

4.1
YEAR 2000-OPTION 1 : with the Elevated Tank

NODES

2000 Option 1

NODE	X	Y	Z	CS (1/s)	Pressure Head (m)
N1	641	1027	10	5.03	9.34
N2	646	700	10	6.67	9.34
SW4	811	700	10.3	0	40.26
SW5	739	649	10.2	0	21.88
SW6	691	592	9	0	22.93
SW7	625	535	8.4	0	37.72
SW8	596	507	8.4	0	38.06
SW9	565	472	8.4	0	38.4
WS1	504	472	10	9.39	30.28
WS2	449	520	10	0	30.28
WS3	396	516	10	0	30.28
C447	447	299	10	11.56	35.28
C807	807	250	6	11.83	29.54
C875	875	298	7.2	5.67	28.06
C877	877	298	7.2	3.94	28
C895	895	280	7.2	6.14	28.04
C928	928	289	8.7	5.89	26.5
C934	934	296	10.5	151.86	24.64
C944	944	264	10.5	0	24.7
C946	946	264	10.5	0	24.64
C948	948	243	10	0	25.14
D440	440	334	10	0	35.82
D446	446	355	10	23.11	36.15
D754	754	360	7.5	18.78	14.46
D755	754	389	7.5	10.14	15.21
D756	758.18	315.43	7	11.83	14.06
D768	768	395	9.7	4.28	16.08
D835	849.43	444.77	7.9	0	21.21
D837	846.76	441.67	7.9	0	21.21
D838	855	441	7.9	0	21.21
D840	850.1	438.91	7.9	0	19.16
D845	852.95	416.36	8.1	0	18.94
D854	854	373	7.7	12.22	27.91
D855	856.91	378.67	7.7	5.89	19.29
D856	856	373	7.7	3.94	28
D860	860	318	7.3	11.83	28.13
D862	862	318	7.3	11.81	27.92
D880	880	375	7.7	-229.5	31.17
D909	909	380	10.6	7.86	27.18
D912	912	358	10.6	9.83	26.48
D970	970	303	10	0	25.14
E295	295	453	10	0	17.94
E524	539.29	431.67	10	46.25	35.94
E576	576	476	10	36.69	35.19
E632	632	488	8.7	4.42	31.91

NODE	X	Y	Z	CS (1/s)	Pressure Head (m)
E645	645	476	7.7	4.81	18.35
E668	668	456	7	7.22	17.86
E681	681	483	8	6.42	19.26
E703	703	415	7.5	5.72	16.55
E715	715	453	7.2	4.92	19.65
E717	718.08	457.91	7.2	4.39	14.59
E729	729	494	7	4.39	11.06
E732	732	415	6.7	2.61	17.36
E740	740	482	7.3	7	19.33
E747	747	438	7.3	3.92	19.39
E748	749.45	442.92	7.3	0	28.6
E754	754	420	7.8	8.31	16.38
E768	768	420	8.2	0	17.27
E769	768	414	8	6.11	17.81
E770	768	438	7.4	3.06	19.25
E777	777	482	7.8	9.61	27.4
E799	796.66	444.44	8.3	4.81	27.6
E805	805	439	8.3	6.11	18.53
E815	815	482	7.1	9.61	27.58
E816	815.97	447.85	6.2	0	28.48
E839	836.92	485.74	7.7	2.39	30.14
E841	841	491	7.7	3	25.6
E845	844.4	444.44	7.9	4.64	28.12
E846	845.28	438.69	7.9	8.94	19.08
E849	849	414	7.8	6.11	27.58
E865	865	495	7.3	0.75	21.9
E867	867	479	7.3	1.89	20.37
E871	871	439	8.1	1.97	15.62
E872	872	441	8.1	5.83	18.76
E873	873	411	7.6	19.67	14.7
E897	897	499	8.2	1.14	20.01
E900	900	476	8.3	0.75	19.85
E904	904	441	10.6	5.75	16.2
E905	905	412	10.4	5.89	16.36
E908	908	441	10.6	17.69	16.2
E910	910	486	10.6	0.75	17.03
E937	937	463	10.5	13.78	16.73
F286	286	582	10	9.39	17.94
F468	483.31	593.09	10	0	37.84
F627	625.99	554.89	6.7	57.39	33.34
F629	629	528	8.4	0	37.72
F630	632.86	527.9	8.4	0	37.72
F631	632.86	524.34	8.4	2	37.72
F632	632.86	531.96	8.4	54.94	12.8
F633	636.61	528.39	8.4	4	13.69
F649	649	599	6.8	3.72	17.88

NODE	X	Y	Z	CS (1/s)	Pressure Head (m)
F650	650	510	8.3	17.25	34.18
F653	653	551	8.7	3.72	19.12
F667	667	531	8.6	6.19	6.33
F678	678	573	8.6	6.33	21.3
F679	680.24	568.66	8.6	10	14.63
F691	691	559	8.8	14.39	12.83
F695	695.44	584.65	9	0	22.96
F696	693.8	587.35	9	0	22.95
F697	697	591	9	6.5	22.93
F698	698.61	588.43	9	0	23
F699	696.12	588.24	9	0	23
F720	720	568	8.9	4.83	23.01
F721	721.62	572.39	8.9	0	27.62
F736	736	521	7.5	9.22	13.55
F739	739	568	8.5	0	23.38
F740	739	541	8	6.47	23.76
F757	757	514	9	0	26.85
F761	761.71	572.07	8.6	3.25	33.79
F775	776	568	9	8.89	31.9
F776	776	541	7.4	14.58	30.18
F777	776	514	7	13.69	28.85
F788	788	595	8.8	12.53	21.99
F813	813	568	9.7	4.06	34.91
F814	814	542	6.9	8.11	31.37
F815	815	515	7	8.86	28.76
F826	826	595	10.9	12.06	22.8
F830	829.61	544.26	7.7	4.06	35.17
F831	831	573	10.4	8.58	36.42
F832	832	569	10.4	3.17	36.41
F836	832.45	515	7.7	6.83	32.12
F838	838	515	7.7	3	28.92
F853	853	595	10.5	5.58	24.24
F856	856	571	10.3	3.94	24.88
F858	858	569	10.3	2.25	33.8
F863	863	518	7.5	3	22.1
F864	864	540	7.8	0	21.34
F890	890	569	10.6	1.89	30.3
F891	891	571	10.6	4.92	24.59
F893	893	544	8.1	1.89	21.04
F895	895	523	8.2	2.64	20.22
F908	908	571	10.4	0	19.65
F909	909	569	10.4	7.03	29.11
F911	911	577	10.5	4.44	19.54
F912	912	501	10	1.14	17.95
F913	913	526	10.3	1.14	18
F919	919	548	10.4	19.19	18.24

NODE	X	Y	Z	CS (l/s)	Pressure Head (m)
F940	940	579	10.5	3.94	19.46
F945	945	550	9.9	5.89	19
F947	947	508	10.2	13.78	18.59
F953	953	531	10.1	13.78	19.94
F955	955	578	10.9	1.97	18.73
F964	964	569	10.9	5.89	25.1
F967	967	507	10.2	5.89	18.63
F968	968	574	10.9	2.94	18.74
G103	103	679	10	0	6.66
G128	128	638	10	0	6.66
G129	129	659	10	0	6.66
G134	134	678	10	0	6.66
G144	144	660	10	0	6.66
G145	145	670	10	102.6	6.66
G166	155.42	676.42	10	0	8.41
G235	251.69	631.33	10	9.39	13.89
G257	257	665	10	0	13.99
G284	284	616	10	0	18.28
G287	287	633	10	0	18.33
G292	292	662	10	9.39	18.42
G293	293.63	669.87	10	9.39	18.42
G334	334	658	10	0	30.33
G376	375.46	662.59	10	0	27.08
G377	377	655	10	18.78	31.79
G483	465.51	689.14	8.5	12.06	40.28
G485	488.71	683.12	8.5	16.89	40.15
G507	506.46	639.95	10	26.78	38.22
G508	508	699	10	9.08	39.16
G511	511	688	10	4.28	37.7
G515	515	638	10	4.83	37.58
G565	565	671	7.6	1.61	37.18
G585	585	695	8.2	2.67	38.25
G591	591	674	7.8	1.61	37.29
G593	593	644	7.8	11.42	36.8
G610	610.83	700.67	7.8	0	38.6
G611	611.6	693.52	7.8	0	38.55
G612	612.92	699.89	8.1	0	38.32
G613	613.58	693.52	8.1	10.58	38.22
G614	612.49	697.04	8.1	8.53	38.25
G615	615	676	7.6	6.44	37.72
G616	613.31	676.68	7.6	0	37.76
G617	617.65	693.99	8.1	0	38.13
G618	616.37	645.93	8	9.81	36.36
G619	619	676	7.6	15.19	13.85
G621	621.11	647.45	8	20.86	13.59
G622	622	621	6.9	0	37.46

NODE	X	Y	Z	CS (1/s)	Pressure Head (m)
G653	653	624	7.5	3.72	18.23
G685	685	682	9.3	24.56	15.73
G688	688	652	8.4	7.28	17.42
G692	692	627	8.5	17.22	19.25
G736	736	640	10.2	23.61	21.17
G742	742	643	10.2	37.94	21.88
G768	772.33	664.95	10	0	27.86
G771	771.23	678.95	9.3	17.11	19.66
G774	774	613	8.7	3.25	25.31
G777	777	617	8.7	6.97	25
G788	788	628	8.9	6.97	24.04
G793	793.78	679.89	10	0	33.64
G812	817	662	10.7	7.58	24.31
G813	818	654	10.8	7.58	23.79
G814	814	695	10.3	36.42	38.92
G815	815	642	11.1	32.67	10.11
G816	815	686	10.9	17.53	26.88
G817	816	698	10.3	0	40.26
G820	820	639	11.1	3.94	23.1
G821	821	629	10.9	2.33	22.87
G823	823	617	10.8	4.64	22.98
G826	826	612	10.9	2.64	37.79
G842	842	692	10.4	10	25.14
G845	845	661	10.5	4	24.64
G846	846	658	10.7	3.89	24.43
G848	848	641	10.7	6.67	24.12
G850	850	620	10.8	5.28	23.9
G863	863	697	10.3	15.03	26.71
G867	867	665	10.5	10.75	25.48
G872	872	647	10.5	3.69	25.21
G877	877	623	10.5	1.31	24.93
G881	881	699	10.4	13.58	26.32
G883	883	603	10.2	3.94	25.11
G888	888	670	10.5	5.81	25.1
G893	893	653	10.3	7.28	24.72
G898	898	629	10.4	6.33	23.61
G902	902	608	10.3	9.53	21.04
G910	910	659	9.6	4.14	25.43
G912	912	658	9.6	0	23.87
G918	918	637	10.1	3.69	23.37
G932	932	669	10	0	25.78
G949	949	627	10	4.44	19.01
G967	967	635	10	2.47	21.04
G987	987	633	10	1.97	21.05
H108	108	724	10	0	6.66
H480	480	745	10	5.03	31.24

NODE	X	Y	Z	CS (l/s)	Pressure Head (m)
H482	482	745	10	5.03	24.45
H521	521	791	8.5	25.11	26.08
H522	522	790	8.5	0	25.95
H565	565	720	8.5	8.03	41.64
H587	589.38	719.32	8.4	8.03	40.25
H589	589	702	7.5	8.03	41.01
H599	599	755	8.5	17.08	24.68
H609	607.18	725.07	8.5	0	42
H610	610	723	11	8.75	39.53
H640	640	722	7.9	5.11	42.23
H680	680	731	11.3	12.92	39.64
H682	682	704	9.5	12.31	34.79
H683	683	702	9.5	12.92	34.79
H684	683	700	9.5	0	34.79
H687	693.58	701.71	9.5	0	29.83
H727	727	735	10.7	6.58	40.76
H728	728	708	10.1	6.58	29.53
H729	728	710	10.1	0	30.44
H732	728.66	705.44	10.1	13.08	29.23
H761	761	738	11	4.39	40.82
H765	765.24	712.36	10.2	3.5	25.28
H766	765.62	708.63	10.2	6.31	24.34
H785	785	768	11.2	0	41.8
H795	795	762	11.2	0	41.52
H796	796	768	11.2	0	41.78
H797	797	758	11.2	0	41.76
H798	798	743	11.1	15.22	41.15
H799	799	799	10.9	13.53	26.54
H803	803.89	716.22	10.4	0	19.23
H804	804.47	712.36	10.4	46.14	17.95
H805	805	759	11	0	41.94
H807	807	759	11	0	41.94
H809	809	733	10.6	7.44	35.14
H810	810	724	10.4	11.17	34.17
H811	811	719	10.4	0	34.17
H836	836	747	10.6	3.36	34
H837	837	737	10.6	5.03	33.9
H839	839	728	10.6	5.03	33.86
H842	842	709	10.4	5.03	25.13
H850	850	723	10.6	4.17	29.17
H852	852	710	10.4	0	28.9
H856	856	750	10.8	0	30
H857	857	740	10.5	5.03	29.56
H860	860	726	10.6	8.36	28.52
H865	865	765	11.6	3.92	28.19
H866	866	754	10.6	11.58	29.29

NODE	X	Y	Z	CS (l/s)	Pressure Head (m)
H870	870	741	10.5	0	28.99
H873	873	730	10.5	27.08	27.08
H895	895	702	9.6	14.67	27.11
H903	903	759	10.5	27.06	27.87
H908	908	740	9.7	26.17	28.01
H915	915	765	11.2	13.53	14.7
H919	919	707	9.5	16.92	27.55
H939	939	712	11.2	13.53	20.57
I479	479	868	10	17.08	20.98
I518	518	876	10	14.06	20.96
I520	520	886	10	6.78	20.92
I550	550	824	8.5	17.58	25.21
I560	560	887	10	6.03	21.71
I561	561	897	10	1.5	21.24
I578	578	856	9	3.75	24.95
I580	580	855	9	3.75	25.44
I590	590	895	10	0	23.62
I593	593	895	10	1.5	24.36
I599	599	880	10	0	24.24
I601	601	879	10	0	24.48
I603	603	881	10	1.5	24.48
I604	604	801	8.5	17.06	24.69
I609	609	842	8.2	9.03	25.47
I613	613	873	10	0	24.82
I614	614	876	10	1.5	24.89
I639	639	892	10	7.61	27.63
I643	643	891	10	0	28.02
I650	650	811	5.5	11.81	12.62
I683	683	876	10	4.61	30.43
I757	757	892	10	0	18.48
I767	767	890	10	10.31	35.59
I774	774	826	9.1	4.28	41.31
I785	785	894	10	10.89	18.48
I786	786	879	10	5.69	19.2
I797	797	810	11	5.69	23.33
I805	805	882	10	10.69	18.68
I846	846	817	10.5	10.69	22.52
I853	853	806	10.6	5.69	23.2
I862	862	832	10.7	5.69	21.89
I874	874	817	10.8	13.53	23
J562	562	921	10	6.03	20.85
J592	592	912	10	6.11	20.89
J764	764	917	10	0	35.59
J812	804	957	10	14.25	16.68
J821	821	910	11	19.94	16.2
J900	960	998	10	74.61	17.17

NODE	X	Y	Z	CS (l/s)	Pressure Head (m)
K816	813.83	997.87	10	14.25	16.25
K818	797.68	1046	10	22.08	15.13
L812	810.81	1118	10	15.36	13.8
M738	778.96	1233	10	26.56	9.76
M739	732.07	1281	10	11.86	8.42
M740	714.09	1358	10	23.75	7.66
M741	646.95	1382	10	11.86	7.58
M760	769.56	1155	10	14.69	12.84
SW10	528.58	432.26	8.4	0	38.08
SW11	494.36	403.79	8.4	0	38.03
SW20	623.81	405.34	10	15.92	35.35
SW21	669.58	381.83	10	15.92	33.53
SW22	707.31	324.03	10	15.92	31.7
SW23	747.16	250.6	10	15.92	30.24
SW24	787.01	223.68	10	15.92	25.85
SW25	748.02	164.94	10	15.92	25.41
SW26	670.05	182.07	10	10.61	25.34
SW27	572.16	211.44	10	0	25.34
D1015	1015	306	10.9	0	25.14
H8081	808	746	10.9	0	41.77
H8082	808	744	10.9	0	40.97
H8083	810	744	10.9	0	40.73
H8084	806	747	10.9	0	41.77

4.1
YEAR 2000-OPTION 1 : with the Elevated Tank

BRANCHES

2000 Option 1

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
604	N1	N2	500	300	0.3
603	J592	N1	500	500	0.06
457	SW7	SW8	540	500	-0.52
456	F630	SW7	20	1000	-0.13
458	SW8	SW9	540	500	-0.52
620	WS1	SW9	1000	800	0.69
459	SW9	SW10	540	500	0.5
490	SW9	SW20	1100	500	0.75
604	C447	D440	360	200	-0.37
3	C807	C895	940	250	0.2
2	C807	D756	950	100	0.72
627	D860	C807	600	300	-0.2
623	SW24	C807	200	300	0.59
4	C875	C895	280	200	0.07
5	C875	D860	250	200	-0.25
8	C877	C928	540	250	4.08E-03
7	C877	D862	260	250	-0.08
6	C895	C928	360	250	0.12
611	D912	C934	660	400	0.98
10	C934	D912	660	250	-0.6
14	D440	D446	220	200	-0.37
15	D446	E524	1070	200	0.13
448	SW12	D446	20	200	1.24
17	D754	D755	300	150	-0.39
626	D755	D754	300	200	0.58
16	D756	D754	450	150	-0.35
18	D755	E754	300	150	-0.55
625	E754	D755	300	200	0.81
19	D768	E769	180	200	-0.14
476	D835	D840	190	250	1.14
423	D835	E841	390	250	-1.14
422	D845	D840	200	250	-0.12
477	D840	E846	20	250	0.71
75	D840	E872	250	250	0.32
26	D855	D845	390	250	-0.12
22	D854	D856	30	250	-0.61
20	D860	D854	560	200	-0.17
21	D854	E849	420	250	0.26
23	D862	D856	560	250	-0.32
24	D856	D880	370	250	-1.02
28	D880	D909	300	250	0.67
529	D880	D909	300	400	1.09
27	D880	E873	360	100	1.26
541	D909	D912	210	400	1.04
29	D909	D912	210	250	0.64
32	E524	E576	710	250	0.36

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
447	E524	SW10	20	200	-1.9
33	E576	F629	750	250	-0.39
35	E632	E645	170	100	1.71
34	E632	F650	270	100	-0.49
622	F650	E632	270	150	0.8
36	E645	E668	300	150	0.49
40	E668	E681	350	100	-0.49
37	E668	E703	550	150	0.3
39	E681	E715	460	250	0.33
38	E681	F650	410	150	-1.5
41	E703	E732	290	150	-0.03
49	E747	E715	360	250	-0.23
54	E717	E729	410	100	0.56
50	E717	F633	1110	250	-0.18
42	E732	E754	250	150	-0.17
55	E740	E777	370	100	-0.89
48	E770	E747	210	250	-0.15
43	E754	E768	150	150	-0.72
624	E768	E754	150	200	1.07
44	E768	E769	60	200	-0.71
45	E768	E770	180	200	-0.77
46	E769	E849	790	200	-1.04
47	E770	E805	360	300	-0.28
56	E777	E815	360	100	0.22
630	F777	E777	320	200	0.52
57	E777	F777	320	100	-0.26
53	E799	E845	460	200	-0.15
74	E805	E846	390	350	-0.27
72	E815	E839	250	100	-0.66
71	E815	F815	320	100	-0.34
59	E845	E839	420	250	-0.73
60	E839	F836	310	250	-0.88
62	E841	E865	250	100	0.75
61	E841	F838	230	250	-1.32
58	E849	E845	270	250	-0.53
67	E865	E867	160	100	0.57
63	E865	E897	330	100	0.32
70	E865	F863	240	100	-0.24
69	E867	E872	380	100	0.27
68	E867	E910	430	100	0.06
77	E873	E871	280	150	-0.55
78	E871	E904	420	150	-0.67
76	E872	E904	340	300	0.17
66	E897	E900	240	100	0.1
64	E897	F895	240	100	-0.17
65	E897	F912	140	100	0.25

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
80	E904	E908	30	300	2.15E-03
83	E904	E910	450	150	-0.33
79	E905	E908	290	250	-0.12
81	E908	E937	400	250	-0.36
85	E908	F919	1080	150	-0.32
84	E910	F912	160	150	-0.35
82	E937	F947	460	250	-0.64
184	G284	F286	340	200	0.3
614	F468	G507	640	800	-0.68
87	F468	G507	640	250	-0.27
88	F629	F627	310	150	1.09
89	F627	G618	870	250	-0.78
479	F629	F630	20	1000	-0.05
428	F629	F631	30	250	0.02
482	F630	F631	20	1000	0.08
108	F631	F650	240	150	0.96
621	F631	F650	240	200	1.42
91	F632	F653	290	200	-1.43
100	F632	G621	1150	250	-0.2
95	F633	F679	620	200	-0.41
101	F653	F649	480	100	0.47
634	F678	F653	330	200	0.92
92	F653	F678	330	200	-0.75
107	F667	F691	370	100	-0.79
633	F696	F678	260	200	1.03
93	F678	F696	260	200	-0.84
105	F679	F691	160	200	0.95
96	F679	F695	280	200	-1.67
106	F691	F736	600	200	0.29
431	F695	F696	10	200	0.3
432	F695	F698	10	200	-0.58
433	F695	F699	10	300	-0.78
104	F695	F720	310	300	0.16
430	F696	F697	10	200	0.39
434	F696	F699	10	300	-0.87
426	F697	F698	20	250	-0.63
435	F697	F699	10	300	-1.01
98	F697	G692	350	250	1.2
631	G692	F697	350	200	-1.26
99	F697	G736	620	200	0.29
436	F698	F699	10	300	-0.14
103	F698	F721	300	200	-1.06
97	F698	G742	700	250	-0.12
114	F720	F739	180	250	0.13
118	F721	F761	390	200	-1.06
115	F739	F740	270	200	0.21

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
119	F761	F831	710	250	-0.87
120	F761	G774	440	100	0.81
112	F776	F775	270	100	-0.65
628	F775	F776	270	200	1.28
117	F775	F813	370	250	-1.1
629	F776	F777	270	200	0.93
111	F777	F776	270	100	-0.47
113	F776	F814	370	100	-0.25
110	F777	F815	370	100	0.09
121	F788	F826	350	150	-0.71
125	F814	F813	260	100	-0.91
128	F813	F832	150	250	-1.33
122	F815	F814	270	100	-0.57
124	F814	F830	180	100	-0.94
123	F815	F836	210	100	-0.81
135	F831	F826	250	120	1.37
136	F826	F853	270	150	-0.44
225	F826	G823	180	120	-0.12
127	F830	F832	250	250	-1.38
126	F836	F830	280	250	-1.15
133	F832	F831	40	250	-0.17
505	F831	F832	40	900	0.46
145	F831	F856	240	120	1.32
134	F831	G826	390	600	-1.36
132	F838	F832	520	250	-1.54
142	F832	F858	250	300	1.3
129	F838	F863	250	100	0.98
148	F856	F853	240	200	0.37
149	F853	G850	240	200	0.12
137	F853	G883	290	150	-0.31
146	F856	F891	340	150	-0.03
143	F858	F890	310	300	1.27
130	F863	F895	310	100	0.36
139	F893	F890	240	100	-1.3
144	F890	F909	180	300	1.09
147	F891	F908	180	150	1.19
150	F891	G883	300	350	-0.28
138	F895	F893	290	100	-0.29
141	F893	F919	260	150	0.34
131	F895	F913	190	100	0.15
154	F908	F911	100	150	0.04
153	F919	F908	260	150	-0.57
152	F919	F908	260	150	-0.57
159	F909	F964	550	300	1
156	F911	F940	300	150	0.12
155	F911	G898	540	120	-0.51

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
151	F912	F919	460	150	-0.3
163	F919	F945	300	150	-0.23
157	F940	F955	130	150	0.35
160	F940	G918	840	150	-0.45
164	F945	F953	220	150	-0.56
165	F947	F953	220	250	-0.83
167	F947	F967	190	200	-0.14
166	F953	F964	420	250	-1.31
158	F955	F968	110	150	-0.01
161	F955	G949	490	150	0.25
168	F967	F968	660	200	-0.33
162	F968	G967	560	200	-0.43
176	G145	G166	220	300	-1.11
175	G145	G257	1120	200	-0.77
177	G166	G293	1260	300	-1.11
180	G257	G235	340	250	0.19
181	G257	G292	350	200	-1.07
183	G284	G287	170	250	-0.19
182	G292	G287	290	250	0.19
179	G293	G292	30	200	0.07
185	G292	G334	420	200	-1.6
178	G293	G376	830	300	-1.27
186	G334	G377	450	300	-0.71
187	G376	G483	1120	300	-1.27
188	G377	G485	1120	300	-0.98
617	G483	G485	100	800	1.02
619	G508	G483	300	900	1.07
191	G483	G508	300	300	-0.44
189	G483	H480	620	300	1.37
615	G485	G507	510	800	0.8
193	G485	G507	510	150	0.22
192	G485	G511	280	200	0.55
194	G507	G515	110	200	0.73
198	G508	H565	750	300	-0.45
618	H565	G508	750	900	1.09
199	G508	H589	810	150	0.22
197	G515	G511	500	100	-0.09
200	G511	G585	740	200	0.39
195	G515	G593	750	200	0.6
203	G591	G565	250	100	0.2
205	G591	G585	210	100	-0.47
201	G585	G614	240	200	0.19
202	G593	G591	290	100	-0.24
204	G591	G615	250	100	-0.18
196	G593	G618	250	200	0.29
442	G610	G611	20	150	0.4

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
443	G610	G614	10	150	0.56
441	H609	G610	270	150	0.96
444	G611	G614	10	150	-0.12
215	G611	G616	220	150	0.52
208	G613	G612	30	250	-0.66
410	G612	G614	30	250	0.54
224	G612	H610	210	250	-1.54
210	G612	H682	670	200	0.53
429	G614	G613	10	250	0.65
207	G615	G613	210	250	-0.76
209	G613	G617	30	200	0.51
437	G616	G615	10	150	0.52
214	G618	G615	300	150	-0.44
206	G618	G615	290	250	-0.63
212	G617	H683	670	200	0.51
216	G621	G619	300	250	0.24
222	G619	G685	680	100	-0.42
218	G621	G688	680	250	-0.87
219	G653	G692	310	100	-0.47
221	G688	G685	300	250	0.57
220	G692	G688	260	250	0.95
632	G688	G692	260	200	-0.99
229	G736	H732	700	150	-0.83
231	G742	G768	290	250	-1.56
232	G742	G815	650	125	2.66
424	G768	G793	290	250	-1.56
230	G771	H766	360	150	-0.97
226	G823	G774	470	150	-0.18
227	G777	G823	430	250	-0.14
228	G788	G821	320	150	-0.39
425	G793	G814	280	250	-1.56
237	G812	G813	90	150	0.48
238	G812	G816	240	150	-0.75
263	G812	G845	280	150	-0.15
256	G820	G813	150	150	-0.36
261	G813	G846	280	150	-0.31
239	G816	G814	100	150	-2.37
241	G814	G817	80	350	-1.79
240	G814	H811	240	150	0.98
267	G816	G842	280	150	0.63
243	G817	G826	870	700	1.01
242	G817	H8081	470	700	-1.46
236	G821	G820	100	150	-0.46
257	G820	G848	280	150	-0.33
235	G823	G821	120	150	0.06
233	G823	G850	280	120	-0.34

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
234	G823	G850	280	150	-0.4
262	G845	G842	260	200	-0.34
268	G842	G863	220	150	-0.57
274	G842	H842	170	150	0.04
255	G846	G845	90	200	-0.12
254	G848	G846	180	200	-0.36
264	G846	G867	220	200	-0.54
253	G850	G848	220	200	-0.2
258	G848	G872	250	150	-0.42
250	G850	G877	280	150	-0.36
249	G867	G863	330	160	-0.41
248	G867	G863	330	400	-0.84
271	G863	G881	180	250	0.4
269	G863	H860	300	400	-1.27
247	G872	G867	180	400	-0.59
265	G867	G888	220	200	0.39
246	G877	G872	250	400	-0.5
245	G883	G877	210	400	-0.36
251	G877	G898	220	150	0.56
270	G888	G881	310	160	-0.44
273	G881	H873	310	150	-0.37
272	G881	H895	140	250	0.08
244	G883	G902	200	120	0.84
266	G893	G888	180	200	-0.49
259	G898	G893	220	150	-0.48
260	G893	G910	190	100	-0.04
252	G898	G918	210	150	0.35
275	G918	G910	240	120	-0.48
278	G910	G932	240	100	-0.29
277	G910	H895	450	150	-0.43
279	G932	H919	410	100	-0.29
280	G967	G987	280	200	-0.05
281	G967	H939	840	250	-0.3
282	G987	H939	920	150	-0.2
283	H480	H521	610	300	1.3
284	H482	H522	620	400	-0.04
291	H521	H522	20	200	0.76
294	H521	I479	870	200	0.61
292	H521	I550	440	250	0.49
289	H599	H522	810	200	-0.38
293	H522	I580	860	400	0.06
285	H565	H609	270	300	-0.46
508	H609	H565	270	900	1.1
286	H589	H587	150	150	-0.23
287	H587	H610	240	150	-0.69
290	H599	I604	430	350	-0.05

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
509	H609	H610	20	900	-1.03
440	H609	H610	20	450	-0.56
295	H610	H640	290	150	0.29
296	H610	H680	680	410	-0.38
506	H680	H610	410	1000	1.02
297	H682	H680	280	150	-1.2
504	H727	H680	490	1000	1.04
301	H680	H727	490	410	-0.5
300	H682	H683	10	250	-0.06
299	H682	H728	500	200	0.91
304	H729	H727	270	150	-1.56
307	H727	H761	320	410	-0.52
503	H761	H727	320	1000	1.08
427	H728	H732	20	150	0.96
438	H728	H765	320	100	0.67
446	H729	H732	30	150	1.56
302	H732	H766	320	150	0.95
305	H765	H761	280	150	-1.88
321	H798	H761	360	1000	1.1
308	H761	H798	360	450	-0.56
306	H765	H766	30	150	1.38
439	H765	H803	370	125	0.86
303	H766	H804	370	150	1.01
320	H785	H795	120	1000	1.55
310	H795	H785	120	600	-0.95
312	H785	H796	70	800	0.35
487	H785	H796	70	1200	0.53
319	H785	H774	660	400	0.94
507	H795	H798	200	1000	1.55
309	H798	H795	200	600	-0.95
313	H796	H797	100	800	0.35
488	H796	H797	100	1200	0.53
498	H797	H805	80	1200	0.54
314	H797	H805	100	800	0.32
311	H798	H8082	120	450	0.92
502	H798	H8082	120	600	1.31
419	H805	H799	400	60	0.7
316	H799	H805	400	300	-1.8
317	H799	H797	110	300	1.8
420	H799	H797	110	60	0.6
318	H799	H853	540	160	0.6
451	H804	H803	30	150	-1.6
322	H803	H811	100	100	-2.26
315	H805	H807	30	800	0.23
499	H805	H807	20	1200	0.43
418	H8084	H805	140	100	-0.23

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
351	H807	H8081	110	800	1.19
325	H810	H809	90	150	-0.8
345	H809	H837	280	150	0.47
326	H809	H8084	120	150	-1.69
324	H811	H810	50	120	-0.05
327	H810	H839	280	150	0.14
337	H836	H837	100	350	0.41
346	H836	H856	200	500	1.5
511	H8083	H836	310	500	1.5
323	H8083	H836	310	500	2.63
336	H839	H837	90	350	-0.25
338	H837	H857	200	150	1.04
331	H839	H850	150	150	1.24
328	H842	H852	100	80	-0.86
330	H852	H850	120	150	-0.44
332	H850	H860	100	150	0.57
329	H852	H860	240	150	0.19
343	H856	H857	100	400	1.29
347	H856	H866	110	500	1.59
341	H857	H860	140	150	0.64
342	H857	H860	140	400	1.24
339	H857	H870	120	150	0.48
333	H860	H873	140	150	0.74
349	H866	H865	120	150	0.22
344	H866	H870	120	150	0.4
612	H866	H903	370	500	1.33
350	H866	H903	370	260	0.66
348	H8084	H866	590	110	0.83
340	H873	H870	120	150	-0.89
334	H873	H908	380	200	-0.16
335	H895	H919	250	250	-0.37
354	H903	H908	180	410	0.85
421	H903	H915	100	40	0.92
355	H903	H874	650	410	1.18
353	H908	H919	340	410	0.62
356	H939	H915	590	150	0.7
352	H919	H939	200	200	1.4
357	I479	I518	380	200	0.07
359	I518	I520	90	150	0.17
358	I550	I518	600	150	0.53
360	I518	I560	430	150	-0.32
364	I520	I561	420	150	-0.21
366	I550	I578	430	200	-0.22
365	I550	I604	590	150	0.23
362	I560	I561	90	150	0.56
371	I560	I578	350	150	-0.62

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
361	I560	I590	320	150	-0.6
363	I561	J562	340	150	0.26
368	I578	I580	30	150	-1
367	I578	I599	320	150	-0.23
370	I580	I603	340	400	-0.17
369	I580	I609	320	150	0.38
373	I590	I593	30	150	-1.22
374	I590	I599	170	150	-0.47
372	I590	J592	140	150	1.09
376	I593	I603	180	300	-0.33
375	I599	I601	30	150	-0.7
381	I601	I603	30	400	-0.05
380	I601	I613	140	150	-0.38
382	I603	I614	120	300	-0.73
378	I609	I604	420	300	0.43
377	I604	I650	460	100	1.5
379	I613	I609	320	250	0.66
383	I613	I614	30	250	-0.54
384	I613	I643	370	150	-0.72
385	I614	I639	340	300	-1.12
386	I643	I639	40	300	1.23
387	I643	I683	430	350	-1.03
388	I683	I767	840	350	-1.08
389	I767	I774	650	350	-1.19
393	I786	I785	150	300	0.86
414	I786	I785	150	100	0.36
415	I785	J821	390	100	0.3
395	I785	J821	390	300	0.72
413	I797	I786	700	60	0.31
391	I797	I786	700	300	1.07
392	I786	I805	180	150	0.38
390	I797	I846	490	360	0.67
401	I846	I805	770	110	0.42
398	I853	I846	130	110	0.49
400	I846	I862	220	360	0.57
397	I853	I874	240	260	0.03
399	I874	I862	200	410	1.09
613	J821	I862	900	400	-1.4
402	I862	J821	900	200	0.67
403	J562	J592	320	150	-0.08
404	J821	J812	360	500	0.79
405	J812	K816	360	500	0.72
455	J900	J821	1000	800	-0.15
406	K816	K818	360	400	1
407	K818	L812	630	400	0.83
408	L812	M760	630	400	0.71

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
452	M738	M739	670	300	0.67
409	M760	M738	630	300	1.05
453	M739	M740	670	300	0.5
454	M740	M741	670	300	0.17
460	SW10	SW11	540	500	0.2
461	SW11	SW12	540	500	0.2
470	SW20	SW21	540	400	1.05
491	SW21	SW22	700	400	0.92
492	SW22	SW23	750	400	0.79
493	SW23	SW24	700	300	1.19
494	SW24	SW25	700	300	0.38
495	SW25	SW26	700	300	0.15
411	H8081	30	30	800	0.07
412	H8082	50	50	300	0.86
510	H8082	50	50	600	1.61

4.2
YEAR 2000-OPTION 2 : without the Elevated Tank

NODES

2000 Option 2

NODE	X	Y	Z	CS (l/s)	Pressure Head (m)
N1	641	1027	10	5.03	9.34
N2	646	700	10	6.67	9.34
SW4	811	1027	10.3	0	40.82
SW5	739	700	10.2	0	39.45
SW6	691	649	9	0	38.97
SW7	625	592	8.4	0	38.16
SW8	596	535	8.4	0	37.83
SW9	565	507	8.4	0	37.49
WS1	504	472	10	9.39	30.28
WS2	449	520	10	0	30.28
WS3	396	516	10	0	30.28
C447	447	506	10	11.56	33.26
C807	807	250	6	11.83	22.4
C875	875	298	7.2	5.67	22.07
C877	877	298	7.2	3.94	23.88
C895	895	280	7.2	6.14	22.06
C928	928	289	8.7	5.89	21.08
C934	934	296	10.5	151.86	17.26
C944	944	264	10.5	0	19.28
C946	946	264	10.5	0	17.26
C948	948	243	10	0	17.76
D440	440	334	10	0	33.8
D446	446	355	10	23.11	34.14
D754	754	360	7.5	18.78	13.22
D755	754	389	7.5	10.14	14.04
D756	758	315	7	11.83	12.43
D768	768	395	9.7	4.28	15.42
D835	849	445	7.9	0	23.73
D837	847	442	7.9	0	23.73
D838	855	441	7.9	0	23.73
D840	850	439	7.9	0	21.84
D845	853	416	8.1	0	21.99
D854	854	373	7.7	12.22	24.08
D855	857	379	7.7	5.89	23.08
D856	856	373	7.7	3.94	24.08
D860	860	318	7.3	11.83	22.12
D862	862	318	7.3	11.81	24.6
D880	880	375	7.7	-229.5	24.09
D909	909	380	10.6	7.86	19.79
D912	912	358	10.6	9.83	19.09
D970	970	303	10	0	17.76
E295	295	453	10	0	21.94
E524	539	432	10	46.25	34.53
E576	576	476	10	36.69	34.39
E632	632	488	8.7	4.42	13.01
E645	645	476	7.7	4.81	12.95

NODE	X	Y	Z	CS (1/s)	Pressure Head (m)
E668	668	456	7	7.22	13.67
E681	681	483	8	6.42	19.44
E703	703	415	7.5	5.72	13.29
E715	715	453	7.2	4.92	20.24
E717	718	458	7.2	4.39	34.11
E729	729	494	7	4.39	30.58
E732	732	415	6.7	2.61	15
E740	740	482	7.3	7	22.93
E747	747	438	7.3	3.92	20.2
E748	749	443	7.3	0	33.07
E754	754	420	7.8	8.31	15.31
E768	768	420	8.2	0	16.72
E769	768	414	8	6.11	17.16
E770	768	438	7.4	3.06	20.19
E777	777	482	7.8	9.61	30.99
E799	797	444	8.3	4.81	30.67
E805	805	439	8.3	6.11	20.45
E815	815	482	7.1	9.61	30.06
E816	816	448	6.2	0	30.96
E839	837	486	7.7	2.39	30.85
E841	841	491	7.7	3	27.82
E845	844	444	7.9	4.64	28.18
E846	845	439	7.9	8.94	21.55
E849	849	414	7.8	6.11	24.9
E865	865	495	7.3	0.75	24.01
E867	867	479	7.3	1.89	22.7
E871	871	439	8.1	1.97	16.92
E872	872	441	8.1	5.83	21.52
E873	873	411	7.6	19.67	15.15
E897	897	499	8.2	1.14	21.96
E900	900	476	8.3	0.75	21.8
E904	904	441	10.6	5.75	19
E905	905	412	10.4	5.89	19.46
E908	908	441	10.6	17.69	19
E910	910	486	10.6	0.75	19.26
E937	937	463	10.5	13.78	19.2
F286	286	582	10	9.39	21.94
F468	483	593	10	0	26.16
F627	626	555	6.7	57.39	23.37
F629	629	528	8.4	0	38.16
F630	633	528	8.4	0	38.16
F631	633	524	8.4	2	38.16
F632	633	532	8.4	54.94	38.16
F633	637	528	8.4	4	38.16
F649	649	599	6.8	3.72	36.65
F650	650	510	8.3	17.25	21.68

NODE	X	Y	Z	CS (l/s)	Pressure Head (m)
F653	653	551	8.7	3.72	37.88
F667	667	531	8.6	6.19	28.53
F678	678	573	8.6	6.33	38.38
F679	680	569	8.6	10	36.83
F691	691	559	8.8	14.39	35.02
F695	695	585	9	0	38.74
F696	694	587	9	0	38.79
F697	697	591	9	6.5	38.96
F698	699	588	9	0	38.94
F699	696	588	9	0	31
F720	720	568	8.9	4.83	38.31
F721	722	572	8.9	0	39.04
F736	736	521	7.5	9.22	35.75
F739	739	568	8.5	0	38.09
F740	739	541	8	6.47	38.46
F757	757	514	9	0	30.54
F761	762	572	8.6	3.25	39.35
F775	776	568	9	8.89	36.76
F776	776	541	7.4	14.58	34.19
F777	776	514	7	13.69	32.54
F788	788	595	8.8	12.53	20.87
F813	813	568	9.7	4.06	37.55
F814	814	542	6.9	8.11	34.66
F815	815	515	7	8.86	31.61
F826	826	595	10.9	12.06	21.68
F830	830	544	7.7	4.06	36.56
F831	831	573	10.4	8.58	37.9
F832	832	569	10.4	3.17	37.89
F836	832	515	7.7	6.83	33.23
F838	838	515	7.7	3	30.94
F853	853	595	10.5	5.58	22.86
F856	856	571	10.3	3.94	23.49
F858	858	569	10.3	2.25	35.3
F863	863	518	7.5	3	24.13
F864	864	540	7.8	0	22.88
F890	890	569	10.6	1.89	31.83
F891	891	571	10.6	4.92	23.14
F893	893	544	8.1	1.89	22.58
F895	895	523	8.2	2.64	22.07
F908	908	571	10.4	0	20.32
F911	911	577	10.5	4.44	20.18
F912	912	501	10	1.14	19.94
F913	913	526	10.3	1.14	19.86
F919	919	548	10.4	19.19	19.69
F940	940	579	10.5	3.94	20.08
F945	945	550	9.9	5.89	20.52

NODE	X	Y	Z	CS (l/s)	Pressure Head (m)
F947	947	508	10.2	13.78	20.28
F953	953	531	10.1	13.78	21.58
F955	955	578	10.9	1.97	19.53
F964	964	569	10.9	5.89	26.67
F967	967	507	10.2	5.89	20.24
F968	968	374	10.9	2.94	19.57
G103	103	679	10	0	9.03
G128	128	638	10	0	9.03
G129	129	659	10	0	9.03
G134	134	678	10	0	9.03
G144	144	660	10	0	9.03
G145	145	670	10	102.6	9.03
G166	155	676	10	0	11.38
G235	252	631	10	9.39	10.6
G257	257	665	10	0	10.7
G284	284	616	10	0	15.19
G287	287	633	10	0	14.16
G292	292	662	10	9.39	12.42
G293	294	670	10	9.39	11.81
G334	334	658	10	0	16.94
G376	375	663	10	0	15.4
G377	377	655	10	18.78	17.5
G483	466	689	8.5	12.06	21.74
G485	489	683	8.5	16.89	22.56
G507	506	640	10	26.78	23.08
G508	508	699	10	9.08	21.02
G511	511	688	10	4.28	21.46
G515	515	638	10	4.83	22.75
G565	565	671	7.6	1.61	24.4
G585	585	695	8.2	2.67	24.7
G591	591	674	7.8	1.61	24.51
G593	593	644	7.8	11.42	24.23
G610	611	701	7.8	0	26.02
G611	612	694	7.8	0	26
G612	613	700	8.1	0	25.76
G613	614	694	8.1	10.58	25.71
G614	612	697	8.1	8.53	25.71
G615	615	676	7.6	6.44	25.27
G616	613	677	7.6	0	25.31
G617	618	694	8.1	0	25.94
G618	616	646	8	9.81	24.03
G619	619	676	7.6	15.19	26.88
G621	621	647	8	20.86	28.16
G622	622	621	6.9	0	25.13
G653	653	624	7.5	3.72	30.26
G685	685	682	9.3	24.56	25.07

NODE	X	Y	Z	CS (1/s)	Pressure Head (m)
G688	688	652	8.4	7.28	28
G692	692	627	8.5	17.22	31.28
G736	736	640	10.2	23.61	28.92
G742	742	643	10.2	37.94	39.45
G768	772	665	10	0	39.93
G771	771	679	9.3	17.11	14.28
G774	774	613	8.7	3.25	24.57
G777	777	617	8.7	6.97	23.84
G788	788	628	8.9	6.97	22.85
G793	794	680	10	0	40.21
G812	817	662	10.7	7.58	22.97
G813	818	654	10.8	7.58	22.44
G814	814	695	10.3	36.42	40.19
G815	815	642	11.1	32.67	35.08
G816	815	686	10.9	17.53	26.22
G817	816	698	10.3	0	40.85
G820	820	639	11.1	3.94	21.81
G821	821	629	10.9	2.33	21.68
G823	823	617	10.8	4.64	21.81
G826	826	612	10.9	2.64	38.82
G842	842	692	10.4	10	23.68
G845	845	661	10.5	4	23.2
G846	846	658	10.7	3.89	22.97
G848	848	641	10.7	6.67	22.7
G850	850	620	10.8	5.28	22.51
G863	863	697	10.3	15.03	24.81
G867	867	665	10.5	10.75	23.8
G872	872	647	10.5	3.69	23.59
G877	877	623	10.5	1.31	23.39
G881	881	699	10.4	13.58	24.38
G883	883	603	10.2	3.94	23.61
G888	888	670	10.5	5.81	23.44
G893	893	653	10.3	7.28	23.15
G898	898	629	10.4	6.33	22.38
G902	902	608	10.3	9.53	19.54
G910	910	659	9.6	4.14	23.86
G912	912	658	9.6	0	22.83
G918	918	637	10.1	3.69	22.33
G932	932	669	10	0	24.03
G949	949	627	10	4.44	19.81
G967	967	635	10	2.47	20.86
G987	987	633	10	1.97	20.86
H108	108	724	10	0	9.03
H480	480	745	10	5.03	16.21
H482	482	745	10	5.03	12.79
H521	521	791	8.5	25.11	14.29

NODE	X	Y	Z	CS (l/s)	Pressure Head (m)
H522	522	790	8.5	0	14.29
H565	565	720	8.5	8.03	25.29
H587	589	719	8.4	8.03	23.22
H589	589	702	7.5	8.03	23.53
H599	599	755	8.5	17.08	13.26
H609	607	725	8.5	0	26.6
H610	610	723	11	8.75	24.12
H640	640	722	7.9	5.11	26.82
H680	680	731	11.3	12.92	27.23
H682	682	704	9.5	12.31	24.55
H683	683	702	9.5	12.92	24.55
H684	683	700	9.5	0	24.56
H687	694	702	9.5	0	24.34
H727	727	735	10.7	6.58	31.43
H728	728	708	10.1	6.58	23.71
H729	728	710	10.1	0	24.57
H732	729	705	10.1	13.08	23.74
H761	761	738	11	4.39	34.35
H765	765	712	10.2	3.5	19.85
H766	766	709	10.2	6.31	18.95
H785	785	768	11.2	0	40.8
H795	795	762	11.2	0	40.73
H796	796	768	11.2	0	40.73
H797	797	758	11.2	0	40.62
H798	798	743	11.1	15.22	37.32
H799	799	799	10.9	13.53	24.74
H803	804	716	10.4	0	14.5
H804	804	712	10.4	46.14	13.15
H805	805	759	11	0	40.74
H807	807	759	11	0	40.72
H809	809	733	10.6	7.44	32.99
H810	810	724	10.4	11.17	31.99
H811	811	719	10.4	0	32.11
H836	836	747	10.6	3.36	31.13
H837	837	737	10.6	5.03	31.06
H839	839	728	10.6	5.03	31.04
H842	842	709	10.4	5.03	23.66
H850	850	723	10.6	4.17	26.86
H852	852	710	10.4	0	26.65
H856	856	750	10.8	0	27.52
H857	857	740	10.5	5.03	27.19
H860	860	726	10.6	8.36	26.28
H865	865	765	11.6	3.92	25.79
H866	866	754	10.6	11.58	26.89
H870	870	741	10.5	0	26.65
H873	873	730	10.5	27.08	24.9

NODE	X	Y	Z	CS (l/s)	Pressure Head (m)
H895	895	702	9.6	14.67	25.16
H903	903	759	10.5	27.06	25.59
H908	908	740	9.7	26.17	25.83
H915	915	765	11.2	13.53	14.01
H919	919	707	9.5	16.92	25.52
H939	939	712	11.2	13.53	19.96
I479	479	868	10	17.08	9.34
I518	518	876	10	14.06	9.33
I520	520	886	10	6.78	9.3
I550	550	824	8.5	17.58	13.56
I560	560	887	10	6.03	10.12
I561	561	897	10	1.5	9.65
I578	578	856	9	3.75	13.36
I580	580	855	9	3.75	13.85
I590	590	895	10	0	12.13
I593	593	895	10	1.5	12.9
I599	599	880	10	0	12.75
I601	601	879	10	0	13.03
I603	603	881	10	1.5	13.03
I604	604	801	8.5	17.06	13.27
I609	609	842	8.2	9.03	14.13
I613	613	873	10	0	13.72
I614	614	876	10	1.5	13.81
I639	639	892	10	7.61	18.34
I643	643	891	10	0	18.96
I650	650	811	7.5	11.81	14.04
I683	683	876	10	4.61	22.8
I757	757	892	10	0	16.49
I767	767	890	10	10.31	30.87
I774	774	826	9.1	4.28	39.05
I785	785	894	10	10.89	16.49
I786	786	879	10	5.69	17.22
I797	797	810	11	5.69	21.41
I805	805	882	10	10.69	16.7
I846	846	817	10.5	10.69	20.51
I853	853	806	10.6	5.69	21.12
I862	862	832	10.7	5.69	19.85
I874	874	817	10.8	13.53	20.91
J562	562	921	10	6.03	9.3
J592	592	912	10	6.11	9.34
J764	764	917	10	0	30.87
J812	804	957	10	14.25	14.56
J821	821	910	11	19.94	14.18
J900	960	998	10	74.61	15.15
K816	814	998	10	14.25	14.23
K818	798	1046	10	22.08	13.12

NODE	X	Y	Z	CS (1/x)	Pressure Head (m.)
L812	811	1118	10	15.36	11.79
M738	779	1233	10	26.56	7.75
M739	732	1281	10	11.86	6.4
M740	714	1358	10	23.75	5.65
M741	647	1382	10	11.86	4.93
M760	770	1155	10	14.69	10.82
SW10	529	432	8.4	0	36.67
SW11	494	404	8.4	0	36.27
SW20	624	405	10	15.92	34.27
SW21	670	382	10	15.92	32.2
SW22	707	324	10	15.92	30.08
SW23	747	251	10	15.92	27.9
SW24	787	224	10	15.92	23.7
SW25	748	165	10	15.92	23.26
SW26	670	182	10	10.61	23.19
SW27	572	211	10	0	23.19
D1015	1015	306	10.7	0	17.76
H8081	808	746	10.9	0	40.7
H8082	808	744	10.9	0	37.18
H8083	810	744	10.9	0	36.97
H8084	806	747	10.9	0	40.7

4.2
YEAR 2000-OPTION 2 : without the Elevated Tank

BRANCHES

2000 Option 2

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
604	N1	N2	500	300	0.3
603	J592	N1	500	500	0.06
465	SW4	SW5	900	1000	1.29
449	SW4	G817	20	1000	-1.29
464	SW5	SW6	700	900	1.47
467	SW5	G742	20	800	0.16
463	SW6	SW7	900	900	1.19
512	SW6	F697	20	600	0.63
457	SW7	SW8	540	700	0.64
474	WS1	SW7	1600	500	-1.3
456	F630	SW7	20	1000	-0.33
458	SW8	SW9	540	700	0.64
459	SW9	SW10	540	400	0.7
490	SW9	SW20	1100	500	0.8
1	C447	D440	360	200	-0.37
3	C807	C895	940	250	-0.33
2	C807	D756	950	100	0.57
4	C875	C895	280	200	0.06
5	C875	D860	250	200	-0.24
8	C877	C928	540	250	0.54
7	C877	D862	260	250	-0.62
6	C895	C928	360	250	-0.42
611	D912	C934	660	400	0.98
10	C934	D912	660	250	-0.6
14	D440	D446	220	200	-0.37
15	D446	E524	1070	200	-0.18
448	SW12	D446	20	200	0.92
17	D754	D755	300	150	-0.41
506	D755	D754	300	200	0.6
16	D756	D754	450	150	-0.42
18	D755	E754	300	150	-0.56
504	E754	D755	300	200	0.84
19	D768	E769	180	200	-0.14
476	D835	D840	190	250	1.1
423	D835	E841	390	250	-1.1
422	D845	D840	200	250	0.46
477	D840	E846	20	250	1.33
75	D840	E872	250	250	0.24
26	D855	D845	390	250	0.46
22	D854	D856	30	250	-0.13
20	D860	D854	560	200	-0.61
21	D854	E849	420	250	-0.52
25	D880	D855	360	250	0.58
23	D862	D856	560	250	0.16
24	D856	D880	370	250	-0.04
321	D862	SW24	800	300	-0.71

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
28	D880	D909	300	250	0.75
529	D880	D909	300	400	1.23
27	D880	E873	360	100	0.93
541	D909	D912	210	400	1.04
29	D909	D912	210	250	0.64
30	D909	E905	330	250	0.44
32	E524	E576	710	250	0.15
447	E524	SW10	20	200	-1.9
33	E576	F629	750	250	-0.59
35	E632	E645	170	100	0.46
34	E632	F650	270	100	-1.03
36	E645	E668	300	150	-0.07
40	E668	E681	350	100	-0.81
37	E668	E703	550	150	-0.11
39	E681	E715	460	250	-0.04
38	E681	F650	410	150	-0.61
41	E703	E732	290	150	-0.44
49	E747	E715	360	250	0.14
54	E717	E729	410	100	0.56
51	E717	E748	340	250	0.58
50	E717	F633	1110	250	-0.76
42	E732	E754	250	150	-0.58
55	E740	E777	370	100	-0.89
48	E770	E747	210	250	0.22
52	E748	E799	510	250	0.58
503	E768	E754	150	200	1.27
43	E754	E768	150	150	-0.85
44	E768	E769	60	200	-0.6
45	E768	E770	180	200	-1.15
46	E769	E849	790	200	-0.93
47	E770	E805	360	300	-0.71
56	E777	E815	360	100	0.39
57	E777	F777	320	100	-0.28
509	F777	E777	320	200	0.56
53	E799	E845	460	200	0.75
74	E805	E846	390	350	-0.58
72	E815	E839	250	100	-0.44
71	E815	F815	320	100	-0.39
59	E845	E839	420	250	-0.85
60	E839	F836	310	250	-0.97
62	E841	E865	250	100	0.76
61	E841	F838	230	250	-1.28
58	E849	E845	270	250	-1.23
67	E865	E867	160	100	0.53
63	E865	E897	330	100	0.35
70	E865	F863	240	100	-0.21

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
69	E867	E872	380	100	0.18
68	E867	E910	430	100	0.11
77	E873	E871	280	150	-0.7
78	E871	E904	420	150	-0.81
76	E872	E904	340	300	0.1
66	E897	E900	240	100	0.1
64	E897	F895	240	100	-0.13
65	E897	F912	140	100	0.23
80	E904	E908	30	300	-0.14
83	E904	E910	450	150	-0.18
79	E905	E908	290	250	0.32
81	E908	E937	400	250	-0.17
85	E908	F919	1080	150	-0.17
84	E910	F912	160	150	-0.18
82	E937	F947	460	250	-0.45
489	F286	F468	1800	300	-0.73
184	G284	F286	340	200	-1.34
87	F468	G507	640	250	0.76
614	F468	G507	640	400	1.25
88	F629	F627	310	150	1.79
89	F627	G618	870	250	-0.52
479	F629	F630	20	1000	-0.08
90	F629	F632	40	200	0.02
482	F630	F631	20	1000	0.05
480	F632	F630	20	1000	-0.13
481	F630	F633	20	1000	0.07
94	F631	F633	30	200	0.01
108	F631	F650	240	150	2.04
91	F632	F653	290	200	-0.09
100	F632	G621	1150	250	1.05
95	F633	F679	620	200	0.4
101	F653	F649	480	100	0.47
92	F653	F678	330	200	-0.33
107	F667	F691	370	100	-0.79
93	F678	F696	260	200	-0.53
105	F679	F691	160	200	0.95
96	F679	F695	280	200	-0.86
106	F691	F736	600	200	0.29
431	F695	F696	10	200	-0.68
432	F695	F698	10	200	-1.34
104	F695	F720	310	300	0.52
430	F696	F697	10	200	-1.21
426	F697	F698	20	250	0.31
98	F697	G692	350	250	1.68
99	F697	G736	620	200	1.13
103	F698	F721	300	200	-0.01

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
97	F698	G742	700	250	-0.54
114	F720	F739	180	250	0.65
118	F721	F761	390	200	-0.01
115	F739	F740	270	200	0.21
116	F739	F775	380	250	0.52
119	F761	F831	710	250	-0.25
120	F761	G774	440	100	1.07
112	F776	F775	270	100	-0.73
507	F775	F776	270	200	1.43
117	F775	F813	370	250	-0.7
111	F777	F776	270	100	-0.51
508	F776	F777	270	200	1.01
113	F776	F814	370	100	0.06
110	F777	F815	370	100	0.29
121	F788	F826	350	150	-0.71
125	F814	F813	260	100	-0.87
128	F813	F832	150	250	-0.92
122	F815	F814	270	100	-0.61
124	F814	F830	180	100	-0.72
123	F815	F836	210	100	-0.62
135	F831	F826	250	120	1.5
136	F826	F853	270	150	-0.38
225	F826	G823	180	120	-0.08
127	F830	F832	250	250	-1.4
126	F836	F830	280	250	-1.2
505	F831	F832	40	900	0.43
133	F832	F831	40	250	-0.16
145	F831	F856	240	120	1.47
134	F831	G826	390	600	-1.19
132	F838	F832	520	250	-1.5
142	F832	F858	250	300	1.29
129	F838	F863	250	100	0.98
148	F856	F853	240	200	0.36
149	F853	G850	240	200	0.12
137	F853	G883	290	150	-0.28
146	F856	F891	340	150	0.08
143	F858	F890	310	300	1.26
130	F863	F895	310	100	0.39
139	F893	F890	240	100	-1.3
144	F890	F909	180	300	1.09
147	F891	F908	180	150	0.91
150	F891	G883	300	350	-0.2
138	F895	F893	290	100	-0.22
141	F893	F919	260	150	0.37
131	F895	F913	190	100	0.15
154	F908	F911	100	150	0.14

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
153	F919	F908	260	150	-0.38
152	F919	F908	260	150	-0.38
159	F909	F964	550	300	0.99
156	F911	F940	300	150	0.13
155	F911	G898	540	120	-0.37
151	F912	F919	460	150	-0.14
163	F919	F945	300	150	-0.26
157	F940	F955	130	150	0.24
160	F940	G918	840	150	-0.33
164	F945	F953	220	150	-0.59
165	F947	F953	220	250	-0.81
167	F947	F967	190	200	0.13
166	F953	F964	420	250	-1.31
158	F955	F968	110	150	-0.13
161	F955	G949	490	150	0.25
168	F967	F968	660	200	-0.06
162	F968	G967	560	200	-0.23
176	G145	G166	220	300	-1.29
175	G145	G257	1120	200	-0.37
616	G166	G293	1260	500	-0.38
177	G166	G293	1260	300	-0.23
180	G257	G235	340	250	0.19
181	G257	G292	350	200	-0.66
183	G284	G287	170	250	0.85
182	G292	G287	290	250	-0.85
179	G293	G292	30	200	-1.36
185	G292	G334	420	200	-0.98
178	G293	G376	830	300	-0.82
186	G334	G377	450	300	-0.44
187	G376	G483	1120	300	-0.82
188	G377	G485	1120	300	-0.7
617	G483	G485	100	300	-1.36
191	G483	G508	300	300	-0.64
193	G485	G507	510	150	-0.49
615	G485	G507	510	400	-1.14
192	G485	G511	280	200	-0.36
194	G507	G515	110	200	0.52
198	G508	H565	750	300	-0.76
199	G508	H589	810	150	-0.03
197	G515	G511	500	100	0.3
200	G511	G585	740	200	-0.42
195	G515	G593	750	200	0.29
203	G591	G565	250	100	0.2
205	G591	G585	210	100	-0.31
201	G585	G614	240	200	-0.58
202	G593	G591	290	100	-0.18

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
204	G591	G615	250	100	-0.28
196	G593	G618	250	200	-0.03
442	G610	G611	20	150	0.26
443	G610	G614	10	150	0.28
441	H609	G610	270	150	0.54
444	G611	G614	10	150	-0.24
215	G611	G616	220	150	0.49
208	G613	G612	30	250	-0.48
410	G612	G614	30	250	0.48
224	G612	H610	210	250	-0.85
210	G612	H682	670	200	-0.16
429	G614	G613	10	250	-0.05
207	G615	G613	210	250	-0.74
209	G613	G617	30	200	-0.83
437	G616	G615	10	150	0.49
206	G618	G615	290	250	-0.59
214	G618	G615	300	150	-0.41
217	G619	G617	210	250	0.51
212	G617	H683	670	200	-0.04
216	G621	G619	300	250	0.83
222	G619	G685	680	100	0.08
218	G621	G688	680	250	-0.2
219	G653	G692	310	100	-0.47
221	G688	G685	300	250	0.91
223	G685	H684	210	250	0.42
220	G692	G688	260	250	1.26
229	G736	H732	700	150	0.68
231	G742	G768	290	250	-0.34
618	G742	G815	650	200	0.84
232	G742	G815	650	125	0.5
424	G768	G793	290	250	-0.34
230	G771	H766	360	150	-0.97
226	G823	G774	470	150	-0.29
227	G777	G823	430	250	-0.14
228	G788	G821	320	150	-0.39
425	G793	G814	280	250	-0.34
237	G812	G813	90	150	0.48
238	G812	G816	240	150	-0.84
263	G812	G845	280	150	-0.07
256	G820	G813	150	150	-0.33
261	G813	G846	280	150	-0.28
239	G816	G814	100	150	-2.57
241	G814	G817	80	350	-1.26
240	G814	H811	240	150	1.28
267	G816	G842	280	150	0.73
243	G817	G826	870	700	0.88

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
501	H8081	G817	500	1200	1.08
242	G817	H8081	470	700	-0.67
236	G821	G820	100	150	-0.4
257	G820	G848	280	150	-0.29
235	G823	G821	120	150	0.12
233	G823	G850	280	120	-0.3
234	G823	G850	280	150	-0.35
262	G845	G842	260	200	-0.33
268	G842	G863	220	150	-0.48
274	G842	H842	170	150	0.07
255	G846	G845	90	200	-0.16
254	G848	G846	180	200	-0.34
264	G846	G867	220	200	-0.46
253	G850	G848	220	200	-0.17
258	G848	G872	250	150	-0.37
250	G850	G877	280	150	-0.32
249	G867	G863	330	160	-0.36
248	G867	G863	330	400	-0.75
271	G863	G881	180	250	0.43
269	G863	H860	300	400	-1.16
247	G872	G867	180	400	-0.51
265	G867	G888	220	200	0.39
246	G877	G872	250	400	-0.43
245	G883	G877	210	400	-0.3
251	G877	G898	220	150	0.5
270	G888	G881	310	160	-0.38
273	G881	H873	310	150	-0.32
272	G881	H895	140	250	0.11
244	G893	G902	200	120	0.84
266	G893	G888	180	200	-0.45
259	G898	G893	220	150	-0.39
260	G893	G910	190	100	-0.02
252	G898	G918	210	150	0.29
275	G918	G910	240	120	-0.39
278	G910	G932	240	100	-0.26
277	G910	H895	450	150	-0.38
279	G932	H919	410	100	-0.26
281	G967	H939	840	250	-0.19
282	G987	H939	920	150	-0.13
283	H480	H521	610	300	0.93
284	H482	H522	620	400	-0.04
291	H521	H522	20	200	0.05
294	H521	I479	870	200	0.6
292	H521	I550	440	250	0.45
289	H599	H522	810	200	-0.34
293	H522	I580	860	400	-0.12

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
285	H565	H609	270	300	-0.87
286	H589	H587	150	150	-0.49
287	H587	H610	240	150	-0.94
290	H599	1604	430	350	-0.07
440	H609	H610	20	450	-0.45
295	H610	H640	290	150	0.29
296	H610	H680	680	410	-1.09
297	H682	H680	280	150	-0.98
301	H680	H727	490	410	-1.32
300	H682	H683	10	250	-0.13
299	H682	H728	500	200	0.21
445	H683	H684	10	250	-0.42
304	H729	H727	270	150	-1.29
307	H727	H761	320	410	-1.54
427	H728	H732	20	150	-0.29
438	H728	H765	320	100	0.64
446	H729	H732	30	150	1.29
302	H732	H766	320	150	0.94
305	H765	H761	280	150	-1.82
308	H761	H798	360	450	-1.51
306	H765	H766	30	150	1.34
439	H765	H803	370	125	0.81
303	H766	H804	370	150	0.96
310	H795	H785	120	600	-0.47
320	H785	H795	120	1000	0.77
487	H785	H796	70	1200	1.16
312	H785	H796	70	800	0.77
319	H785	H774	660	400	1.15
309	H798	H795	200	600	-2.61
313	H796	H797	100	800	0.77
488	H796	H797	100	1200	1.16
314	H797	H805	100	800	0.7
498	H797	H805	80	1200	1.19
502	H798	H8082	120	600	1.23
311	H798	H8082	120	450	0.86
419	H805	H799	400	60	0.72
316	H799	H805	400	300	-1.8
317	H799	H797	110	300	1.7
420	H799	H797	110	60	0.61
318	H799	H853	540	160	0.63
451	H804	H803	30	150	-1.65
322	H803	H811	100	100	-1.8
499	H805	H807	20	1200	1.08
315	H805	H807	30	800	0.58
418	H8084	H805	140	100	-0.16
500	H807	H8081	150	1200	1

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
351	H807	H8081	110	800	0.77
325	H810	H809	90	150	-0.81
345	H809	H837	280	150	0.58
326	H809	H8084	120	150	-1.81
324	H811	H810	50	120	0.29
327	H810	H839	280	150	0.36
337	H836	H837	100	350	0.33
346	H836	H856	200	500	1.7
323	H8083	H836	310	500	1.8
336	H839	H837	90	350	-0.2
338	H837	H857	200	150	0.99
331	H839	H850	150	150	1.17
328	H842	H852	100	80	-0.77
330	H852	H850	120	150	-0.41
332	H850	H860	100	150	0.53
329	H852	H860	240	150	0.19
343	H856	H857	100	400	1.2
347	H856	H866	110	500	1.52
341	H857	H860	140	150	0.59
342	H857	H860	140	400	1.15
339	H857	H870	120	150	0.47
333	H860	H873	140	150	0.72
349	H866	H865	120	150	0.22
344	H866	H870	120	150	0.37
612	H866	H903	370	500	1.28
350	H866	H903	370	260	0.63
348	H8084	H866	590	110	0.87
340	H873	H870	120	150	-0.85
334	H873	H908	380	200	-0.16
335	H895	H919	250	250	-0.32
354	H903	H908	180	410	0.78
421	H903	H915	100	40	0.86
355	H903	H874	650	410	1.16
353	H908	H919	340	410	0.55
356	H939	H915	590	150	0.7
352	H919	H939	200	200	1.19
357	I479	I518	380	200	0.05
359	I518	I520	90	150	0.16
358	I550	I518	600	150	0.52
360	I518	I560	430	150	-0.33
364	I520	I561	420	150	-0.23
366	I550	I578	430	200	-0.25
365	I550	I604	590	150	0.17
362	I560	I561	90	150	0.56
371	I560	I578	350	150	-0.62
361	I560	I590	320	150	-0.62

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
363	1561	J562	340	150	0.25
368	1578	1580	30	150	-1
367	1578	1599	320	150	-0.27
370	1580	1603	340	400	-0.34
369	1580	1609	320	150	0.31
373	1590	1593	30	150	-1.24
374	1590	1599	170	150	-0.47
372	1590	J592	140	150	1.1
376	1593	1603	180	300	-0.33
375	1599	1601	30	150	-0.74
381	1601	1603	30	400	-0.03
380	1601	1613	140	150	-0.55
382	1603	1614	120	300	-1.01
378	1609	1604	420	300	0.46
377	1604	1650	460	100	1.5
379	1613	1609	320	250	0.73
383	1613	1614	30	250	-0.59
384	1613	1643	370	150	-0.93
385	1614	1639	340	300	-1.44
386	1643	1639	40	300	1.55
387	1643	1683	430	350	-1.31
388	1683	1767	840	350	-1.35
389	1767	1774	650	350	-1.46
393	1786	1785	150	300	0.87
414	1786	1785	150	100	0.37
395	1785	J821	390	300	0.72
415	1785	J821	390	100	0.3
391	1797	1786	700	300	1.07
413	1797	1786	700	60	0.31
392	1786	1805	180	150	0.38
390	1797	1846	490	360	0.69
401	1846	1805	770	110	0.42
398	1853	1846	130	110	0.46
400	1846	1862	220	360	0.59
397	1853	1874	240	260	0.05
399	1874	1862	200	410	1.07
613	J821	1862	900	400	-1.39
402	1862	J821	900	200	0.66
403	J562	J592	320	150	-0.09
404	J821	J812	360	500	0.79
405	J812	K816	360	500	0.72
455	J900	J821	1000	800	-0.15
406	K816	K818	360	400	1
407	K818	L812	630	400	0.83
408	L812	M760	630	400	0.71
452	M738	M739	670	300	0.67

BRANCH	Initial Node	Final Node	Length (m)	Diameter (mm)	Flow Velocity (m/s)
409	M760	M738	630	300	1.05
453	M739	M740	670	300	0.5
454	M740	M741	670	200	0.38
460	SW10	SW11	540	300	0.41
461	SW11	SW12	540	300	0.41
470	SW20	SW21	540	400	1.12
491	SW21	SW22	700	400	0.99
492	SW22	SW23	950	400	0.86
493	SW23	SW24	550	300	1.31
494	SW24	SW25	700	300	0.38
495	SW25	SW26	700	300	0.15
411	H8081	H8081	30	800	0.08
412	H8082	H8082	50	300	0.81
510	H8082	H8082	50	600	1.51

