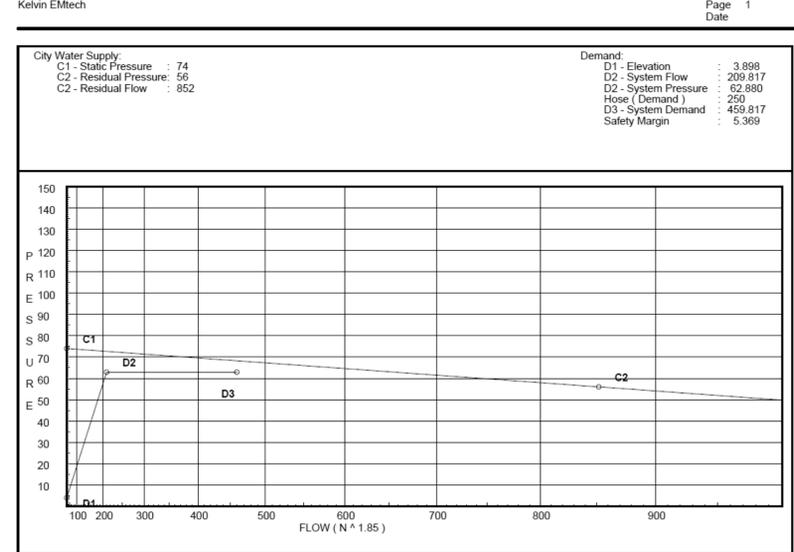


Water Supply Curve (C)



Fittings Used Summary

Fitting Legend	Abbrev.	Name	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	
Avk	Alarm Viking J1																						
E	NFPA 13 90 Standard Elbow		1	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61	
S	NFPA 13 Swing Check		0	0	5	7	9	11	14	16	19	22	27	32	45	55	65						
T	NFPA 13 90 Flow thru Tee		3	4	5	6	8	10	12	15	17	20	25	30	35	50	60	71	81	91	101	121	

Units Summary

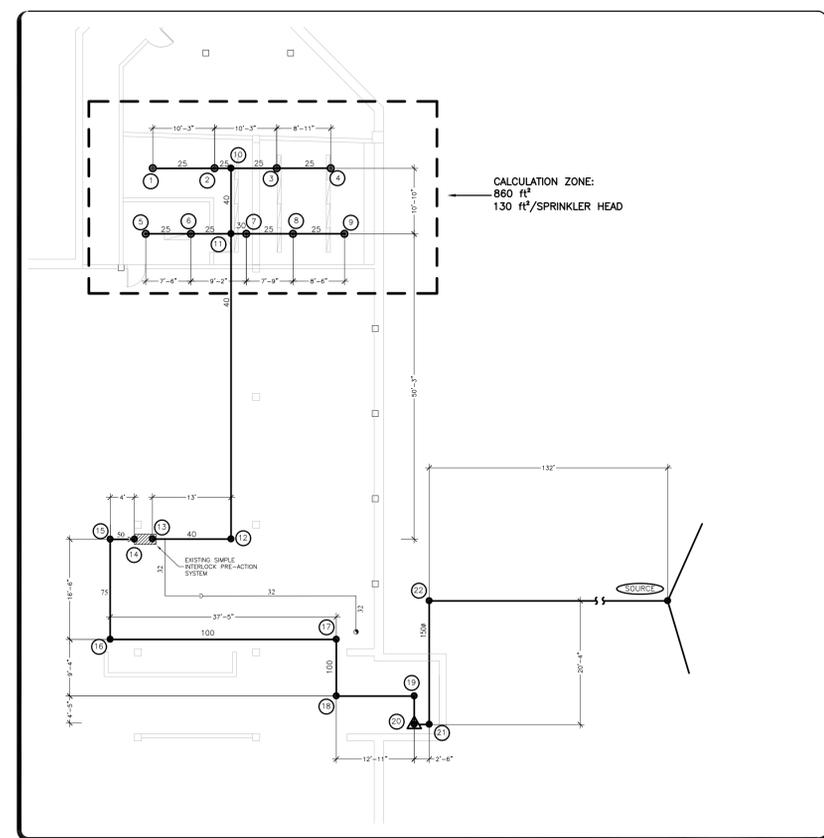
Diameter Units: Inches
Length Units: Feet
Flow Units: US Gallons per Minute
Pressure Units: Pounds per Square Inch

Note: Fitting Legend provides equivalent pipe lengths for fittings types of various diameters. Equivalent lengths shown are standard for actual diameters of Sched 40 pipe and CFactors of 120 except as noted with *. The fittings marked with a * show equivalent lengths values supplied by manufacturers based on specific pipe diameters and CFactors and they require no adjustment. All values for fittings not marked with a * will be adjusted in the calculation for CFactors of other than 120 and diameters other than Sched 40 per NFPA.

Pressure / Flow Summary - STANDARD

Node No.	Elevation	K-Fact	Pt Actual	Pn	Flow Actual	Density	Area	Press Req.
1	9.0	5.6	17.57	na	23.47	0.15	130	7.0
5	9.0	5.6	19.14	na	24.5	0.15	130	7.0
4	9.0	5.6	18.38	na	24.01	0.15	130	7.0
9	9.0	5.6	12.13	na	19.5	0.15	130	7.0
8	9.0	5.6	13.19	na	20.34	0.15	130	7.0
2	9.0	5.6	19.35	na	24.63	0.15	130	7.0
3	9.0	5.6	19.86	na	24.95	0.15	130	7.0
7	9.0	5.6	16.87	na	23.0	0.15	130	7.0
6	9.0	5.6	20.58	na	25.41	0.15	130	7.0
10	9.0		24.63	na				
11	9.0		25.53	na				
12	9.0		34.3	na				
13	9.0		40.96	na				
14	9.0		52.43	na				
15	9.0		55.77	na				
16	9.0		57.04	na				
17	9.0		57.73	na				
18	9.0		58.01	na				
19	9.0		58.32	na				
20	1.0		62.0	na				
21	1.0		62.18	na				
22	1.0		62.22	na	250.0			
CITY	0.0		62.88	na				

The maximum velocity is 23.33 and it occurs in the pipe between nodes 7 and 11



Final Calculations - Hazen-Williams

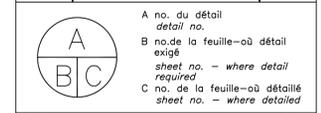
Hyd. Ref. Point	Qa Qt	Dia "C" P/Ft	Fitting or Eqv. Ln.	Pipe Fing's Total	Pt Pf	Pt Pv Pn	*****	Notes	*****
1	23.47	1.049	0.0	10.200	17.566			K Factor = 5.60	
to		120.0	0.0	0.0	0.0				
2	23.47	0.1750	0.0	10.200	1.785			Vel = 8.71	
	0.0								
	23.47				19.351			K Factor = 5.34	
5	24.50	1.049	0.0	7.600	19.143			K Factor = 5.60	
to		120.0	0.0	0.0	0.0				
6	24.5	0.1895	0.0	7.600	1.440			Vel = 9.10	
	0.0								
	24.50				20.583			K Factor = 5.40	
4	24.01	1.049	0.0	8.110	18.378			K Factor = 5.60	
to		120.0	0.0	0.0	0.0				
3	24.01	0.1824	0.0	8.110	1.479			Vel = 8.91	
	0.0								
	24.01				19.857			K Factor = 5.39	
9	19.50	1.049	0.0	8.600	12.125			K Factor = 5.60	
to		120.0	0.0	0.0	0.0				
8	19.5	0.1242	0.0	8.600	1.068			Vel = 7.24	
8	20.34	1.049	0.0	7.900	13.193			K Factor = 5.60	
to		120.0	0.0	0.0	0.0				
7	39.84	0.4657	0.0	7.900	3.679			Vel = 14.79	
	0.0								
	39.84				16.872			K Factor = 9.70	
2	48.10	1.049	1T 5.0	3.000	19.351			K Factor = 5.60	
to		120.0	0.0	5.000	0.0				
10	48.1	0.8599	0.0	8.000	5.279			Vel = 17.86	
	0.0								
	48.10				24.630			K Factor = 9.69	
3	48.96	1.049	0.0	7.000	19.857			K Factor = 5.60	
to		120.0	0.0	0.0	0.0				
10	48.96	0.6819	0.0	7.000	4.773			Vel = 18.18	
	0.0								
	48.96				24.630			K Factor = 9.87	
7	62.84	1.049	1T 5.0	3.000	16.872			K Factor = 5.60	
to		120.0	0.0	5.000	0.0				
11	62.84	1.0820	0.0	8.000	8.656			Vel = 23.33	
	0.0								
	62.84				25.528			K Factor = 12.44	
6	49.91	1.049	0.0	7.000	20.583			K Factor = 5.60	
to		120.0	0.0	0.0	0.0				
11	49.91	0.7064	0.0	7.000	4.945			Vel = 18.53	
	0.0								
	49.91				25.528			K Factor = 9.88	
10	97.07	2.067	0.0	10.100	24.630				
to		120.0	0.0	0.0	0.0				
11	97.07	0.8889	0.0	10.100	0.898			Vel = 9.28	
11	112.75	2.469	1E 6.0	50.300	25.528				
to		120.0	0.0	6.000	0.0				
12	209.82	0.1558	0.0	56.300	8.770			Vel = 14.06	

12	0.0	2.067	1E 5.0	13.000	34.298				
to		120.0	0.0	5.000	0.0				
13	209.82	0.3702	0.0	18.000	6.963			Vel = 20.06	
	0.0								
	209.82		1Eq1 28.0	3.000	40.961				
13	0.0	2.067	1E 5.0	4.000	52.434				
to		120.0	0.0	5.000	0.0				
14	209.82	0.3701	0.0	31.000	11.473			Vel = 20.06	
	0.0								
	209.82	0.3702	0.0	9.000	3.332				
15	0.0	3.068	1E 7.0	16.600	55.766				
to		120.0	0.0	7.000	0.0				
16	209.82	0.0541	0.0	23.600	1.276			Vel = 9.11	
	0.0								
	209.82	0.0144	1E 10.0	37.500	57.042				
16	0.0	4.026	1E 10.0	10.000	0.0				
to		120.0	0.0	10.000	0.0				
17	209.82	0.0144	0.0	47.500	0.684			Vel = 5.29	
	0.0								
	209.82	0.0144	1E 10.0	9.400	57.726				
17	0.0	4.026	1E 10.0	10.000	0.0				
to		120.0	0.0	10.000	0.0				
18	209.82	0.0144	0.0	19.400	0.279			Vel = 5.29	
	0.0								
	209.82	0.0144	1E 10.0	12.110	58.005				
18	0.0	4.026	1E 10.0	10.000	0.0				
to		120.0	0.0	10.000	0.0				
19	209.82	0.0144	0.0	22.110	0.319			Vel = 5.29	
	0.0								
	209.82	0.0144	1E 10.0	4.500	58.324				
19	0.0	4.026	1E 10.0	10.000	3.465				
to		120.0	0.0	10.000	0.208			Vel = 5.29	
20	209.82	0.0143	0.0	14.500	0.208				
	0.0								
	209.82	0.0144	1E 10.0	2.600	61.997				
20	0.0	4.026	1E 10.0	10.000	0.0				
to		120.0	0.0	10.000	0.279				
21	209.82	0.0144	0.0	12.600	0.182			Vel = 5.29	
	0.0								
	209.82	0.0144	1Avk 23.0	20.400	62.179				
21	0.0	7.981	1S 45.0	68.000	0.0				
to		120.0	0.0	88.400	0.045			Vel = 1.35	
22	209.82	0.0005	0.0	88.400	0.045				
	0.0								
	250.00	8.27	1E 28.468	132.000	62.224			Qa = 250	
to		140.0	0.0	28.468	0.433			Vel = 2.75	
CITY	459.82	0.0014	0.0	160.468	0.223				
	0.0								
	459.82				62.880			K Factor = 57.99	

HYDRAULIC CALCULATIONS RESULTS

DO NOT USE FOR CONSTRUCTION

révisions	revisions	date
1	ÉMIS POUR APPEL D'OFFRES	28/01/14



Projet: SERVICE CORRECTIONNEL CANADA / CORRECTIONAL SERVICE CANADA

246 Montée Gagnon, SADP
CONFORMITÉ DES SYSTÈMES GICLEURS AUTOMATIQUES / AUTOMATIC SPRINKLERS SYSTEMS UPGRADE

Dessin: MÉCANIQUE MÉCANICAL

CALCULS HYDRAULIQUES

HYDRAULIC CALCULATION

Conçu par: Marc Bachkongi, Ing. / Designed by: 28 janvier 2014

Dessiné par: José Pouliot, technicien / Drawn by: 28 janvier 2014

Approuvé par: Marc Bachkongi, Ing. / Approved by: 28 janvier 2014

Soumission: Émis pour appel d'offres / Tender: 550-2-343-3927

Nom du fichier: 550_2_343_3927-M07-SPK-CAL / File name: 550_2_343_3927-M07-SPK-CAL

No de plan ou dessin: M7 / File no: M7/7

AUTOCAD 2015/01/28 Q:\DIVERS\140216-1 SCC, CONFORMITE SYSTEMES GICLEURS AUTOM, SAPLAINES\15-01-23 ÉMIS POUR APPEL D'OFFRES\140216-1-M7-R1-CALCULS.DWG