マアン県対象地域の水需要量の計画条件値

項目	単位	現状	管網更新地域			管網非更新地域		
		2010	2015	2020	2025	2015	2020	2025
計画一人一日平均使用水量	L/人/日	204	200	190	180	204	200	190
計画一人一日平均給水量	L/人/日	291	235	224	212	272	258	238
計画一人一日最大給水量	L/人/日	437	353	335	318	408	387	356
計画漏水率（無効水）	—	0.30	0.15	0.15	0.15	0.250	0.225	0.200
計画負荷率	—	1.5	1.5	1.5	1.5	1.5	1.5	1.5
時間係数	—	2	2	2	2	2	2	2

(2) 配水区計画と計画水需要量

1) 配水区計画

対象地域であるマアン市の供給水源はタホネ水源とサムネ水源の 2 水源である。給水地域は大きく 3 つの配水地域に類型できる。

- タホネ新配水池からの自然流下配水池区：市中心部、中部及び北部
- タホネ新配水池ポンプ場からのポンプ配水地区：オドラ地区及び市中心部地区の一部
- サムネ配水池からの自然流下及びポンプ配水：マアン市南部、西部地区及び市中心部地区の一部

対象地域の配水池の標高を表 12 のとおり示し、供給源の配水池及びポンプ場とともに既存配水地域を表 13 に示す。

表 12 マアン市の既存配水池の容量と標高

既存担当配水池/ポンプ場	配水池底盤の標高 (m)	配水池天端の標高 (m)	容量 (m ³)
タホネ配水池	1170	1175.6	4,500
サムネ配水池	1,197（衛星写真で 配水池位置標高）	—	2,000

表 13 マアン市の既存の配水地域及び送配水方法

配水地域	既存担当配水池/ポンプ場	配水池底盤の標高(m)	配水区の標高(m)	標高差(m)	計画送配水方法
オドラ	タホネポンプ場	1170.4	1125-1145	20	タホネ配水池のポンプ場から直接ポンプ配水
市中心部	タホネ配水池	1170.4	1095-1120	25	タホネ配水池から自然流下配水
	タホネ配水ポンプ場	1170.4	1105-1140	25	タホネ配水池のポンプ場から Odrah 地区を経て直接ポンプ配水
	サムネ配水ポンプ場	1197	1130-1150	20	サムネ配水池のポンプ場から直接ポンプ配水
市市中心部	タホネ配水池	1170.4	1090-1120	30	タホネ配水池から自然流下配水
市北部	タホネ配水池	1170.4	1105-1120	15	タホネ配水池から自然流下配水
市西部	サムネ配水ポンプ場	1197	1135-1150	15	サムネ配水池のポンプ場から直接ポンプ配水
市南部	サムネ配水ポンプ場	1197	1065-1150	85	サムネ配水池のポンプ場から自然配水あるいは直接ポンプ配水

各水源の計画配水区は、既存の配水地域及び既存の配水主管の配置を考慮し、既存とほぼ同じ地区とする。

配水管網計算を行い、配水主管の増設と詳細な配水区割を検討した。その結果、タホネ水源の供給量を現在以上に増加させた場合、タホネ配水池と市内間に大規模な配水主管の増設が必要となる。従って、タホネ水源の供給量を増加させずに、可能な限りサムネ水源の配水量を増加させることとする。

更に、現在、サムネ配水ポンプ場が建設中であるが、市中部地区の配管能力が不足する地域においては、水需要量が多い月にはポンプ配水が必要となる。その他の地区、特に市中心部南部へはサムネ配水池からの自然流下配水で給水が可能である。従って、タホネ配水池からオドラ地区のポンプ配水に加えて、サムネ配水池からのポンプ配水地区を設定する。以下に配水区割を示す。

タホネ配水区 - タホネポンプ配水：オドラ地区と市中部地区の一部 - タホネ自然流下：市中部地区の一部と市北部 - タホネ自然流下市中心部：市中心部
サムネ配水区 - サムネ自然流下配水：市中心部の一部と市南東部 - サムネポンプ配水：市西部、市西南部、市中部地区の一部

表 14 マアン市の計画配水区割りと送配水方法

配水区	地域詳細	既存担当配水池/ ポンプ場	配水池底 盤の標高 (m)	配水区の 標高 (m)	標高 差 (m)	計画送配水方法
タホネポンプ配水 区	①オドラ ②中部	タホネ配水 ポンプ場	1170	1125-1145 1105-1140	20 35	タホネ配水池のポンプ 場から直接ポンプ配水
タホネ市北部中部 配水区	③中部 ④北部	タホネ配水池	1170	1095-1120 1105-1120	25 15	タホネ配水池から自然 流下配水
タホネ市中心部配 水区	⑤中心部	タホネ配水池	1170	1090-1120	30	タホネ配水池から自然 流下配水
サムネ配水区	⑥中部 ⑦中心部 ⑧西部 ⑨南部	サムネ配水池・ ポンプ場	1197	1115-1135 1105-1120 1125-1150 1065-1150	15 20 85	サムネ配水池のポンプ 場から自然配水あるい は直接ポンプ配水

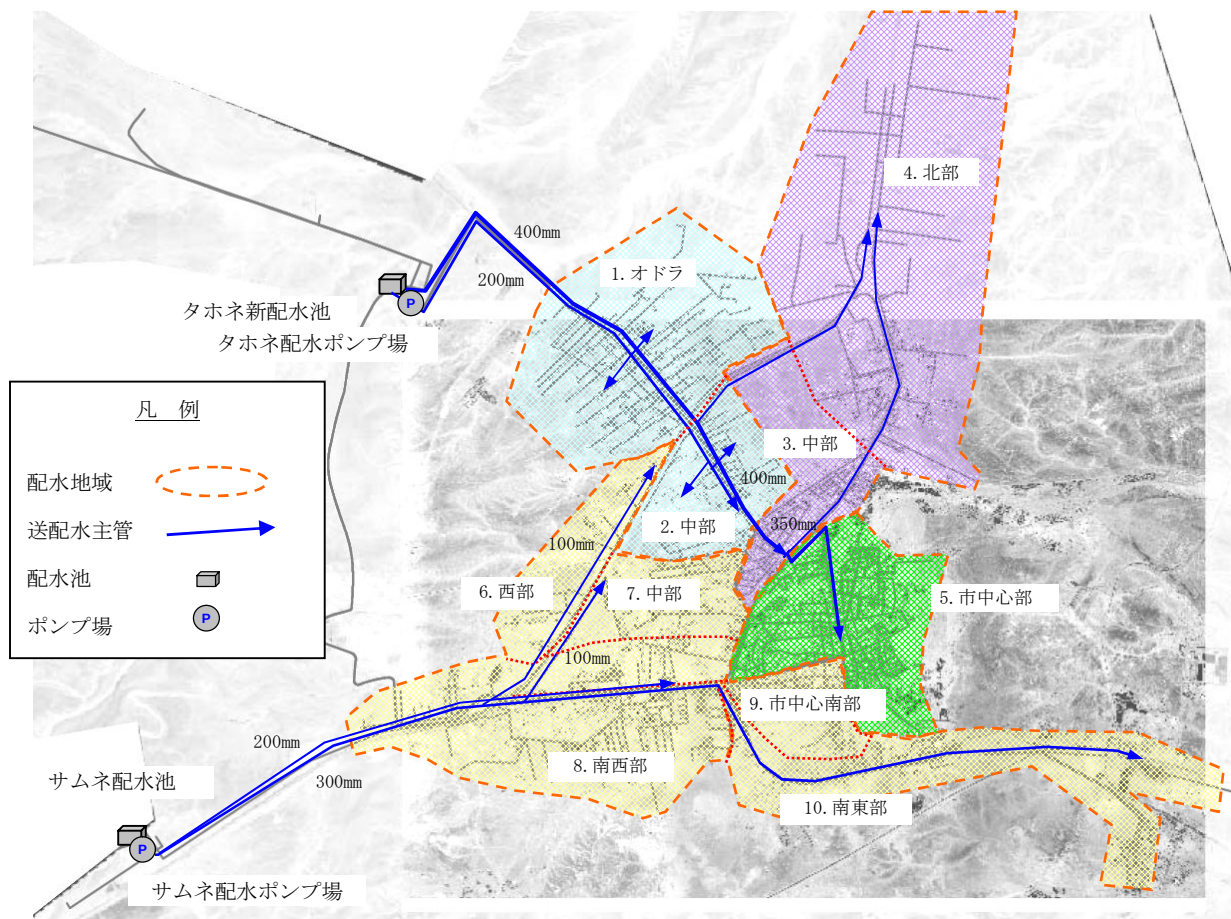


図 エラー! 指定したスタイルは使われていません。-2 マアン県対象地域の既存送配水システムと配水地域模式図

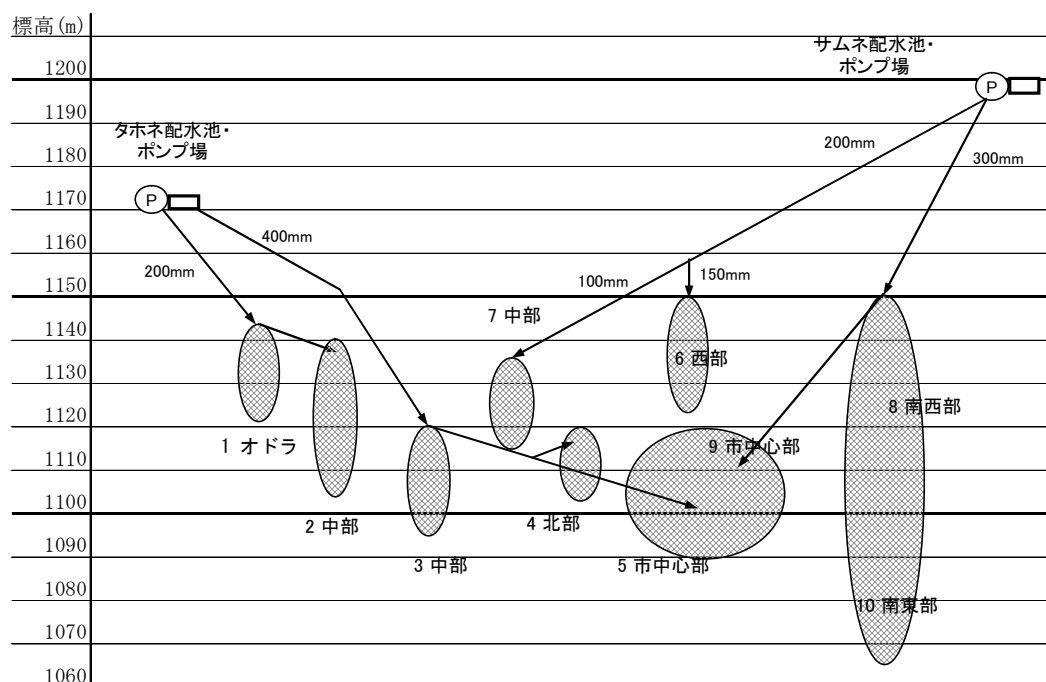


図 エラー！ 指定したスタイルは使われていません。-3 計画配水区と既存送配水システム模式図

2) 配水区毎の計画給水人口及び計画給水量

マアン県対象地域の配水区別将来計画人口を次表に示す。

表 15 マアン県対象地域の配水区別計画将来人口（地域別）

配水区	地域詳細	2010	2015	2020	2025
タホネ水源地区					
タホネポンプ配水区	①オドラ	2, 073	2, 332	2, 586	2, 840
	②市中心部	1, 742	1, 955	2, 164	2, 373
タホネ中部北部配水区	③市中心部	2, 359	2, 647	2, 929	3, 211
	④市北部	1, 691	1, 910	2, 118	2, 326
タホネ市中心部配水区	⑤市中心部	12, 001	12, 951	13, 851	14, 652
サムネ水源地区					
サムネ南西配水区	⑥市西部	248	282	315	348
	⑦市中心部	1, 578	1, 773	1, 962	2, 151
	⑧市南西部	4, 036	4, 528	5, 014	5, 500
サムネ南東配水区	⑨市中心部	3, 941	4, 305	4, 563	4, 820
	⑩市南東部	3, 131	3, 517	3, 898	4, 279
合計		32, 800	36, 200	39, 400	42, 500

表 16 マアン県対象地域の配水区別計画将来人口（配水区別）

配水区	2010	2015	2020	2025
タホネ配水区				
タホネオドラ中部配水区	3,815	4,287	4,750	5,213
タホネ北部中部配水区	4,050	4,557	5,047	5,537
タホネ中心部配水区	12,001	12,951	13,851	14,652
小計	19,866	21,795	23,648	25,402
サムネ配水区				
サムネ南西配水区	5,862	6,583	7,291	7,999
サムネ南東配水区	7,072	7,822	8,461	9,099
小計	12,934	14,405	15,752	17,098
合計	32,800	36,200	39,400	42,500

各配水区の計画 1 日平均給水量及び最大給水量を次表に示す。2015 年の計画 1 日最大給水量は、タホネ井戸群が 8,124m³/日、サムネ井戸郡が 5,567m³/日である。

表 17 配水区毎の計画給水量（m³/日）

配水区	計画 1 日平均給水量				計画 1 日最大給水量			
	2010	2015	2020	2025	2010	2015	2020	2025
タホネ配水区								
タホネポンプ配水区	1,111	1,143	1,165	1,173	1,668	1,719	1,749	1,761
タホネ市北部中部配水区	1,179	1,216	1,237	1,247	1,772	1,827	1,857	1,871
タホネ市中心部配水区	3,497	3,051	3,100	3,105	5,247	4,578	4,651	4,658
小計	5,787	5,410	5,502	5,525	8,687	8,124	8,257	8,290
サムネ配水区								
サムネポンプ配水区	1,707	1,756	1,787	1,800	2,565	2,637	2,684	2,702
サムネ自然流下配水区	2,060	1,951	1,976	1,984	3,093	2,930	2,967	2,978
小計	3,767	3,707	3,763	3,784	5,658	5,567	5,651	5,680
合計	9,554	9,117	9,265	9,309	14,345	13,691	13,908	13,970

(3) 水道水源の評価

マアン県対象地域の 2015 年の計画日平均給水量は、9,117 m³/日である。同地域の水源であるヒサ井戸群の揚水試験結果（WAJ）を参考資料－４に示した。試験結果から得られた時間揚水量を基に、一日 20 時間井戸ポンプを稼動するとして、水源量を日量 20,200 m³/日（タホネ水源 14,980 m³/日、サムネ水源 6,420 m³/日）と推定した。推定水源量が計画平均給水量を上回っており、2015 年において、同水源で対象地区の水需要を賄うことが可能と考える。同様に、計画日最大給水量も賄うことが可能である。

(4) 配水管網の更新計画

1) 管網更新の優先度付け

対象地域は広い地域に分布しており、全ての地域を管網更新の対象にできるわけではないため、優先順位を付けることにより、対象地域の絞込みを行う。選定は下記の指標により行う。

- 人口規模と人口密度：費用対効果、総裨益人口
- 管の年齢：無収水量削減効果大
- 漏水の発生頻度：無収水量削減効果大
- 現況給水圧：無収水量削減効果大

2) 人口規模と人口密度

表 18 マアン県対象地域の 2015 年の推定人口と人口密度

地区	推定人口	人口順位	人口密度 (人/ha)	人口密度 順位
オドラ	2,332	4	13	5
市中部	6,375	3	35	2
市北部	1,910	5	28	4
市中心部	17,256	1	98	1
市南部	8,045	2	30	3
合計／平均	36,103		40	

3) 配水管の年齢

マアン市全体の平均管年齢は 17.8 年でマアン市中心部では 22.3 年と古い。

4) 漏水の発生頻度

WAJ 職員からの聞き取り調査によると、マアン市では、Shamiyyeh 地区を含むマアン市市中心部において漏水が多いとのことである。

5) 配水管網更新の対象地区の選定

上記指標をまとめて以下の表に示す。配水管更新の対象地区として裨益人口が多く人口密度が大きく漏水の発生頻度が高い、マアン市中心部に選定した。

表 19 配水管網更新の対象地区の選定

地区	推定人口	人口密度 (人/ha)	平均 管年齢 (年)	漏水発生 頻度	現況給 水圧	原要請 地区	管網更新 地区の選定
マアン							
マアン市市中心部	17,256●	98●	22.3	●		●	●
マアン 市市中心部以外	18,847●	27	(17.8)			●	

注：●は各項目での更新プラス要因であることを示す。

ネムタは極小地域のため選定から除外した。

(5) 管路計画

1) 配水管網の更新

管網解析を基に管網更新延長を次表のとおり算定した。管網解析結果は、以下付録に示す。

表 20 マアンの配管更新の概略延長 (m)

管口径	合計
350mm	500
300mm	900
250mm	1,330
200mm	760
150mm	1,740
100mm	7,560
合計	12,790

2) 腐食対策

WAJ 職員によると、マアン市には、管路腐食の著しい地域がある。腐食土調査の結果を基に、ANSI/AWWA C105/A21.5-1999 の腐植土評価基準による評価結果は腐植度が高く、管路の防食対策が必要である。検討結果及びデータを参考資料-8 に示す。

配水主管の防食対策として、最も簡易な方法であるポリエチレンスリーブで鋳鉄管を防護することとする。

(6) 配水モニタリングシステム計画

1) 監視システムの対象施設

モニタリングシステムで監視する対象施設は以下のとおりである。

- ・ 配水池・配水池ポンプ場の出口：2 箇所（4 流量計）
- ・ DMA（配水管理区域）入り口：1 箇所（1 流量計、1 水圧計）

流量計は全ての箇所に設置するが、圧力計の設置箇所は、DMA 入口のみとする。詳細対象施設は図 エラー! 指定したスタイルは使われていません。-4 に示す。

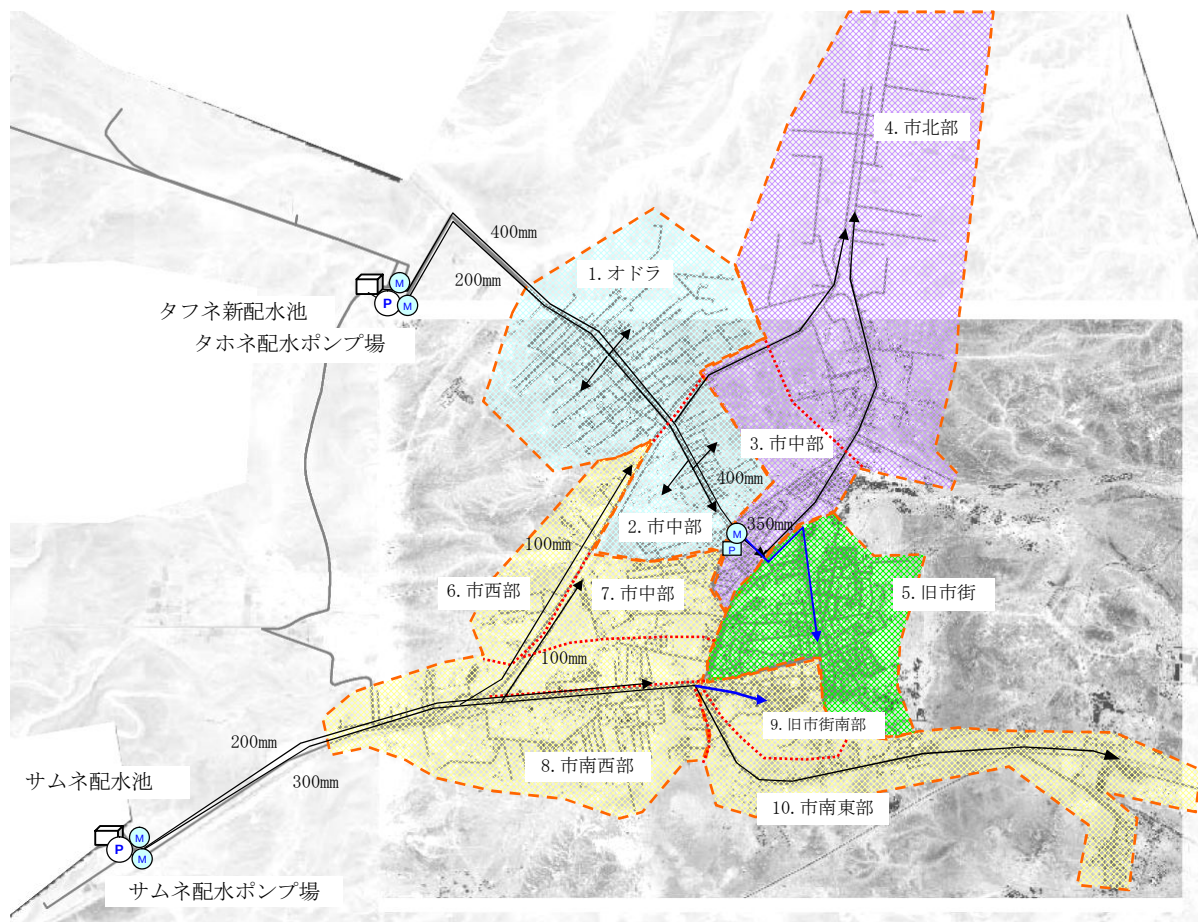


図 エラー! 指定したスタイルは使われていません。-4 マアン市監視装置の設置

2) 監視システム

AWC マアン支所事務所に中央監視室（親機）を設け、監視対象施設（子機）からの圧力・流量データを受信し分析すると共に蓄積する。

3) 設置場所と数量

親機及び子機の設置場所及び数量を次表に示す。

表 21 親機構成機器

設置場所	TFT	サーバー	プリンタ	GPRS ルータ	UPS	電源盤
AWC マアン支所事務所	1	1	1	1	1	1

表 22 子機構成機器

施設	流量計	圧力計	GPS	UPS	現場盤
マアン県					
1. タホネ配水池	2		1	1	1
2. DMA 旧市街入口	1	1	1	1	1
4. サムネ配水池・ポンプ場	2		1	1	1
合計	5	1	3	3	3

(7) 計画施設の総括表

施設	対象地区・内容		
配水管	マアン市 (12,790m)	ダクタイル鋳鉄管 100mm x 7,560m ダクタイル鋳鉄管 150mm x 1,740m ダクタイル鋳鉄管 200mm x 760m ダクタイル鋳鉄管 250mm x 1,330m ダクタイル鋳鉄管 300mm x 900m ダクタイル鋳鉄管 350mm x 500m	
配水モニタリング設備	マアン市	中央監視設備 1 式 流量計 (配水池・ポンプ場) 流量計・圧力計 (配水区)	4 基 1 基

マアン市管網計算結果

Ma'an city					Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 1	1125.0	1168.2	9.2	43.2	Pipe 1	306.38	50	100	-9.2	0.05	0.2	Open
Junc 2	1125.0	1168.2	2.9	43.2	Pipe 2	5.09	20	100	2.8	0.1	1.93	Open
Junc 3	1110.0	1143.6	6.4	33.6	Pipe 3	15.45	20	100	2.1	0.08	1.13	Open
Junc 4	1110.0	1143.6	6.4	33.6	Pipe 4	47.45	20	100	0.7	0.03	0.15	Open
Junc 5	1115.0	1142.8	11.0	27.8	Pipe 5	7.37	20	100	-0.7	0.03	0.15	Open
Junc 6	1110.0	1142.8	11.0	32.8	Pipe 6	12.9	100	100	-3.5	0.01	0	Open
Junc 7	1110.0	1142.9	11.0	32.9	Pipe 7	160.59	100	100	-4.2	0.01	0	Open
Junc 8	1110.0	1142.9	11.0	32.9	Pipe 8	9.63	100	100	616.9	0.91	16.6	Open
Junc 9	1110.0	1143.5	6.4	33.5	Pipe 9	17.75	100	100	520.3	0.77	12.11	Open
Junc 10	1110.0	1143.5	6.4	33.5	Pipe 10	10.69	20	100	-1.7	0.06	0.77	Open
Junc 11	1115.0	1143.0	9.8	28.0	Pipe 11	152.22	20	100	6	0.22	7.91	Open
Junc 12	1115.0	1143.5	9.8	28.5	Pipe 12	4.5	50	100	83	0.49	11.84	Open
Junc 13	1120.0	1143.3	9.2	23.3	Pipe 13	9.15	63	100	81.3	0.3	3.69	Open
Junc 14	1115.0	1143.1	9.2	28.1	Pipe 14	13.65	20	100	-1.7	0.06	0.76	Open
Junc 15	1115.0	1143.7	2.9	28.7	Pipe 15	11.52	20	100	27.6	1.02	133.62	Open
Junc 16	1115.0	1143.2	2.9	28.2	Pipe 17	10.12	20	100	9.2	0.34	17.46	Open
Junc 17	1115.0	1140.9	9.2	25.9	Pipe 18	5.55	20	100	9.2	0.34	17.47	Open
Junc 18	1115.0	1141.5	9.2	26.5	Pipe 19	21.56	20	100	-1.7	0.06	0.77	Open
Junc 19	1115.0	1143.0	11.8	28.0	Pipe 20	10.81	20	100	-1.7	0.06	0.76	Open
Junc 20	1115.0	1142.1	6.4	27.1	Pipe 21	24.94	20	100	-1.7	0.06	0.76	Open
Junc 21	1115.0	1142.5	6.4	27.5	Pipe 22	7.72	20	100	1.7	0.06	0.76	Open
Junc 22	1115.0	1143.0	6.4	28.0	Pipe 24	33.36	63	100	-1.7	0.01	0	Open
Junc 23	1115.0	1143.0	2.9	28.0	Pipe 25	160.07	63	100	12.1	0.04	0.11	Open
Junc 24	1115.0	1143.1	2.9	28.1	Pipe 26	82.04	63	100	8.7	0.03	0.06	Open
Junc 25	1110.0	1140.7	11.0	30.7	Pipe 27	72.77	63	100	-5.3	0.02	0.02	Open
Junc 26	1110.0	1142.3	11.0	32.3	Pipe 28	13.73	63	100	-5.3	0.02	0.02	Open
Junc 27	1110.0	1140.8	11.0	30.8	Pipe 29	75.33	63	100	-34.3	0.13	0.75	Open
Junc 28	1110.0	1142.0	11.0	32.0	Pipe 30	32.49	63	100	-71.1	0.26	2.88	Open
Junc 29	1110.0	1142.1	11.0	32.1	Pipe 31	82.68	63	100	-74.5	0.28	3.14	Open
Junc 30	1115.0	1142.6	2.9	27.6	Pipe 32	123.55	63	100	-77.9	0.29	3.41	Open
Junc 31	1110.0	1142.6	9.2	32.6	Pipe 33	530.82	100	100	490.5	0.72	10.86	Open
Junc 32	1115.0	1142.4	9.2	27.4	Pipe 34	16.06	20	100	-5.3	0.2	6.29	Open
Junc 33	1115.0	1143.1	9.2	28.1	Pipe 35	7.99	20	100	-19.8	0.73	72.23	Open
Junc 34	1110.0	1141.4	13.3	31.4	Pipe 36	39.92	20	100	-5.3	0.2	6.29	Open
Junc 35	1110.0	1142.9	11.0	32.9	Pipe 37	12.5	20	100	1.7	0.06	0.77	Open
Junc 36	1110.0	1142.6	6.4	32.6	Pipe 38	12.07	20	100	1.7	0.06	0.76	Open
Junc 37	1115.0	1143.2	9.2	28.2	Pipe 39	12.98	20	100	1.7	0.06	0.77	Open
Junc 38	1120.0	1142.5	9.2	22.5	Pipe 40	19.51	20	100	-2.5	0.09	1.56	Open
Junc 39	1120.0	1142.2	9.2	22.2	Pipe 41	20.21	20	100	-2.5	0.09	1.56	Open
Junc 40	1110.0	1143.5	6.4	33.5	Pipe 42	19.79	20	100	2.5	0.09	1.56	Open
Junc 41	1110.0	1143.2	6.4	33.2	Pipe 43	15.17	20	100	2.5	0.09	1.56	Open
Junc 42	1110.0	1143.2	6.4	33.2	Pipe 44	13.63	20	100	2.5	0.09	1.57	Open
Junc 43	1115.0	1138.3	11.8	23.3	Pipe 45	59.07	100	100	721.3	1.06	22.17	Open
Junc 44	1115.0	1139.1	11.8	24.1	Pipe 46	67.16	100	100	693.9	1.02	20.64	Open
Junc 45	1115.0	1141.9	11.8	26.9	Pipe 47	198.38	25	100	10.9	0.26	8.06	Open
Junc 46	1115.0	1141.1	11.8	26.1	Pipe 48	21.07	25	100	7.5	0.18	4.04	Open
Junc 47	1115.0	1140.3	11.8	25.3	Pipe 49	21.55	25	100	4.1	0.1	1.32	Open
Junc 48	1120.0	1143.3	9.2	23.3	Pipe 50	118.3	25	100	0.7	0.02	0.05	Open
Junc 49	1120.0	1142.2	9.2	22.2	Pipe 51	352.68	25	100	-0.7	0.02	0.05	Open
Junc 50	1120.0	1141.9	9.2	21.9	Pipe 52	26.59	100	100	928.4	1.37	35.39	Open
Junc 51	1120.0	1141.6	9.2	21.6	Pipe 53	51.51	100	100	927.7	1.37	35.34	Open
Junc 52	1125.0	1168.2	2.9	43.2	Pipe 54	50.48	100	100	922.1	1.36	34.94	Open
Junc 53	1125.0	1168.1	2.9	43.1	Pipe 55	49.11	100	100	853.6	1.26	30.29	Open
Junc 54	1110.0	1143.5	11.0	33.5	Pipe 56	51.7	100	100	842.8	1.24	29.58	Open
Junc 55	1110.0	1143.3	11.0	33.3	Pipe 57	52.42	100	100	805	1.19	27.17	Open
Junc 56	1120.0	1143.3	2.9	23.3	Pipe 58	78.35	100	100	784.1	1.16	25.88	Open
Junc 57	1115.0	1143.4	2.9	28.4	Pipe 59	33.68	20	100	-0.7	0.03	0.15	Open
Junc 58	1115.0	1143.1	6.4	28.1	Pipe 60	22.47	50	100	-0.7	0	0	Open
Junc 59	1115.0	1143.1	6.4	28.1	Pipe 61	102.12	50	100	-2.1	0.01	0.01	Open
Junc 60	1115.0	1142.0	11.8	27.0	Pipe 62	44.44	50	100	-7.1	0.04	0.12	Open
Junc 61	1115.0	1141.0	11.8	26.0	Pipe 63	22.4	50	100	-12.1	0.07	0.34	Open
Junc 62	1105.0	1143.1	13.3	38.1	Pipe 64	27.74	50	100	-17.1	0.1	0.64	Open
Junc 63	1110.0	1142.0	13.3	32.0	Pipe 65	67.7	50	100	-22.1	0.13	1.02	Open
Junc 64	1110.0	1143.5	6.4	33.5	Pipe 66	48.82	50	100	-27.1	0.16	1.49	Open
Junc 65	1115.0	1143.5	9.8	28.5	Pipe 67	66.16	200	100	3334.5	1.23	12.91	Open
Junc 66	1110.0	1158.3	9.6	48.3	Pipe 68	161.6	200	100	2465.9	0.91	7.38	Open
Junc 67	1120.0	1158.9	13.2	38.9	Pipe 69	83.64	200	100	1536.8	0.57	3.08	Open
Junc 68	1120.0	1159.5	13.2	39.5	Pipe 70	346.86	25	100	6.8	0.16	3.37	Open
Junc 69	1120.0	1168.4	10.5	48.4	Pipe 71	26.64	20	100	3.4	0.13	2.77	Open
Junc 70	1120.0	1162.0	10.5	42.0	Pipe 72	61.07	20	100	-3.4	0.13	2.76	Open
Junc 71	1115.0	1137.5	23.6	22.5	Pipe 73	167.61	25	100	-6.8	0.16	3.37	Open
Junc 72	1115.0	1140.5	23.6	25.5	Pipe 74	27.23	20	100	-3.4	0.13	2.77	Open
Junc 73	1115.0	1140.0	9.6	25.0	Pipe 75	13.95	20	100	-5.3	0.2	6.29	Open
Junc 74	1115.0	1156.9	9.6	41.9	Pipe 76	43.81	25	100	-13.6	0.32	12.15	Open
Junc 75	1115.0	1157.9	23.6	42.9	Pipe 77	139.31	25	100	-24.2	0.57	35.32	Open
Junc 76	1120.0	1155.6	11.2	35.6	Pipe 78	11.53	20	100	-3.4	0.13	2.76	Open
Junc 77	1115.0	1155.8	23.6	40.8	Pipe 79	11.49	20	100	-3.4	0.13	2.77	Open
Junc 78	1115.0	1158.0	9.6	43.0	Pipe 80	9.06	20	100	-3.4	0.13	2.77	Open
Junc 79	1115.0	1158.7	23.6	43.7	Pipe 81	10.45	20	100	-3.4	0.13	2.76	Open
Junc 80	1115.0	1157.5	9.6	42.5	Pipe 82	26.3	25	100	-3.4	0.08	0.93	Open
Junc 81	1115.0	1159.3	10.5	44.3	Pipe 83	99.08	50	100	-6.8	0.04	0.11	Open
Junc 82	1130.0	1177.6	0.0	47.6	Pipe 84	31.69	50	100	-13.6	0.08	0.42	Open
Junc 83	1130.0	1171.8	26.5	41.8	Pipe 85	14.65	50	100	-20.4	0.12	0.88	Open
Junc 84	1130.0	1177.7	0.0	47.7	Pipe 86	14.13	50	100	-27.2	0.16	1.5	Open
Junc 85	1120.0	1168.8	13.2	48.8	Pipe 87	234.11	50	100	-34	0.2	2.27	Open

NODE Ma'an city					LINK Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 86	1120.0	1161.0	13.2	41.0	Pipe 88	28.58	20	100	-2.5	0.09	1.56	Open
Junc 87	1120.0	1159.3	7.7	39.3	Pipe 89	45.64	50	100	-39	0.23	2.92	Open
Junc 88	1120.0	1160.1	7.7	40.1	Pipe 90	35.51	20	100	-4.8	0.18	5.23	Open
Junc 89	1120.0	1159.3	7.7	39.3	Pipe 91	36.56	25	100	4.8	0.11	1.76	Open
Junc 90	1120.0	1160.2	7.7	40.2	Pipe 92	138.37	25	100	-14.4	0.34	13.51	Open
Junc 91	1120.0	1157.8	13.2	37.8	Pipe 93	13.49	63	100	-16.9	0.06	0.2	Open
Junc 92	1120.0	1160.4	13.2	40.4	Pipe 94	47.1	63	100	42.5	0.16	1.11	Open
Junc 93	1120.0	1160.0	7.7	40.0	Pipe 95	13.21	20	100	-2.5	0.09	1.57	Open
Junc 94	1120.0	1169.4	15.2	49.4	Pipe 96	28.1	63	100	37.5	0.14	0.88	Open
Junc 95	1120.0	1168.2	15.2	48.2	Pipe 97	10.57	20	100	-2.5	0.09	1.56	Open
Junc 96	1125.0	1170.4	17.1	45.4	Pipe 98	142.76	100	100	625.3	0.92	17.02	Open
Junc 97	1125.0	1171.8	17.1	46.8	Pipe 99	289.78	50	100	-3.8	0.02	0.04	Open
Junc 98	1125.0	1172.1	17.1	47.1	Pipe 100	41.88	50	100	-7.6	0.04	0.14	Open
Junc 99	1120.0	1169.6	30.2	49.6	Pipe 101	53.98	50	100	-11.4	0.07	0.3	Open
Junc 100	1120.0	1168.2	15.2	48.2	Pipe 102	85.6	100	100	-563.4	0.83	14.03	Open
Junc 101	1120.0	1158.8	13.2	38.8	Pipe 103	22.65	20	100	-1.9	0.07	0.94	Open
Junc 102	1115.0	1164.7	16.4	49.7	Pipe 104	21.48	20	100	-1.9	0.07	0.94	Open
Junc 103	1115.0	1167.0	36.9	52.0	Pipe 105	143.23	63	100	32.5	0.12	0.68	Open
Junc 104	1115.0	1166.8	7.4	51.8	Pipe 106	4.82	50	100	30	0.18	1.81	Open
Junc 105	1115.0	1166.9	7.4	51.9	Pipe 107	29.41	63	100	17.5	0.06	0.21	Open
Junc 106	1120.0	1160.8	16.4	40.8	Pipe 108	30.54	63	100	12.5	0.05	0.12	Open
Junc 107	1120.0	1167.0	36.9	47.0	Pipe 109	23.06	63	100	2.5	0.01	0.01	Open
Junc 108	1120.0	1160.8	16.4	40.8	Pipe 110	6.92	20	100	7.5	0.28	11.96	Open
Junc 109	1120.0	1159.7	16.4	39.7	Pipe 111	58.86	20	100	2.5	0.09	1.57	Open
Junc 110	1120.0	1167.1	36.9	47.1	Pipe 112	8.54	20	100	2.5	0.09	1.57	Open
Junc 111	1120.0	1167.1	16.4	47.1	Pipe 113	7.33	20	100	-2.5	0.09	1.56	Open
Junc 112	1120.0	1160.0	16.4	40.0	Pipe 114	10.4	20	100	-2.5	0.09	1.56	Open
Junc 113	1120.0	1158.7	16.4	38.7	Pipe 115	3.24	20	100	2.5	0.09	1.56	Open
Junc 114	1115.0	1143.5	7.4	28.5	Pipe 116	37.02	20	100	-2.5	0.09	1.56	Open
Junc 115	1115.0	1143.5	7.4	28.5	Pipe 117	2.46	63	100	-2.8	0.01	0	Open
Junc 116	1115.0	1166.9	7.4	51.9	Pipe 118	23.68	63	100	-8.4	0.03	0.06	Open
Junc 117	1120.0	1167.1	16.4	47.1	Pipe 119	43.82	63	100	-14	0.05	0.14	Open
Junc 118	1110.0	1145.4	5.7	35.4	Pipe 120	16.41	63	100	-19.3	0.07	0.26	Open
Junc 119	1110.0	1145.2	5.7	35.2	Pipe 121	1.09	100	100	-21.8	0.03	0	Open
Junc 120	1110.0	1144.8	20.1	34.8	Pipe 122	12.31	50	100	-24.3	0.14	1.22	Open
Junc 121	1110.0	1147.0	5.7	37.0	Pipe 123	24.04	50	100	-29.3	0.17	1.72	Open
Junc 122	1110.0	1146.8	5.7	36.8	Pipe 124	17.87	50	100	-34.3	0.2	2.3	Open
Junc 123	1110.0	1147.3	5.7	37.3	Pipe 125	9.03	50	100	-39.3	0.23	2.97	Open
Junc 124	1110.0	1146.1	5.7	36.1	Pipe 126	7.12	50	100	-46.8	0.28	4.09	Open
Junc 125	1110.0	1146.4	5.7	36.4	Pipe 127	44.68	50	100	-51.8	0.31	4.94	Open
Junc 126	1110.0	1145.1	5.7	35.1	Pipe 128	33.72	50	100	-56.8	0.33	5.86	Open
Junc 127	1110.0	1147.3	5.7	37.3	Pipe 129	10.4	20	100	-2.5	0.09	1.56	Open
Junc 128	1115.0	1147.1	26.7	32.1	Pipe 130	15.05	20	100	-2.5	0.09	1.56	Open
Junc 129	1110.0	1129.8	26.7	19.8	Pipe 131	9.61	20	100	-2.5	0.09	1.56	Open
Junc 130	1110.0	1147.3	5.7	37.3	Pipe 132	21.36	20	100	-2.5	0.09	1.56	Open
Junc 131	1110.0	1147.1	26.7	37.1	Pipe 133	5.12	20	100	-5	0.18	5.65	Open
Junc 132	1110.0	1147.0	20.1	37.0	Pipe 134	9.08	20	100	-2.5	0.09	1.57	Open
Junc 133	1105.0	1145.3	8.8	40.3	Pipe 135	22.2	20	100	-2.5	0.09	1.57	Open
Junc 134	1110.0	1146.6	5.7	36.6	Pipe 136	8.09	20	100	-2.5	0.09	1.56	Open
Junc 135	1110.0	1143.5	6.4	33.5	Pipe 137	14.23	20	100	-2.8	0.1	1.93	Open
Junc 136	1115.0	1143.1	6.4	28.1	Pipe 138	10.39	20	100	-2.8	0.1	1.93	Open
Junc 137	1160.0	1223.5	23.9	63.5	Pipe 139	11.4	20	100	-2.8	0.1	1.93	Open
Junc 138	1165.0	1223.5	23.9	58.5	Pipe 140	55.45	50	100	-61.8	0.36	6.85	Open
Junc 139	1145.0	1225.8	23.1	80.8	Pipe 143	4.89	50	100	35.6	0.21	2.47	Open
Junc 140	1145.0	1223.8	23.1	78.8	Pipe 144	9.83	25	100	33.7	0.79	65.22	Open
Junc 141	1115.0	1158.3	34.2	43.3	Pipe 145	9.44	25	100	29	0.68	49.39	Open
Junc 142	1140.0	1213.8	20.7	73.8	Pipe 146	13.87	25	100	24.3	0.57	35.6	Open
Junc 143	1145.0	1213.6	71.4	68.6	Pipe 147	6.96	25	100	19.6	0.46	23.91	Open
Junc 144	1115.0	1175.3	2.9	60.3	Pipe 148	46.46	25	100	14	0.33	12.82	Open
Junc 145	1125.0	1168.2	2.9	43.2	Pipe 149	10.46	25	100	8.4	0.2	4.98	Open
Junc 146	1125.0	1172.0	17.1	47.0	Pipe 150	39.45	20	100	-1.9	0.07	0.94	Open
Junc 147	1125.0	1173.1	0.0	48.1	Pipe 151	36.76	20	100	-2.8	0.1	1.93	Open
Junc 148	1125.0	1170.8	67.1	45.8	Pipe 152	7.83	20	100	2.8	0.1	1.93	Open
Junc 149	1065.0	1139.9	222.2	74.9	Pipe 153	35.2	20	100	2.8	0.1	1.93	Open
Junc 150	1085.0	1143.9	58.8	58.9	Pipe 154	13.92	25	100	2.8	0.07	0.65	Open
Junc 151	1105.0	1141.9	63.8	36.9	Pipe 155	7.58	20	100	2.8	0.1	1.92	Open
Junc 152	1100.0	1141.3	85.7	41.3	Pipe 156	45.11	20	100	-2.8	0.1	1.93	Open
Junc 153	1135.0	1191.9	11.2	56.9	Pipe 157	66.07	63	100	-38	0.14	0.9	Open
Junc 154	1120.0	1191.9	13.1	71.9	Pipe 159	16.35	63	100	34.2	0.13	0.74	Open
Junc 155	1130.0	1192.1	32.2	62.1	Pipe 160	22.61	63	100	30.4	0.11	0.6	Open
Junc 156	1135.0	1193.0	2.9	58.0	Pipe 161	13.98	63	100	26.6	0.1	0.47	Open
Junc 157	1115.0	1143.6	2.9	28.6	Pipe 162	9.41	63	100	22.8	0.08	0.35	Open
Junc 158	1105.0	1143.1	13.3	38.1	Pipe 163	6.97	63	100	19	0.07	0.26	Open
Junc 159	1105.0	1142.5	13.8	37.5	Pipe 164	57.13	63	100	15.2	0.06	0.17	Open
Junc 160	1115.0	1142.6	6.4	27.6	Pipe 165	182.78	63	100	11.4	0.04	0.1	Open
Junc 161	1115.0	1143.0	6.4	28.0	Pipe 166	24.93	63	100	3.8	0.01	0.01	Open
Junc 162	1125.0	1172.0	113.3	47.0	Pipe 167	24.68	20	100	-3.8	0.14	3.4	Open
Junc 163	1130.0	1172.8	0.0	42.8	Pipe 168	16.23	20	100	-1.9	0.07	0.94	Open
Junc 164	1130.0	1172.8	26.5	42.8	Pipe 169	20.52	20	100	-1.9	0.07	0.94	Open
Junc 165	1115.0	1143.5	7.4	28.5	Pipe 170	18.81	20	100	1.9	0.07	0.94	Open
Junc 166	1100.0	1141.0	40.5	41.0	Pipe 171	12.68	20	100	-1.9	0.07	0.94	Open
Junc 167	1105.0	1140.5	38.4	35.5	Pipe 172	8.63	20	100	-1.9	0.07	0.95	Open
Junc 168	1135.0	1149.5	1.0	14.5	Pipe 173	9.94	20	100	-1.9	0.07	0.94	Open
Junc 169	1120.0	1145.3	2.9	25.3	Pipe 174	11.34	20	100	-1.9	0.07	0.94	Open
Junc 170	1120.0	1139.4	58.6	19.4	Pipe 175	18.84	20	100	-1.9	0.07	0.94	Open

NODE					LINK							
Ma'an city					Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 171	1120.0	1139.3	58.6	19.3	Pipe 176	87.77	63	100	-14	0.05	0.14	Open
Junc 172	1115.0	1141.9	11.8	26.9	Pipe 177	67.65	63	100	-21.6	0.08	0.32	Open
Junc 173	1120.0	1168.4	10.5	48.4	Pipe 178	69.93	63	100	-27.9	0.1	0.51	Open
Junc 174	1120.0	1167.8	10.5	47.8	Pipe 179	87.6	63	100	-32.9	0.12	0.69	Open
Junc 175	1075.0	1141.9	70.6	66.9	Pipe 180	69.59	63	100	-37.9	0.14	0.9	Open
Junc 176	1060.0	1122.6	553.6	62.6	Pipe 181	26.16	63	100	-42.9	0.16	1.13	Open
Junc 177	1115.0	1139.3	0.0	24.3	Pipe 182	21.16	63	100	-47.9	0.18	1.39	Open
Junc 178	1115.0	1139.3	1.9	24.3	Pipe 183	70.34	63	100	-52.9	0.2	1.67	Open
Junc 179	1115.0	1139.6	0.0	24.6	Pipe 184	23.17	20	100	-3.8	0.14	3.39	Open
Junc 180	1110.0	1139.6	5.8	29.6	Pipe 185	21.07	20	100	-3.8	0.14	3.4	Open
Junc 181	1115.0	1158.3	9.6	43.3	Pipe 186	27.87	20	100	-2.5	0.09	1.56	Open
Junc 182	1140.0	1164.9	1.8	24.9	Pipe 187	20.18	20	100	-2.5	0.09	1.56	Open
Junc 183	1130.0	1168.9	62.6	38.9	Pipe 188	20.13	20	100	-2.5	0.09	1.56	Open
Junc 184	1135.0	1147.8	33.8	12.8	Pipe 189	9.6	20	100	-2.5	0.09	1.57	Open
Junc 185	1120.0	1150.1	21.8	30.1	Pipe 190	11.11	20	100	-2.5	0.09	1.57	Open
Junc 186	1115.0	1166.9	7.4	51.9	Pipe 191	18.57	20	100	-2.5	0.09	1.56	Open
Junc 187	1115.0	1163.3	12.6	48.3	Pipe 192	1.65	63	100	-56.7	0.21	1.89	Open
Junc 188	1140.0	1193.4	10.2	53.4	Pipe 193	3.89	63	100	-60.5	0.22	2.14	Open
Junc 189	1140.0	1200.9	4.4	60.9	Pipe 194	5.05	63	100	-70	0.26	2.8	Open
Junc 190	1140.0	1218.5	23.1	78.5	Pipe 195	15.67	63	100	-73.8	0.27	3.09	Open
Junc 191	1115.0	1143.7	2.9	28.7	Pipe 197	14.36	20	100	-1.9	0.07	0.94	Open
Junc 192	1110.0	1143.5	6.4	33.5	Pipe 198	7.51	20	100	-1.9	0.07	0.94	Open
Junc 193	1135.0	1168.3	33.8	33.3	Pipe 199	6.74	20	100	1.9	0.07	0.95	Open
Junc 194	1120.0	1150.0	21.8	30.0	Pipe 200	6.18	20	100	-1.9	0.07	0.94	Open
Junc 195	1120.0	1150.5	21.8	30.5	Pipe 201	11.4	20	100	-7.6	0.28	12.26	Open
Junc 196	1115.0	1143.7	2.9	28.7	Pipe 202	20.4	20	100	1.9	0.07	0.94	Open
Junc 197	1095.0	1141.1	55.7	46.1	Pipe 203	15.54	20	100	1.9	0.07	0.94	Open
Junc 198	1110.0	1141.4	61.4	31.4	Pipe 204	65.82	20	100	1.9	0.07	0.94	Open
Junc 199	1110.0	1141.2	11.4	31.2	Pipe 205	25.19	20	100	-1.9	0.07	0.94	Open
Junc 200	1105.0	1141.1	13.8	36.1	Pipe 207	106.15	63	100	52.5	0.19	1.64	Open
Junc 201	1105.0	1141.1	28.1	36.1	Pipe 208	218.31	63	100	40.9	0.15	1.03	Open
Junc 202	1105.0	1141.2	13.8	36.2	Pipe 209	19.03	63	100	35.9	0.13	0.81	Open
Junc 203	1115.0	1143.5	7.4	28.5	Pipe 210	28.18	63	100	30.9	0.11	0.62	Open
Junc 204	1115.0	1143.5	11.8	28.5	Pipe 211	23.68	63	100	18.4	0.07	0.24	Open
Junc 205	1120.0	1168.4	10.5	48.4	Pipe 212	19.92	63	100	13.4	0.05	0.13	Open
Junc 206	1110.0	1158.2	9.6	48.2	Pipe 213	5.31	63	100	-6.7	0.02	0.03	Open
Junc 207	1110.0	1147.4	5.7	37.4	Pipe 214	34.49	25	100	4.2	0.1	1.38	Open
Junc 208	1105.0	1141.4	13.8	36.4	Pipe 215	21.75	20	100	-4.2	0.15	4.09	Open
Junc 209	1105.0	1141.4	13.8	36.4	Pipe 216	21.4	20	100	-2.5	0.09	1.56	Open
Junc 210	1105.0	1139.2	13.8	34.2	Pipe 217	6.29	20	100	-2.5	0.09	1.56	Open
Junc 211	1105.0	1139.4	13.8	34.4	Pipe 218	5.91	20	100	-5	0.18	5.65	Open
Junc 212	1105.0	1137.4	13.8	32.4	Pipe 219	19.17	20	100	-2.5	0.09	1.56	Open
Junc 213	1105.0	1140.9	28.1	35.9	Pipe 220	19.91	20	100	-10	0.37	20.38	Open
Junc 214	1105.0	1140.4	28.1	35.4	Pipe 221	29.77	20	100	-2.5	0.09	1.56	Open
Junc 215	1100.0	1134.0	18.0	34.0	Pipe 222	11.95	20	100	-2.5	0.09	1.57	Open
Junc 216	1105.0	1138.6	13.8	33.6	Pipe 223	33.02	20	100	-2.9	0.11	2.06	Open
Junc 217	1105.0	1142.1	53.8	37.1	Pipe 224	17.48	20	100	8.7	0.32	15.75	Open
Junc 218	1105.0	1136.5	13.8	31.5	Pipe 225	9.58	20	100	-2.9	0.11	2.06	Open
Junc 219	1105.0	1134.5	13.8	29.5	Pipe 226	85.44	50	100	-10.2	0.06	0.24	Open
Junc 220	1110.0	1139.3	11.4	29.3	Pipe 227	34.83	50	100	-14.4	0.08	0.46	Open
Junc 221	1110.0	1140.2	11.4	30.2	Pipe 228	44.78	50	100	-22.8	0.13	1.08	Open
Junc 222	1110.0	1141.2	11.4	31.2	Pipe 229	33.07	50	100	-31.2	0.18	1.93	Open
Junc 223	1110.0	1142.7	13.3	32.7	Pipe 230	234.52	50	100	-39.6	0.23	3	Open
Junc 224	1110.0	1141.7	13.3	31.7	Pipe 231	18.96	50	100	-45.4	0.27	3.87	Open
Junc 225	1110.0	1140.8	11.4	30.8	Pipe 232	19.21	20	100	-4.2	0.15	4.09	Open
Junc 226	1110.0	1142.7	11.4	32.7	Pipe 233	14.3	20	100	-4.2	0.15	4.09	Open
Junc 227	1110.0	1142.7	11.4	32.7	Pipe 234	8.62	20	100	-4.2	0.15	4.09	Open
Junc 228	1110.0	1141.7	11.4	31.7	Pipe 235	6.45	50	100	-51.2	0.3	4.85	Open
Junc 229	1110.0	1141.3	11.4	31.3	Pipe 236	3.3	50	100	-57	0.34	5.89	Open
Junc 230	1115.0	1142.1	15.1	27.1	Pipe 237	8.15	20	100	2.9	0.11	2.05	Open
Junc 231	1115.0	1142.1	15.1	27.1	Pipe 238	12.68	20	100	-2.9	0.11	2.06	Open
Junc 232	1115.0	1142.1	15.1	27.1	Pipe 239	6.85	20	100	-2.9	0.11	2.06	Open
Junc 233	1115.0	1143.0	11.0	28.0	Pipe 240	32.61	20	100	-2.9	0.11	2.06	Open
Junc 234	1115.0	1143.0	11.0	28.0	Pipe 241	21.82	20	100	-8.7	0.32	15.75	Open
Junc 235	1115.0	1143.2	2.9	28.2	Pipe 242	41.68	20	100	2.9	0.11	2.06	Open
Junc 236	1115.0	1141.7	11.0	26.7	Pipe 243	109.36	50	100	-68.6	0.4	8.31	Open
Junc 237	1115.0	1142.8	11.0	27.8	Pipe 244	85.4	50	100	-74.4	0.44	9.66	Open
Junc 238	1110.0	1143.1	11.0	33.1	Pipe 245	9.26	20	100	-2.9	0.11	2.06	Open
Junc 239	1110.0	1141.6	11.0	31.6	Pipe 246	95.93	100	100	214.6	0.32	2.35	Open
Junc 240	1110.0	1142.1	11.0	32.1	Pipe 247	28.97	20	100	-1.8	0.07	0.85	Open
Junc 241	1110.0	1142.9	11.0	32.9	Pipe 248	120.56	20	100	1.8	0.07	0.85	Open
Junc 242	1110.0	1142.8	13.3	32.8	Pipe 249	21.97	20	100	-1.8	0.07	0.85	Open
Junc 243	1110.0	1142.9	13.3	32.9	Pipe 250	5.19	20	100	-1.8	0.07	0.86	Open
Junc 244	1110.0	1141.7	13.3	31.7	Pipe 251	6.2	20	100	-3.6	0.13	3.07	Open
Junc 245	1110.0	1140.5	13.3	30.5	Pipe 252	8.03	20	100	-1.8	0.07	0.85	Open
Junc 246	1115.0	1143.5	2.9	28.5	Pipe 253	7.91	20	100	-7.2	0.27	11.09	Open
Junc 247	1115.0	1143.1	9.2	28.1	Pipe 254	8.03	20	100	-1.8	0.07	0.85	Open
Junc 248	1110.0	1143.1	6.4	33.1	Pipe 255	9.16	20	100	-1.8	0.07	0.85	Open
Junc 249	1115.0	1143.1	9.2	28.1	Pipe 256	7.76	20	100	-1.8	0.07	0.85	Open
Junc 250	1115.0	1143.1	9.2	28.1	Pipe 257	6.05	20	100	-1.8	0.07	0.86	Open
Junc 251	1115.0	1142.5	9.2	27.5	Pipe 258	56.47	63	100	1	0	0	Open
Junc 252	1115.0	1142.3	9.2	27.3	Pipe 259	7.35	63	100	-4.6	0.02	0.01	Open
Junc 253	1115.0	1143.1	6.4	28.1	Pipe 260	64.77	50	100	-6.4	0.04	0.1	Open
Junc 254	1115.0	1143.1	6.4	28.1	Pipe 261	19.39	50	100	52.2	0.31	5.01	Open
Junc 255	1115.0	1143.1	6.4	28.1	Pipe 262	48.12	50	100	48.6	0.29	4.39	Open

NODE Ma'an city					LINK Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 256	1115.0	1141.9	6.4	26.9	Pipe 263	30.35	50	100	45	0.27	3.81	Open
Junc 257	1115.0	1142.1	9.8	27.1	Pipe 264	7.45	20	100	-1.8	0.07	0.85	Open
Junc 258	1115.0	1140.3	11.8	25.3	Pipe 265	13.77	50	100	-41.4	0.24	3.26	Open
Junc 259	1115.0	1139.7	11.8	24.7	Pipe 266	15.27	50	100	37.8	0.22	2.75	Open
Junc 260	1115.0	1142.1	11.8	27.1	Pipe 268	71.58	20	100	-2.9	0.11	2.06	Open
Junc 261	1115.0	1140.5	11.8	25.5	Pipe 269	7.17	20	100	-2.9	0.11	2.05	Open
Junc 262	1115.0	1139.2	11.8	24.2	Pipe 270	97.75	20	100	-8.7	0.32	15.75	Open
Junc 263	1115.0	1142.4	11.8	27.4	Pipe 271	16.62	20	100	-2.1	0.08	1.13	Open
Junc 264	1115.0	1141.2	11.8	26.2	Pipe 272	176.84	20	100	-2.91	0.11	2.07	Open
Junc 265	1115.0	1142.6	11.8	27.6	Pipe 273	19.27	20	100	-1.29	0.05	0.46	Open
Junc 266	1115.0	1139.1	11.8	24.1	Pipe 274	125.28	20	100	1.85	0.07	0.89	Open
Junc 267	1115.0	1137.2	11.8	22.2	Pipe 275	13.55	20	100	-2.35	0.09	1.39	Open
Junc 268	1115.0	1142.3	11.8	27.3	Pipe 276	101.23	20	100	12.6	0.46	31.27	Open
Junc 269	1115.0	1140.6	11.8	25.6	Pipe 277	40.23	20	100	4.2	0.15	4.09	Open
Junc 270	1115.0	1139.8	11.8	24.8	Pipe 278	14.05	20	100	-4.2	0.15	4.09	Open
Junc 271	1110.0	1143.5	6.4	33.5	Pipe 279	10.27	20	100	-2.1	0.08	1.13	Open
Junc 272	1110.0	1142.6	6.4	32.6	Pipe 280	13.24	20	100	-2.1	0.08	1.14	Open
Junc 273	1115.0	1141.6	9.8	26.6	Pipe 282	8.11	100	100	1	0	0	Open
Junc 274	1115.0	1143.5	9.8	28.5	Pipe 283	69.61	32	100	28.6	0.41	14.46	Open
Junc 275	1115.0	1142.0	9.8	27.0	Pipe 284	153.95	32	100	26.6	0.38	12.64	Open
Junc 276	1115.0	1141.4	9.8	26.4	Pipe 285	4.12	32	100	22.8	0.33	9.5	Open
Junc 277	1115.0	1141.9	9.8	26.9	Pipe 286	54.98	32	100	5.7	0.08	0.73	Open
Junc 278	1115.0	1143.5	9.8	28.5	Pipe 287	47.59	20	100	1.9	0.07	0.94	Open
Junc 279	1115.0	1142.1	11.8	27.1	Pipe 288	44.12	25	100	15.2	0.36	14.93	Open
Junc 280	1115.0	1141.7	7.4	26.7	Pipe 289	11.64	25	100	11.4	0.27	8.76	Open
Junc 281	1120.0	1167.6	7.7	47.6	Pipe 290	15.83	25	100	7.6	0.18	4.14	Open
Junc 282	1120.0	1167.5	7.7	47.5	Pipe 291	7.46	25	100	1.9	0.04	0.32	Open
Junc 283	1120.0	1166.9	7.7	46.9	Pipe 292	7.44	20	100	1.9	0.07	0.94	Open
Junc 284	1120.0	1161.0	10.5	41.0	Pipe 293	6.3	20	100	-1.9	0.07	0.94	Open
Junc 285	1120.0	1166.5	10.5	46.5	Pipe 294	9.38	20	100	-3.8	0.14	3.4	Open
Junc 286	1120.0	1166.4	7.7	46.4	Pipe 295	13.46	20	100	-1.9	0.07	0.94	Open
Junc 287	1110.0	1158.3	9.6	48.3	Pipe 296	8.97	20	100	-1.9	0.07	0.95	Open
Junc 288	1115.0	1158.0	34.2	43.0	Pipe 297	98.34	32	100	-1.9	0.03	0.1	Open
Junc 289	1115.0	1139.4	19.3	24.4	Pipe 298	789.29	100	100	-11.2	0.02	0.01	Open
Junc 290	1115.0	1138.8	70.6	23.8	Pipe 299	211.17	25	100	13.1	0.31	11.34	Open
Junc 291	1110.0	1138.7	0.0	28.7	Pipe 300	19.82	20	100	-2.5	0.09	1.57	Open
Junc 292	1105.0	1128.9	12.6	23.9	Pipe 301	13.27	20	100	1.9	0.07	0.94	Open
Junc 293	1105.0	1128.9	0.0	23.9	Pipe 302	12.69	20	100	6.9	0.25	10.25	Open
Junc 294	1110.0	1133.0	5.8	23.0	Pipe 303	27.71	20	100	-2.5	0.09	1.56	Open
Junc 295	1100.0	1133.0	0.0	33.0	Pipe 304	28.43	20	100	-2.5	0.09	1.56	Open
Junc 296	1110.0	1136.6	0.0	26.6	Pipe 305	6.85	20	100	-11.3	0.42	25.56	Open
Junc 297	1110.0	1136.6	0.0	26.6	Pipe 306	44.23	20	100	15.7	0.58	47	Open
Junc 298	1115.0	1139.6	0.0	24.6	Pipe 307	26.22	20	100	-1.9	0.07	0.94	Open
Junc 299	1115.0	1139.4	0.0	24.4	Pipe 308	46.68	20	100	19.5	0.72	70.22	Open
Junc 300	1105.0	1139.0	18.4	34.0	Pipe 309	4.78	50	100	-21.4	0.13	0.97	Open
Junc 301	1115.0	1139.3	0.0	24.3	Pipe 310	95.23	63	100	-23.3	0.09	0.36	Open
Junc 302	1105.0	1139.3	5.8	34.3	Pipe 311	14.35	63	100	28.6	0.11	0.53	Open
Junc 303	1115.0	1139.3	1.9	24.3	Pipe 312	24.37	63	100	23.8	0.09	0.38	Open
Junc 304	1115.0	1139.1	17.4	24.1	Pipe 313	42.46	63	100	20	0.07	0.28	Open
Junc 305	1120.0	1144.4	8.7	24.4	Pipe 314	4.96	50	100	17.5	0.1	0.66	Open
Junc 306	1120.0	1143.7	18.4	23.7	Pipe 315	23.41	50	100	15	0.09	0.5	Open
Junc 307	1120.0	1139.3	9.4	19.3	Pipe 316	26.73	50	100	10	0.06	0.23	Open
Junc 308	1120.0	1138.2	9.4	18.2	Pipe 317	27.94	50	100	5	0.03	0.07	Open
Junc 309	1120.0	1139.3	9.4	19.3	Pipe 318	35.47	20	100	2.5	0.09	1.56	Open
Junc 310	1110.0	1136.3	53.2	26.3	Pipe 319	14.61	20	100	-2.5	0.09	1.56	Open
Junc 311	1120.0	1139.3	9.4	19.3	Pipe 320	15.98	20	100	-2.5	0.09	1.56	Open
Junc 312	1120.0	1138.3	9.4	18.3	Pipe 321	16.79	20	100	-1.9	0.07	0.94	Open
Junc 313	1120.0	1139.3	11.5	19.3	Pipe 322	17.75	20	100	-2.9	0.11	2.06	Open
Junc 314	1120.0	1137.3	11.5	17.3	Pipe 323	47.67	20	100	1.9	0.07	0.94	Open
Junc 315	1120.0	1137.6	28.6	17.6	Pipe 324	18.35	50	100	33	0.19	2.15	Open
Junc 316	1120.0	1137.6	11.5	17.6	Pipe 325	21.78	20	100	-2.5	0.09	1.56	Open
Junc 317	1120.0	1135.9	23.1	15.9	Pipe 326	13.39	25	100	-5	0.12	1.91	Open
Junc 318	1118.0	1135.2	13.1	17.2	Pipe 327	58.06	25	100	-10	0.24	6.87	Open
Junc 319	1115.0	1135.4	10.2	20.4	Pipe 328	24.86	50	100	-11.8	0.07	0.32	Open
Junc 320	1115.0	1135.4	0.0	20.4	Pipe 329	22.79	50	100	-13.6	0.08	0.41	Open
Junc 321	1115.0	1135.4	20.2	20.4	Pipe 330	21.42	50	100	-17.2	0.1	0.64	Open
Junc 322	1115.0	1133.1	11.2	18.1	Pipe 331	9.87	20	100	-1.8	0.07	0.85	Open
Junc 323	1120.0	1139.3	11.5	19.3	Pipe 332	8.92	20	100	-1.8	0.07	0.85	Open
Junc 324	1120.0	1139.2	15.8	19.2	Pipe 333	10.33	20	100	-2.5	0.09	1.57	Open
Junc 325	1120.0	1137.0	6.9	17.0	Pipe 334	64.03	25	100	5	0.12	1.9	Open
Junc 326	1120.0	1136.2	6.9	16.2	Pipe 335	9.33	20	100	2.5	0.09	1.56	Open
Junc 327	1120.0	1135.7	5.5	15.7	Pipe 336	7.46	20	100	-1.8	0.07	0.85	Open
Junc 328	1120.0	1136.2	6.9	16.2	Pipe 337	20.31	25	100	-8.6	0.2	5.2	Open
Junc 329	1120.0	1135.8	22.0	15.8	Pipe 338	317.57	200	100	-1532.9	0.56	3.06	Open
Junc 330	1120.0	1135.6	5.8	15.6	Pipe 339	10.06	20	100	-1	0.04	0.29	Open
Junc 331	1120.0	1136.8	7.9	16.8	Pipe 340	1287.67	100	100	341.2	0.5	5.54	Open
Junc 332	1120.0	1136.4	7.9	16.4	Pipe 341	93.87	400	100	12833.61	1.18	5.35	Open
Junc 333	1115.0	1136.8	18.4	21.8	Pipe 342	72.99	400	100	12645.5	1.16	5.21	Open
Junc 334	1115.0	1136.7	27.9	21.7	Pipe 343	400.91	400	100	12546.3	1.16	5.13	Open
Junc 335	1120.0	1136.7	25.5	16.7	Pipe 344	122.08	200	100	-588.26	0.22	0.52	Open
Junc 336	1115.0	1139.7	45.5	24.7	Pipe 345	291.47	200	100	-719.26	0.26	0.75	Open
Junc 337	1105.0	1127.3	120.8	22.3	Pipe 346	145.22	50	100	-101.8	0.6	17.27	Open
Junc 338	1105.0	1140.4	20.5	35.4	Pipe 347	146.27	50	100	-81.1	0.48	11.34	Open
Junc 339	1085.0	1140.8	10.0	55.8	Pipe 348	82.95	25	100	-21.1	0.5	27.4	Open
Junc 340	1110.0	1139.8	38.4	29.8	Pipe 349	217.61	200	100	477.96	0.18	0.35	Open

NODE Ma'an city					LINK Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 341	1110.0	1140.0	58.4	30.0	Pipe 350	94.03	200	100	5.8	0	0	Open
Junc 342	1110.0	1136.9	18.4	26.9	Pipe 351	157.87	200	100	2.9	0	0	Open
Junc 343	1120.0	1144.5	0.0	24.5	Pipe 352	9.48	350	100	-3294.8	0.4	0.83	Open
Junc 344	1120.0	1144.1	2.9	24.1	Pipe 353	219.37	400	100	-12546.3	1.16	5.13	Open
Junc 345	1095.0	1139.4	20.5	44.4	Pipe 354	310.21	25	100	-20.2	0.48	25.28	Open
Junc 346	1120.0	1138.6	25.5	18.6	Pipe 355	747.44	100	110	2.9	0	0	Open
Junc 347	1135.0	1148.6	11.2	13.6	Pipe 356	83.03	50	100	311.06	1.83	136.67	Open
Junc 348	1135.0	1147.4	61.0	12.4	Pipe 357	69.13	50	100	213.96	1.26	68.34	Open
Junc 349	1125.0	1145.0	6.6	20.0	Pipe 358	53.73	50	100	101.56	0.6	17.19	Open
Junc 350	1125.0	1148.6	0.0	23.6	Pipe 359	8.4	50	100	72.36	0.43	9.18	Open
Junc 351	1130.0	1172.4	34.0	42.4	Pipe 360	64.91	50	100	11.86	0.07	0.32	Open
Junc 352	1110.0	1148.7	31.3	38.7	Pipe 361	72.77	50	100	-48.64	0.29	4.4	Open
Junc 353	1120.0	1170.0	16.0	50.0	Pipe 362	71.5	50	100	-138.34	0.82	30.48	Open
Junc 354	1115.0	1167.8	16.0	52.8	Pipe 363	69.72	50	100	-201.54	1.19	61.18	Open
Junc 355	1115.0	1158.7	81.1	43.7	Pipe 364	57.87	50	100	-269.54	1.59	104.82	Open
Junc 356	1105.0	1157.2	16.0	52.2	Pipe 365	62.25	50	100	-337.54	1.99	159	Open
Junc 357	1110.0	1154.0	81.1	44.0	Pipe 366	172.36	50	100	34	0.2	2.27	Open
Junc 358	1110.0	1152.3	31.3	42.3	Pipe 367	172.03	50	100	34	0.2	2.27	Open
Junc 359	1115.0	1153.0	29.2	38.0	Pipe 368	170.24	50	100	34	0.2	2.27	Open
Junc 360	1110.0	1143.8	31.3	33.8	Pipe 369	169.61	50	100	31.3	0.18	1.94	Open
Junc 361	1120.0	1144.8	0.0	24.8	Pipe 370	160.96	25	100	31.3	0.74	56.88	Open
Junc 362	1115.0	1153.3	58.4	38.3	Pipe 371	161.96	50	100	31.3	0.18	1.94	Open
Junc 363	1115.0	1152.9	31.3	37.9	Pipe 372	136.53	25	100	16	0.38	16.42	Open
Junc 364	1120.0	1155.5	29.2	35.5	Pipe 373	89.3	25	100	16	0.38	16.42	Open
Junc 365	1120.0	1155.1	34.0	35.1	Pipe 374	852.11	50	100	31.3	0.18	1.94	Open
Junc 366	1125.0	1159.7	34.0	34.7	Pipe 375	416.75	25	100	-31.3	0.74	56.88	Open
Junc 367	1120.0	1159.3	34.0	39.3	Pipe 376	20.54	50	100	0	0	0	Closed
Junc 368	1130.0	1165.8	34.0	35.8	Pipe 377	199.21	50	100	99.3	0.59	16.49	Open
Junc 369	1125.0	1165.4	34.0	40.4	Pipe 378	39.11	50	100	34	0.2	2.27	Open
Junc 370	1115.0	1155.9	34.2	40.9	Pipe 379	86.09	50	100	88	0.52	13.19	Open
Junc 371	1120.0	1155.7	34.2	35.7	Pipe 380	262.14	20	100	6.6	0.24	9.44	Open
Junc 372	1115.0	1154.4	166.0	39.4	Pipe 381	474.37	50	100	0	0	0	Open
Junc 373	1115.0	1154.4	14.4	39.4	Pipe 382	541.58	50	100	20.4	0.12	0.88	Open
Junc 374	1120.0	1153.9	166.0	33.9	Pipe 383	68.67	25	100	2.1	0.05	0.38	Open
Junc 375	1120.0	1151.2	166.0	31.2	Pipe 384	3.58	25	100	12.1	0.29	9.79	Open
Junc 376	1120.0	1152.3	29.2	32.3	Pipe 385	40.02	63	100	-13.1	0.05	0.12	Open
Junc 377	1120.0	1152.3	29.2	32.3	Pipe 386	10.17	20	100	9	0.33	16.77	Open
Junc 378	1115.0	1151.5	29.2	36.5	Pipe 387	28.37	20	100	5	0.18	5.65	Open
Junc 379	1115.0	1151.4	29.2	36.4	Pipe 388	18.45	20	100	1	0.04	0.29	Open
Junc 380	1115.0	1149.7	35.7	34.7	Pipe 389	19.16	20	100	-1	0.04	0.29	Open
Junc 381	1120.0	1149.6	36.4	29.6	Pipe 390	36.51	20	100	3	0.11	2.19	Open
Junc 382	1115.0	1149.0	135.7	34.0	Pipe 391	63.91	20	100	1	0.04	0.29	Open
Junc 383	1120.0	1145.8	27.2	25.8	Pipe 392	13.31	20	100	-1	0.04	0.29	Open
Junc 384	1115.0	1148.5	0.0	33.5	Pipe 393	31.6	20	100	-1	0.04	0.29	Open
Junc 385	1115.0	1148.1	28.8	33.1	Pipe 394	20.68	20	100	3	0.11	2.19	Open
Junc 386	1115.0	1148.1	28.8	33.1	Pipe 395	9.06	100	100	-1.8	0	0	Open
Junc 387	1115.0	1148.0	0.0	33.0	Pipe 396	35.91	100	100	-16.7	0.02	0.02	Open
Junc 388	1115.0	1147.9	26.7	32.9	Pipe 397	3.94	63	100	11.7	0.04	0.09	Open
Junc 389	1115.0	1147.8	26.7	32.8	Pipe 398	30.38	63	100	6.7	0.02	0.04	Open
Junc 390	1110.0	1147.6	26.7	37.6	Pipe 399	14.34	50	100	4.2	0.02	0.05	Open
Junc 391	1110.0	1147.5	26.7	37.5	Pipe 400	11.47	20	100	2.1	0.08	1.14	Open
Junc 392	1105.0	1147.5	5.7	42.5	Pipe 401	50.34	20	100	2.5	0.09	1.56	Open
Junc 393	1105.0	1147.0	5.7	42.0	Pipe 402	14.69	20	100	-2.1	0.08	1.13	Open
Junc 394	1100.0	1146.7	5.7	46.7	Pipe 403	13.61	20	100	-2.1	0.08	1.13	Open
Junc 395	1115.0	1144.2	28.8	29.2	Pipe 404	11.64	50	100	-4.2	0.02	0.04	Open
Junc 396	1115.0	1158.8	10.5	43.8	Pipe 405	81.49	50	100	-8.4	0.05	0.17	Open
Junc 397	1120.0	1157.4	10.5	37.4	Pipe 406	21.25	50	100	35.4	0.21	2.44	Open
Junc 398	1115.0	1158.7	23.6	43.7	Pipe 407	69	50	100	22.8	0.13	1.08	Open
Junc 399	1115.0	1152.4	23.6	37.4	Pipe 408	26.45	50	100	18.6	0.11	0.74	Open
Junc 400	1115.0	1149.4	23.6	34.4	Pipe 409	18.21	50	100	14.4	0.08	0.46	Open
Junc 401	1120.0	1169.5	30.2	49.5	Pipe 410	23.95	50	100	10.2	0.06	0.25	Open
Junc 402	1120.0	1165.1	24.4	45.1	Pipe 411	14.25	50	100	3.6	0.02	0.04	Open
Junc 403	1120.0	1165.2	24.4	45.2	Pipe 412	9.67	20	100	2.1	0.08	1.13	Open
Junc 404	1120.0	1165.4	24.4	45.4	Pipe 413	8.19	20	100	-2.1	0.08	1.14	Open
Junc 405	1120.0	1160.6	8.9	40.6	Pipe 414	7.31	20	100	-2.1	0.08	1.14	Open
Junc 406	1120.0	1167.9	34.4	47.9	Pipe 415	9.8	20	100	-2.1	0.08	1.13	Open
Junc 407	1125.0	1162.8	8.9	37.8	Pipe 416	5.29	20	100	-2.1	0.08	1.14	Open
Junc 408	1120.0	1164.9	20.4	44.9	Pipe 417	4.71	20	100	-2.1	0.08	1.14	Open
Junc 409	1120.0	1165.1	24.4	45.1	Pipe 418	6.96	20	100	-10.5	0.39	22.3	Open
Junc 410	1120.0	1164.5	20.4	44.5	Pipe 419	62.36	20	100	-4.5	0.17	4.65	Open
Junc 411	1120.0	1164.5	20.4	44.5	Pipe 420	6.44	20	100	6.3	0.23	8.67	Open
Junc 412	1120.0	1164.4	20.4	44.4	Pipe 421	41.32	20	100	2.1	0.08	1.13	Open
Junc 413	1115.0	1163.3	12.6	48.3	Pipe 422	7.55	20	100	-2.1	0.08	1.13	Open
Junc 414	1120.0	1163.2	20.4	43.2	Pipe 423	8.96	20	100	-4.2	0.15	4.09	Open
Junc 415	1125.0	1171.3	17.1	46.3	Pipe 424	18.66	20	100	-6.3	0.23	8.66	Open
Junc 416	1125.0	1158.4	16.7	33.4	Pipe 425	63.25	50	100	-8.4	0.05	0.17	Open
Junc 417	1130.0	1172.8	12.7	42.8	Pipe 426	30.01	63	100	67.3	0.25	2.6	Open
Junc 418	1130.0	1171.7	16.7	41.7	Pipe 427	73.07	50	100	64.8	0.38	7.48	Open
Junc 419	1130.0	1171.7	12.7	41.7	Pipe 428	46.29	50	100	60.6	0.36	6.61	Open
Junc 420	1130.0	1171.6	16.7	41.6	Pipe 429	13.85	50	100	56.4	0.33	5.79	Open
Junc 421	1130.0	1172.2	12.7	42.2	Pipe 430	10.91	20	100	2.1	0.08	1.13	Open
Junc 422	1130.0	1172.2	12.7	42.2	Pipe 431	10.28	20	100	2.1	0.08	1.14	Open
Junc 423	1130.0	1172.8	0.0	42.8	Pipe 432	65.49	100	100	-30.9	0.05	0.06	Open
Junc 424	1130.0	1172.8	12.7	42.8	Pipe 433	83.99	100	100	-100.7	0.15	0.58	Open
Junc 425	1130.0	1172.7	12.7	42.7	Pipe 434	99.15	20	100	3	0.11	2.19	Open

NODE Ma'an city					LINK Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 426	1130.0	1171.9	12.7	41.9	Pipe 435	28.74	20	100	1.5	0.06	0.61	Open
Junc 427	1130.0	1171.9	12.7	41.9	Pipe 436	67.76	50	100	-45.9	0.27	3.95	Open
Junc 428	1130.0	1182.0	26.5	52.0	Pipe 437	4.38	100	100	-194.6	0.29	1.95	Open
Junc 429	1130.0	1181.9	26.5	51.9	Pipe 438	38.44	63	100	137.4	0.51	9.76	Open
Junc 430	1135.0	1187.7	2.9	52.7	Pipe 439	12.28	50	100	134.9	0.8	29.09	Open
Junc 431	1135.0	1187.7	2.9	52.7	Pipe 440	22.48	50	100	129.9	0.77	27.12	Open
Junc 432	1130.0	1192.1	12.2	62.1	Pipe 441	22.81	50	100	124.9	0.74	25.22	Open
Junc 433	1135.0	1190.7	5.8	55.7	Pipe 442	53.57	50	100	119.9	0.71	23.38	Open
Junc 434	1130.0	1185.6	17.2	55.6	Pipe 443	6.54	50	100	115.3	0.68	21.74	Open
Junc 435	1145.0	1183.0	7.6	38.0	Pipe 444	40.9	50	100	110.7	0.65	20.17	Open
Junc 436	1125.0	1162.1	26.8	37.1	Pipe 445	32.17	50	100	106	0.62	18.61	Open
Junc 437	1125.0	1162.1	5.8	37.1	Pipe 446	29.95	50	100	100.8	0.59	16.95	Open
Junc 438	1125.0	1159.5	7.3	34.5	Pipe 447	8.2	50	100	95.6	0.56	15.37	Open
Junc 439	1125.0	1159.4	16.7	34.4	Pipe 448	9.45	50	100	90.4	0.53	13.86	Open
Junc 440	1120.0	1137.0	48.0	17.0	Pipe 449	46.16	50	100	80	0.47	11.05	Open
Junc 441	1125.0	1157.3	16.7	32.3	Pipe 450	5.28	50	100	72.2	0.43	9.13	Open
Junc 442	1125.0	1159.4	7.3	34.4	Pipe 451	6.07	50	100	67	0.39	7.97	Open
Junc 443	1125.0	1159.4	7.3	34.4	Pipe 452	52.95	50	100	61.8	0.36	6.85	Open
Junc 444	1120.0	1154.2	20.4	34.2	Pipe 453	58.09	50	100	56.6	0.33	5.82	Open
Junc 445	1120.0	1155.6	48.0	35.6	Pipe 454	27.45	50	100	52	0.31	4.98	Open
Junc 446	1120.0	1163.0	12.6	43.0	Pipe 455	6.69	50	100	48	0.28	4.29	Open
Junc 447	1120.0	1161.7	60.4	41.7	Pipe 456	20.92	50	100	44	0.26	3.65	Open
Junc 448	1115.0	1163.2	12.6	48.2	Pipe 457	5.63	50	100	6	0.04	0.09	Open
Junc 449	1115.0	1162.4	12.6	47.4	Pipe 458	9.78	50	100	-2	0.01	0.02	Open
Junc 450	1125.0	1152.9	20.4	27.9	Pipe 459	9.81	20	100	-2	0.07	1.04	Open
Junc 451	1120.0	1149.5	21.8	29.5	Pipe 460	10.54	20	100	-2	0.07	1.03	Open
Junc 452	1115.0	1146.3	67.8	31.3	Pipe 461	13.67	20	100	-2	0.07	1.03	Open
Junc 453	1125.0	1151.3	20.4	26.3	Pipe 462	15.18	20	100	-2	0.07	1.03	Open
Junc 454	1125.0	1149.2	63.8	24.2	Pipe 463	14.2	20	100	-2.6	0.1	1.68	Open
Junc 455	1125.0	1147.1	43.8	22.1	Pipe 464	23.65	20	100	-2.6	0.1	1.68	Open
Junc 456	1130.0	1146.9	3.8	16.9	Pipe 465	20.32	20	100	-2.6	0.1	1.68	Open
Junc 457	1115.0	1135.9	57.8	20.9	Pipe 466	19.74	20	100	5.2	0.19	6.07	Open
Junc 458	1130.0	1147.9	33.8	17.9	Pipe 467	32.53	20	100	2.6	0.1	1.68	Open
Junc 459	1135.0	1147.6	33.8	12.6	Pipe 468	9.4	20	100	-2.6	0.1	1.68	Open
Junc 460	1125.0	1161.0	20.2	36.0	Pipe 469	12.01	20	100	7.8	0.29	12.87	Open
Junc 461	1135.0	1168.6	32.6	33.6	Pipe 470	21.69	20	100	2.6	0.1	1.68	Open
Junc 462	1120.0	1175.3	2.9	55.3	Pipe 471	11.86	20	100	2.6	0.1	1.68	Open
Junc 463	1120.0	1175.3	92.0	55.3	Pipe 472	10.92	20	100	-2.6	0.1	1.68	Open
Junc 464	1120.0	1173.1	21.1	53.1	Pipe 473	12.38	20	100	2.6	0.1	1.68	Open
Junc 465	1130.0	1189.5	13.1	59.5	Pipe 474	16.47	20	100	2.6	0.1	1.68	Open
Junc 466	1130.0	1191.9	7.3	61.9	Pipe 475	12.32	20	100	2.5	0.09	1.56	Open
Junc 467	1125.0	1191.9	7.3	66.9	Pipe 476	44.71	20	100	-2.1	0.08	1.13	Open
Junc 468	1130.0	1191.9	0.0	61.9	Pipe 477	19.16	20	100	-2.5	0.09	1.57	Open
Junc 469	1125.0	1191.8	11.6	66.8	Pipe 478	11.62	20	100	2.5	0.09	1.56	Open
Junc 470	1135.0	1192.8	2.9	57.8	Pipe 479	23.11	20	100	-2.5	0.09	1.56	Open
Junc 471	1140.0	1200.6	5.8	60.6	Pipe 480	576.84	50	100	-91.4	0.54	14.14	Open
Junc 472	1140.0	1216.3	20.7	76.3	Pipe 481	21.47	20	100	-2	0.07	1.03	Open
Junc 473	1140.0	1216.3	0.0	76.3	Pipe 482	11.21	20	100	-2	0.07	1.04	Open
Junc 474	1145.0	1218.3	18.6	73.3	Pipe 483	5.74	50	100	27.6	0.16	1.54	Open
Junc 475	1145.0	1223.8	23.1	78.8	Pipe 484	8.78	20	100	2	0.07	1.03	Open
Junc 476	1145.0	1223.7	18.6	78.7	Pipe 485	8.14	50	100	-6	0.04	0.09	Open
Junc 477	1145.0	1223.7	2.9	78.7	Pipe 486	124.02	50	100	17.6	0.1	0.67	Open
Junc 478	1145.0	1223.7	2.9	78.7	Pipe 487	14.31	20	100	16.2	0.6	49.81	Open
Junc 479	1150.0	1223.7	2.9	73.7	Pipe 488	24.67	20	100	9.2	0.34	17.47	Open
Junc 480	1145.0	1223.7	2.9	78.7	Pipe 489	12.27	20	100	-1.4	0.05	0.53	Open
Junc 481	1150.0	1223.6	2.9	73.6	Pipe 490	24.21	20	100	6.4	0.24	8.92	Open
Junc 482	1145.0	1223.4	17.4	78.4	Pipe 491	12.47	20	100	-1.4	0.05	0.54	Open
Junc 483	1160.0	1221.3	23.9	61.3	Pipe 492	10.42	20	100	-2.8	0.1	1.93	Open
Junc 484	1135.0	1180.1	71.4	45.1	Pipe 493	13.29	20	100	-1.4	0.05	0.53	Open
Junc 485	1130.0	1179.8	20.4	49.8	Pipe 494	14.04	20	100	-5.6	0.21	6.96	Open
Junc 486	1140.0	1167.1	102.6	27.1	Pipe 495	266.1	50	100	61.8	0.36	6.85	Open
Junc 487	1135.0	1178.0	23.0	43.0	Pipe 496	56.24	20	100	3.2	0.12	2.47	Open
Junc 488	1130.0	1177.6	20.4	47.6	Pipe 497	38.1	63	100	-18.7	0.07	0.24	Open
Junc 489	1130.0	1175.7	23.0	45.7	Pipe 498	23.64	63	100	39.9	0.15	0.99	Open
Junc 490	1130.0	1175.7	2.9	45.7	Pipe 499	82.85	63	100	33.5	0.12	0.72	Open
Junc 491	1130.0	1174.9	46.1	44.9	Pipe 500	90.59	63	100	17.6	0.07	0.22	Open
Junc 492	1130.0	1174.9	2.9	44.9	Pipe 501	12.7	63	100	8.8	0.03	0.06	Open
Junc 493	1130.0	1173.6	46.1	43.6	Pipe 502	17.33	20	100	4.4	0.16	4.46	Open
Junc 494	1125.0	1173.6	2.9	48.6	Pipe 503	18.07	20	100	4.4	0.16	4.46	Open
Junc 495	1125.0	1173.0	0.0	48.0	Pipe 504	25.13	20	100	-3.2	0.12	2.47	Open
Junc 496	1125.0	1169.1	71.0	44.1	Pipe 505	17.03	20	100	3.2	0.12	2.47	Open
Junc 497	1125.0	1172.4	12.6	47.4	Pipe 506	34.29	20	100	3.2	0.12	2.47	Open
Junc 498	1125.0	1169.0	71.0	44.0	Pipe 507	30.76	25	100	12.7	0.3	10.7	Open
Junc 499	1125.0	1172.1	12.6	47.1	Pipe 508	139.55	25	100	6.3	0.15	2.92	Open
Junc 500	1125.0	1168.2	71.0	43.2	Pipe 509	51.15	25	100	1.8	0.04	0.29	Open
Junc 501	1125.0	1172.0	12.6	47.0	Pipe 510	12.73	20	100	0.9	0.03	0.23	Open
Junc 502	1125.0	1170.2	40.1	45.2	Pipe 511	21.68	25	100	3.6	0.08	1.04	Open
Junc 503	1125.0	1170.1	40.1	45.1	Pipe 512	19.41	25	100	1.8	0.04	0.29	Open
Junc 504	1120.0	1160.0	7.7	40.0	Pipe 513	14.17	20	100	0.9	0.03	0.24	Open
Junc 505	1120.0	1159.2	41.6	39.2	Pipe 514	19.69	20	100	-0.9	0.03	0.24	Open
Junc 506	1120.0	1152.6	41.6	32.6	Pipe 515	36.75	25	100	15.5	0.37	15.48	Open
Junc 507	1120.0	1157.2	41.6	37.2	Pipe 516	154.08	25	100	9.1	0.21	5.77	Open
Junc 508	1120.0	1153.2	14.4	33.2	Pipe 517	30.9	25	100	2.7	0.06	0.61	Open
Junc 509	1120.0	1156.3	31.6	36.3	Pipe 518	12.82	25	100	0.9	0.02	0.08	Open
Junc 510	1125.0	1155.4	5.0	30.4	Pipe 519	20.6	20	100	-0.9	0.03	0.24	Open

NODE Ma'an city					LINK Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 511	1120.0	1155.9	21.6	35.9	Pipe 520	18.8	20	100	-3.2	0.12	2.47	Open
Junc 512	1130.0	1154.9	5.0	24.9	Pipe 521	39.97	50	100	100.3	0.59	16.8	Open
Junc 513	1125.0	1155.7	13.3	30.7	Pipe 522	16.93	50	100	97.8	0.58	16.03	Open
Junc 514	1135.0	1154.3	5.0	19.3	Pipe 523	16.83	50	100	92.8	0.55	14.55	Open
Junc 515	1145.0	1213.6	18.6	68.6	Pipe 524	64.51	50	100	86.2	0.51	12.69	Open
Junc 516	1120.0	1160.9	10.5	40.9	Pipe 525	46.7	50	100	81.8	0.48	11.52	Open
Junc 517	1105.0	1127.2	67.8	22.2	Pipe 526	17.77	50	100	77.4	0.46	10.4	Open
Junc 518	1115.0	1139.5	19.3	24.5	Pipe 527	29.44	50	100	73	0.43	9.33	Open
Junc 519	1120.0	1136.2	7.9	16.2	Pipe 528	11.44	50	100	68.6	0.4	8.31	Open
Junc 520	1115.0	1142.6	1.9	27.6	Pipe 529	10.25	50	100	61.6	0.36	6.81	Open
Junc 521	1115.0	1139.7	19.3	24.7	Pipe 530	19.89	50	100	56.4	0.33	5.78	Open
Junc 522	1120.0	1145.0	0.0	25.0	Pipe 531	26.4	50	100	51.2	0.3	4.84	Open
Junc 523	1130.0	1147.0	20.4	17.0	Pipe 532	10.38	50	100	46	0.27	3.96	Open
Junc 524	1130.0	1175.7	11.2	45.7	Pipe 533	19.96	50	100	40.8	0.24	3.18	Open
Junc 525	1130.0	1175.7	22.4	45.7	Pipe 534	25.53	50	100	35.6	0.21	2.47	Open
Junc 526	1130.0	1172.3	34.0	42.3	Pipe 535	34.89	50	100	30.4	0.18	1.84	Open
Junc 527	1115.0	1153.1	29.2	38.1	Pipe 536	24.57	50	100	20	0.12	0.85	Open
Junc 528	1135.0	1168.4	32.6	33.4	Pipe 537	122.12	50	100	14.8	0.09	0.49	Open
Junc 529	1125.0	1168.1	2.9	43.1	Pipe 538	13.88	50	100	10.4	0.06	0.25	Open
Junc 530	1115.0	1143.0	2.9	28.0	Pipe 539	21.76	50	100	4.2	0.02	0.04	Open
Junc 531	1115.0	1143.3	2.9	28.3	Pipe 540	23.32	50	100	1.4	0.01	0.01	Open
Junc 532	1135.0	1176.2	1.0	41.2	Pipe 541	24.17	20	100	1.4	0.05	0.54	Open
Junc 533	1130.0	1192.1	2.2	62.1	Pipe 542	14.1	20	100	2.2	0.08	1.23	Open
Junc 534	1125.0	1159.4	7.3	34.4	Pipe 543	6.43	20	100	-1.4	0.05	0.53	Open
Junc 535	1120.0	1154.2	21.8	34.2	Pipe 544	27.04	20	100	-2	0.07	1.03	Open
Junc 536	1120.0	1155.9	21.8	35.9	Pipe 545	25.52	20	100	-4.8	0.18	5.23	Open
Junc 537	1125.0	1163.3	7.3	38.3	Pipe 546	29.21	20	100	-2.6	0.1	1.68	Open
Junc 538	1120.0	1167.2	36.9	47.2	Pipe 547	5.94	20	100	-2.6	0.1	1.68	Open
Junc 539	1120.0	1159.5	16.4	39.5	Pipe 548	11.16	20	100	-7.8	0.29	12.86	Open
Junc 540	1120.0	1167.7	7.7	47.7	Pipe 549	14.6	20	100	-2.6	0.1	1.68	Open
Junc 541	1120.0	1162.0	21.6	42.0	Pipe 550	20.13	20	100	-2.6	0.1	1.68	Open
Junc 542	1120.0	1167.7	7.7	47.7	Pipe 551	13.15	20	100	-2.6	0.1	1.68	Open
Junc 543	1140.0	1166.8	1.9	26.8	Pipe 552	29.41	20	100	-2.6	0.1	1.68	Open
Junc 544	1110.0	1147.4	5.7	37.4	Pipe 553	11.99	20	100	-2.6	0.1	1.68	Open
Junc 545	1115.0	1148.7	0.0	33.7	Pipe 554	23.92	20	100	2.6	0.1	1.68	Open
Junc 546	1115.0	1148.0	0.0	33.0	Pipe 555	18.71	20	100	-2.6	0.1	1.68	Open
Junc 547	1110.0	1147.3	5.7	37.3	Pipe 556	12.04	20	100	4.4	0.16	4.46	Open
Junc 548	1110.0	1147.4	5.7	37.4	Pipe 557	8.26	20	100	2.2	0.08	1.23	Open
Junc 549	1110.0	1147.3	5.7	37.3	Pipe 558	14.16	20	100	2.2	0.08	1.23	Open
Junc 550	1110.0	1147.3	5.7	37.3	Pipe 559	16.8	20	100	-2.2	0.08	1.24	Open
Junc 551	1110.0	1147.3	20.1	37.3	Pipe 560	17.68	20	100	-2.2	0.08	1.24	Open
Junc 552	1110.0	1146.3	5.7	36.3	Pipe 561	18.24	20	100	-2.2	0.08	1.23	Open
Junc 553	1105.0	1147.4	5.7	42.4	Pipe 562	12.41	20	100	4.4	0.16	4.46	Open
Junc 554	1115.0	1156.0	23.6	41.0	Pipe 563	7.5	20	100	2.2	0.08	1.24	Open
Junc 555	1125.0	1155.7	8.3	30.7	Pipe 564	21	20	100	-2.5	0.09	1.56	Open
Junc 556	1125.0	1172.0	12.6	47.0	Pipe 565	104.02	100	100	-334.5	0.49	5.34	Open
Junc 557	1140.0	1213.6	0.0	73.6	Pipe 566	99.24	100	100	-437.3	0.64	8.78	Open
Junc 558	1125.0	1170.2	17.1	45.2	Pipe 567	100.02	100	100	-518.6	0.76	12.04	Open
Junc 559	1120.0	1167.8	36.4	47.8	Pipe 568	27.85	63	100	78.5	0.29	3.46	Open
Junc 560	1120.0	1164.4	20.4	44.4	Pipe 569	27.42	63	100	73.5	0.27	3.06	Open
Junc 561	1110.0	1141.2	11.4	31.2	Pipe 570	3.28	63	100	69.1	0.26	2.75	Open
Junc 562	1105.0	1140.9	28.1	35.9	Pipe 571	2.67	63	100	64.7	0.24	2.4	Open
Junc 563	1105.0	1141.4	13.8	36.4	Pipe 572	64.91	50	100	62.5	0.37	7	Open
Junc 564	1105.0	1133.0	13.8	28.0	Pipe 573	3.67	50	100	58.1	0.34	6.12	Open
Junc 565	1115.0	1143.2	2.9	28.2	Pipe 574	30.78	50	100	53.7	0.32	5.28	Open
Junc 566	1115.0	1142.1	15.1	27.1	Pipe 575	32.07	50	100	49.3	0.29	4.51	Open
Junc 567	1105.0	1135.8	13.8	30.8	Pipe 576	53.62	50	100	44.9	0.26	3.79	Open
Junc 568	1105.0	1119.3	28.1	14.3	Pipe 577	67.76	50	100	40.5	0.24	3.13	Open
Junc 569	1105.0	1135.3	28.1	30.3	Pipe 578	63.45	50	100	35.7	0.21	2.48	Open
Junc 570	1115.0	1141.2	9.8	26.2	Pipe 579	10.5	20	100	2.2	0.08	1.23	Open
Junc 571	1110.0	1142.4	6.4	32.4	Pipe 580	30.05	20	100	-2.6	0.1	1.68	Open
Junc 572	1110.0	1141.5	11.0	31.5	Pipe 581	26.6	20	100	2.2	0.08	1.23	Open
Junc 573	1110.0	1141.8	11.0	31.8	Pipe 582	10.53	20	100	2.2	0.08	1.24	Open
Junc 574	1110.0	1140.8	11.0	30.8	Pipe 583	17.85	20	100	2.8	0.1	1.93	Open
Junc 575	1110.0	1143.0	11.0	33.0	Pipe 584	26.03	20	100	-2.2	0.08	1.23	Open
Junc 576	1110.0	1140.4	13.3	30.4	Pipe 585	23.68	20	100	-2.2	0.08	1.23	Open
Junc 577	1110.0	1140.4	13.3	30.4	Pipe 586	15.01	20	100	2.2	0.08	1.23	Open
Junc 578	1110.0	1142.7	11.4	32.7	Pipe 587	10.61	20	100	-2.2	0.08	1.23	Open
Junc 579	1110.0	1138.7	13.3	28.7	Pipe 588	23.22	20	100	2.2	0.08	1.23	Open
Junc 580	1115.0	1143.0	9.8	28.0	Pipe 589	68.57	50	100	31.3	0.18	1.94	Open
Junc 581	1115.0	1139.8	11.8	24.8	Pipe 590	43.56	50	100	26.9	0.16	1.47	Open
Junc 582	1115.0	1139.4	11.8	24.4	Pipe 591	15.46	50	100	20.3	0.12	0.87	Open
Junc 583	1115.0	1139.4	11.8	24.4	Pipe 592	160.18	50	100	15.9	0.09	0.55	Open
Junc 584	1115.0	1137.9	11.8	22.9	Pipe 593	35.87	50	100	13.1	0.08	0.39	Open
Junc 585	1115.0	1142.4	6.4	27.4	Pipe 594	72.99	50	100	10.3	0.06	0.25	Open
Junc 586	1115.0	1141.9	9.2	26.9	Pipe 595	4.77	50	100	7.5	0.04	0.14	Open
Junc 587	1115.0	1143.1	6.4	28.1	Pipe 596	25.14	20	100	6.1	0.22	8.16	Open
Junc 588	1110.0	1143.1	6.4	33.1	Pipe 597	11.44	20	100	-1.4	0.05	0.53	Open
Junc 589	1140.0	1181.0	15.0	41.0	Pipe 598	12.33	20	100	-1.4	0.05	0.54	Open
Junc 590	1115.0	1141.1	9.8	26.1	Pipe 599	30.62	20	100	-1.4	0.05	0.53	Open
Junc 591	1115.0	1140.7	9.8	25.7	Pipe 600	30.99	20	100	-1.4	0.05	0.54	Open
Junc 592	1110.0	1142.3	6.4	32.3	Pipe 601	18.85	20	100	-2.2	0.08	1.24	Open
Junc 593	1095.0	1132.8	20.0	37.8	Pipe 602	27.23	20	100	4.4	0.16	4.45	Open
Junc 594	1140.0	1180.5	1.7	40.5	Pipe 603	13.19	20	100	2.2	0.08	1.23	Open
Junc 595	1140.0	1165.7	1.9	25.7	Pipe 604	11.82	20	100	2.2	0.08	1.23	Open

NODE Ma'an city					LINK Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 596	1020.0	1122.6	5.8	102.6	Pipe 605	121.09	20	100	3.3	0.12	2.62	Open
Junc 597	1080.0	1145.1	140.8	65.1	Pipe 606	209.96	25	100	1.9	0.04	0.32	Open
Junc 598	1065.0	1126.2	82.0	61.2	Pipe 607	30.88	20	100	-1.9	0.07	0.94	Open
Junc 599	1135.0	1190.8	10.2	55.8	Pipe 608	143.89	25	100	-3.8	0.09	1.15	Open
Junc 600	1130.0	1165.9	14.4	35.9	Pipe 609	161.22	25	100	-12.5	0.29	10.39	Open
Junc 601	1140.0	1178.5	4.4	38.5	Pipe 610	149.48	25	100	-20.1	0.47	25.05	Open
Junc 602	1120.0	1167.2	10.5	47.2	Pipe 611	101.02	25	100	-27.7	0.65	45.36	Open
Junc 603	1120.0	1168.4	10.5	48.4	Pipe 612	26.44	20	100	-3.8	0.14	3.4	Open
Junc 604	1120.0	1145.1	0.0	25.1	Pipe 613	16.07	20	100	7.5	0.28	11.97	Open
Junc 605	1125.0	1145.0	0.0	20.0	Pipe 614	8.52	20	100	2.5	0.09	1.56	Open
Junc 606	1120.0	1145.0	0.0	25.0	Pipe 615	31.85	20	100	2.5	0.09	1.56	Open
Junc 607	1125.0	1145.0	0.0	20.0	Pipe 616	25.45	20	100	-3.8	0.14	3.39	Open
Junc 608	1130.0	1180.4	9.2	50.4	Pipe 617	15.86	25	100	10.4	0.25	7.39	Open
Junc 609	1140.0	1180.4	1.7	40.4	Pipe 618	50.06	25	100	5.2	0.12	2.05	Open
Junc 610	1120.0	1145.9	46.9	25.9	Pipe 619	24.17	20	100	3.8	0.14	3.4	Open
Junc 611	1120.0	1146.1	20.4	26.1	Pipe 620	21.93	20	100	-3.8	0.14	3.4	Open
Junc 612	1135.0	1149.0	1.0	14.0	Pipe 621	39.16	63	100	-11.8	0.04	0.1	Open
Junc 613	1115.0	1153.0	29.2	38.0	Pipe 622	59.23	63	100	-13.2	0.05	0.13	Open
Junc 614	1110.0	1152.7	31.3	42.7	Pipe 623	54.12	63	100	19.8	0.07	0.27	Open
Junc 615	1115.0	1175.5	29.2	60.5	Pipe 624	48.96	63	100	18.4	0.07	0.24	Open
Junc 616	1120.0	1173.0	101.8	53.0	Pipe 625	215.15	63	100	27.7	0.1	0.5	Open
Junc 617	1115.0	1175.4	29.2	60.4	Pipe 626	120.31	20	100	1.87	0.07	0.91	Open
Junc 618	1115.0	1173.8	81.1	58.8	Pipe 627	17.28	20	100	-2.5	0.09	1.56	Open
Junc 619	1140.0	1177.1	2.5	37.1	Pipe 628	53.57	100	100	-609	0.9	16.21	Open
Junc 620	1140.0	1180.7	0.7	40.7	Pipe 629	10.75	63	100	74.27	0.28	3.13	Open
Junc 621	1140.0	1180.7	0.7	40.7	Pipe 630	35.2	63	100	68.67	0.25	2.7	Open
Junc 622	1110.0	1139.5	0.0	29.5	Pipe 631	22.86	63	100	63.07	0.23	2.31	Open
Junc 623	1120.0	1144.5	0.0	24.5	Pipe 632	18.21	50	100	60.27	0.36	6.54	Open
Junc 624	1120.0	1144.4	8.7	24.4	Pipe 633	18.02	20	100	2.8	0.1	1.93	Open
Junc 625	1115.0	1157.8	11.2	42.8	Pipe 634	12.91	20	100	-2.8	0.1	1.93	Open
Junc 626	1120.0	1157.7	11.2	37.7	Pipe 635	24.74	20	100	2.8	0.1	1.93	Open
Junc 627	1115.0	1157.8	11.2	42.8	Pipe 636	29.52	20	100	-2.8	0.1	1.93	Open
Junc 628	1120.0	1157.7	11.2	37.7	Pipe 637	17.28	50	100	54.67	0.32	5.46	Open
Junc 629	1115.0	1157.8	53.7	42.8	Pipe 638	186	50	100	49.07	0.29	4.47	Open
Junc 630	1120.0	1157.6	53.7	37.6	Pipe 639	11.68	50	100	46.27	0.27	4.01	Open
Junc 631	1120.0	1169.4	15.2	49.4	Pipe 640	69.97	50	100	43.47	0.26	3.57	Open
Junc 632	1120.0	1169.4	38.9	49.4	Pipe 641	49.06	50	100	40.67	0.24	3.16	Open
Junc 633	1120.0	1170.5	65.2	50.5	Pipe 642	5.73	50	100	37.87	0.22	2.75	Open
Junc 634	1120.0	1169.7	35.2	49.7	Pipe 643	7.88	20	100	-1.4	0.05	0.53	Open
Junc 635	1120.0	1169.5	65.2	49.5	Pipe 644	10.08	20	100	-1.4	0.05	0.53	Open
Junc 636	1125.0	1169.7	67.1	44.7	Pipe 645	10.09	20	100	-1.4	0.05	0.54	Open
Junc 637	1120.0	1169.5	41.6	49.5	Pipe 646	26.47	20	100	-1.4	0.05	0.53	Open
Junc 638	1135.0	1168.3	33.8	33.3	Pipe 647	46.18	50	100	36.47	0.21	2.58	Open
Junc 639	1125.0	1166.7	32.6	41.7	Pipe 648	8.18	50	100	32.87	0.19	2.13	Open
Junc 640	1135.0	1167.1	33.8	32.1	Pipe 649	39.33	50	100	30.07	0.18	1.81	Open
Junc 641	1135.0	1166.9	32.6	31.9	Pipe 650	8.1	20	100	-1.4	0.05	0.53	Open
Junc 642	1125.0	1156.3	20.4	31.3	Pipe 651	14.61	20	100	-2.2	0.08	1.24	Open
Junc 643	1120.0	1155.0	21.8	35.0	Pipe 652	33.21	50	100	25.67	0.15	1.35	Open
Junc 644	1120.0	1153.3	67.8	33.3	Pipe 653	20.17	50	100	21.27	0.13	0.95	Open
Junc 645	1120.0	1163.0	12.6	43.0	Pipe 654	28.79	50	100	19.07	0.11	0.78	Open
Junc 646	1140.0	1189.0	36.4	49.0	Pipe 655	60.37	50	100	14.37	0.08	0.46	Open
Junc 647	1140.0	1189.0	0.0	49.0	Pipe 656	16.6	50	100	9.37	0.06	0.21	Open
Junc 648	1145.0	1188.0	26.2	43.0	Pipe 657	10.14	20	100	2.5	0.09	1.56	Open
Junc 649	1120.0	1168.4	10.5	48.4	Pipe 658	100.13	20	100	6.87	0.25	10.16	Open
Junc 650	1140.0	1180.9	0.7	40.9	Pipe 659	10.66	50	100	-2.5	0.01	0.02	Open
Junc 651	1125.0	1154.8	16.7	29.8	Pipe 660	22.9	50	100	-7.5	0.04	0.14	Open
Junc 652	1110.0	1147.3	5.7	37.3	Pipe 661	25.38	50	100	-12.5	0.07	0.36	Open
Junc 653	1135.0	1162.7	1.0	27.7	Pipe 662	46.32	50	100	-17.2	0.1	0.64	Open
Junc 654	1135.0	1162.7	1.0	27.7	Pipe 663	6.43	50	100	-21.6	0.13	0.97	Open
Junc 655	1135.0	1162.7	1.0	27.7	Pipe 664	12.63	50	100	-26	0.15	1.38	Open
Junc 656	1135.0	1162.8	1.0	27.8	Pipe 665	24.93	50	100	-30.4	0.18	1.84	Open
Junc 657	1135.0	1162.8	1.0	27.8	Pipe 666	30.6	50	100	-34.8	0.21	2.37	Open
Junc 658	1135.0	1160.1	1.4	25.1	Pipe 667	37.79	50	100	-39.2	0.23	2.95	Open
Junc 659	1135.0	1159.9	1.4	24.9	Pipe 668	33.17	50	100	-43.6	0.26	3.59	Open
Junc 660	1135.0	1159.9	2.0	24.9	Pipe 669	13.99	20	100	-2.5	0.09	1.56	Open
Junc 661	1135.0	1159.9	1.4	24.9	Pipe 670	18.85	20	100	-2.5	0.09	1.56	Open
Junc 662	1140.0	1179.7	0.7	39.7	Pipe 671	20.6	20	100	-2.2	0.08	1.24	Open
Junc 663	1140.0	1179.4	0.7	39.4	Pipe 672	15.89	20	100	-2.2	0.08	1.24	Open
Junc 664	1140.0	1178.7	0.7	38.7	Pipe 673	9.63	20	100	-2.2	0.08	1.23	Open
Junc 665	1140.0	1181.7	0.7	41.7	Pipe 674	20.17	20	100	-2.2	0.08	1.24	Open
Junc 666	1140.0	1176.9	0.7	36.9	Pipe 675	18.28	20	100	-2.2	0.08	1.23	Open
Junc 667	1140.0	1175.1	0.7	35.1	Pipe 676	20.19	20	100	-2.2	0.08	1.23	Open
Junc 668	1140.0	1175.0	0.7	35.0	Pipe 677	9.53	20	100	-2.2	0.08	1.23	Open
Junc 669	1140.0	1173.7	0.7	33.7	Pipe 678	22.8	20	100	-2.2	0.08	1.23	Open
Junc 670	1140.0	1173.5	0.7	33.5	Pipe 679	8.12	20	100	2.2	0.08	1.24	Open
Junc 671	1140.0	1172.1	0.7	32.1	Pipe 680	6.85	20	100	-2.2	0.08	1.24	Open
Junc 672	1140.0	1172.1	1.9	32.1	Pipe 681	7.8	20	100	-2.2	0.08	1.23	Open
Junc 673	1140.0	1179.3	0.7	39.3	Pipe 682	63.38	50	100	48	0.28	4.29	Open
Junc 674	1140.0	1170.7	1.9	30.7	Pipe 683	2.46	50	100	-51.6	0.3	4.93	Open
Junc 675	1140.0	1170.4	1.9	30.4	Pipe 684	3.49	50	100	-53	0.31	5.14	Open
Junc 676	1140.0	1168.7	2.8	28.7	Pipe 685	17.94	20	100	-2.2	0.08	1.23	Open
Junc 677	1140.0	1166.7	2.8	26.7	Pipe 686	7.82	20	100	-1.4	0.05	0.53	Open
Junc 678	1140.0	1165.9	2.8	25.9	Pipe 687	98.25	50	100	-55.8	0.33	5.67	Open
Junc 679	1140.0	1176.5	0.7	36.5	Pipe 688	23.17	20	100	-1.4	0.05	0.53	Open
Junc 680	1135.0	1163.2	1.0	28.2	Pipe 689	198.53	50	100	-58.6	0.35	6.21	Open

NODE					LINK							
Ma'an city					Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 681	1135.0	1163.1	1.0	28.1	Pipe 690	25.59	50	100	-60.8	0.36	6.65	Open
Junc 682	1135.0	1163.1	2.1	28.1	Pipe 691	7.13	50	100	-73.6	0.43	9.48	Open
Junc 683	1135.0	1163.2	1.8	28.2	Pipe 692	7.27	50	100	-79.2	0.47	10.85	Open
Junc 684	1135.0	1163.2	1.8	28.2	Pipe 693	57.27	63	100	-82	0.3	3.75	Open
Junc 685	1135.0	1163.2	2.5	28.2	Pipe 694	20.21	63	100	-87.6	0.33	4.24	Open
Junc 686	1135.0	1163.2	2.5	28.2	Pipe 695	7.44	20	100	-2.8	0.1	1.93	Open
Junc 687	1135.0	1163.2	2.5	28.2	Pipe 696	9.16	20	100	-2.8	0.1	1.93	Open
Junc 688	1135.0	1163.1	2.5	28.1	Pipe 697	8.1	20	100	-2.8	0.1	1.93	Open
Junc 689	1140.0	1163.2	2.5	23.2	Pipe 698	12.99	20	100	-2.2	0.08	1.24	Open
Junc 690	1135.0	1162.9	2.5	27.9	Pipe 699	13.53	20	100	10	0.37	20.38	Open
Junc 691	1140.0	1163.8	2.5	23.8	Pipe 700	36.31	20	100	4.4	0.16	4.46	Open
Junc 692	1135.0	1163.1	2.5	28.1	Pipe 701	50.29	63	100	48.2	0.18	1.4	Open
Junc 693	1140.0	1164.7	2.8	24.7	Pipe 702	15.78	63	100	42.6	0.16	1.12	Open
Junc 694	1135.0	1164.7	2.5	29.7	Pipe 703	36.93	50	100	39.8	0.23	3.03	Open
Junc 695	1130.0	1163.7	2.5	33.7	Pipe 704	47.35	50	100	36	0.21	2.52	Open
Junc 696	1130.0	1162.8	1.4	32.8	Pipe 705	37.31	50	100	32.2	0.19	2.05	Open
Junc 697	1130.0	1162.2	1.4	32.2	Pipe 706	8.7	50	100	28.4	0.17	1.63	Open
Junc 698	1135.0	1165.5	1.4	30.5	Pipe 707	12.14	50	100	24.6	0.15	1.24	Open
Junc 699	1135.0	1165.2	1.4	30.2	Pipe 708	20	50	100	20.8	0.12	0.91	Open
Junc 700	1135.0	1165.2	1.4	30.2	Pipe 709	4.14	50	100	13.2	0.08	0.4	Open
Junc 701	1135.0	1165.0	1.4	30.0	Pipe 710	17.2	50	100	9.4	0.06	0.21	Open
Junc 702	1140.0	1174.8	0.7	34.8	Pipe 711	15.9	20	100	7.5	0.28	11.97	Open
Junc 703	1135.0	1173.3	1.4	38.3	Pipe 712	40.54	20	100	4.2	0.15	4.09	Open
Junc 704	1135.0	1173.2	1.4	38.2	Pipe 713	5.96	20	100	1.4	0.05	0.54	Open
Junc 705	1135.0	1173.1	1.4	38.1	Pipe 714	23.09	20	100	1.4	0.05	0.53	Open
Junc 706	1135.0	1173.0	1.4	38.0	Pipe 715	10.5	20	100	-1.9	0.07	0.94	Open
Junc 707	1135.0	1173.0	1.4	38.0	Pipe 716	10.98	20	100	-1.9	0.07	0.94	Open
Junc 708	1135.0	1173.1	1.4	38.1	Pipe 717	12.18	20	100	-1.9	0.07	0.94	Open
Junc 709	1135.0	1172.9	1.4	37.9	Pipe 718	9.71	20	100	-5.7	0.21	7.2	Open
Junc 710	1135.0	1172.9	1.4	37.9	Pipe 719	11.19	20	100	-1.9	0.07	0.94	Open
Junc 711	1135.0	1172.8	1.4	37.8	Pipe 720	22.69	20	100	-1.9	0.07	0.94	Open
Junc 712	1135.0	1172.8	1.4	37.8	Pipe 721	8.21	20	100	1.9	0.07	0.94	Open
Junc 713	1135.0	1172.6	1.4	37.6	Pipe 722	79.94	20	100	1.9	0.07	0.94	Open
Junc 714	1135.0	1172.5	1.4	37.5	Pipe 723	13.78	20	100	1.9	0.07	0.94	Open
Junc 715	1135.0	1168.2	1.4	33.2	Pipe 724	10.63	20	100	1.9	0.07	0.95	Open
Junc 716	1135.0	1168.2	1.4	33.2	Pipe 725	12.7	20	100	2.8	0.1	1.93	Open
Junc 717	1135.0	1168.3	1.4	33.3	Pipe 726	40.51	32	100	19	0.27	6.78	Open
Junc 718	1135.0	1168.2	1.4	33.2	Pipe 727	47.69	25	100	17.1	0.4	18.57	Open
Junc 719	1135.0	1168.3	1.4	33.3	Pipe 728	6.78	20	100	1.9	0.07	0.94	Open
Junc 720	1140.0	1176.5	0.7	36.5	Pipe 729	26.37	25	100	5.7	0.13	2.43	Open
Junc 721	1140.0	1176.5	0.7	36.5	Pipe 730	31.72	25	100	9.5	0.22	6.25	Open
Junc 722	1140.0	1176.5	0.7	36.5	Pipe 731	11.04	25	100	13.3	0.31	11.65	Open
Junc 723	1140.0	1173.4	1.9	33.4	Pipe 732	13.93	20	100	-1.9	0.07	0.94	Open
Junc 724	1140.0	1173.4	1.9	33.4	Pipe 733	13.06	20	100	-1.9	0.07	0.95	Open
Junc 725	1135.0	1172.4	0.7	37.4	Pipe 734	15.3	20	100	-1.9	0.07	0.94	Open
Junc 726	1135.0	1172.4	1.4	37.4	Pipe 735	16.34	20	100	-1.9	0.07	0.94	Open
Junc 727	1135.0	1172.4	0.7	37.4	Pipe 736	66.04	32	100	10.1	0.15	2.1	Open
Junc 728	1135.0	1171.7	0.7	36.7	Pipe 737	17.01	25	100	9.4	0.22	6.13	Open
Junc 729	1135.0	1171.6	0.7	36.6	Pipe 738	27.97	25	100	3.8	0.09	1.14	Open
Junc 730	1135.0	1171.6	0.7	36.6	Pipe 739	11.41	20	100	1.9	0.07	0.95	Open
Junc 731	1135.0	1171.6	0.7	36.6	Pipe 740	9.22	25	100	4.9	0.12	1.83	Open
Junc 732	1135.0	1171.6	0.7	36.6	Pipe 741	6.46	25	100	3.5	0.08	0.98	Open
Junc 733	1140.0	1171.8	1.9	31.8	Pipe 742	7.17	25	100	2.1	0.05	0.38	Open
Junc 734	1140.0	1171.6	1.9	31.6	Pipe 743	10.31	25	100	0.7	0.02	0.05	Open
Junc 735	1140.0	1171.7	1.9	31.7	Pipe 745	5.47	20	100	0.7	0.03	0.15	Open
Junc 736	1140.0	1171.7	1.9	31.7	Pipe 746	6.3	20	100	0.7	0.03	0.15	Open
Junc 737	1140.0	1171.7	1.9	31.7	Pipe 747	4.81	20	100	0.7	0.03	0.15	Open
Junc 738	1135.0	1171.7	1.9	36.7	Pipe 748	58.84	63	100	37.1	0.14	0.86	Open
Junc 739	1135.0	1171.7	1.9	36.7	Pipe 749	136.6	50	100	35.2	0.21	2.42	Open
Junc 740	1135.0	1171.7	1.9	36.7	Pipe 750	26.73	50	100	21.9	0.13	1	Open
Junc 741	1140.0	1169.5	1.9	29.5	Pipe 751	26.25	50	100	18.1	0.11	0.71	Open
Junc 742	1140.0	1169.5	1.9	29.5	Pipe 752	9.44	50	100	14.3	0.08	0.46	Open
Junc 743	1135.0	1171.6	0.7	36.6	Pipe 753	12.08	20	100	1.9	0.07	0.94	Open
Junc 744	1135.0	1171.6	0.7	36.6	Pipe 754	8.95	20	100	1.9	0.07	0.94	Open
Junc 745	1135.0	1171.6	0.7	36.6	Pipe 755	8.02	20	100	1.9	0.07	0.95	Open
Junc 746	1135.0	1171.6	0.7	36.6	Pipe 756	4.69	20	100	11.4	0.42	25.99	Open
Junc 747	1140.0	1168.6	2.8	28.6	Pipe 757	2.89	20	100	1.9	0.07	0.93	Open
Junc 748	1140.0	1168.6	2.8	28.6	Pipe 758	4.37	20	100	-1.9	0.07	0.94	Open
Junc 749	1140.0	1168.6	2.8	28.6	Pipe 759	3.81	20	100	-1.9	0.07	0.96	Open
Junc 750	1140.0	1168.5	1.9	28.5	Pipe 760	3.4	20	100	-3.8	0.14	3.41	Open
Junc 751	1140.0	1168.5	1.9	28.5	Pipe 761	4.18	20	100	-7.6	0.28	12.25	Open
Junc 752	1140.0	1168.4	1.9	28.4	Pipe 762	175.93	50	100	10.5	0.06	0.26	Open
Junc 753	1140.0	1168.3	1.9	28.3	Pipe 763	52.88	50	100	7	0.04	0.12	Open
Junc 754	1140.0	1168.3	1.9	28.3	Pipe 764	27.08	50	100	5.6	0.03	0.08	Open
Junc 755	1140.0	1168.3	1.9	28.3	Pipe 765	8.35	20	100	0.7	0.03	0.15	Open
Junc 756	1135.0	1168.3	1.9	33.3	Pipe 766	8.64	20	100	0.7	0.03	0.15	Open
Junc 757	1135.0	1168.2	1.9	33.2	Pipe 767	9.3	20	100	-0.7	0.03	0.14	Open
Junc 758	1135.0	1168.2	1.9	33.2	Pipe 768	12.42	20	100	-0.7	0.03	0.14	Open
Junc 759	1135.0	1168.2	1.9	33.2	Pipe 769	13.94	25	100	-1.4	0.03	0.18	Open
Junc 760	1135.0	1168.2	1.9	33.2	Pipe 770	70.56	25	100	2.8	0.07	0.65	Open
Junc 761	1135.0	1168.2	1.9	33.2	Pipe 771	36.16	50	100	4.2	0.02	0.05	Open
Junc 762	1135.0	1168.2	1.9	33.2	Pipe 772	94.42	50	100	2.8	0.02	0.02	Open
Junc 763	1135.0	1167.9	1.4	32.9	Pipe 773	31.26	50	100	1.4	0.01	0.01	Open
Junc 764	1135.0	1167.9	1.4	32.9	Pipe 774	19.69	20	100	0.7	0.03	0.15	Open
Junc 765	1135.0	1167.9	1.4	32.9	Pipe 775	13.94	20	100	-0.7	0.03	0.15	Open

NODE Ma'an city					LINK Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 766	1140.0	1166.7	2.8	26.7	Pipe 776	25.37	20	100	-0.7	0.03	0.15	Open
Junc 767	1140.0	1166.6	2.8	26.6	Pipe 777	65.03	63	100	67.8	0.25	2.64	Open
Junc 768	1140.0	1166.6	2.8	26.6	Pipe 778	21.49	50	100	67.1	0.4	7.98	Open
Junc 769	1140.0	1166.6	2.8	26.6	Pipe 779	197.97	50	100	66.4	0.39	7.83	Open
Junc 770	1140.0	1166.5	2.8	26.5	Pipe 780	19.2	50	100	63.6	0.37	7.22	Open
Junc 771	1140.0	1166.4	2.8	26.4	Pipe 781	10.53	50	100	60.8	0.36	6.65	Open
Junc 772	1140.0	1166.4	2.8	26.4	Pipe 782	16.34	50	100	58	0.34	6.09	Open
Junc 773	1135.0	1161.9	2.1	26.9	Pipe 783	37.42	50	100	52.4	0.31	5.05	Open
Junc 774	1135.0	1161.8	2.1	26.8	Pipe 784	45.17	50	100	49.6	0.29	4.56	Open
Junc 775	1135.0	1165.5	1.4	30.5	Pipe 785	20.19	50	100	44	0.26	3.65	Open
Junc 776	1135.0	1164.9	1.4	29.9	Pipe 786	4.46	50	100	1.4	0.01	0.02	Open
Junc 777	1135.0	1164.9	2.2	29.9	Pipe 787	16.81	20	100	-1.4	0.05	0.54	Open
Junc 778	1135.0	1164.9	1.4	29.9	Pipe 788	12.39	20	100	-1.4	0.05	0.53	Open
Junc 779	1135.0	1164.9	1.4	29.9	Pipe 789	17.67	20	100	-1.4	0.05	0.53	Open
Junc 780	1135.0	1164.8	2.2	29.8	Pipe 790	16.52	20	100	-1.4	0.05	0.54	Open
Junc 781	1135.0	1164.8	2.2	29.8	Pipe 791	6.6	20	100	-1.4	0.05	0.53	Open
Junc 782	1135.0	1164.8	2.2	29.8	Pipe 792	10.59	20	100	-4.2	0.15	4.09	Open
Junc 783	1135.0	1164.8	2.2	29.8	Pipe 793	19.12	20	100	1.4	0.05	0.53	Open
Junc 784	1135.0	1164.8	2.2	29.8	Pipe 794	3.93	20	100	4.2	0.15	4.09	Open
Junc 785	1135.0	1164.7	2.5	29.7	Pipe 795	3.54	20	100	1.4	0.05	0.53	Open
Junc 786	1135.0	1164.7	2.5	29.7	Pipe 796	30.05	20	100	1.4	0.05	0.53	Open
Junc 787	1135.0	1164.0	1.4	29.0	Pipe 797	48.64	25	100	-4.2	0.1	1.38	Open
Junc 788	1135.0	1164.0	1.4	29.0	Pipe 798	52.79	25	100	37	0.87	77.54	Open
Junc 789	1135.0	1163.5	1.4	28.5	Pipe 799	16.99	20	100	2.8	0.1	1.93	Open
Junc 790	1135.0	1163.4	1.4	28.4	Pipe 800	6.26	20	100	1.4	0.05	0.53	Open
Junc 791	1135.0	1163.4	1.4	28.4	Pipe 801	9.05	20	100	0.7	0.03	0.15	Open
Junc 792	1135.0	1163.1	2.2	28.1	Pipe 802	8.21	25	100	8.4	0.2	4.99	Open
Junc 793	1135.0	1163.1	2.2	28.1	Pipe 803	32.53	25	100	27.2	0.64	43.86	Open
Junc 794	1135.0	1163.0	2.2	28.0	Pipe 804	11.3	20	100	-1.4	0.05	0.53	Open
Junc 795	1135.0	1163.0	2.2	28.0	Pipe 805	13.69	20	100	-5.6	0.21	6.96	Open
Junc 796	1135.0	1162.9	2.2	27.9	Pipe 806	12.52	20	100	-1.4	0.05	0.53	Open
Junc 797	1135.0	1162.9	2.2	27.9	Pipe 807	38.94	20	100	-2.8	0.1	1.93	Open
Junc 798	1135.0	1162.8	2.2	27.8	Pipe 808	25.04	20	100	-1.4	0.05	0.53	Open
Junc 799	1135.0	1162.8	2.2	27.8	Pipe 809	29.06	20	100	1.4	0.05	0.53	Open
Junc 800	1135.0	1162.8	2.2	27.8	Pipe 810	156.22	25	100	24.4	0.58	35.87	Open
Junc 801	1135.0	1162.8	2.2	27.8	Pipe 811	29.41	20	100	-3.2	0.12	2.47	Open
Junc 802	1135.0	1162.8	2.2	27.8	Pipe 812	102.34	25	100	18	0.42	20.42	Open
Junc 803	1135.0	1162.8	2.2	27.8	Pipe 813	34.25	20	100	-3.2	0.12	2.47	Open
Junc 804	1135.0	1162.7	2.5	27.7	Pipe 814	209.32	25	100	11.6	0.27	9.05	Open
Junc 805	1135.0	1162.7	2.2	27.7	Pipe 815	301.08	25	100	5.8	0.14	2.51	Open
Junc 806	1135.0	1162.7	2.5	27.7	Pipe 816	68.59	25	100	4.5	0.11	1.57	Open
Junc 807	1135.0	1162.7	2.5	27.7	Pipe 817	28.82	25	100	1.5	0.04	0.2	Open
Junc 808	1135.0	1162.7	2.5	27.7	Pipe 818	6.89	20	100	-1.5	0.06	0.6	Open
Junc 809	1140.0	1165.8	2.8	25.8	Pipe 819	129.63	25	100	2.5	0.06	0.53	Open
Junc 810	1140.0	1165.8	2.8	25.8	Pipe 16	209.56	50	100	-67.8	0.4	8.13	Open
Junc 811	1140.0	1165.1	2.8	25.1	Pipe 141	330.07	50	100	0	0	0	Open
Junc 812	1140.0	1165.0	2.2	25.0	Pipe 158	368.77	50	100	-80.4	0.47	11.15	Open
Junc 813	1140.0	1165.6	2.8	25.6	Pipe 267	816.67	50	100	0	0	0	Open
Junc 814	1140.0	1165.5	2.8	25.5	Pipe 744	278.64	50	100	-86.2	0.51	12.69	Open
Junc 815	1140.0	1165.1	2.8	25.1	Pipe 820	172.61	50	100	-86.2	0.51	12.69	Open
Junc 816	1140.0	1165.4	2.8	25.4	Pipe 821	260.14	50	100	-35.99	0.21	2.52	Open
Junc 817	1140.0	1165.5	2.8	25.5	Pipe 822	62.89	50	100	70.6	0.42	8.77	Open
Junc 818	1140.0	1165.2	2.2	25.2	Pipe 823	186.23	50	100	-50.21	0.3	4.66	Open
Junc 819	1140.0	1164.6	2.2	24.6	Pipe 824	574.6	50	100	0	0	0	Open
Junc 820	1140.0	1164.5	2.8	24.5	Pipe 825	406.52	50	100	-5.8	0.03	0.09	Open
Junc 821	1140.0	1164.5	2.2	24.5	Pipe 826	657.3	50	100	0	0	0	Open
Junc 822	1140.0	1164.5	2.2	24.5	Pipe 827	700.64	100	100	0	0	0	Open
Junc 823	1140.0	1164.4	2.2	24.4	Pipe 828	119.8	100	100	-125.89	0.19	0.87	Open
Junc 824	1140.0	1164.5	2.2	24.5	Pipe 829	65.2	100	100	-217.69	0.32	2.41	Open
Junc 825	1140.0	1164.5	2.2	24.5	Pipe 830	248.95	100	100	56.01	0.08	0.2	Open
Junc 826	1135.0	1164.0	2.2	29.0	Pipe 831	384.34	100	100	-72.5	0.11	0.31	Open
Junc 827	1135.0	1164.0	2.2	29.0	Pipe 832	208.84	100	100	-54.1	0.08	0.18	Open
Junc 828	1135.0	1164.0	2.2	29.0	Pipe 833	98.86	100	100	-48.3	0.07	0.15	Open
Junc 829	1135.0	1164.0	2.2	29.0	Pipe 834	60.98	100	100	-29	0.04	0.06	Open
Junc 830	1135.0	1163.8	2.2	28.8	Pipe 835	326.09	100	100	27.1	0.04	0.05	Open
Junc 831	1135.0	1163.8	2.2	28.8	Pipe 836	581.31	50	100	18.4	0.11	0.73	Open
Junc 832	1135.0	1163.7	2.2	28.7	Pipe 837	753.8	50	100	5.8	0.03	0.09	Open
Junc 833	1135.0	1163.7	2.2	28.7	Pipe 838	286.79	50	100	-17.4	0.1	0.66	Open
Junc 834	1135.0	1163.3	2.2	28.3	Pipe 839	145.36	100	100	0	0	0	Open
Junc 835	1135.0	1163.2	2.6	28.2	Pipe 840	644.49	100	100	0	0	0	Open
Junc 836	1135.0	1163.1	2.2	28.1	Pipe 841	167.39	100	100	8.7	0.01	0.01	Open
Junc 837	1135.0	1163.1	2.2	28.1	Pipe 842	966.52	50	100	18.4	0.11	0.73	Open
Junc 838	1135.0	1163.0	2.2	28.0	Pipe 843	13.69	100	100	-330.7	0.49	5.23	Open
Junc 839	1135.0	1163.0	2.2	28.0	Pipe 844	93.61	100	100	-333.6	0.49	5.32	Open
Junc 840	1135.0	1162.9	2.2	27.9	Pipe 845	13.11	100	100	213.79	0.32	2.33	Open
Junc 841	1135.0	1162.9	2.2	27.9	Pipe 846	87.61	100	100	-213.79	0.32	2.33	Open
Junc 842	1135.0	1162.9	2.2	27.9	Pipe 847	196.6	20	100	-2.9	0.11	2.06	Open
Junc 843	1135.0	1162.8	2.2	27.8	Pipe 848	59.06	20	100	-9.4	0.35	18.18	Open
Junc 844	1135.0	1162.8	1.4	27.8	Pipe 849	53.08	20	100	-9.4	0.35	18.18	Open
Junc 845	1130.0	1162.8	1.4	32.8	Pipe 850	76.87	20	100	-11.5	0.42	26.41	Open
Junc 846	1130.0	1162.8	1.4	32.8	Pipe 851	586.23	50	100	53.2	0.31	5.19	Open
Junc 847	1130.0	1162.8	1.4	32.8	Pipe 852	115.58	150	100	27.1	0.02	0.01	Open
Junc 848	1130.0	1162.8	1.4	32.8	Pipe 853	32.67	150	100	8.3	0.01	0	Open
Junc 849	1130.0	1162.8	1.4	32.8	Pipe 854	110.17	150	100	-54.3	0.04	0.03	Open
Junc 850	1135.0	1162.8	2.5	27.8	Pipe 855	141.51	150	100	-73.1	0.05	0.04	Open

NODE					LINK							
Ma'an city					Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 851	1135.0	1162.8	2.5	27.8	Pipe 856	111.97	150	100	-96.1	0.06	0.07	Open
Junc 852	1135.0	1162.6	2.2	27.6	Pipe 857	84.06	150	100	-123.4	0.08	0.12	Open
Junc 853	1135.0	1162.5	2.2	27.5	Pipe 858	163.67	150	100	-299.9	0.2	0.61	Open
Junc 854	1135.0	1161.8	2.2	26.8	Pipe 859	259.67	150	100	-420.4	0.28	1.13	Open
Junc 855	1135.0	1161.8	2.2	26.8	Pipe 860	76.13	50	100	117.9	0.69	22.67	Open
Junc 856	1135.0	1161.2	2.2	26.2	Pipe 861	167.26	50	100	77.8	0.46	10.5	Open
Junc 857	1135.0	1161.2	2.2	26.2	Pipe 862	126.8	50	100	41.6	0.25	3.29	Open
Junc 858	1135.0	1161.1	2.2	26.1	Pipe 863	158.97	50	100	10.2	0.06	0.24	Open
Junc 859	1135.0	1161.0	2.2	26.0	Pipe 864	113.78	20	100	0	0	0	Open
Junc 860	1135.0	1160.8	2.2	25.8	Pipe 865	275.04	25	100	-11.2	0.26	8.48	Open
Junc 861	1135.0	1160.7	2.6	25.7	Pipe 866	56.92	25	100	-13.1	0.31	11.33	Open
Junc 862	1135.0	1160.8	2.2	25.8	Pipe 867	87.35	50	100	-11.5	0.07	0.3	Open
Junc 863	1135.0	1160.6	2.6	25.6	Pipe 868	227.29	50	100	-15.8	0.09	0.55	Open
Junc 864	1135.0	1160.6	2.6	25.6	Pipe 872	348.93	50	100	-61.9	0.36	6.87	Open
Junc 865	1135.0	1160.4	2.6	25.4	Pipe 873	175.21	50	100	49.2	0.29	4.49	Open
Junc 866	1135.0	1160.4	2.6	25.4	Pipe 874	199.08	20	100	5.8	0.21	7.43	Open
Junc 867	1135.0	1160.3	2.6	25.3	Pipe 875	624.6	150	100	-166.71	0.11	0.2	Open
Junc 868	1135.0	1160.2	2.6	25.2	Pipe 876	1121.02	100	100	119.81	0.18	0.8	Open
Junc 869	1135.0	1160.2	2.6	25.2	Pipe 877	697.1	100	100	-293	0.43	4.18	Open
Junc 870	1135.0	1160.2	2.6	25.2	Pipe 878	445.87	100	100	-294.9	0.43	4.23	Open
Junc 871	1135.0	1160.1	2.6	25.1	Pipe 879	530.52	100	100	-35.8	0.05	0.09	Open
Junc 872	1135.0	1160.0	2.6	25.0	Pipe 880	554.05	100	100	0	0	0	Open
Junc 873	1135.0	1160.1	2.6	25.1	Pipe 881	1595.98	100	100	187.11	0.28	1.82	Open
Junc 874	1135.0	1160.1	2.6	25.1	Pipe 882	1755.57	100	100	-216.69	0.32	2.39	Open
Junc 875	1135.0	1160.1	2.2	25.1	Pipe 883	56.16	150	100	-586.7	0.38	2.1	Open
Junc 876	1135.0	1160.0	2.2	25.0	Pipe 884	55.92	150	100	-712.7	0.47	3.01	Open
Junc 877	1135.0	1160.1	1.4	25.1	Pipe 885	136.94	150	100	-789.5	0.52	3.64	Open
Junc 878	1135.0	1160.0	1.4	25.0	Pipe 886	49.22	20	100	-18.4	0.68	63.06	Open
Junc 879	1135.0	1160.1	1.4	25.1	Pipe 887	145.85	50	100	20.5	0.12	0.89	Open
Junc 880	1135.0	1161.9	2.5	26.9	Pipe 888	961.42	50	100	-10	0.06	0.23	Open
Junc 881	1135.0	1161.9	2.5	26.9	Pipe 889	117.53	150	100	848.4	0.56	4.16	Open
Junc 882	1135.0	1161.3	2.5	26.3	Pipe 890	55.99	200	100	898.9	0.33	1.14	Open
Junc 883	1135.0	1161.3	2.5	26.3	Pipe 891	589.04	50	100	25.5	0.15	1.33	Open
Junc 884	1135.0	1159.9	2.1	24.9	Pipe 892	77.82	50	100	15.8	0.09	0.55	Open
Junc 885	1135.0	1159.9	2.5	24.9	Pipe 893	121.52	50	100	-27.9	0.16	1.57	Open
Junc 886	1135.0	1159.1	2.1	24.1	Pipe 894	131.43	50	100	25.5	0.15	1.33	Open
Junc 887	1135.0	1159.1	2.6	24.1	Pipe 895	85	25	100	-7.9	0.19	4.44	Open
Junc 888	1135.0	1158.5	2.6	23.5	Pipe 896	13.07	50	100	42.3	0.25	3.39	Open
Junc 889	1135.0	1158.5	2.6	23.5	Pipe 897	364.27	50	100	-22	0.13	1.01	Open
Junc 890	1135.0	1157.7	2.6	22.7	Pipe 898	197.61	50	100	-7.9	0.05	0.15	Open
Junc 891	1130.0	1156.8	2.6	26.8	Pipe 899	232.56	25	100	5.5	0.13	2.27	Open
Junc 892	1130.0	1156.7	2.6	26.7	Pipe 900	522.42	50	100	120.8	0.71	23.71	Open
Junc 893	1130.0	1156.4	2.6	26.4	Pipe 901	267.88	25	100	-20	0.47	24.82	Open
Junc 894	1130.0	1156.4	2.0	26.4	Pipe 902	15.1	25	100	-44.72	1.05	110.15	Open
Junc 895	1130.0	1156.3	2.0	26.3	Pipe 903	368.5	200	100	1054.6	0.39	1.53	Open
Junc 896	1130.0	1156.3	2.0	26.3	Pipe 904	188.06	200	100	999.33	0.37	1.39	Open
Junc 897	1130.0	1156.2	2.0	26.2	Pipe 906	590.8	100	100	30.43	0.04	0.06	Open
Junc 898	1135.0	1156.3	2.0	21.3	Pipe 907	105.16	20	100	-18	0.66	60.54	Open
Junc 899	1130.0	1156.2	2.0	26.2	Pipe 908	36.66	20	100	-28.1	1.04	138.13	Open
Junc 900	1130.0	1156.2	2.0	26.2	Pipe 909	68.79	20	100	-5.62	0.21	7.01	Open
Junc 901	1130.0	1155.1	2.0	25.1	Pipe 910	67.27	80	100	28.1	0.06	0.16	Open
Junc 902	1130.0	1155.0	2.0	25.0	Pipe 911	61.03	80	100	-130.4	0.3	2.77	Open
Junc 903	1130.0	1155.1	2.0	25.1	Pipe 912	113.12	80	100	-18.85	0.04	0.08	Open
Junc 904	1130.0	1155.0	2.0	25.0	Pipe 913	81.68	80	100	-88.35	0.2	1.35	Open
Junc 905	1130.0	1155.0	1.4	25.0	Pipe 914	45.35	80	100	-159.15	0.37	4	Open
Junc 906	1130.0	1153.8	1.4	23.8	Pipe 915	94.73	20	100	-13.8	0.51	37.01	Open
Junc 907	1130.0	1153.8	1.4	23.8	Pipe 916	56.21	20	100	13.8	0.51	37.01	Open
Junc 908	1130.0	1153.6	3.2	23.6	Pipe 917	19.48	20	100	41.4	1.53	283.12	Open
Junc 909	1130.0	1153.5	3.2	23.5	Pipe 918	60.96	80	100	222.45	0.51	7.44	Open
Junc 910	1135.0	1162.5	2.1	27.5	Pipe 919	42.73	80	100	167.25	0.39	4.39	Open
Junc 911	1135.0	1162.5	2.1	27.5	Pipe 920	59.17	80	100	139.65	0.32	3.14	Open
Junc 912	1135.0	1162.2	2.1	27.2	Pipe 921	160.11	25	100	-13.8	0.33	12.48	Open
Junc 913	1135.0	1162.2	2.1	27.2	Pipe 922	20.81	80	100	-59.4	0.14	0.65	Open
Junc 914	1135.0	1162.1	2.1	27.1	Pipe 923	9.93	80	100	-11.4	0.03	0.03	Open
Junc 915	1135.0	1162.0	2.1	27.0	Pipe 924	4.11	20	100	-36.6	1.35	225.34	Open
Junc 916	1130.0	1156.0	2.0	26.0	Pipe 925	37.06	20	100	-11.4	0.42	25.98	Open
Junc 917	1130.0	1156.0	2.0	26.0	Pipe 926	119.27	20	100	13.8	0.51	37.01	Open
Junc 918	1130.0	1156.0	2.0	26.0	Pipe 927	19.42	80	100	-13.8	0.03	0.04	Open
Junc 919	1135.0	1157.6	2.6	22.6	Pipe 928	46.85	80	100	-41.4	0.1	0.33	Open
Junc 920	1135.0	1157.6	2.6	22.6	Pipe 929	77.41	20	100	13.8	0.51	37.01	Open
Junc 921	1130.0	1156.0	2.0	26.0	Pipe 930	54.33	20	100	-13.8	0.51	37.01	Open
Junc 922	1130.0	1156.0	2.0	26.0	Pipe 931	3.36	20	100	55.7	2.05	490.47	Open
Junc 923	1130.0	1156.0	2.0	26.0	Pipe 933	213.76	200	100	-1540.73	0.57	3.09	Open
Junc 924	1130.0	1156.0	2.0	26.0	Pipe 934	4.73	250	100	-1554.03	0.37	1.05	Open
Junc 925	1130.0	1156.0	2.0	26.0	Pipe 935	32.09	20	100	13.3	0.49	34.57	Open
Junc 926	1130.0	1156.0	2.0	26.0	Pipe 937	247.89	100	100	250.98	0.37	3.14	Open
Junc 927	1130.0	1155.7	2.0	25.7	Pipe 938	175.75	100	100	311.38	0.46	4.68	Open
Junc 928	1130.0	1155.7	2.0	25.7	Pipe 939	3.95	75	100	45.3	0.12	0.53	Open
Junc 929	1130.0	1155.7	2.0	25.7	Pipe 940	33.33	75	100	15.1	0.04	0.07	Open
Junc 930	1135.0	1163.2	2.1	28.2	Pipe 941	65.2	75	100	-15.1	0.04	0.07	Open
Junc 931	1135.0	1163.2	2.1	28.2	Pipe 942	89.47	100	100	227.9	0.34	2.63	Open
Junc 932	1135.0	1161.9	2.1	26.9	Pipe 943	4.61	100	100	-94.47	0.14	0.52	Open
Junc 933	1135.0	1161.9	2.1	26.9	Pipe 944	5.5	100	100	111.27	0.16	0.7	Open
Junc 934	1135.0	1161.9	2.1	26.9	Pipe 945	89.37	75	100	105.47	0.28	2.56	Open
Junc 935	1135.0	1161.8	2.1	26.8	Pipe 946	35.14	75	100	2.9	0.01	0	Open

NODE					LINK							
Ma'an city					Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 936	1135.0	1161.8	2.1	26.8	Pipe 947	91.32	100	100	-342.08	0.5	5.57	Open
Junc 937	1135.0	1161.7	2.1	26.7	Pipe 948	79.82	350	100	2949.83	0.35	0.67	Open
Junc 938	1135.0	1161.7	2.1	26.7	Pipe 949	3.18	100	100	-310.95	0.46	4.68	Open
Junc 939	1130.0	1161.7	2.1	31.7	Pipe 950	68.99	20	100	2.9	0.11	2.06	Open
Junc 940	1130.0	1161.7	2.1	31.7	Pipe 951	57.1	20	100	2.9	0.11	2.06	Open
Junc 941	1130.0	1161.7	1.5	31.7	Pipe 952	31.19	20	100	8.7	0.32	15.75	Open
Junc 942	1130.0	1161.7	2.1	31.7	Pipe 953	34.41	100	100	-299.35	0.44	4.35	Open
Junc 943	1125.0	1154.6	2.0	29.6	Pipe 954	6.26	20	100	8.7	0.32	15.75	Open
Junc 944	1125.0	1154.6	2.0	29.6	Pipe 955	21.07	20	100	2.9	0.11	2.06	Open
Junc 945	1125.0	1154.6	2.0	29.6	Pipe 956	26.97	20	100	2.9	0.11	2.06	Open
Junc 946	1125.0	1154.6	2.0	29.6	Pipe 957	91.47	350	100	2635.98	0.32	0.55	Open
Junc 947	1130.0	1153.1	4.4	23.1	Pipe 958	24.9	20	100	-2.9	0.11	2.06	Open
Junc 948	1130.0	1153.1	4.4	23.1	Pipe 959	15.16	20	100	-18.5	0.68	63.69	Open
Junc 949	1130.0	1153.1	4.4	23.1	Pipe 960	2.33	80	100	231.89	0.53	8.05	Open
Junc 950	1130.0	1153.1	4.4	23.1	Pipe 961	16.94	80	100	206.99	0.48	6.51	Open
Junc 951	1135.0	1163.0	1.0	28.0	Pipe 962	63.03	80	100	184.99	0.43	5.29	Open
Junc 952	1135.0	1162.9	1.0	27.9	Pipe 963	6.76	20	100	-11	0.41	24.32	Open
Junc 953	1135.0	1157.2	2.6	22.2	Pipe 964	4.59	20	100	33	1.22	186.04	Open
Junc 954	1135.0	1162.8	2.2	27.8	Pipe 965	19.55	20	100	6.4	0.24	8.92	Open
Junc 955	1135.0	1162.8	2.2	27.8	Pipe 966	21.89	20	100	-11	0.41	24.32	Open
Junc 956	1140.0	1169.4	1.9	29.4	Pipe 967	64.96	20	100	-11	0.41	24.32	Open
Junc 957	1140.0	1169.4	1.9	29.4	Pipe 968	24.45	20	100	-11	0.41	24.32	Open
Junc 958	1140.0	1169.2	1.9	29.2	Pipe 969	4.73	20	100	-33	1.22	186.02	Open
Junc 959	1140.0	1169.2	1.9	29.2	Pipe 970	19.81	20	100	11	0.41	24.32	Open
Junc 960	1140.0	1169.2	1.9	29.2	Pipe 971	62.5	80	100	140.99	0.32	3.2	Open
Junc 961	1140.0	1169.1	1.9	29.1	Pipe 972	30.77	80	100	96.99	0.22	1.6	Open
Junc 962	1135.0	1168.0	1.4	33.0	Pipe 973	60.48	80	100	-32.13	0.07	0.21	Open
Junc 963	1135.0	1168.0	1.9	33.0	Pipe 974	3.4	80	100	-56.43	0.13	0.59	Open
Junc 964	1135.0	1157.1	2.6	22.1	Pipe 975	68.56	80	100	-73.83	0.17	0.96	Open
Junc 965	1135.0	1157.0	2.6	22.0	Pipe 976	114.17	25	100	-6.4	0.15	3.01	Open
Junc 966	1135.0	1157.5	2.6	22.5	Pipe 977	3.78	20	100	33	1.22	186.04	Open
Junc 967	1135.0	1161.7	2.1	26.7	Pipe 978	4.13	20	100	11	0.41	24.31	Open
Junc 968	1135.0	1171.6	0.7	36.6	Pipe 979	54.99	20	100	11	0.41	24.32	Open
Junc 969	1135.0	1171.6	0.7	36.6	Pipe 980	34.35	80	100	118.12	0.27	2.3	Open
Junc 970	1135.0	1171.6	0.7	36.6	Pipe 981	26.5	80	100	74.12	0.17	0.97	Open
Junc 971	1135.0	1163.2	2.5	28.2	Pipe 982	83.64	20	100	11	0.41	24.32	Open
Junc 972	1135.0	1163.1	2.5	28.1	Pipe 983	42.83	20	100	11	0.41	24.32	Open
Junc 973	1135.0	1161.7	2.1	26.7	Pipe 984	59.45	80	100	52.12	0.12	0.51	Open
Junc 974	1135.0	1161.6	2.1	26.6	Pipe 985	4.76	20	100	-36.1	1.33	219.68	Open
Junc 975	1135.0	1161.6	2.1	26.6	Pipe 986	15.59	20	100	-11.4	0.42	25.98	Open
Junc 976	1135.0	1161.6	2.1	26.6	Pipe 987	85.09	20	100	13.3	0.49	34.57	Open
Junc 977	1135.0	1162.5	2.5	27.5	Pipe 988	215.62	80	100	30.12	0.07	0.18	Open
Junc 978	1135.0	1162.5	2.5	27.5	Pipe 989	67.96	80	100	-11.4	0.03	0.03	Open
Junc 979	1135.0	1160.1	2.5	25.1	Pipe 990	65.35	80	100	-17.38	0.04	0.07	Open
Junc 980	1135.0	1160.0	2.1	25.0	Pipe 991	42.98	80	100	40.18	0.09	0.31	Open
Junc 981	1135.0	1157.1	2.6	22.1	Pipe 992	52.77	80	100	-91.48	0.21	1.44	Open
Junc 982	1135.0	1157.1	2.6	22.1	Pipe 993	37.52	20	100	-13.3	0.49	34.57	Open
Junc 983	1135.0	1162.5	2.2	27.5	Pipe 994	36.32	20	100	11.4	0.42	25.98	Open
Junc 984	1135.0	1160.6	2.2	25.6	Pipe 995	4.24	20	100	38	1.4	241.56	Open
Junc 985	1135.0	1160.6	2.2	25.6	Pipe 996	4.24	20	100	-39.9	1.47	264.42	Open
Junc 986	1135.0	1162.8	2.2	27.8	Pipe 997	37.52	20	100	-13.3	0.49	34.57	Open
Junc 987	1140.0	1165.0	2.2	25.0	Pipe 998	36.32	20	100	13.3	0.49	34.57	Open
Junc 988	1140.0	1166.3	2.8	26.3	Pipe 999	73.09	100	100	104.78	0.15	0.62	Open
Junc 989	1140.0	1166.3	2.8	26.3	Pipe 1000	87.3	100	100	-157.98	0.23	1.33	Open
Junc 990	1135.0	1165.0	1.4	30.0	Pipe 1001	130.78	25	100	-13.3	0.31	11.66	Open
Junc 991	1135.0	1165.0	1.4	30.0	Pipe 1002	76.09	100	100	-242.81	0.36	2.95	Open
Junc 992	1135.0	1162.0	2.1	27.0	Pipe 1003	16.17	80	100	6.4	0.01	0.01	Open
Junc 993	1135.0	1161.9	2.1	26.9	Pipe 1004	86.89	100	100	-255.61	0.38	3.25	Open
Junc 994	1135.0	1157.8	2.6	22.8	Pipe 1005	15.92	100	100	-274.81	0.4	3.72	Open
Junc 995	1135.0	1157.9	2.6	22.9	Pipe 1006	57.86	75	100	-6.4	0.02	0.01	Open
Junc 996	1135.0	1158.0	2.6	23.0	Pipe 1007	71.6	50	100	6.4	0.04	0.1	Open
Junc 997	1135.0	1158.0	2.6	23.0	Pipe 1008	154.76	350	110	2397.69	0.29	0.38	Open
Junc 998	1135.0	1157.2	2.6	22.2	Pipe 1009	12.11	350	100	2391.29	0.29	0.45	Open
Junc 999	1130.0	1157.1	2.6	27.1	Pipe 1010	115.26	350	100	2110.08	0.25	0.36	Open
Junc 1000	1130.0	1156.2	2.0	26.2	Pipe 1011	338.42	250	100	1580.63	0.37	1.09	Open
Junc 1001	1130.0	1154.6	2.0	24.6	Pipe 1015	45.76	300	110	6180.89	1.01	4.71	Open
Junc 1002	1135.0	1162.9	1.0	27.9	Pipe 1017	113.17	300	110	6092.39	1	4.58	Open
Junc 1003	1135.0	1162.9	1.0	27.9	Pipe 1018	158.36	50	110	37	0.22	2.22	Open
Junc 1004	1135.0	1162.2	2.1	27.2	Pipe 1019	113.75	50	110	18.5	0.11	0.61	Open
Junc 1005	1135.0	1161.9	2.1	26.9	Pipe 1021	32.57	20	100	-6.4	0.24	8.92	Open
Junc 1006	1130.0	1161.4	1.5	31.4	Pipe 1022	66.26	250	100	-523.05	0.12	0.14	Open
Junc 1007	1130.0	1161.2	1.5	31.2	Pipe 1023	107.16	250	100	494.05	0.12	0.13	Open
Junc 1008	1130.0	1161.2	1.5	31.2	Pipe 1024	30.01	250	100	454.85	0.11	0.11	Open
Junc 1009	1130.0	1161.7	2.1	31.7	Pipe 1025	8	250	100	445.05	0.1	0.11	Open
Junc 1010	1140.0	1163.2	2.5	23.2	Pipe 1027	10.03	20	100	-22.6	0.83	92.28	Open
Junc 1011	1130.0	1156.2	2.0	26.2	Pipe 1028	47.92	20	100	9.8	0.36	19.63	Open
Junc 1012	1130.0	1155.0	2.0	25.0	Pipe 1029	42.61	20	100	-9.8	0.36	19.64	Open
Junc 1013	1130.0	1154.3	1.4	24.3	Pipe 1030	9.54	20	100	-29.4	1.08	150.19	Open
Junc 1014	1130.0	1154.2	1.4	24.2	Pipe 1031	32.87	20	100	9.8	0.36	19.63	Open
Junc 1015	1130.0	1154.2	1.4	24.2	Pipe 1033	2.74	100	100	344.8	0.51	5.65	Open
Junc 1016	1130.0	1154.1	1.4	24.1	Pipe 1034	81.84	100	100	-335.45	0.49	5.37	Open
Junc 1017	1130.0	1154.1	1.4	24.1	Pipe 1035	100	100	100	295	0.43	4.23	Open
Junc 1018	1130.0	1155.1	2.0	25.1	Pipe 1036	125.53	250	100	-90	0.02	0.01	Open
Junc 1019	1130.0	1153.2	3.2	23.2	Pipe 1037	82.02	20	100	9.8	0.36	19.64	Open
Junc 1020	1130.0	1153.2	3.2	23.2	Pipe 1038	188.09	50	110	-9.8	0.06	0.19	Open

NODE					LINK							
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ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 1021	1130.0	1153.2	3.2	23.2	Pipe 1039	66.89	250	100	-70.4	0.02	0	Open
Junc 1022	1125.0	1152.4	0.9	27.4	Pipe 1040	9.26	20	100	29	1.07	146.44	Open
Junc 1023	1125.0	1152.4	0.9	27.4	Pipe 1041	49.89	20	100	9.8	0.36	19.63	Open
Junc 1024	1130.0	1152.4	0.9	22.4	Pipe 1042	38.86	20	100	7.4	0.27	11.67	Open
Junc 1025	1130.0	1152.4	0.9	22.4	Pipe 1043	36.49	250	100	-29.6	0.01	0	Open
Junc 1026	1130.0	1152.4	0.9	22.4	Pipe 1044	31.38	200	100	22.2	0.01	0	Open
Junc 1027	1130.0	1152.4	0.9	22.4	Pipe 1045	21.73	50	100	-7.4	0.04	0.13	Open
Junc 1028	1130.0	1152.8	3.2	22.8	Pipe 1046	129.37	200	100	7.4	0	0	Open
Junc 1029	1130.0	1152.8	3.2	22.8	Pipe 1047	19.81	200	100	0	0	0	Closed
Junc 1030	1125.0	1151.7	0.9	26.7	Pipe 1048	62.04	100	100	40	0.06	0.11	Open
Junc 1031	1130.0	1151.8	0.9	21.8	Pipe 1049	40.2	100	100	35.4	0.05	0.08	Open
Junc 1032	1125.0	1151.7	0.9	26.7	Pipe 1050	84.12	25	100	-23.6	0.56	33.72	Open
Junc 1033	1130.0	1151.8	3.2	21.8	Pipe 1051	29.41	20	100	-11.8	0.43	27.7	Open
Junc 1034	1130.0	1151.7	3.2	21.7	Pipe 1052	4.11	20	100	35.4	1.3	211.85	Open
Junc 1035	1130.0	1152.7	3.2	22.7	Pipe 1053	27.66	20	100	-11.8	0.43	27.7	Open
Junc 1036	1130.0	1152.6	3.2	22.6	Pipe 1054	27.66	20	100	11.8	0.43	27.7	Open
Junc 1037	1130.0	1153.2	3.2	23.2	Pipe 1055	66.01	20	100	-11.8	0.43	27.7	Open
Junc 1038	1130.0	1153.1	3.2	23.1	Pipe 1056	49.46	25	100	-35.4	0.83	71.45	Open
Junc 1039	1135.0	1160.3	2.6	25.3	Pipe 1057	124.16	25	100	11.8	0.28	9.34	Open
Junc 1040	1135.0	1160.3	2.6	25.3	Pipe 1058	42.95	20	100	-11.8	0.43	27.7	Open
Junc 1041	1135.0	1160.0	2.6	25.0	Pipe 1059	4.69	20	100	-35.4	1.3	211.85	Open
Junc 1042	1135.0	1160.0	2.6	25.0	Pipe 1060	45.48	20	100	-11.8	0.43	27.7	Open
Junc 1043	1130.0	1162.2	1.9	32.2	Pipe 1061	128.36	25	100	-11.8	0.28	9.34	Open
Junc 1044	1130.0	1162.6	1.4	32.6	Pipe 1062	7.88	20	100	35.4	1.3	211.85	Open
Junc 1045	1130.0	1162.6	1.4	32.6	Pipe 1063	41.62	20	100	11.8	0.43	27.7	Open
Junc 1046	1135.0	1163.4	1.4	28.4	Pipe 1064	27.94	20	100	11.8	0.43	27.7	Open
Junc 1047	1135.0	1163.4	2.2	28.4	Pipe 1065	40.88	20	100	-11.8	0.43	27.7	Open
Junc 1048	1135.0	1162.7	2.5	27.7	Pipe 1066	7.4	20	100	-35.4	1.3	211.86	Open
Junc 1049	1135.0	1162.7	2.5	27.7	Pipe 1067	46.59	20	100	-11.8	0.43	27.7	Open
Junc 1050	1135.0	1165.5	1.4	30.5	Pipe 1068	63.77	100	100	247.8	0.37	3.07	Open
Junc 1051	1135.0	1165.4	1.4	30.4	Pipe 1069	51.58	100	100	224.2	0.33	2.55	Open
Junc 1052	1135.0	1164.7	2.5	29.7	Pipe 1070	94.04	100	100	177	0.26	1.64	Open
Junc 1053	1135.0	1164.7	2.2	29.7	Pipe 1071	126.03	100	100	129.8	0.19	0.93	Open
Junc 1054	1130.0	1163.7	2.5	33.7	Pipe 1072	145.81	100	100	82.6	0.12	0.4	Open
Junc 1055	1130.0	1163.6	1.4	33.6	Pipe 1073	11	20	100	28.2	1.04	139.04	Open
Junc 1056	1130.0	1163.6	1.4	33.6	Pipe 1074	34.24	20	100	9.2	0.34	17.47	Open
Junc 1057	1130.0	1163.5	1.4	33.5	Pipe 1075	39.19	20	100	9.8	0.36	19.64	Open
Junc 1058	1130.0	1163.5	1.4	33.5	Pipe 1076	13.56	20	100	-6.4	0.24	8.92	Open
Junc 1059	1130.0	1163.3	1.4	33.3	Pipe 1077	40.58	20	100	6.4	0.24	8.92	Open
Junc 1060	1130.0	1163.2	3.8	33.2	Pipe 1078	7.66	20	100	-19.2	0.71	68.23	Open
Junc 1061	1130.0	1163.4	1.4	33.4	Pipe 1079	29.43	20	100	-9.8	0.36	19.64	Open
Junc 1062	1130.0	1163.4	3.8	33.4	Pipe 1080	4.22	20	100	-22.6	0.83	92.28	Open
Junc 1063	1130.0	1163.6	1.4	33.6	Pipe 1081	79.54	20	100	6.4	0.24	8.92	Open
Junc 1064	1130.0	1163.4	1.9	33.4	Pipe 1082	4.61	20	100	27.6	1.02	133.62	Open
Junc 1065	1130.0	1163.4	1.9	33.4	Pipe 1083	31.43	20	100	9.2	0.34	17.47	Open
Junc 1066	1130.0	1163.5	0.0	33.5	Pipe 1084	9.02	20	100	9.2	0.34	17.47	Open
Junc 1067	1130.0	1155.1	3.8	25.1	Pipe 1085	72.62	100	100	-19.15	0.03	0.03	Open
Junc 1068	1130.0	1153.5	2.5	23.5	Pipe 1086	32.24	100	100	-48.15	0.07	0.15	Open
Junc 1069	1125.0	1153.4	2.5	28.4	Pipe 1087	79.68	100	100	-73.75	0.11	0.33	Open
Junc 1070	1130.0	1153.3	2.5	23.3	Pipe 1088	5.09	75	100	19.2	0.05	0.1	Open
Junc 1071	1130.0	1153.2	2.5	23.2	Pipe 1089	20.69	75	100	-6.4	0.02	0.01	Open
Junc 1072	1130.0	1155.1	3.8	25.1	Pipe 1090	37.23	75	100	6.4	0.02	0.01	Open
Junc 1073	1130.0	1158.9	3.8	28.9	Pipe 1091	43.64	75	100	-9.2	0.02	0.03	Open
Junc 1074	1130.0	1158.8	3.8	28.8	Pipe 1092	55.24	75	100	6.4	0.02	0.01	Open
Junc 1075	1135.0	1168.1	1.9	33.1	Pipe 1093	3.78	75	100	-22	0.06	0.14	Open
Junc 1076	1135.0	1168.2	1.9	33.2	Pipe 1094	10.6	50	100	-9.2	0.05	0.2	Open
Junc 1077	1140.0	1168.3	1.9	28.3	Pipe 1095	45.72	80	100	76.11	0.18	1.02	Open
Junc 1078	1140.0	1168.2	1.9	28.2	Pipe 1096	83.19	80	100	47.71	0.11	0.43	Open
Junc 1079	1140.0	1169.2	1.9	29.2	Pipe 1097	97.71	80	100	-94.51	0.22	1.52	Open
Junc 1080	1135.0	1171.7	0.7	36.7	Pipe 1098	14.72	100	100	41.31	0.06	0.11	Open
Junc 1081	1140.0	1171.6	1.9	31.6	Pipe 1099	66.66	100	100	15.71	0.02	0.02	Open
Junc 1082	1140.0	1171.6	1.9	31.6	Pipe 1100	54.68	100	100	-64.44	0.09	0.25	Open
Junc 1083	1140.0	1171.6	1.9	31.6	Pipe 1101	75.31	100	100	-101.24	0.15	0.58	Open
Junc 1084	1140.0	1171.6	1.9	31.6	Pipe 1102	77.15	100	100	-119.64	0.18	0.8	Open
Junc 1085	1140.0	1171.6	1.9	31.6	Pipe 1103	84.18	100	100	-147.24	0.22	1.17	Open
Junc 1086	1140.0	1173.4	0.7	33.4	Pipe 1104	9.44	100	100	-184.04	0.27	1.77	Open
Junc 1087	1140.0	1173.4	0.7	33.4	Pipe 1105	7.97	20	100	27.6	1.02	133.61	Open
Junc 1088	1135.0	1172.4	1.4	37.4	Pipe 1106	16.38	20	100	9.2	0.34	17.47	Open
Junc 1089	1135.0	1172.5	1.4	37.5	Pipe 1107	37.84	20	100	9.2	0.34	17.47	Open
Junc 1090	1135.0	1172.9	1.4	37.9	Pipe 1108	47.82	100	100	-287.75	0.42	4.04	Open
Junc 1091	1135.0	1172.9	1.4	37.9	Pipe 1109	47.22	25	100	-9.2	0.22	5.89	Open
Junc 1092	1135.0	1172.5	1.4	37.5	Pipe 1110	30.8	25	100	-18.4	0.43	21.27	Open
Junc 1093	1135.0	1172.5	1.4	37.5	Pipe 1111	128.52	25	100	-9.2	0.22	5.89	Open
Junc 1094	1140.0	1176.4	0.7	36.4	Pipe 1112	60.77	100	100	0	0	0	Closed
Junc 1095	1140.0	1176.4	0.7	36.4	Pipe 1113	55.38	100	100	20.8	0.03	0.03	Open
Junc 1096	1140.0	1176.4	0.7	36.4	Pipe 1114	31.04	100	100	9.2	0.01	0	Open
Junc 1097	1135.0	1168.3	1.4	33.3	Pipe 1115	4.91	20	100	8.7	0.32	15.75	Open
Junc 1098	1135.0	1168.4	1.4	33.4	Pipe 1116	21.84	20	100	-2.9	0.11	2.06	Open
Junc 1099	1135.0	1159.3	3.2	24.3	Pipe 1117	21.35	20	100	2.9	0.11	2.06	Open
Junc 1100	1135.0	1172.5	1.4	37.5	Pipe 1118	599.18	100	100	23.7	0.03	0.04	Open
Junc 1101	1135.0	1167.0	1.4	32.0	Pipe 1119	8.09	100	100	-57.5	0.08	0.2	Open
Junc 1102	1135.0	1166.9	1.4	31.9	Pipe 1120	100.79	100	100	-190.3	0.28	1.88	Open
Junc 1103	1135.0	1161.4	3.2	26.4	Pipe 1121	60.09	100	100	-222.9	0.33	2.52	Open
Junc 1104	1135.0	1161.3	3.2	26.3	Pipe 1122	89.16	100	100	-258.4	0.38	3.31	Open
Junc 1105	1135.0	1159.2	3.2	24.2	Pipe 1123	69.68	50	100	99	0.58	16.4	Open

NODE					LINK							
Ma'an city					Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 1106	1130.0	1157.4	5.8	27.4	Pipe 1124	108.5	50	100	-32.6	0.19	2.1	Open
Junc 1107	1130.0	1156.6	5.8	26.6	Pipe 1125	57.38	50	100	-33.8	0.2	2.24	Open
Junc 1108	1130.0	1152.4	0.9	22.4	Pipe 1126	124.23	50	100	33.8	0.2	2.24	Open
Junc 1109	1140.0	1173.4	0.7	33.4	Pipe 1127	77.85	50	100	-101.4	0.6	17.14	Open
Junc 1110	1140.0	1173.4	0.7	33.4	Pipe 1128	71.3	50	100	-39.61	0.23	3	Open
Junc 1111	1140.0	1173.4	0.7	33.4	Pipe 1129	65.07	50	100	-72.32	0.43	9.17	Open
Junc 1112	1140.0	1173.4	0.7	33.4	Pipe 1130	60.16	20	100	-3.8	0.14	3.4	Open
Junc 1113	1140.0	1173.4	0.7	33.4	Pipe 1131	75.7	25	110	57.8	1.36	148.48	Open
Junc 1114	1140.0	1173.4	0.7	33.4	Pipe 1132	173.73	25	100	13.59	0.32	12.13	Open
Junc 1115	1130.0	1153.3	2.5	23.3	Pipe 1133	387.98	50	100	67.8	0.4	8.13	Open
Junc 1116	1135.0	1163.5	2.2	28.5	Pipe 1134	74.01	50	100	-21.8	0.13	1	Open
Junc 1117	1135.0	1163.4	2.2	28.4	Pipe 1135	67.03	50	100	-57.2	0.34	5.94	Open
Junc 1118	1135.0	1160.5	2.6	25.5	Pipe 1136	210.17	50	100	-32.6	0.19	2.1	Open
Junc 1119	1135.0	1160.5	2.6	25.5	Pipe 1137	384.73	50	100	-53.48	0.32	5.24	Open
Junc 1120	1135.0	1171.6	0.7	36.6	Pipe 1138	306.68	50	100	56.88	0.34	5.88	Open
Junc 1121	1135.0	1171.6	0.7	36.6	Pipe 1139	58.16	50	100	-130.76	0.77	27.46	Open
Junc 1124	1145.0	1169.6	2.5	24.6	Pipe 1140	222.67	50	100	79	0.47	10.8	Open
Junc 1125	1145.0	1167.7	4.8	22.7	Pipe 1141	62.86	50	100	-112.63	0.66	20.83	Open
Junc 1126	1145.0	1167.5	4.8	22.5	Pipe 1142	8.98	50	100	-422.47	2.49	240.93	Open
Junc 1127	1140.0	1167.6	2.5	27.6	Pipe 1143	211.11	100	100	-64.33	0.09	0.25	Open
Junc 1128	1140.0	1167.5	2.5	27.5	Pipe 1144	61.78	50	100	-86.13	0.51	12.67	Open
Junc 1129	1140.0	1180.7	0.7	40.7	Pipe 1145	207.28	50	100	67.8	0.4	8.14	Open
Junc 1130	1140.0	1180.4	1.7	40.4	Pipe 1146	19.48	50	100	-175.73	1.04	47.46	Open
Junc 1131	1140.0	1179.2	1.5	39.2	Pipe 1147	120.62	50	100	-197.53	1.16	58.94	Open
Junc 1132	1140.0	1180.4	1.7	40.4	Pipe 1148	199.86	50	100	60.4	0.36	6.57	Open
Junc 1133	1140.0	1180.4	1.7	40.4	Pipe 1149	58.79	50	100	12.6	0.07	0.36	Open
Junc 1134	1140.0	1173.0	0.7	33.0	Pipe 1150	25.74	20	100	-12.6	0.46	31.27	Open
Junc 1135	1140.0	1171.9	0.7	31.9	Pipe 1151	38.5	100	100	-283.13	0.42	3.92	Open
Junc 1136	1140.0	1169.4	2.5	29.4	Pipe 1152	30.57	100	100	-308.33	0.45	4.59	Open
Junc 1137	1140.0	1169.4	2.5	29.4	Pipe 1153	36.96	100	100	40.3	0.06	0.1	Open
Junc 1138	1140.0	1169.4	2.5	29.4	Pipe 1154	574.19	100	100	-361.23	0.53	6.16	Open
Junc 1139	1140.0	1169.4	2.5	29.4	Pipe 1155	159.72	50	100	48	0.28	4.29	Open
Junc 1140	1145.0	1173.6	3.4	28.6	Pipe 1156	143.07	25	100	-16.7	0.39	17.77	Open
Junc 1141	1145.0	1173.5	3.4	28.5	Pipe 1157	161.38	25	100	48	1.13	125.57	Open
Junc 1142	1145.0	1167.4	3.4	22.4	Pipe 1158	90.07	100	100	490.87	0.72	10.87	Open
Junc 1143	1145.0	1167.2	3.4	22.2	Pipe 1159	151.22	100	100	-572.27	0.84	14.44	Open
Junc 1144	1140.0	1165.0	2.5	25.0	Pipe 1160	66.17	50	100	21.9	0.13	1	Open
Junc 1145	1140.0	1165.0	2.5	25.0	Pipe 1161	4.87	50	100	14.6	0.09	0.47	Open
Junc 1146	1140.0	1180.7	0.7	40.7	Pipe 1162	88.5	50	100	-7.3	0.04	0.13	Open
Junc 1147	1140.0	1180.7	0.7	40.7	Pipe 1163	447.88	50	100	7.3	0.04	0.13	Open
Junc 1148	1140.0	1180.7	0.7	40.7	Pipe 1164	122.97	50	100	20.4	0.12	0.88	Open
Junc 1149	1140.0	1167.5	2.5	27.5	Pipe 1165	314.35	50	100	-5.8	0.03	0.09	Open
Junc 1150	1140.0	1167.5	2.5	27.5	Pipe 1166	157.8	100	100	618.17	0.91	16.66	Open
Junc 1151	1140.0	1166.6	1.9	26.6	Pipe 1167	203.46	100	100	650.77	0.96	18.33	Open
Junc 1152	1140.0	1166.6	1.9	26.6	Pipe 1168	313.94	100	100	-37.4	0.06	0.09	Open
Junc 1153	1140.0	1165.7	1.9	25.7	Pipe 1169	116.41	100	100	-52	0.08	0.17	Open
Junc 1154	1140.0	1165.7	1.9	25.7	Pipe 1170	476.19	100	100	-63.6	0.09	0.25	Open
Junc 1155	1140.0	1164.8	1.8	24.8	Pipe 1171	242.18	50	100	-7.3	0.04	0.13	Open
Junc 1156	1140.0	1164.3	1.8	24.3	Pipe 1172	299.66	50	100	-11.6	0.07	0.31	Open
Junc 1157	1140.0	1164.8	1.8	24.8	Pipe 1173	36.24	100	100	-81.6	0.12	0.39	Open
Junc 1158	1140.0	1165.1	2.5	25.1	Pipe 1174	167.82	100	100	-83.8	0.12	0.41	Open
Junc 1159	1140.0	1165.1	2.5	25.1	Pipe 1175	177.74	20	100	-5.8	0.21	7.43	Open
Junc 1160	1135.0	1164.7	1.0	29.7	Pipe 1176	73.4	25	100	39.8	0.94	88.76	Open
Junc 1161	1135.0	1164.7	1.0	29.7	Pipe 1177	318.59	25	100	15	0.35	14.57	Open
Junc 1162	1135.0	1164.7	1.0	29.7	Pipe 1178	640.4	25	100	7.6	0.18	4.14	Open
Junc 1163	1135.0	1164.7	1.8	29.7	Pipe 1179	58.98	20	100	-2.9	0.11	2.06	Open
Junc 1164	1145.0	1164.6	2.5	19.6	Pipe 1180	629.92	100	100	155.8	0.23	1.3	Open
Junc 1165	1145.0	1164.6	4.2	19.6	Pipe 1181	64.05	200	100	368.63	0.14	0.22	Open
Junc 1166	1140.0	1164.4	2.5	24.4	Pipe 1182	9.33	20	100	-7.4	0.27	11.67	Open
Junc 1167	1140.0	1164.3	2.5	24.3	Pipe 1183	3.59	200	100	383.43	0.14	0.23	Open
Junc 1168	1135.0	1164.1	2.5	29.1	Pipe 1184	75.1	150	100	-390.83	0.26	0.99	Open
Junc 1169	1135.0	1164.1	2.5	29.1	Pipe 1185	131.61	25	100	16.4	0.39	17.18	Open
Junc 1170	1140.0	1179.5	9.2	39.5	Pipe 1186	121.69	20	100	16.4	0.6	50.95	Open
Junc 1171	1140.0	1179.5	5.3	39.5	Pipe 1187	21.7	20	100	-16.4	0.6	50.95	Open
Junc 1172	1140.0	1179.6	9.2	39.6	Pipe 1188	101.49	25	100	-32.8	0.77	62.04	Open
Junc 1173	1140.0	1178.0	9.2	38.0	Pipe 1189	74.1	80	100	82	0.19	1.17	Open
Junc 1174	1140.0	1177.9	9.2	37.9	Pipe 1190	42.25	80	100	16.4	0.04	0.06	Open
Junc 1175	1140.0	1177.9	9.2	37.9	Pipe 1191	25.62	20	100	-16.4	0.6	50.95	Open
Junc 1176	1140.0	1179.7	1.7	39.7	Pipe 1192	9.66	20	100	16.4	0.6	50.96	Open
Junc 1177	1140.0	1179.7	1.7	39.7	Pipe 1193	54.31	25	100	-49.2	1.16	131.45	Open
Junc 1178	1140.0	1179.9	1.7	39.9	Pipe 1194	50.63	150	100	-444.13	0.29	1.25	Open
Junc 1179	1140.0	1179.9	1.7	39.9	Pipe 1195	28.91	150	100	-497.43	0.33	1.55	Open
Junc 1180	1140.0	1180.4	1.7	40.4	Pipe 1196	64.05	150	100	-567.13	0.37	1.97	Open
Junc 1181	1140.0	1180.3	1.7	40.3	Pipe 1197	64.34	20	100	21.6	0.8	84.86	Open
Junc 1182	1145.0	1180.4	1.7	35.4	Pipe 1198	48.11	20	100	-7.7	0.28	12.56	Open
Junc 1183	1145.0	1180.4	5.3	35.4	Pipe 1199	6.11	50	100	93.27	0.55	14.68	Open
Junc 1184	1145.0	1180.4	1.7	35.4	Pipe 1200	12.41	150	100	794.7	0.52	3.68	Open
Junc 1185	1140.0	1180.4	1.7	40.4	Pipe 1201	25.93	150	100	787	0.52	3.62	Open
Junc 1186	1140.0	1180.4	1.7	40.4	Pipe 1202	449.84	50	100	56.27	0.33	5.76	Open
Junc 1187	1140.0	1180.4	1.7	40.4	Pipe 1203	57.93	50	100	-61.2	0.36	6.73	Open
Junc 1188	1140.0	1180.4	1.7	40.4	Pipe 1204	100.86	50	100	-20.4	0.12	0.88	Open
Junc 1189	1140.0	1173.1	1.7	33.1	Pipe 1205	128.56	50	100	20.4	0.12	0.88	Open
Junc 1190	1140.0	1173.1	1.7	33.1	Pipe 1207	132.99	50	100	-25.33	0.15	1.31	Open
Junc 1191	1140.0	1173.0	1.7	33.0	Pipe 1208	3.6	50	100	-9.92	0.06	0.23	Open
Junc 1192	1140.0	1173.0	1.7	33.0	Pipe 1209	13.12	50	100	-54.72	0.32	5.47	Open

NODE					LINK							
Ma'an city					Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 1193	1140.0	1173.0	1.7	33.0	Pipe 1210	24.31	50	100	-79.12	0.47	10.83	Open
Junc 1194	1140.0	1173.0	1.7	33.0	Pipe 1211	121.76	50	100	-112.42	0.66	20.75	Open
Junc 1195	1145.0	1171.3	3.4	26.3	Pipe 1212	76.44	50	100	36.4	0.21	2.57	Open
Junc 1196	1145.0	1171.3	3.4	26.3	Pipe 1213	316.07	20	100	8.9	0.33	16.43	Open
Junc 1197	1145.0	1171.3	3.4	26.3	Pipe 1214	294.21	20	100	-8.9	0.33	16.43	Open
Junc 1198	1145.0	1171.3	3.4	26.3	Pipe 1215	244.25	20	100	-16.7	0.62	52.69	Open
Junc 1199	1145.0	1171.3	3.4	26.3	Pipe 1216	74.67	100	100	38.9	0.06	0.1	Open
Junc 1200	1145.0	1171.3	3.4	26.3	Pipe 1217	22.89	150	100	-926.53	0.61	4.89	Open
Junc 1201	1145.0	1171.3	3.4	26.3	Pipe 1218	20.23	150	100	-996.54	0.65	5.6	Open
Junc 1202	1145.0	1171.4	3.4	26.4	Pipe 1219	126.3	150	100	872.43	0.57	4.38	Open
Junc 1203	1145.0	1171.3	3.4	26.3	Pipe 1220	225.37	150	100	531.23	0.35	1.75	Open
Junc 1204	1145.0	1171.9	2.5	26.9	Pipe 1221	90.31	150	100	-1299.66	0.85	9.16	Open
Junc 1205	1145.0	1171.9	2.5	26.9	Pipe 1222	80.91	150	100	-1333.46	0.87	9.6	Open
Junc 1206	1145.0	1172.0	2.5	27.0	Pipe 1223	54.5	20	100	-10.5	0.39	22.31	Open
Junc 1207	1145.0	1171.9	2.5	26.9	Pipe 1224	4.51	20	100	-28.7	1.06	143.65	Open
Junc 1208	1145.0	1171.9	2.5	26.9	Pipe 1225	27.61	150	100	169.33	0.11	0.21	Open
Junc 1209	1145.0	1171.9	2.5	26.9	Pipe 1226	23.53	150	100	130.13	0.09	0.13	Open
Junc 1210	1140.0	1171.9	2.5	31.9	Pipe 1227	42.04	150	100	119.63	0.08	0.11	Open
Junc 1211	1140.0	1171.8	2.5	31.8	Pipe 1229	110.78	20	100	7.7	0.28	12.56	Open
Junc 1212	1140.0	1171.9	2.5	31.9	Pipe 1230	170.43	150	100	824	0.54	3.94	Open
Junc 1213	1140.0	1171.8	2.5	31.8	Pipe 1231	37.06	150	110	2819	1.85	32.19	Open
Junc 1214	1140.0	1171.9	2.5	31.9	Pipe 1232	11.77	150	110	714.87	0.47	2.54	Open
Junc 1215	1140.0	1171.8	2.5	31.8	Pipe 1233	37.63	50	100	-351.4	2.07	171.29	Open
Junc 1216	1145.0	1168.0	3.4	23.0	Pipe 1234	65.38	50	100	95.83	0.56	15.44	Open
Junc 1217	1145.0	1167.9	3.4	22.9	Pipe 1235	169.12	50	100	74.83	0.44	9.77	Open
Junc 1218	1145.0	1168.5	5.3	23.5	Pipe 1236	52.65	25	100	-13.2	0.31	11.49	Open
Junc 1219	1145.0	1168.4	5.3	23.4	Pipe 1237	59.36	25	100	-26.4	0.62	41.5	Open
Junc 1220	1140.0	1173.4	0.7	33.4	Pipe 1238	61.71	50	100	-10.5	0.06	0.26	Open
Junc 1221	1140.0	1171.9	0.7	31.9	Pipe 1239	90.06	50	100	54.73	0.32	5.47	Open
Junc 1222	1140.0	1171.9	0.7	31.9	Pipe 1240	182.48	25	100	-10.5	0.25	7.52	Open
Junc 1223	1140.0	1169.3	2.5	29.3	Pipe 1241	188.25	25	100	-23.6	0.56	33.72	Open
Junc 1224	1140.0	1169.3	2.5	29.3	Pipe 1242	36.67	20	100	-9.6	0.35	18.9	Open
Junc 1225	1140.0	1169.2	2.5	29.2	Pipe 1243	49.64	20	100	-9.6	0.35	18.9	Open
Junc 1226	1140.0	1169.4	2.5	29.4	Pipe 1244	37.51	50	100	33.73	0.2	2.23	Open
Junc 1227	1140.0	1169.4	2.5	29.4	Pipe 1245	35.09	50	100	0.53	0	0	Open
Junc 1228	1140.0	1179.1	1.5	39.1	Pipe 1246	19.04	50	100	172	1.01	45.61	Open
Junc 1229	1140.0	1179.1	1.5	39.1	Pipe 1247	62.26	50	100	-138.8	0.82	30.66	Open
Junc 1230	1140.0	1179.1	1.5	39.1	Pipe 1248	22.3	50	100	-58.4	0.34	6.17	Open
Junc 1231	1140.0	1167.5	2.5	27.5	Pipe 1249	30.48	20	100	56.8	2.09	508.56	Open
Junc 1232	1140.0	1167.5	2.5	27.5	Pipe 1250	21.56	20	100	9.6	0.35	18.9	Open
Junc 1233	1140.0	1178.9	9.2	38.9	Pipe 1251	188.92	25	100	-23.6	0.56	33.72	Open
Junc 1234	1140.0	1178.7	5.3	38.7	Pipe 1252	30	20	100	23.6	0.87	99.98	Open
Junc 1235	1140.0	1168.6	2.5	28.6	Pipe 1254	83.78	150	100	0	0	0	Closed
Junc 1236	1140.0	1178.8	5.3	38.8	Pipe 1255	279.2	25	100	9.6	0.23	6.37	Open
Junc 1237	1135.0	1161.7	1.9	26.7	Pipe 1256	151.37	150	100	2808.5	1.84	38.15	Open
Junc 1238	1130.0	1161.7	1.9	31.7	Pipe 1257	699.12	150	100	0	0	0	Closed
Junc 1239	1140.0	1168.6	2.5	28.6	Pipe 1258	143.1	150	100	-686.03	0.45	2.8	Open
Junc 1240	1140.0	1168.6	2.5	28.6	Pipe 1259	25.87	150	100	-21.6	0.01	0	Open
Junc 1241	1140.0	1168.6	2.5	28.6	Pipe 1261	127.44	150	110	749.37	0.49	2.77	Open
Junc 1242	1140.0	1169.6	2.5	29.6	Pipe 1262	62.71	75	110	-15.92	0.04	0.06	Open
Junc 1243	1145.0	1169.5	2.5	24.5	Pipe 1263	113.32	50	110	-42.57	0.25	2.88	Open
Junc 1244	1140.0	1169.5	2.5	29.5	Pipe 1265	36.59	200	110	2842.59	1.05	8.05	Open
Junc 1245	1140.0	1169.5	2.5	29.5	Pipe 1267	116.08	50	110	-21.6	0.13	0.82	Open
Junc 1246	1145.0	1168.4	1.9	23.4	Pipe 1273	145.65	150	110	-725.33	0.48	2.61	Open
Junc 1247	1145.0	1168.4	3.8	23.4	Pipe 1274	55.07	150	110	-572.87	0.38	1.68	Open
Junc 1248	1145.0	1168.4	1.9	23.4	Pipe 1275	101.41	150	110	-503.64	0.33	1.33	Open
Junc 1249	1145.0	1168.4	1.9	23.4	Pipe 1277	182.85	75	110	-93.7	0.25	1.72	Open
Junc 1250	1145.0	1168.4	1.9	23.4	Pipe 1279	151.58	75	110	-288.31	0.76	13.81	Open
Junc 1251	1140.0	1168.0	2.5	28.0	Pipe 1281	83.17	50	110	72.58	0.43	7.74	Open
Junc 1252	1140.0	1168.0	2.5	28.0	Pipe 1282	74.67	50	110	54.59	0.32	4.56	Open
Junc 1253	1140.0	1167.8	2.5	27.8	Pipe 1283	167.81	50	110	-17.41	0.1	0.55	Open
Junc 1254	1140.0	1167.8	2.5	27.8	Pipe 1284	123.68	50	110	-93.61	0.55	12.39	Open
Junc 1255	1140.0	1167.6	2.5	27.6	Pipe 1285	90.44	75	110	70.03	0.18	1	Open
Junc 1256	1140.0	1167.5	2.5	27.5	Pipe 1286	50.85	75	110	-102.89	0.27	2.05	Open
Junc 1257	1140.0	1167.6	2.5	27.6	Pipe 1287	40.85	75	110	-137.29	0.36	3.49	Open
Junc 1258	1140.0	1167.5	2.5	27.5	Pipe 1290	202.81	75	110	93.92	0.25	1.73	Open
Junc 1259	1140.0	1167.5	2.5	27.5	Pipe 1291	53.9	75	110	18.55	0.05	0.08	Open
Junc 1260	1140.0	1167.5	2.5	27.5	Pipe 1292	55	75	110	-61.65	0.16	0.79	Open
Junc 1261	1140.0	1167.4	2.5	27.4	Pipe 1293	21.57	150	110	-1286.14	0.84	7.53	Open
Junc 1262	1140.0	1167.4	2.8	27.4	Pipe 1296	22.63	75	110	-100.63	0.26	1.97	Open
Junc 1263	1140.0	1167.4	2.8	27.4	Pipe 1298	80.14	150	110	-802.39	0.53	3.14	Open
Junc 1264	1140.0	1166.0	1.9	26.0	Pipe 1299	75.95	150	110	-1052.97	0.69	5.2	Open
Junc 1265	1140.0	1165.5	1.9	25.5	Pipe 1300	88.65	150	110	-1253.2	0.82	7.17	Open
Junc 1266	1140.0	1165.5	2.8	25.5	Pipe 1302	68.05	100	110	139.75	0.21	0.89	Open
Junc 1267	1140.0	1164.8	2.8	24.8	Pipe 1303	83.22	100	110	-21.58	0.03	0.03	Open
Junc 1268	1140.0	1165.9	2.8	25.9	Pipe 1304	70.28	100	110	-132.07	0.19	0.8	Open
Junc 1269	1140.0	1164.8	2.8	24.8	Pipe 1308	65.58	75	110	120.71	0.32	2.75	Open
Junc 1270	1140.0	1164.2	2.8	24.2	Pipe 1309	81.66	75	110	27.94	0.07	0.18	Open
Junc 1271	1140.0	1164.2	2.8	24.2	Pipe 1310	57.56	75	110	-53.06	0.14	0.6	Open
Junc 1272	1140.0	1164.2	2.8	24.2	Pipe 1311	105.04	75	110	-88.75	0.23	1.56	Open
Junc 1273	1145.0	1166.6	3.8	21.6	Pipe 1314	100.09	150	110	-800.97	0.52	3.13	Open
Junc 1274	1145.0	1166.6	3.8	21.6	Pipe 1315	110.6	150	110	-870.57	0.57	3.65	Open
Junc 1275	1145.0	1166.5	3.8	21.5	Pipe 1317	16.83	250	110	1854.64	0.44	1.23	Open
Junc 1276	1145.0	1166.6	1.9	21.6	Pipe 1319	121.19	50	110	51.23	0.3	4.06	Open
Junc 1277	1145.0	1166.6	1.9	21.6	Pipe 1320	412.63	50	110	43.83	0.26	3.04	Open

NODE					LINK							
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ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 1278	1145.0	1166.6	1.9	21.6	Pipe 1322	104.45	50	110	-77.58	0.46	8.75	Open
Junc 1279	1145.0	1166.6	1.9	21.6	Pipe 1324	196.21	250	110	-2139.87	0.5	1.61	Open
Junc 1280	1145.0	1166.6	1.9	21.6	Pipe 1325	106.01	250	110	-2424.87	0.57	2.02	Open
Junc 1281	1145.0	1166.6	1.9	21.6	Pipe 1326	14.98	300	110	-4262.59	0.7	2.36	Open
Junc 1282	1145.0	1166.6	1.9	21.6	Pipe 1327	63.78	300	110	-4298.59	0.7	2.4	Open
Junc 1283	1140.0	1166.7	1.9	26.7	Pipe 1329	90.74	300	110	-5745.45	0.94	4.11	Open
Junc 1284	1140.0	1166.6	1.9	26.6	Pipe 1330	108.9	300	110	-5982.69	0.98	4.43	Open
Junc 1285	1140.0	1166.7	1.9	26.7	Pipe 1331	154.17	100	110	-124.48	0.18	0.72	Open
Junc 1286	1140.0	1166.7	1.9	26.7	Pipe 1332	83.08	100	110	-222.38	0.33	2.1	Open
Junc 1287	1140.0	1166.7	1.9	26.7	Pipe 1333	96.46	100	110	-339.41	0.5	4.6	Open
Junc 1288	1140.0	1166.7	1.9	26.7	Pipe 1334	73.6	100	110	-147.48	0.22	0.98	Open
Junc 1289	1145.0	1165.2	3.8	20.2	Pipe 1335	42.18	100	110	-292.54	0.43	3.49	Open
Junc 1290	1145.0	1165.2	10.2	20.2	Pipe 1337	46.42	100	110	66.33	0.1	0.22	Open
Junc 1291	1145.0	1165.1	3.8	20.1	Pipe 1339	55.89	100	110	-255.56	0.38	2.72	Open
Junc 1292	1145.0	1165.2	3.8	20.2	Pipe 1340	232.98	100	110	-351.59	0.52	4.91	Open
Junc 1293	1145.0	1165.2	2.5	20.2	Pipe 1341	146.37	100	110	342.72	0.51	4.68	Open
Junc 1294	1145.0	1165.3	2.5	20.3	Pipe 1343	107.74	50	110	-164.54	0.97	35.22	Open
Junc 1295	1145.0	1165.2	2.5	20.2	Pipe 1344	83.74	100	110	471.36	0.69	8.45	Open
Junc 1296	1145.0	1165.3	2.5	20.3	Pipe 1345	236.48	50	110	55.94	0.33	4.78	Open
Junc 1297	1145.0	1165.3	2.5	20.3	Pipe 1350	93.12	100	110	-873.25	1.29	26.48	Open
Junc 1298	1140.0	1165.4	2.5	25.4	Pipe 1351	107.63	100	110	-484.07	0.71	8.88	Open
Junc 1299	1140.0	1165.4	2.5	25.4	Pipe 1352	200.63	100	110	-467.67	0.69	8.33	Open
Junc 1300	1140.0	1165.4	2.5	25.4	Pipe 1353	29.28	100	110	-559.81	0.82	11.62	Open
Junc 1301	1140.0	1165.4	2.5	25.4	Pipe 1354	139.02	50	110	-73.82	0.44	7.98	Open
Junc 1302	1140.0	1165.5	2.5	25.5	Pipe 1355	203.37	150	110	-811.07	0.53	3.2	Open
Junc 1303	1140.0	1165.4	2.5	25.4	Pipe 1356	49.28	150	110	-994.45	0.65	4.67	Open
Junc 1304	1140.0	1165.6	1.9	25.6	Pipe 1357	57.12	150	110	-1100.88	0.72	5.64	Open
Junc 1305	1140.0	1165.6	1.9	25.6	Pipe 1358	81.08	150	110	-1770.56	1.16	13.61	Open
Junc 1306	1140.0	1165.6	1.9	25.6	Pipe 1359	124.51	75	110	73.86	0.19	1.11	Open
Junc 1307	1140.0	1165.6	1.9	25.6	Pipe 1360	60.64	75	110	133.67	0.35	3.33	Open
Junc 1308	1140.0	1165.5	1.9	25.5	Pipe 1361	103.71	75	110	-41.23	0.11	0.38	Open
Junc 1309	1140.0	1165.4	1.9	25.4	Pipe 1362	89.24	100	110	373.21	0.55	5.49	Open
Junc 1310	1140.0	1165.4	1.9	25.4	Pipe 1365	133.44	50	110	62.54	0.37	5.87	Open
Junc 1311	1140.0	1165.4	1.9	25.4	Pipe 1367	111.77	50	110	79.64	0.47	9.19	Open
Junc 1312	1140.0	1165.4	1.9	25.4	Pipe 1368	202.59	50	110	24.77	0.15	1.06	Open
Junc 1313	1140.0	1165.7	1.9	25.7	Pipe 1370	80.64	50	110	99.46	0.59	13.87	Open
Junc 1314	1140.0	1165.7	1.9	25.7	Pipe 1372	46.89	100	110	263.02	0.39	2.87	Open
Junc 1315	1140.0	1160.3	1.9	20.3	Pipe 1373	38.75	100	110	-319.98	0.47	4.12	Open
Junc 1316	1140.0	1160.3	2.5	20.3	Pipe 1374	136.86	100	110	-178.5	0.26	1.4	Open
Junc 1317	1140.0	1160.2	1.9	20.2	Pipe 1375	85.13	50	110	84.16	0.5	10.18	Open
Junc 1318	1140.0	1160.1	2.5	20.1	Pipe 1376	81.63	50	110	31.38	0.18	1.64	Open
Junc 1319	1140.0	1160.0	2.5	20.0	Pipe 1377	90.32	150	110	-935.05	0.61	4.17	Open
Junc 1320	1140.0	1160.0	2.5	20.0	Pipe 1378	88.79	150	110	-1096.98	0.72	5.61	Open
Junc 1321	1140.0	1160.0	1.9	20.0	Pipe 1380	54.88	50	110	25.66	0.15	1.13	Open
Junc 1322	1140.0	1165.0	2.5	25.0	Pipe 1381	75.03	50	110	-7.34	0.04	0.11	Open
Junc 1323	1140.0	1165.0	2.5	25.0	Pipe 1383	52.61	50	110	2.2	0.01	0.01	Open
Junc 1324	1140.0	1165.0	2.5	25.0	Pipe 1385	59.14	50	110	48.4	0.29	3.65	Open
Junc 1325	1140.0	1165.0	2.5	25.0	Pipe 1387	106.95	50	110	0.23	0	0	Open
Junc 1326	1140.0	1165.1	2.9	25.1	Pipe 1391	119.09	100	110	-84.04	0.12	0.35	Open
Junc 1327	1140.0	1164.9	2.9	24.9	Pipe 1392	18.96	100	110	-175.39	0.26	1.35	Open
Junc 1328	1140.0	1165.1	1.9	25.1	Pipe 1393	102.27	100	110	-200.69	0.3	1.74	Open
Junc 1329	1140.0	1165.0	2.9	25.0	Pipe 1394	145.55	50	110	37.03	0.22	2.23	Open
Junc 1330	1140.0	1165.1	1.9	25.1	Pipe 1395	43.4	100	110	159.41	0.23	1.14	Open
Junc 1331	1140.0	1165.1	1.9	25.1	Pipe 1397	72.12	100	110	-198.11	0.29	1.7	Open
Junc 1332	1140.0	1165.0	1.9	25.0	Pipe 1398	125.12	100	110	513.75	0.76	9.91	Open
Junc 1333	1140.0	1164.6	2.9	24.6	Pipe 1399	301.71	50	110	4.4	0.03	0.04	Open
Junc 1334	1140.0	1164.6	2.9	24.6	Pipe 1400	416.26	50	110	-44.02	0.26	3.06	Open
Junc 1335	1140.0	1164.6	2.9	24.6	Pipe 1401	550.76	50	110	30.4	0.18	1.54	Open
Junc 1336	1145.0	1164.6	2.5	19.6	Pipe 1402	125.91	100	110	-131.14	0.19	0.79	Open
Junc 1337	1145.0	1164.6	4.2	19.6	Pipe 1403	232.21	100	110	-251.54	0.37	2.64	Open
Junc 1338	1145.0	1164.6	2.5	19.6	Pipe 1404	54.07	100	110	-399.04	0.59	6.21	Open
Junc 1339	1145.0	1164.6	2.5	19.6	Pipe 1405	55.56	100	110	95.26	0.14	0.44	Open
Junc 1340	1145.0	1164.7	2.5	19.7	Pipe 1406	117.66	75	110	-252.9	0.66	10.83	Open
Junc 1341	1145.0	1164.6	2.5	19.6	Pipe 1407	76.78	50	110	99.88	0.59	13.97	Open
Junc 1342	1145.0	1164.7	2.5	19.7	Pipe 1409	59.31	50	110	-81.99	0.48	9.7	Open
Junc 1343	1145.0	1164.7	2.5	19.7	Pipe 1410	32.32	100	110	483.48	0.71	8.86	Open
Junc 1344	1140.0	1164.4	2.5	24.4	Pipe 1411	50.68	100	110	403.28	0.59	6.33	Open
Junc 1345	1140.0	1164.4	2.5	24.4	Pipe 1412	79.42	75	110	84.84	0.22	1.43	Open
Junc 1346	1140.0	1164.2	1.8	24.2	Pipe 1414	7.08	150	100	97.2	0.06	0.07	Open
Junc 1347	1140.0	1164.2	1.8	24.2	Pipe 1415	2.95	150	100	43.8	0.03	0.03	Open
Junc 1348	1140.0	1164.0	2.9	24.0	Pipe 1416	48.77	100	100	-9.6	0.01	0.01	Open
Junc 1349	1140.0	1163.1	2.9	23.1	Pipe 1417	134.77	100	100	34.2	0.05	0.08	Open
Junc 1350	1140.0	1164.0	2.9	24.0	Pipe 1418	142.41	50	100	34.2	0.2	2.29	Open
Junc 1351	1140.0	1164.8	1.8	24.8	Pipe 1419	249.57	150	100	1347.42	0.88	9.79	Open
Junc 1352	1140.0	1164.8	1.8	24.8	Pipe 1420	170.84	150	100	1279.02	0.84	8.89	Open
Junc 1353	1140.0	1164.8	1.8	24.8	Pipe 1422	556.54	150	100	1192.48	0.78	7.81	Open
Junc 1354	1140.0	1164.8	1.8	24.8	Pipe 1423	65.53	50	100	-34.2	0.2	2.29	Open
Junc 1355	1140.0	1162.8	2.9	22.8	Pipe 1424	52.13	50	100	-14.4	0.08	0.46	Open
Junc 1356	1140.0	1162.8	2.9	22.8	Pipe 1425	61.95	50	100	166	0.98	42.71	Open
Junc 1357	1140.0	1162.7	2.9	22.7	Pipe 1426	309.23	150	100	1098.62	0.72	6.71	Open
Junc 1358	1140.0	1163.0	2.9	23.0	Pipe 1427	14.08	50	100	-29.2	0.17	1.71	Open
Junc 1359	1140.0	1163.0	2.9	23.0	Pipe 1428	46.63	50	100	-29.2	0.17	1.71	Open
Junc 1360	1140.0	1163.1	2.9	23.1	Pipe 1429	138.47	150	100	1040.22	0.68	6.06	Open
Junc 1361	1140.0	1163.1	2.9	23.1	Pipe 1430	318.79	150	100	981.82	0.64	5.45	Open
Junc 1362	1140.0	1163.1	2.9	23.1	Pipe 1431	52.3	50	100	-36.4	0.21	2.57	Open

NODE					LINK							
Ma'an city					Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 1363	1140.0	1163.0	2.9	23.0	Pipe 1432	72.3	25	100	-27.2	0.64	43.86	Open
Junc 1364	1145.0	1162.2	4.2	17.2	Pipe 1433	92.4	25	100	-28.8	0.68	48.76	Open
Junc 1365	1145.0	1162.2	10.2	17.2	Pipe 1434	224.51	50	100	-28.8	0.17	1.67	Open
Junc 1366	1145.0	1162.2	4.2	17.2	Pipe 1435	149.87	150	100	909.72	0.6	4.73	Open
Junc 1367	1145.0	1162.1	4.2	17.1	Pipe 1436	108.57	150	100	746.82	0.49	3.28	Open
Junc 1368	1145.0	1162.2	4.2	17.2	Pipe 1437	46.65	150	100	718.02	0.47	3.05	Open
Junc 1369	1145.0	1162.2	4.2	17.2	Pipe 1438	165.65	150	100	689.22	0.45	2.83	Open
Junc 1370	1145.0	1162.3	4.2	17.3	Pipe 1439	103.12	150	100	633.72	0.42	2.42	Open
Junc 1371	1145.0	1162.3	4.2	17.3	Pipe 1440	147.27	150	100	580.32	0.38	2.06	Open
Junc 1372	1140.0	1160.6	4.2	20.6	Pipe 1441	73.83	150	100	547.92	0.36	1.85	Open
Junc 1373	1140.0	1160.5	4.2	20.5	Pipe 1442	21.24	50	100	26.7	0.16	1.45	Open
Junc 1374	1140.0	1160.6	4.2	20.6	Pipe 1443	91.9	50	100	0	0	0	Open
Junc 1375	1140.0	1163.8	2.1	23.8	Pipe 1444	83.11	50	100	26.7	0.16	1.45	Open
Junc 1376	1140.0	1163.8	2.1	23.8	Pipe 1445	144.05	50	100	26.7	0.16	1.45	Open
Junc 1377	1140.0	1163.8	2.1	23.8	Pipe 1446	275.52	50	100	5.7	0.03	0.08	Open
Junc 1378	1140.0	1163.8	2.1	23.8	Pipe 1447	19.86	150	100	-20.1	0.01	0	Open
Junc 1379	1140.0	1163.9	2.1	23.9	Pipe 1448	38.86	150	100	-52.5	0.03	0.02	Open
Junc 1380	1140.0	1163.9	2.1	23.9	Pipe 1449	23.92	150	100	-104.1	0.07	0.08	Open
Junc 1381	1140.0	1163.9	2.1	23.9	Pipe 1450	42.51	150	100	-136.5	0.09	0.14	Open
Junc 1382	1140.0	1164.2	1.8	24.2	Pipe 1451	11.18	150	100	-168.9	0.11	0.21	Open
Junc 1383	1140.0	1164.3	1.8	24.3	Pipe 1452	39.78	150	100	-229	0.15	0.37	Open
Junc 1384	1140.0	1164.3	1.8	24.3	Pipe 1453	59.73	150	100	234.2	0.15	0.38	Open
Junc 1385	1140.0	1164.3	1.8	24.3	Pipe 1454	49.59	150	100	5.7	0	0	Open
Junc 1386	1140.0	1164.3	1.8	24.3	Pipe 1455	13.41	150	100	-5.7	0	0.01	Open
Junc 1387	1140.0	1164.4	1.8	24.4	Pipe 1456	14.86	150	100	849.08	0.56	4.17	Open
Junc 1388	1140.0	1164.4	1.8	24.4	Pipe 1457	62.64	150	100	922.4	0.6	4.85	Open
Junc 1389	1140.0	1164.7	1.8	24.7	Pipe 1458	60.36	50	100	-20.1	0.12	0.86	Open
Junc 1390	1140.0	1164.7	1.8	24.7	Pipe 1459	90.11	25	100	20.1	0.47	25.05	Open
Junc 1391	1135.0	1164.7	1.8	29.7	Pipe 1460	75.51	50	100	-45.9	0.27	3.95	Open
Junc 1392	1135.0	1164.7	1.8	29.7	Pipe 1461	153.17	50	100	26.7	0.16	1.45	Open
Junc 1393	1135.0	1164.7	1.8	29.7	Pipe 1462	139.72	20	100	-26.7	0.98	125.66	Open
Junc 1394	1140.0	1164.8	1.8	24.8	Pipe 1463	139.65	50	100	-26.7	0.16	1.45	Open
Junc 1395	1140.0	1164.8	1.8	24.8	Pipe 1464	22.02	20	100	-5.7	0.21	7.19	Open
Junc 1396	1140.0	1164.8	1.8	24.8	Pipe 1465	23.13	20	100	17.1	0.63	55.06	Open
Junc 1397	1135.0	1163.7	1.0	28.7	Pipe 1466	35.61	20	100	5.7	0.21	7.2	Open
Junc 1398	1135.0	1163.7	1.0	28.7	Pipe 1467	6.91	20	100	17.1	0.63	55.05	Open
Junc 1399	1135.0	1160.9	1.9	25.9	Pipe 1468	17.3	20	100	-5.7	0.21	7.2	Open
Junc 1400	1135.0	1161.8	1.9	26.8	Pipe 1469	41.83	20	100	5.7	0.21	7.2	Open
Junc 1401	1135.0	1161.1	1.9	26.1	Pipe 1470	80.61	20	100	-8.8	0.32	16.09	Open
Junc 1402	1135.0	1161.0	1.9	26.0	Pipe 1471	62.71	50	100	-31.6	0.19	1.98	Open
Junc 1403	1135.0	1161.1	1.9	26.1	Pipe 1472	109.39	50	100	-54.4	0.32	5.41	Open
Junc 1404	1135.0	1161.0	1.9	26.0	Pipe 1473	46.57	20	100	5.7	0.21	7.2	Open
Junc 1405	1135.0	1161.8	1.9	26.8	Pipe 1474	1510.15	150	100	-860.48	0.56	4.27	Open
Junc 1406	1135.0	1161.7	1.9	26.7	Pipe 1475	164.35	150	100	-79.02	0.05	0.05	Open
Junc 1407	1140.0	1162.3	2.9	22.3	Pipe 1476	894.4	100	100	222.8	0.33	2.52	Open
Junc 1408	1140.0	1162.2	2.9	22.2	Pipe 1477	666.05	150	100	911	0.6	4.74	Open
Junc 1409	1140.0	1167.5	2.5	27.5	Pipe 1478	811.54	150	100	630	0.41	2.39	Open
Junc 1410	1140.0	1167.4	2.8	27.4	Pipe 1479	1396.43	100	100	559.4	0.82	13.85	Open
Junc 1411	1140.0	1167.4	2.8	27.4	Pipe 1480	4668.44	100	100	5.8	0.01	0	Open
Junc 1412	1140.0	1167.4	2.8	27.4	Pipe 1481	1599.13	100	100	222.2	0.33	2.5	Open
Junc 1413	1140.0	1167.4	2.8	27.4	Pipe 1482	1636.47	50	100	-82	0.48	11.57	Open
Junc 1414	1135.0	1161.7	1.9	26.7	Pipe 1483	270.29	50	110	-20.4	0.12	0.74	Open
Junc 1415	1140.0	1162.3	2.9	22.3	Pipe 1484	85.15	75	110	-64	0.17	0.85	Open
Junc 1416	1145.0	1167.7	4.8	22.7	Pipe 1485	39.14	75	110	-107.6	0.28	2.23	Open
Junc 1417	1145.0	1171.3	3.4	26.3	Pipe 1486	67.95	75	110	43.6	0.11	0.42	Open
Junc 1418	1140.0	1165.0	2.8	25.0	Pipe 1489	403.04	50	110	64.6	0.38	6.23	Open
Junc 1419	1140.0	1165.0	1.9	25.0	Pipe 1491	57.7	50	100	78.18	0.46	10.59	Open
Junc 1420	1140.0	1162.4	1.9	22.4	Pipe 1492	47.87	50	100	51.78	0.31	4.94	Open
Junc 1421	1140.0	1162.4	1.9	22.4	Pipe 1493	28.91	50	100	36.38	0.21	2.57	Open
Junc 1422	1145.0	1166.6	1.9	21.6	Pipe 1494	39.76	50	100	20.98	0.12	0.93	Open
Junc 1423	1140.0	1164.2	2.8	24.2	Pipe 1495	140.84	50	100	56.71	0.33	5.84	Open
Junc 1424	1140.0	1164.2	2.8	24.2	Pipe 1496	59.82	50	100	-7.7	0.05	0.15	Open
Junc 1425	1145.0	1166.6	1.9	21.6	Pipe 1497	60.79	20	100	-7.7	0.28	12.56	Open
Junc 1426	1145.0	1166.6	1.9	21.6	Pipe 1498	68.35	20	100	-7.7	0.28	12.56	Open
Junc 1427	1140.0	1165.6	1.9	25.6	Pipe 1499	74.63	20	100	-13.2	0.49	34.09	Open
Junc 1428	1140.0	1165.6	1.9	25.6	Pipe 1500	66.09	20	100	-13.2	0.49	34.09	Open
Junc 1429	1140.0	1165.6	1.9	25.6	Pipe 1501	61.24	50	100	145.8	0.86	33.59	Open
Junc 1430	1140.0	1165.6	1.9	25.6	Pipe 1502	64.1	50	100	89.8	0.53	13.69	Open
Junc 1431	1145.0	1165.1	3.8	20.1	Pipe 1503	77.38	50	100	53.2	0.31	5.19	Open
Junc 1432	1140.0	1164.8	1.8	24.8	Pipe 1504	135.73	50	100	26.6	0.16	1.44	Open
Junc 1433	1140.0	1164.7	1.8	24.7	Pipe 1505	16.5	50	100	8.3	0.05	0.17	Open
Junc 1434	1140.0	1164.7	1.8	24.7	Pipe 1506	59.78	50	100	1.03	0.01	0	Open
Junc 1435	1140.0	1164.6	1.8	24.6	Pipe 1507	100.62	50	100	-35.24	0.21	2.42	Open
Junc 1436	1140.0	1164.6	1.8	24.6	Pipe 1508	123.66	50	100	-28.93	0.17	1.68	Open
Junc 1437	1135.0	1160.9	1.9	25.9	Pipe 1509	47.94	50	100	-119.49	0.7	23.24	Open
Junc 1438	1135.0	1160.9	1.9	25.9	Pipe 1511	310.54	50	100	19.17	0.11	0.78	Open
Junc 1439	1135.0	1160.9	1.9	25.9	Pipe 1512	47.63	50	100	45.6	0.27	3.9	Open
Junc 1440	1145.0	1164.7	2.5	19.7	Pipe 1513	78.87	25	100	15.2	0.36	14.93	Open
Junc 1441	1145.0	1164.2	2.5	19.2	Pipe 1514	80.74	25	100	15.2	0.36	14.93	Open
Junc 1442	1145.0	1164.2	2.5	19.2	Pipe 1515	28.43	20	100	-17.1	0.63	55.06	Open
Junc 1443	1145.0	1164.2	2.5	19.2	Pipe 1516	26.13	20	100	17.1	0.63	55.06	Open
Junc 1444	1145.0	1164.2	2.5	19.2	Pipe 1517	58.74	50	100	-51.3	0.3	4.85	Open
Junc 1445	1140.0	1168.4	1.9	28.4	Pipe 1518	92.98	150	100	-1401.86	0.92	10.53	Open
Junc 1446	1145.0	1169.6	2.5	24.6	Pipe 1519	182.02	50	100	23.47	0.14	1.14	Open
Junc 1447	1145.0	1174.7	2.5	29.7	Pipe 1520	58.02	50	100	89.61	0.53	13.63	Open

NODE Ma'an city					LINK Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 1448	1145.0	1173.4	2.5	28.4	Pipe 1521	223.76	100	100	-154.81	0.23	1.28	Open
Junc 1449	1145.0	1172.0	2.5	27.0	Pipe 1522	210.69	100	100	-341.4	0.5	5.55	Open
Junc 1450	1130.0	1156.0	2.0	26.0	Pipe 1523	81.63	100	100	-54.1	0.08	0.18	Open
Junc 1451	1200.0	1277.7	0.0	77.7	Pipe 1524	135.36	100	100	412.6	0.61	7.88	Open
Junc 1452	1115.0	1132.2	117.9	17.2	Pipe 1525	526	25	100	-5	0.12	1.9	Open
Junc 1453	1115.0	1132.1	57.9	17.1	Pipe 1526	479.56	25	100	-5	0.12	1.9	Open
Junc 1454	1105.0	1159.3	52.3	54.3	Pipe 1527	749.2	25	100	5	0.12	1.9	Open
Junc 1455	1105.0	1159.3	52.3	54.3	Pipe 1528	296.11	25	100	-14.4	0.34	13.51	Open
Junc 1456	1110.0	1136.7	53.0	26.7	Pipe 1529	68.96	25	100	-41.6	0.98	96.34	Open
Junc 1457	1110.0	1136.8	53.0	26.8	Pipe 1530	30.25	50	100	-11.2	0.07	0.29	Open
Junc 1458	1110.0	1137.2	39.3	27.2	Pipe 1531	33.13	50	100	-11.2	0.07	0.29	Open
Junc 1459	1110.0	1137.5	73.3	27.5	Pipe 1532	28.89	50	100	-53.7	0.32	5.28	Open
Junc 1460	1105.0	1136.3	44.6	31.3	Pipe 1533	600.05	50	100	-11.2	0.07	0.29	Open
Junc 1461	1105.0	1136.2	52.3	31.2	Pipe 1534	53.24	100	100	-22.4	0.03	0.03	Open
Junc 1462	1100.0	1135.5	55.8	35.5	Pipe 1535	69.86	100	100	-44.8	0.07	0.13	Open
Junc 1463	1105.0	1135.4	25.3	30.4	Pipe 1536	349.81	100	100	-152.2	0.22	1.24	Open
Junc 1464	1105.0	1135.7	53.0	30.7	Pipe 1537	80.84	100	100	402.8	0.59	7.54	Open
Junc 1465	1100.0	1133.0	64.6	33.0	Pipe 1538	127.42	100	100	331.8	0.49	5.26	Open
Junc 1466	1105.0	1135.3	25.3	30.3	Pipe 1539	77.7	100	100	248.2	0.37	3.07	Open
Junc 1467	1105.0	1135.1	25.3	30.1	Pipe 1540	66.31	100	100	164.6	0.24	1.44	Open
Junc 1468	1100.0	1135.1	2.9	35.1	Pipe 1541	49.46	100	100	111.9	0.16	0.7	Open
Junc 1469	1105.0	1135.0	25.3	30.0	Pipe 1542	46.59	20	100	-26.5	0.98	123.92	Open
Junc 1470	1110.0	1134.8	25.3	24.8	Pipe 1543	80.73	50	100	26.5	0.16	1.43	Open
Junc 1471	1110.0	1134.8	25.3	24.8	Pipe 1544	232.34	150	100	-1975.96	1.29	19.89	Open
Junc 1472	1105.0	1135.1	25.3	30.1	Pipe 1545	213.51	150	100	-2002.46	1.31	20.39	Open
Junc 1473	1110.0	1134.8	33.0	24.8	Pipe 1546	264	150	100	-2055.46	1.35	21.4	Open
Junc 1474	1105.0	1135.0	25.3	30.0	Pipe 1547	71.74	100	100	-500.8	0.74	11.28	Open
Junc 1475	1105.0	1135.6	53.0	30.6	Pipe 1548	179.42	100	100	-526.7	0.78	12.39	Open
Junc 1476	1105.0	1135.8	53.0	30.8	Pipe 1549	150.43	100	100	-570.1	0.84	14.34	Open
Junc 1477	1105.0	1135.8	53.0	30.8	Pipe 1550	138.5	100	100	451.8	0.67	9.32	Open
Junc 1478	1110.0	1136.7	53.0	26.7	Pipe 1551	605.02	50	100	40.1	0.24	3.08	Open
Junc 1479	1110.0	1135.2	33.0	25.2	Pipe 1552	578.56	50	100	40.1	0.24	3.08	Open
Junc 1480	1105.0	1135.1	33.0	30.1	Pipe 1553	442.13	50	100	71	0.42	8.86	Open
Junc 1481	1095.0	1135.1	4.4	40.1	Pipe 1554	378.05	50	100	71	0.42	8.86	Open
Junc 1482	1110.0	1136.5	44.6	26.5	Pipe 1555	445.89	50	100	71	0.42	8.86	Open
Junc 1483	1110.0	1136.2	44.6	26.2	Pipe 1556	245.35	50	100	-2.9	0.02	0.02	Open
Junc 1484	1110.0	1135.3	44.6	25.3	Pipe 1557	205.36	50	100	-2.9	0.02	0.02	Open
Junc 1485	1115.0	1135.3	25.4	20.3	Pipe 1558	335.46	50	100	-2.9	0.02	0.02	Open
Junc 1486	1110.0	1137.7	36.0	27.7	Pipe 1559	376.62	50	100	20.4	0.12	0.88	Open
Junc 1487	1110.0	1137.7	36.0	27.7	Pipe 1560	362.06	50	100	20.4	0.12	0.88	Open
Junc 1488	1115.0	1136.2	36.0	21.2	Pipe 1561	742.5	50	100	102.6	0.6	17.52	Open
Junc 1489	1110.0	1136.6	36.0	26.6	Pipe 1562	686.85	50	100	26.2	0.15	1.4	Open
Junc 1490	1115.0	1136.0	84.7	21.0	Pipe 1563	152.31	100	100	-26.2	0.04	0.05	Open
Junc 1491	1115.0	1135.4	25.4	20.4	Pipe 1564	359.86	100	100	764.5	1.13	24.7	Open
Junc 1492	1105.0	1134.3	25.4	29.3	Pipe 1565	54.22	50	100	-16.7	0.1	0.61	Open
Junc 1493	1115.0	1134.1	25.4	19.1	Pipe 1566	64.01	50	100	-46.1	0.27	3.98	Open
Junc 1494	1110.0	1134.6	77.2	24.6	Pipe 1567	31.03	50	100	-71.5	0.42	8.98	Open
Junc 1495	1110.0	1135.9	72.7	25.9	Pipe 1568	44.44	50	100	12.7	0.07	0.37	Open
Junc 1496	1110.0	1138.3	72.7	28.3	Pipe 1569	35.56	50	100	96.9	0.57	15.76	Open
Junc 1497	1110.0	1138.7	72.7	28.7	Pipe 1570	61.81	50	100	16.7	0.1	0.61	Open
Junc 1498	1110.0	1134.9	72.7	24.9	Pipe 1571	118.54	50	100	12.7	0.07	0.37	Open
Junc 1499	1110.0	1133.7	47.2	23.7	Pipe 1572	22.19	50	100	12.7	0.07	0.37	Open
Junc 1500	1110.0	1133.6	57.2	23.6	Pipe 1573	51.86	50	100	-12.7	0.07	0.37	Open
Junc 1501	1110.0	1133.0	23.4	23.0	Pipe 1574	87.55	50	100	-26.5	0.16	1.43	Open
Junc 1502	1115.0	1132.8	23.4	17.8	Pipe 1575	238.7	100	100	-26.5	0.04	0.05	Open
Junc 1503	1105.0	1134.2	72.7	29.2	Pipe 1576	21.41	100	100	-39.2	0.06	0.1	Open
Junc 1504	1110.0	1133.5	47.2	23.5	Pipe 1577	77.51	100	100	-51.9	0.08	0.17	Open
Junc 1505	1110.0	1133.1	97.9	23.1	Pipe 1578	198.98	100	100	-161.5	0.24	1.39	Open
Junc 1506	1115.0	1132.8	39.3	17.8	Pipe 1579	28.93	50	100	2.9	0.02	0.02	Open
Junc 1507	1105.0	1132.0	30.4	27.0	Pipe 1580	303.68	100	100	-161.6	0.24	1.39	Open
Junc 1508	1115.0	1132.9	97.9	17.9	Pipe 1581	1307.77	100	100	-665.17	0.98	19.08	Open
Junc 1509	1115.0	1132.8	39.3	17.8	Pipe 1582	145.49	150	100	-2061.26	1.35	21.51	Open
Junc 1510	1110.0	1139.7	29.5	29.7	Pipe 1583	70.73	150	100	-2736.64	1.79	36.36	Open
Junc 1511	1110.0	1139.9	29.5	29.9	Pipe 1585	140.23	25	100	5.8	0.14	2.51	Open
Junc 1512	1110.0	1140.6	22.3	30.6	Pipe 1586	48.37	50	100	-18.6	0.11	0.74	Open
Junc 1513	1110.0	1141.1	22.3	31.1	Pipe 1587	75.94	100	100	0	0	0	Open
Junc 1514	1110.0	1140.3	9.8	30.3	Pipe 1588	251.69	100	100	-90	0.13	0.47	Open
Junc 1515	1110.0	1138.8	18.5	28.8	Pipe 1589	318.44	50	100	0	0	0	Open
Junc 1516	1110.0	1138.8	18.5	28.8	Pipe 1590	187.77	50	100	-18.6	0.11	0.74	Open
Junc 1517	1105.0	1139.2	72.7	34.2	Pipe 1591	121.72	50	100	-18.6	0.11	0.74	Open
Junc 1518	1115.0	1140.3	9.8	25.3	Pipe 1592	124.64	50	100	-2.9	0.02	0.02	Open
Junc 1519	1110.0	1137.9	36.0	27.9	Pipe 1593	281.3	50	100	-2.9	0.02	0.02	Open
Junc 1520	1110.0	1137.7	36.0	27.7	Pipe 1594	281.83	50	100	-17.4	0.1	0.66	Open
Junc 1521	1110.0	1137.7	47.4	27.7	Pipe 1595	54.56	100	100	-92	0.14	0.49	Open
Junc 1522	1110.0	1137.7	47.4	27.7	Pipe 1596	115.51	100	100	-97.8	0.14	0.55	Open
Junc 1523	1115.0	1138.6	36.3	23.6	Pipe 1597	131.9	100	100	-103.6	0.15	0.61	Open
Junc 1524	1120.0	1139.0	46.3	19.0	Pipe 1598	36.21	100	100	-145.3	0.21	1.14	Open
Junc 1525	1115.0	1139.4	36.3	24.4	Pipe 1599	112.46	100	100	1090.13	1.61	47.64	Open
Junc 1526	1115.0	1139.3	36.3	24.3	Pipe 1600	50.01	100	100	1048.43	1.55	44.32	Open
Junc 1527	1115.0	1138.8	7.4	23.8	Pipe 1601	58.76	100	100	1027.73	1.51	42.72	Open
Junc 1528	1120.0	1139.1	43.3	19.1	Pipe 1602	371.2	100	100	917.03	1.35	34.59	Open
Junc 1529	1115.0	1137.5	61.7	22.5	Pipe 1603	222.59	100	100	-906.83	1.34	33.88	Open
Junc 1530	1115.0	1137.4	73.3	22.4	Pipe 1604	838.22	150	100	-2828.71	1.85	38.65	Open
Junc 1531	1115.0	1137.4	73.3	22.4	Pipe 1605	31.14	100	100	1258.53	1.85	62.16	Open
Junc 1532	1110.0	1136.5	73.3	26.5	Pipe 1606	236.46	100	100	0	0	0	Closed

NODE Ma'an city					LINK Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 1533	1110.0	1136.5	73.3	26.5	Pipe 1607	3428.47	300	100	-6506.57	1.07	6.18	Open
Junc 1534	1115.0	1136.8	39.3	21.8	Pipe 1608	288.53	100	100	71.7	0.11	0.31	Open
Junc 1535	1120.0	1136.9	37.1	16.9	Pipe 1609	21.37	100	100	23.9	0.04	0.04	Open
Junc 1536	1120.0	1136.9	33.3	16.9	Pipe 1610	64.64	25	100	-23.9	0.56	34.52	Open
Junc 1537	1120.0	1138.5	33.3	18.5	Pipe 1611	1942.21	300	110	-6502.17	1.06	5.17	Open
Junc 1538	1120.0	1138.1	37.1	18.1	Pipe 1612	252.5	200	100	1189.7	0.44	1.91	Open
Junc 1539	1120.0	1137.9	37.1	17.9	Pipe 1613	92.38	20	100	2.75	0.1	1.87	Open
Junc 1540	1120.0	1137.9	21.6	17.9	Pipe 1614	67.3	20	100	10	0.37	20.38	Open
Junc 1541	1120.0	1137.5	21.6	17.5	Pipe 1615	11.34	20	100	-2	0.07	1.03	Open
Junc 1542	1120.0	1167.7	21.6	47.7	Pipe 1616	10.81	20	100	-2	0.07	1.03	Open
Junc 1543	1120.0	1166.2	21.6	46.2	Pipe 1617	8.47	20	100	-2	0.07	1.03	Open
Junc 1544	1120.0	1165.9	21.6	45.9	Pipe 1618	30.4	20	100	6	0.22	7.92	Open
Junc 1545	1120.0	1137.4	21.6	17.4	Pipe 1619	22.22	20	100	2	0.07	1.03	Open
Junc 1546	1120.0	1137.5	37.1	17.5	Pipe 1620	8.09	20	100	-2	0.07	1.04	Open
Junc 1547	1115.0	1137.2	34.9	22.2	Pipe 1621	38.33	50	100	-12	0.07	0.33	Open
Junc 1548	1115.0	1137.1	39.3	22.1	Pipe 1622	14.49	20	100	-2	0.07	1.03	Open
Junc 1549	1115.0	1162.3	34.9	47.3	Pipe 1623	10.74	50	100	-16	0.09	0.56	Open
Junc 1550	1110.0	1159.7	39.3	49.7	Pipe 1624	44.02	50	100	8	0.05	0.16	Open
Junc 1551	1115.0	1164.4	36.0	49.4	Pipe 1625	10.26	50	100	4	0.02	0.04	Open
Junc 1552	1120.0	1164.9	36.0	44.9	Pipe 1626	9.37	20	100	-2	0.07	1.03	Open
Junc 1553	1120.0	1164.6	76.2	44.6	Pipe 1627	9.27	20	100	-2	0.07	1.04	Open
Junc 1554	1120.0	1164.5	46.0	44.5	Pipe 1628	87.55	50	100	8	0.05	0.16	Open
Junc 1555	1115.0	1162.7	34.4	47.7	Pipe 1629	38.84	50	100	4	0.02	0.04	Open
Junc 1556	1115.0	1162.6	34.4	47.6	Pipe 1631	53.6	200	100	-1536.1	0.57	3.07	Open
Junc 1557	1115.0	1162.4	34.4	47.4	Pipe 1632	685.77	200	100	-1535.4	0.57	3.07	Open
Junc 1558	1115.0	1162.3	34.4	47.3	Pipe 870	10.56	100	110	-186.82	0.28	1.52	Open
Junc 1559	1110.0	1159.6	80.2	49.6	Pipe 936	1445.85	50	100	39.81	0.23	3.03	Open
Junc 1560	1110.0	1159.6	80.2	49.6	Pipe 1026	675.42	50	100	20.4	0.12	0.88	Open
Junc 1561	1110.0	1159.8	80.2	49.8	Pipe 1206	71.97	25	100	55.8	1.32	165.96	Open
Junc 1562	1110.0	1160.1	80.2	50.1	Pipe 1228	67.41	25	100	10.4	0.25	7.39	Open
Junc 1563	1110.0	1160.4	34.4	50.4	Pipe 1253	31.09	50	100	343.06	2.02	163.84	Open
Junc 1564	1110.0	1159.8	44.4	49.8	Pipe 1369	73.95	20	100	4.9	0.18	5.44	Open
Junc 1565	1115.0	1160.4	34.4	45.4	Pipe 1389	76.45	20	100	2.1	0.08	1.13	Open
Junc 1566	1115.0	1161.5	36.0	46.5	Pipe 1421	7.72	20	100	0.7	0.03	0.14	Open
Junc 1567	1115.0	1158.3	9.6	43.3	Pipe 1510	18.33	20	100	0.7	0.03	0.15	Open
Junc 1568	1105.0	1154.9	43.6	49.9	Pipe 1584	44.06	20	100	2.1	0.08	1.13	Open
Junc 1569	1105.0	1155.0	43.6	50.0	Pipe 1633	23.84	20	100	0.7	0.03	0.15	Open
Junc 1570	1110.0	1154.9	43.6	44.9	Pipe 1634	7.24	20	100	0.7	0.03	0.14	Open
Junc 1571	1110.0	1154.8	43.6	44.8	Pipe 1635	153.46	100	100	488.3	0.72	10.77	Open
Junc 1572	1120.0	1152.9	86.4	32.9	Pipe 1636	132.71	100	100	407.1	0.6	7.69	Open
Junc 1573	1115.0	1154.6	20.4	39.6	Pipe 1637	146.8	100	100	300.5	0.44	4.38	Open
Junc 1574	1115.0	1136.3	84.7	21.3	Pipe 1638	27.62	63	100	-41.8	0.16	1.08	Open
Junc 1575	1110.0	1134.8	33.0	24.8	Pipe 1639	156.83	63	100	37.5	0.14	0.88	Open
Junc 1576	1115.0	1137.3	37.1	22.3	Pipe 1640	24.8	63	100	-77.6	0.29	3.39	Open
Junc 1577	1115.0	1137.9	47.4	22.9	Pipe 1641	20.49	63	100	27.1	0.1	0.48	Open
Junc 1578	1140.0	1180.7	1.7	40.7	Pipe 1642	3783.11	400	100	13051.29	1.2	5.52	Open
Junc 1579	1115.0	1143.5	9.8	28.5	Pipe 1643	85.5	100	100	733.1	1.08	22.85	Open
Junc 1580	1105.0	1135.1	33.0	30.1	Pipe 1644	2363.22	200	100	3335.2	1.23	12.92	Open
Junc 1581	1100.0	1128.0	55.8	28.0	Pipe 196	145.82	20	100	28.1	1.04	138.13	Open
Junc 1582	1105.0	1140.0	13.8	35.0	Pipe 206	149.61	200	100	1436.05	0.53	2.71	Open
Junc 1583	1140.0	1164.8	1.8	24.8	Pipe 932	69.09	200	100	1340.85	0.49	2.39	Open
Junc 1584	1120.0	1175.1	16.0	55.1	Pipe 1645	229.31	50	100	-87.6	0.52	13.07	Open
Junc 1585	1105.0	1139.1	29.5	34.1	Pipe 1646	71.6	50	100	16.7	0.1	0.61	Open
Junc 1586	1130.0	1148.2	0.0	18.2	Pipe 1647	96.57	50	100	18.9	0.11	0.76	Open
Junc 1587	1135.0	1176.0	1.0	41.0	Pipe 1648	93.37	50	100	1.7	0.01	0.01	Open
Junc 1588	1115.0	1146.9	0.0	31.9	Pipe 1649	38.42	20	100	-10	0.37	20.38	Open
Junc 1589	1120.0	1168.6	2.9	48.6	Pipe 1650	6.56	50	100	20.8	0.12	0.91	Open
Junc 1590	1120.0	1137.6	21.6	17.6	Pipe 1651	123.64	100	100	105.4	0.16	0.63	Open
Junc 1591	1110.0	1141.5	6.4	31.5	Pipe 1652	54.21	100	100	98.2	0.14	0.55	Open
Junc 1592	1115.0	1139.8	7.4	24.8	Pipe 1653	175.39	100	100	30.6	0.05	0.06	Open
Junc 1593	1125.0	1170.5	35.2	45.5	Pipe 1654	598.65	50	100	-21.28	0.13	0.95	Open
Junc 1594	1115.0	1163.8	37.1	48.8	Pipe 1655	177.89	50	100	90.88	0.54	14	Open
Junc 1595	1115.0	1162.2	34.9	47.2	Pipe 1656	13.07	50	100	8	0.05	0.15	Open
Junc 1596	1115.0	1160.0	39.3	45.0	Pipe 1657	19.35	50	100	90.7	0.53	13.94	Open
Junc 1597	1110.0	1159.4	69.3	49.4	Pipe 1666	67.26	400	100	12546.3	1.16	5.13	Open
Junc 1598	1105.0	1136.6	52.3	31.6	Pipe 1667	10.86	50	100	0	0	0	Closed
Junc 1599	1105.0	1136.5	52.3	31.5	Pipe 1668	26.36	100	100	342.2	0.5	5.57	Open
Junc 1600	1105.0	1138.9	19.5	33.9	Pipe 1670	260.19	400	100	12546.3	1.16	5.13	Open
Junc 1601	1105.0	1138.2	10.0	33.2	Pipe 1677	56.26	50	110	-19.99	0.12	0.71	Open
Junc 1602	1110.0	1139.6	18.5	29.6	Pipe 905	2727.64	200	100	4110.33	1.51	19.02	Open
Junc 1603	1170.0	1212.2	0.0	42.2	Pipe 142	1309.99	75	110	0	0	0	Closed
Junc 1604	1110.0	1139.4	18.5	29.4	Pipe 1664	205.73	75	110	0	0	0	Closed
Junc 1605	1110.0	1139.5	18.5	29.5	Pipe 1665	161.38	75	110	0	0	0	Closed
Junc 1606	1110.0	1140.0	22.3	30.0	Pipe 1678	152.98	75	110	0	0	0	Closed
Junc 1607	1110.0	1137.5	29.5	27.5	Pipe 1679	90.65	75	110	0	0	0	Closed
Junc 1608	1110.0	1140.8	22.3	30.8	Pipe 1682	12	75	110	0	0	0	Closed
Junc 1609	1110.0	1140.2	22.3	30.2	Pipe 1693	12.98	250	100	435.25	0.1	0.1	Open
Junc 1610	1110.0	1139.8	9.8	29.8	Pipe 1695	469.49	350	110	9248.6	1.11	4.69	Open
Junc 1611	1110.0	1138.5	18.5	28.5	Pipe 1696	78.13	300	110	6473.29	1.06	5.13	Open
Junc 1612	1110.0	1140.5	18.5	30.5	Pipe 1697	154.5	250	110	2761.51	0.65	2.57	Open
Junc 1613	1110.0	1138.1	16.0	28.1	Pipe 1698	680.25	250	110	2768.91	0.65	2.59	Open
Junc 1614	1110.0	1137.8	76.0	27.8	Pipe 1700	69.27	50	110	68.58	0.4	6.96	Open
Junc 1615	1110.0	1137.2	16.0	27.2	Pipe 1706	138.42	150	100	1072.34	0.7	6.41	Open
Junc 1616	1110.0	1137.8	36.0	27.8	Pipe 1710	197.72	50	110	33.09	0.2	1.81	Open
Junc 1617	1110.0	1136.3	16.0	26.3	Pipe 1714	37.14	100	110	359.06	0.53	5.11	Open

NODE Ma'an city					LINK Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 1618	1110.0	1136.8	67.4	26.8	Pipe 1660	908.04	50	110	47.03	0.28	3.46	Open
Junc 1619	1110.0	1137.8	47.4	27.8	Pipe 1663	125.75	50	110	59	0.35	5.27	Open
Junc 1620	1110.0	1135.9	18.5	25.9	Pipe 1669	106	50	110	29.5	0.17	1.46	Open
Junc 1621	1115.0	1137.8	47.4	22.8	Pipe 1671	117.76	25	110	10	0.24	5.76	Open
Junc 1622	1115.0	1137.5	47.4	22.5	Pipe 1675	60.62	300	110	6384.59	1.05	5	Open
Junc 1623	1110.0	1137.6	76.0	27.6	Pipe 1676	51.78	300	110	6343.79	1.04	4.94	Open
Junc 1624	1110.0	1136.9	16.0	26.9	Pipe 1680	67.27	25	110	18.5	0.44	18	Open
Junc 1625	1110.0	1136.9	16.0	26.9	Pipe 1681	65.34	25	110	18.5	0.44	18	Open
Junc 1626	1110.0	1137.6	47.4	27.6	Pipe 1703	64.69	300	110	6302.99	1.03	4.88	Open
Junc 1627	1110.0	1137.2	47.4	27.2	Pipe 1704	63.66	300	110	6210.39	1.02	4.75	Open
Junc 1628	1115.0	1138.2	36.3	23.2	Pipe 1708	37.82	50	110	70.3	0.41	7.29	Open
Junc 1629	1115.0	1137.8	36.3	22.8	Pipe 1709	25.15	25	110	18.5	0.44	18	Open
Junc 1630	1115.0	1137.7	47.4	22.7	Pipe 1715	58.68	25	110	29.5	0.7	42.73	Open
Junc 1631	1115.0	1137.7	36.0	22.7	Pipe 1716	99.82	50	110	66.4	0.39	6.56	Open
Junc 1632	1110.0	1137.7	36.0	27.7	Pipe 1717	77.31	50	110	29.4	0.17	1.45	Open
Junc 1633	1115.0	1137.9	47.4	22.9	Pipe 1722	110	25	110	18.5	0.44	18	Open
Junc 1634	1115.0	1138.2	47.4	23.2	Pipe 1723	103.64	25	110	9.8	0.23	5.55	Open
Junc 1635	1115.0	1136.2	61.7	21.2	Pipe 1724	36.71	50	110	48.43	0.29	3.66	Open
Junc 1636	1115.0	1137.5	81.7	22.5	Pipe 1725	50.52	50	110	-59.57	0.35	5.36	Open
Junc 1637	1120.0	1136.3	23.3	16.3	Pipe 1726	28.11	100	110	176.63	0.26	1.37	Open
Junc 1638	1120.0	1139.3	33.3	19.3	Pipe 1727	52.98	100	110	140.63	0.21	0.9	Open
Junc 1639	1120.0	1138.1	46.9	18.1	Pipe 1728	155.74	100	110	-62.11	0.09	0.2	Open
Junc 1640	1120.0	1138.0	36.9	18.0	Pipe 1731	92.46	100	110	-156.91	0.23	1.1	Open
Junc 1641	1120.0	1138.0	36.9	18.0	Pipe 1732	61.42	100	110	-328.2	0.48	4.32	Open
Junc 1642	1120.0	1137.9	21.6	17.9	Pipe 1733	49.01	25	110	16	0.38	13.76	Open
Junc 1643	1120.0	1137.9	21.6	17.9	Pipe 1734	50.99	25	110	16	0.38	13.76	Open
Junc 1644	1120.0	1137.5	21.6	17.5	Pipe 1735	45.83	25	110	16	0.38	13.76	Open
Junc 1645	1120.0	1136.4	23.3	16.4	Pipe 1736	48.29	50	110	41.36	0.24	2.73	Open
Junc 1646	1120.0	1135.8	23.3	15.8	Pipe 1737	44.95	50	110	-53.44	0.32	4.39	Open
Junc 1647	1120.0	1136.8	74.9	16.8	Pipe 1738	65.07	50	110	101.9	0.6	14.5	Open
Junc 1648	1115.0	1136.8	34.9	21.8	Pipe 1739	49.59	25	110	18.5	0.44	18.01	Open
Junc 1649	1115.0	1137.1	34.9	22.1	Pipe 1740	39.34	25	110	16	0.38	13.76	Open
Junc 1650	1115.0	1137.1	34.9	22.1	Pipe 1741	91.87	50	110	47.4	0.28	3.51	Open
Junc 1651	1120.0	1137.0	34.9	17.0	Pipe 1742	72.4	50	110	47.4	0.28	3.51	Open
Junc 1652	1115.0	1137.2	37.1	22.2	Pipe 1743	92.5	100	110	-293.07	0.43	3.51	Open
Junc 1653	1120.0	1136.9	37.1	16.9	Pipe 1744	72.28	100	110	-390.02	0.57	5.95	Open
Junc 1654	1115.0	1137.2	37.1	22.2	Pipe 1745	206.01	50	110	36.3	0.21	2.14	Open
Junc 1655	1120.0	1137.0	37.1	17.0	Pipe 1746	84.35	50	110	8.33	0.05	0.14	Open
Junc 1656	1115.0	1137.2	37.1	22.2	Pipe 1747	102.2	50	110	40.39	0.24	2.61	Open
Junc 1657	1120.0	1137.1	33.3	17.1	Pipe 1748	76.15	50	110	-7.75	0.05	0.12	Open
Junc 1658	1120.0	1137.3	43.3	17.3	Pipe 1749	116.64	50	110	38.25	0.23	2.36	Open
Junc 1659	1115.0	1137.3	37.1	22.3	Pipe 1750	70.03	50	110	-11.71	0.07	0.26	Open
Junc 1660	1115.0	1137.2	37.1	22.2	Pipe 1751	122.51	50	110	36.01	0.21	2.11	Open
Junc 1661	1120.0	1137.0	37.1	17.0	Pipe 1753	66.95	100	110	31.16	0.05	0.06	Open
Junc 1662	1120.0	1136.9	37.1	16.9	Pipe 1754	81.55	100	110	-36.9	0.05	0.08	Open
Junc 1663	1110.0	1137.1	39.3	27.1	Pipe 1755	66.4	100	110	-118.9	0.18	0.66	Open
Junc 1664	1120.0	1137.0	37.1	17.0	Pipe 1756	60.74	100	110	-237.07	0.35	2.37	Open
Junc 1665	1120.0	1135.7	21.6	15.7	Pipe 1757	75.25	100	110	-310.04	0.46	3.89	Open
Junc 1666	1120.0	1165.7	76.2	45.7	Pipe 1758	83.82	100	110	-374.65	0.55	5.52	Open
Junc 1667	1115.0	1161.2	34.9	46.2	Pipe 1759	50.88	25	110	25.57	0.6	32.79	Open
Junc 1668	1115.0	1160.8	34.9	45.8	Pipe 1760	70.98	25	110	18.92	0.45	18.77	Open
Junc 1669	1115.0	1160.9	34.9	45.9	Pipe 1761	124.49	25	110	17.21	0.41	15.75	Open
Junc 1670	1110.0	1159.9	39.3	49.9	Pipe 1762	54.67	100	110	-165.43	0.24	1.22	Open
Junc 1671	1110.0	1159.8	39.3	49.8	Pipe 1763	297.12	100	110	-368.78	0.54	5.37	Open
Junc 1672	1110.0	1159.6	39.3	49.6	Pipe 1764	95.44	25	110	-23.3	0.55	27.6	Open
Junc 1673	1110.0	1159.5	39.3	49.5	Pipe 1765	45.81	250	110	1767.11	0.42	1.13	Open
Junc 1674	1110.0	1159.4	39.3	49.4	Pipe 1766	141.78	250	110	1665.28	0.39	1.01	Open
Junc 1675	1115.0	1159.9	54.4	44.9	Pipe 1767	73.24	75	110	166.93	0.44	5.02	Open
Junc 1676	1115.0	1159.9	34.4	44.9	Pipe 1768	63.1	75	110	96.73	0.25	1.83	Open
Junc 1677	1115.0	1161.3	36.0	46.3	Pipe 1769	139.68	75	110	69.86	0.18	1	Open
Junc 1678	1120.0	1161.8	26.0	41.8	Pipe 1770	55.4	75	110	48.25	0.13	0.5	Open
Junc 1679	1120.0	1161.9	26.0	41.9	Pipe 1771	61.41	25	110	23.3	0.55	27.6	Open
Junc 1680	1120.0	1161.4	26.0	41.4	Pipe 1772	43.98	50	110	-10.03	0.06	0.2	Open
Junc 1681	1120.0	1161.4	26.0	41.4	Pipe 1773	81.46	50	110	0.01	0	0	Open
Junc 1682	1115.0	1163.7	46.0	48.7	Pipe 1774	181.11	50	110	-21.59	0.13	0.82	Open
Junc 1683	1115.0	1163.4	46.0	48.4	Pipe 1775	180.2	50	110	-68.52	0.4	6.95	Open
Junc 1684	1115.0	1164.5	46.0	49.5	Pipe 1776	58.92	150	110	278.25	0.18	0.44	Open
Junc 1685	1110.0	1157.5	24.4	47.5	Pipe 1777	109.53	150	110	16.16	0.01	0	Open
Junc 1686	1110.0	1157.6	24.4	47.6	Pipe 1778	108.43	75	110	129.5	0.34	3.14	Open
Junc 1687	1115.0	1159.8	44.4	44.8	Pipe 1779	47.87	50	110	93.29	0.55	12.31	Open
Junc 1688	1105.0	1152.8	23.6	47.8	Pipe 1780	81.53	150	110	-23.14	0.02	0	Open
Junc 1689	1110.0	1160.1	44.4	50.1	Pipe 1781	140.82	150	110	-115.42	0.08	0.09	Open
Junc 1690	1110.0	1160.5	44.4	50.5	Pipe 1782	47.54	150	110	-185.22	0.12	0.21	Open
Junc 1691	1110.0	1161.0	44.4	51.0	Pipe 1783	53.63	150	110	-262.22	0.17	0.4	Open
Junc 1692	1115.0	1162.4	44.4	47.4	Pipe 1784	27.5	150	110	-336.42	0.22	0.63	Open
Junc 1693	1110.0	1157.7	24.9	47.7	Pipe 1785	29.75	150	110	-410.62	0.27	0.91	Open
Junc 1694	1110.0	1159.2	24.4	49.2	Pipe 1786	51.56	150	110	-468.07	0.31	1.16	Open
Junc 1695	1110.0	1159.5	24.4	49.5	Pipe 1787	28.72	150	110	-542.27	0.36	1.52	Open
Junc 1696	1115.0	1161.2	24.4	46.2	Pipe 1788	74.49	150	110	-690.67	0.45	2.38	Open
Junc 1697	1110.0	1132.9	0.0	22.9	Pipe 1789	68.69	50	110	57.38	0.34	5	Open
Junc 1698	1115.0	1133.1	0.0	18.1	Pipe 1791	86.13	75	110	12.6	0.03	0.04	Open
Junc 1699	1115.0	1132.8	39.3	17.8	Pipe 1792	193.28	75	110	-30.74	0.08	0.22	Open
Junc 1700	1115.0	1132.1	67.2	17.1	Pipe 1793	45.45	75	110	-63.53	0.17	0.84	Open
Junc 1701	1115.0	1132.2	47.2	17.2	Pipe 1794	54.02	75	110	-133.93	0.35	3.34	Open
Junc 1702	1110.0	1132.5	57.2	22.5	Pipe 1795	49.21	75	110	-146.88	0.38	3.96	Open

NODE					LINK							
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ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
Junc 1703	1110.0	1132.3	97.9	22.3	Pipe 1796	103.14	75	110	-213.48	0.56	7.92	Open
Junc 1704	1110.0	1132.4	57.2	22.4	Pipe 1797	92.3	50	110	34.9	0.21	1.99	Open
Junc 1705	1115.0	1132.3	47.2	17.3	Pipe 1798	114.69	50	110	-42.11	0.25	2.82	Open
Junc 1706	1115.0	1132.6	23.4	17.6	Pipe 1799	110.31	50	110	37.1	0.22	2.23	Open
Junc 1707	1110.0	1134.0	67.2	24.0	Pipe 1800	104.68	50	110	37.1	0.22	2.23	Open
Junc 1708	1110.0	1132.4	17.2	22.4	Pipe 1801	171.95	50	110	20.35	0.12	0.73	Open
Junc 1709	1115.0	1132.4	27.2	17.4	Pipe 1802	52.43	25	110	23.3	0.55	27.6	Open
Junc 1710	1115.0	1132.7	23.4	17.7	Pipe 1803	134.47	50	110	37.1	0.22	2.23	Open
Junc 1711	1115.0	1132.6	23.4	17.6	Pipe 1804	59.26	75	110	111.3	0.29	2.37	Open
Junc 1712	1115.0	1132.3	47.2	17.3	Pipe 1805	77.7	50	110	37.1	0.22	2.23	Open
Junc 1713	1115.0	1132.4	47.2	17.4	Pipe 1806	108.54	50	110	37.1	0.22	2.23	Open
Junc 1714	1115.0	1132.4	84.7	17.4	Pipe 1807	70.69	50	110	22.23	0.13	0.87	Open
Junc 1715	1115.0	1132.3	84.7	17.3	Pipe 1808	32.7	50	110	0.63	0	0	Open
Junc 1716	1115.0	1132.9	25.4	17.9	Pipe 1809	77.51	25	110	21.6	0.51	23.99	Open
Junc 1717	1115.0	1130.6	54.7	15.6	Pipe 1810	17.63	200	110	2820.99	1.04	7.94	Open
Junc 1718	1110.0	1133.9	47.2	23.9	Pipe 1811	159.11	200	110	2276.92	0.84	5.34	Open
Junc 1719	1110.0	1132.1	47.2	22.1	Pipe 1812	233.92	100	110	467.87	0.69	8.34	Open
Junc 1720	1115.0	1136.0	36.0	21.0	Pipe 1813	161.39	100	110	503.35	0.74	9.55	Open
Junc 1721	1115.0	1130.3	39.3	15.3	Pipe 1814	94.88	100	110	538.49	0.79	10.82	Open
Junc 1722	1100.0	1133.9	4.4	33.9	Pipe 1815	102.84	75	110	286.26	0.75	13.63	Open
Junc 1723	1110.0	1133.9	44.6	23.9	Pipe 1817	175.22	100	110	419.18	0.62	6.8	Open
Junc 1724	1110.0	1135.5	44.6	25.5	Pipe 1818	35.63	50	110	84.41	0.5	10.23	Open
Junc 1725	1105.0	1133.7	44.6	28.7	Pipe 1819	57.37	50	110	-28.86	0.17	1.4	Open
Junc 1726	1110.0	1132.8	44.6	22.8	Pipe 1820	159.6	100	110	254.07	0.37	2.69	Open
Junc 1727	1115.0	1135.2	44.6	20.2	Pipe 1821	46.42	100	110	214.77	0.32	1.97	Open
Junc 1728	1110.0	1134.9	33.0	24.9	Pipe 1822	67.92	100	110	156.52	0.23	1.1	Open
Junc 1729	1105.0	1135.9	44.6	30.9	Pipe 1823	62.23	100	110	131.74	0.19	0.8	Open
Junc 1730	1105.0	1135.0	53.0	30.0	Pipe 1824	52.75	75	11	-16.5	0.04	2.99	Open
Junc 1731	1110.0	1135.0	33.0	25.0	Pipe 1825	37.92	75	110	-66.16	0.17	0.89	Open
Junc 1732	1105.0	1134.5	44.6	29.5	Pipe 1826	46.73	75	110	-125.8	0.33	2.96	Open
Junc 1733	1110.0	1135.1	33.0	25.1	Pipe 1832	149.78	100	110	599.87	0.88	13.21	Open
Junc 1734	1105.0	1135.1	25.3	30.1	Pipe 1833	204.62	100	110	238.24	0.35	2.39	Open
Junc 1735	1110.0	1134.8	25.3	24.8	Pipe 1834	45.65	50	110	86.99	0.51	10.82	Open
Junc 1736	1105.0	1135.4	53.0	30.4	Pipe 1836	69.73	50	110	-3.02	0.02	0.02	Open
Junc 1737	1105.0	1132.3	52.3	27.3	Pipe 1837	63.61	75	110	117.02	0.31	2.6	Open
Junc 1738	1110.0	1134.9	25.3	24.9	Pipe 1838	147.6	50	110	81.02	0.48	9.48	Open
Junc 1739	1110.0	1133.2	25.3	23.2	Pipe 1840	79.57	25	110	26	0.61	33.82	Open
Junc 1740	1105.0	1134.9	25.3	29.9	Pipe 1841	52.67	150	110	1717.44	1.12	12.86	Open
Junc 1741	1105.0	1135.1	2.9	30.1	Pipe 1842	25.44	150	110	1645.44	1.08	11.88	Open
Junc 1742	1110.0	1134.8	25.3	24.8	Pipe 1843	64.43	150	110	1573.44	1.03	10.93	Open
Junc 1743	1105.0	1135.0	25.3	30.0	Pipe 1844	60.72	25	110	26	0.61	33.82	Open
Junc 1744	1110.0	1134.9	33.0	24.9	Pipe 1845	68.9	25	110	26	0.61	33.82	Open
Junc 1745	1110.0	1135.1	33.0	25.1	Pipe 1846	73.53	200	110	2186.33	0.81	4.95	Open
Junc 1746	1115.0	1136.2	73.3	21.2	Pipe 1847	20.03	200	110	2114.33	0.78	4.66	Open
Junc 1747	1115.0	1135.3	43.3	20.3	Pipe 1848	75.93	25	110	26	0.61	33.82	Open
Junc 1748	1115.0	1135.3	41.7	20.3	Pipe 1849	82.38	25	110	-21.5	0.51	23.79	Open
Junc 1749	1115.0	1136.5	61.7	21.5	Pipe 1850	23.71	50	110	55.61	0.33	4.72	Open
Junc 1750	1115.0	1135.3	41.7	20.3	Pipe 1851	36.25	50	110	-13.19	0.08	0.33	Open
Junc 1751	1115.0	1136.5	61.7	21.5	Pipe 1852	74.54	25	110	24.4	0.58	30.06	Open
Junc 1752	1105.0	1156.9	30.2	51.9	Pipe 1853	71.53	25	110	24.4	0.58	30.06	Open
Junc 1753	1105.0	1159.3	72.3	54.3	Pipe 1854	252.73	25	110	23.6	0.56	28.26	Open
Junc 1754	1115.0	1136.2	73.3	21.2	Pipe 1855	54.32	75	110	389.87	1.02	24.15	Open
Junc 1755	1115.0	1134.9	47.4	19.9	Pipe 1856	30.41	75	110	321.07	0.84	16.86	Open
Junc 1756	1110.0	1158.0	39.3	48.0	Pipe 1857	39.28	75	110	252.27	0.66	10.78	Open
Junc 1757	1110.0	1159.5	39.3	49.5	Pipe 1859	75.4	25	110	24.9	0.59	31.21	Open
Junc 1758	1110.0	1135.1	44.6	25.1	Pipe 1860	44.04	25	110	24.4	0.58	30.06	Open
Junc 1759	1105.0	1135.2	33.0	30.2	Pipe 1861	51.95	25	110	24.4	0.58	30.06	Open
Junc 1760	1105.0	1135.2	33.0	30.2	Pipe 1862	24.01	150	110	1114.45	0.73	5.77	Open
Junc 1761	1110.0	1135.0	47.2	25.0	Pipe 1863	16.95	150	110	1045.65	0.68	5.13	Open
Junc 1762	1110.0	1160.1	34.9	50.1	Pipe 1864	41.49	25	110	24.4	0.58	30.06	Open
Junc 1763	1105.0	1135.7	52.3	30.7	Pipe 1865	191.65	25	110	0	0	0	Open
Junc 1764	1105.0	1135.6	53.0	30.6	Pipe 1866	167.23	25	110	0	0	0	Open
Junc 1765	1110.0	1159.9	39.3	49.9	Pipe 1867	67.78	100	110	-52.83	0.08	0.15	Open
Junc 1766	1110.0	1159.8	80.2	49.8	Pipe 1868	80.86	100	110	-112.58	0.17	0.6	Open
Junc 1767	1105.0	1155.6	0.0	50.6	Pipe 1871	54.28	50	110	89.18	0.53	11.33	Open
Junc 1768	1200.0	1199.7	0.0	-0.4	Pipe 1872	96.03	50	110	87.86	0.52	11.02	Open
Junc 1769	1120.0	1162.2	0.0	42.2	Pipe 1873	100.04	50	110	-54.58	0.32	4.56	Open
Junc 1770	1115.0	1161.4	0.0	46.4	Pipe 1874	89.48	50	110	40.4	0.24	2.61	Open
Junc 1771	1115.0	1161.5	0.0	46.5	Pipe 1875	65.93	100	110	499.49	0.74	9.41	Open
Resvr 1122	1170.4	1170.4	-16386.5	0.0	Pipe 1876	57.26	100	110	298.68	0.44	3.63	Open
Resvr 1123	1200.0	1200.0	-10616.9	0.0	Pipe 1877	64.26	50	110	133.61	0.79	23.95	Open
					Pipe 1878	54.82	50	110	27.12	0.16	1.25	Open
					Pipe 1879	95.04	50	110	-38.5	0.23	2.39	Open
					Pipe 1880	52.57	50	110	17.2	0.1	0.54	Open
					Pipe 1881	59.87	50	110	-17.64	0.1	0.56	Open
					Pipe 1882	54.51	50	110	-38.67	0.23	2.41	Open
					Pipe 1883	74.64	50	110	149.49	0.88	29.49	Open
					Pipe 1884	55.75	50	110	31.12	0.18	1.61	Open
					Pipe 1885	98.33	50	110	-64.73	0.38	6.26	Open
					Pipe 1886	49.68	50	110	-136.76	0.81	25.01	Open
					Pipe 1887	36.79	50	110	15.1	0.09	0.42	Open
					Pipe 1888	39.41	50	110	11.15	0.07	0.24	Open
					Pipe 1889	85.05	50	110	46.63	0.27	3.41	Open
					Pipe 1890	99.67	25	110	18.57	0.44	18.13	Open
					Pipe 1891	68.83	50	110	104.55	0.62	15.21	Open

NODE					LINK							
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ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
					Pipe 1892	47.16	50	110	41.06	0.24	2.69	Open
					Pipe 1893	122.79	25	110	16.29	0.38	14.23	Open
					Pipe 1894	171.15	50	110	-20.14	0.12	0.72	Open
					Pipe 1895	300.05	25	110	4.4	0.1	1.26	Open
					Pipe 1896	99.58	25	110	21.74	0.51	24.27	Open
					Pipe 1898	30.76	50	110	130.3	0.77	22.86	Open
					Pipe 1899	103.58	50	110	42.18	0.25	2.83	Open
					Pipe 1900	85.57	25	110	20.66	0.49	22.09	Open
					Pipe 1901	56.99	25	110	16.69	0.39	14.87	Open
					Pipe 1902	71.19	50	110	24.58	0.14	1.04	Open
					Pipe 1903	68.57	50	110	-26.76	0.16	1.22	Open
					Pipe 1904	101.6	25	110	6.74	0.16	2.77	Open
					Pipe 1905	40.38	100	110	476.01	0.7	8.61	Open
					Pipe 1906	134.65	100	110	367.19	0.54	5.32	Open
					Pipe 1908	44.83	50	110	55.19	0.33	4.66	Open
					Pipe 1909	87.48	50	110	12.53	0.07	0.3	Open
					Pipe 1910	93.08	25	110	9.66	0.23	5.4	Open
					Pipe 1911	69.45	25	110	-7.73	0.18	3.57	Open
					Pipe 1914	114.72	25	110	-5.69	0.13	2.01	Open
					Pipe 1915	72.15	50	110	52.14	0.31	4.19	Open
					Pipe 1916	105.89	50	110	-21.33	0.13	0.8	Open
					Pipe 1917	141.4	25	110	20.47	0.48	21.71	Open
					Pipe 1918	125.87	25	110	-2.16	0.05	0.31	Open
					Pipe 1013	106.65	50	110	75.08	0.44	8.24	Open
					Pipe 1014	63.1	50	110	-79.85	0.47	9.23	Open
					Pipe 1020	57.51	50	110	37.03	0.22	2.22	Open
					Pipe 1264	49.78	25	110	25.3	0.6	32.15	Open
					Pipe 1266	27.83	50	110	66.04	0.39	6.49	Open
					Pipe 1268	33.82	50	110	44.97	0.27	3.19	Open
					Pipe 1269	116.89	25	110	-4.23	0.1	1.13	Open
					Pipe 1270	41.59	50	110	-6.33	0.04	0.08	Open
					Pipe 1271	39.58	50	110	-25.36	0.15	1.1	Open
					Pipe 1272	111.85	25	110	-6.27	0.15	2.43	Open
					Pipe 1276	34.59	50	110	75.89	0.45	8.4	Open
					Pipe 1278	28.66	50	110	48.77	0.29	3.71	Open
					Pipe 1280	75.88	25	110	-5.88	0.14	2.15	Open
					Pipe 1288	55.4	150	110	451.34	0.3	1.08	Open
					Pipe 1289	70.94	50	110	102.73	0.61	14.72	Open
					Pipe 1294	46.85	50	110	18.66	0.11	0.62	Open
					Pipe 1295	49.66	50	110	-65.82	0.39	6.45	Open
					Pipe 1297	48.83	25	110	22.37	0.53	25.6	Open
					Pipe 1301	45.81	25	110	22.78	0.54	26.47	Open
					Pipe 1306	73.77	50	110	-77.6	0.46	8.76	Open
					Pipe 1307	44.98	25	110	19.03	0.45	18.97	Open
					Pipe 1312	62.96	100	110	156.14	0.23	1.09	Open
					Pipe 1313	44.04	100	110	53.64	0.08	0.15	Open
					Pipe 1318	52.92	25	110	30.2	0.71	44.62	Open
					Pipe 1321	63.62	25	110	-22.86	0.54	26.65	Open
					Pipe 1323	47.45	25	110	-18.92	0.45	18.77	Open
					Pipe 1336	54.99	50	110	126.28	0.74	21.57	Open
					Pipe 1338	44	50	110	33.65	0.2	1.86	Open
					Pipe 1342	50.22	25	110	-19.33	0.46	19.53	Open
					Pipe 1346	40.66	25	110	-24.27	0.57	29.76	Open
					Pipe 1347	109.46	25	110	24.35	0.57	29.95	Open
					Pipe 1348	103.86	25	110	-23.05	0.54	27.05	Open
					Pipe 1363	87.3	25	110	20.35	0.48	21.47	Open
					Pipe 1364	79.25	25	110	-18.95	0.45	18.83	Open
					Pipe 1371	87.9	50	110	53.82	0.32	4.44	Open
					Pipe 1379	84.78	50	110	14.52	0.09	0.39	Open
					Pipe 1382	29.57	25	110	-40.62	0.96	77.28	Open
					Pipe 1384	58.33	25	110	-27.91	0.66	38.57	Open
					Pipe 1408	94.5	50	110	35.54	0.21	2.06	Open
					Pipe 1413	54.95	50	110	-43.7	0.26	3.02	Open
					Pipe 1630	102.93	100	110	145.95	0.22	0.96	Open
					Pipe 1694	50.12	100	110	104.27	0.15	0.52	Open
					Pipe 1752	60.04	25	110	-8.68	0.2	4.43	Open
					Pipe 1790	41.41	25	110	-10.86	0.26	6.71	Open
					Pipe 1827	58.28	25	110	6.73	0.16	2.76	Open
					Pipe 1828	131.55	25	110	18.85	0.44	18.64	Open
					Pipe 1829	113.13	25	110	-20.45	0.48	21.67	Open
					Pipe 1831	41.53	50	110	-20.87	0.12	0.77	Open
					Pipe 1835	43.4	50	110	-41.98	0.25	2.81	Open
					Pipe 1869	81.59	50	110	103.59	0.61	14.95	Open
					Pipe 1870	59.49	50	110	46.09	0.27	3.34	Open
					Pipe 1897	50.62	50	110	-44.84	0.26	3.17	Open
					Pipe 1912	50.42	50	110	-62.07	0.37	5.79	Open
					Pipe 1913	37.78	50	110	23.23	0.14	0.94	Open
					Pipe 1919	34.12	50	110	-36.05	0.21	2.12	Open
					Pipe 1920	33.33	50	110	-32.1	0.19	1.71	Open
					Pipe 1921	49.48	75	110	336.62	0.88	18.4	Open
					Pipe 1922	34.63	75	110	258.52	0.68	11.28	Open
					Pipe 1923	60.97	25	110	-30.91	0.73	46.57	Open
					Pipe 1924	50.57	25	110	23.59	0.56	28.24	Open
					Pipe 1925	54.09	50	110	88.48	0.52	11.17	Open
					Pipe 1926	45.74	50	110	24.13	0.14	1.01	Open

NODE					LINK							
Ma'an city					Ma'an city							
ID	Elevation m	Head m	Demand m3/d	Pressure m	ID	Length m	Diameter mm	Roughness	Flow m3/d	Velocity m/s	Unit head loss m/km	Status
					Pipe 1927	71.74	25	110	-11.35	0.27	7.28	Open
					Pipe 1928	24.08	100	110	149.42	0.22	1.01	Open
					Pipe 1929	37.02	100	110	110.55	0.16	0.58	Open
					Pipe 1930	110.11	100	110	69.82	0.1	0.25	Open
					Pipe 1931	38.1	50	110	55.97	0.33	4.78	Open
					Pipe 1932	67.49	50	110	28.51	0.17	1.37	Open
					Pipe 1933	56.18	100	110	-11.45	0.02	0.01	Open
					Pipe 1934	24.39	100	110	-43.02	0.06	0.1	Open
					Pipe 1935	33.71	100	110	-74.01	0.11	0.27	Open
					Pipe 1936	23.41	100	110	-81.14	0.12	0.32	Open
					Pipe 1937	83.79	50	110	78.37	0.46	8.91	Open
					Pipe 1938	84.49	50	110	43.47	0.26	2.99	Open
					Pipe 1939	87.89	25	110	-36.13	0.85	62.2	Open
					Pipe 1940	33.67	50	110	25.71	0.15	1.13	Open
					Pipe 1941	125.89	50	110	-11.07	0.07	0.24	Open
					Pipe 1942	39.38	50	110	-95.2	0.56	12.79	Open
					Pipe 1943	75.3	25	110	16.23	0.38	14.12	Open
					Pipe 1944	68.41	25	110	31.83	0.75	49.19	Open
					Pipe 1945	56.22	75	110	182.97	0.48	5.95	Open
					Pipe 1946	52.47	75	110	107.83	0.28	2.23	Open
					Pipe 1947	115.8	75	110	222.5	0.58	8.55	Open
					Pipe 1948	43.82	75	110	178.15	0.47	5.66	Open
					Pipe 1949	104.27	25	110	5.06	0.12	1.63	Open
					Pipe 1950	51.37	50	110	56.14	0.33	4.81	Open
					Pipe 1305	60.32	100	110	115.55	0.17	0.63	Open
					Pipe 23	32.21	200	110	459.25	0.17	0.27	Open
					Pipe 1349	276.79	75	110	281.2	0.74	13.19	Open
					Pipe 1366	251.15	50	110	86.4	0.51	10.68	Open
					Pipe 1386	96.92	75	110	194.8	0.51	6.68	Open
					Pipe 1396	176.27	50	110	91.81	0.54	11.96	Open
					Pipe 1674	574.48	75	110	251	0.66	10.68	Open
					Pipe 1683	141.69	50	110	19.15	0.11	0.66	Open
					Pipe 1684	94.58	50	110	33.25	0.2	1.82	Open
					Pipe 281	66.95	300	110	6506.57	1.07	5.18	Open
					Pipe 869	64.9	75	110	353.77	0.93	20.17	Open
					Pipe 871	293.48	75	110	236.24	0.62	9.55	Open
					Pipe 1012	144.16	75	110	177.52	0.47	5.62	Open
					Pipe 1390	387.97	75	110	192.12	0.5	6.51	Open
					Pipe 1659	262.14	200	110	2957.8	1.09	8.67	Open
					Pipe 1662	391.23	75	110	218.67	0.57	8.28	Open
					Pipe 1672	44.15	50	100	328	1.93	150.77	Open
					Pipe 1673	63.16	50	100	104.58	0.62	18.15	Open
					Pipe 1685	244.42	75	110	223.42	0.59	8.61	Open
					Pipe 1686	154.62	75	110	172.29	0.45	5.32	Open
					Pipe 1687	272.97	150	100	1454.22	0.95	11.27	Open
					Pipe 1688	330.07	150	100	1354.28	0.89	9.88	Open
					Pipe 1689	5.12	150	110	1454.22	0.95	9.46	Open
					Pipe 1016	153.42	100	100	-827.1	1.22	28.57	Open
					Pipe 1032	11.62	100	100	99.3	0.15	0.56	Open
					Pipe 1260	82.04	300	110	4799.5	0.79	2.95	Open
					Pipe 1316	86.34	300	110	4455.3	0.73	2.57	Open
					Pump 1658	#N/A	#N/A	#N/A	3335.2	0	-41.89	Open
					Pump 1388	#N/A	#N/A	#N/A	2055.17	0	-77.65	Open
					Pump 1488	#N/A	#N/A	#N/A	2055.17	0	-77.65	Open

