ISSUED FOR CLIENT REVIEW

Hydraulic Calculations by HydraCALC

SOSCIA PROFESSTIONAL ENGINERRS
85 EDEN VALE DRIVE
KING CITY
905 237 5410

Job Name	:	10533 KEELE STREET
Drawing	:	24-020 SP2
Location	:	10533 KEELE STREET, VAUGHAN ONTARIO
Remote Area	:	DA#2
Contract	:	24-020
Data File	:	k8-ground floor cal.WXF

HYDRAULIC CALCULATIONS
for

JOB NAME 10533 KEELE STREET
Location 10533 KEELE STREET, VAUGHAN ONTARIO
Drawing # 24-020 SP2
Contract # 24-020
Date 07/27/2026

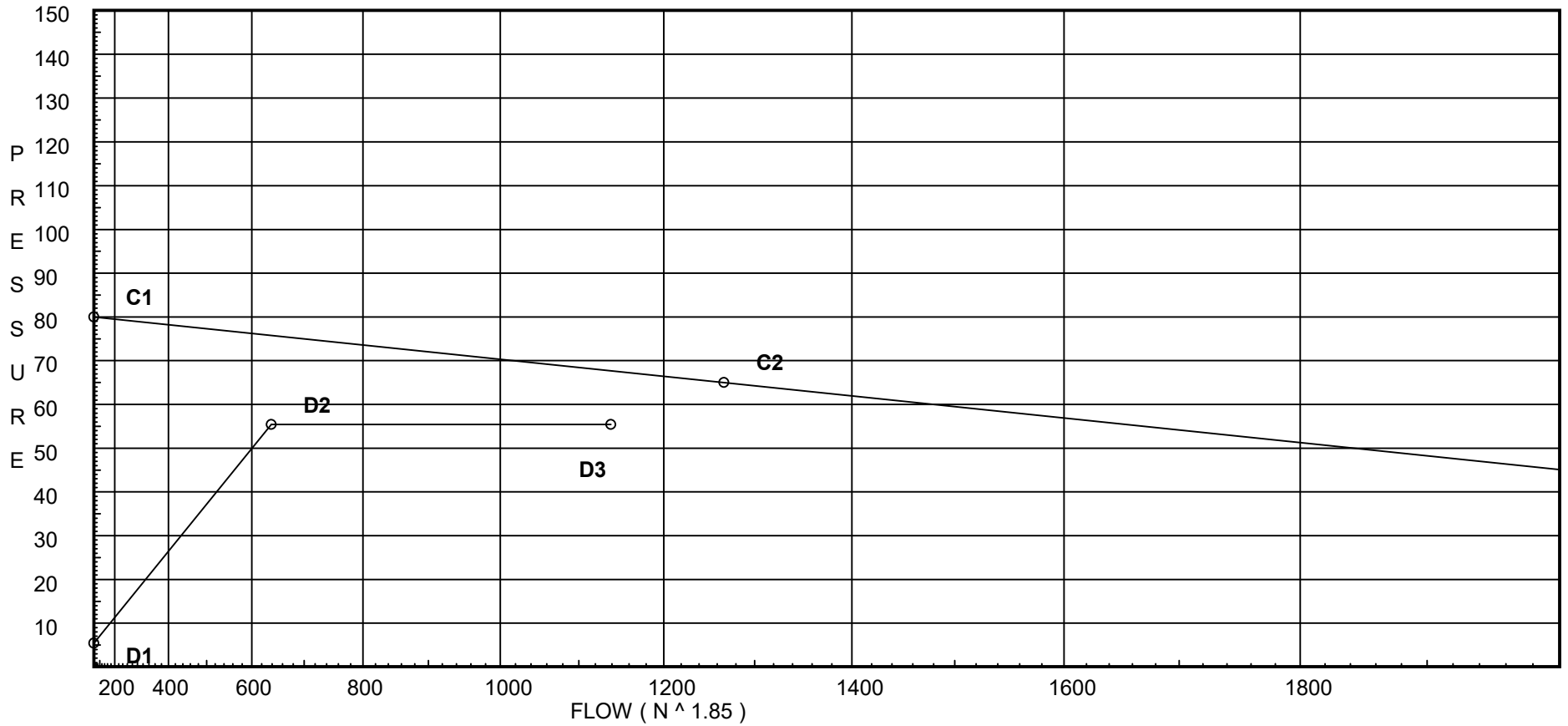
DESIGN
Remote area # DA#2
Remote area location GROUND
Occupancy classification EXTRA HAZARD II
Density 0.4 - Gpm/SqFt
Area of application ENTIRE - SqFt
Coverage/sprinkler 100 - SqFt
Type of sprinkler calculated K8.0
 # Sprinklers calculated
In-rack demand - GPM
Hose streams 500 - GPM
Total water required (including hose streams) 1138.74 - GPM @ 55.4492 - Psi
Type of system WET
Volume of system (dry or pre-action) - Gal

WATER SUPPLY INFORMATION
Test date 06/27/2025
Location AT SITE
Source of info SPARKMAN

CONTRACTOR INFO SOSCIA PROFESSTIONAL ENGINERRS
Address 85 EDEN VALE DRIVE / KING CITY
Phone # 905 237 5410
Name of designer LW
Authority having jurisdiction VAUGHAN
NOTES: 13.05 PSI
CITY WATER SUPPLY: STATIC PRESSURE: 80 PSI; RESIDUAL 1267 GPM@ 65 PSI

City Water Supply:
- C1 - Static Pressure : 80
- C2 - Residual Pressure: 65
- C2 - Residual Flow : 1267

Demand:
- D1 - Elevation : 5.414
- D2 - System Flow : 638.74
- D2 - System Pressure : 55.449
- Hose (Demand) : 500
- D3 - System Demand : 1138.74
- Safety Margin : 12.238



Fitting Legend

Abbrev.	Name	?.840	?1.050	1	1?1.660	1?1.900	2	2?2.875	3	3?4	4	5	6	8	10	12	14	16	18	20	24
B	NFPA 13 Butterfly Valve	0	0	0	0	0	6	7	10	0	12	9	10	12	19	21	0	0	0	0	0
E	NFPA 13 90' Standard Elbow	0	2	2	3	4	5	6	7	8	10	12	14	18	22	27	35	40	45	50	61
G	NFPA 13 Gate Valve	0	0	0	0	0	1	1	1	1	2	2	3	4	5	6	7	8	10	11	13
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
Zca	Colt C200 Horiz	Fitting generates a Fixed Loss Based on Flow																			

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.
201	12.5	8	25.0	na	40.0	0.4	100	7.0
231	12.5		25.33	na				
202	12.5	8	25.47	na	40.38	0.4	100	7.0
203	12.5	8	26.11	na	40.88	0.4	100	7.0
204	12.5	8	27.31	na	41.81	0.4	100	7.0
205	12.5	8	29.57	na	43.51	0.4	100	7.0
T201	12.5		32.98	na				
206	12.5	8	29.22	na	43.25	0.4	100	7.0
207	12.5	8	29.42	na	43.39	0.4	100	7.0
208	12.5	8	30.06	na	43.86	0.4	100	7.0
209	12.5	8	31.56	na	44.94	0.4	100	7.0
T202	12.5		34.08	na				
210	12.5	8	25.02	na	40.02	0.4	100	7.0
232	12.5		25.59	na				
211	12.5	8	25.74	na	40.59	0.4	100	7.0
212	12.5	8	26.36	na	41.07	0.4	100	7.0
213	12.5	8	27.56	na	42.0	0.4	100	7.0
214	12.5	8	29.84	na	43.7	0.4	100	7.0
T203	12.5		33.3	na				
215	12.5	8	38.05	na	49.34	0.4	50	7.0
T204	12.5		38.19	na				
B201	12.0		37.08	na				
B202	12.0		37.17	na				
B203	12.0		37.43	na				
B204	12.0		38.69	na				
B205	12.0		41.12	na				
BMG	10.0		42.24	na				
TOR	10.0		43.37	na				
BOR	2.0		48.28	na	100.0			
DC	2.0		50.37	na				
UG	0.0		54.83	na				
UG1	0.0		54.96	na				
UG2	0.0		55.26	na				
TEST	0.0		55.45	na	400.0			

The maximum velocity is 18.21 and it occurs in the pipe between nodes 214 and T203

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
201	12.500	8.00	40.00	1.5	E	4.95	2.000	120	25.000	
to							4.950		0.0	
231	12.500		40.0	1.682			6.950	0.0471	0.327	Vel = 5.78
231	12.500		0.0	2			10.500	120	25.327	
to									0.0	
202	12.500		40.0	2.157			10.500	0.0140	0.147	Vel = 3.51
202	12.500	8.00	40.38	2			12.500	120	25.474	
to									0.0	
203	12.500		80.38	2.157			12.500	0.0510	0.637	Vel = 7.06
203	12.500	8.00	40.88	2			11.000	120	26.111	
to									0.0	
204	12.500		121.26	2.157			11.000	0.1091	1.200	Vel = 10.65
204	12.500	8.00	41.80	2			12.000	120	27.311	
to									0.0	
205	12.500		163.06	2.157			12.000	0.1887	2.264	Vel = 14.32
205	12.500	8.00	43.51	2	E	6.153	5.500	120	29.575	
to							6.153		0.0	
T201	12.500		206.57	2.157			11.653	0.2922	3.405	Vel = 18.14
T201	12.500		0.0	2	T	12.307	1.000	120	32.980	
to							12.307		0.217	
B201	12		206.57	2.157			13.307	0.2922	3.888	Vel = 18.14
			0.0							
B201			206.57						37.085	K Factor = 33.92
206	12.500	8.00	43.25	2			12.000	120	29.224	
to									0.0	
207	12.500		43.25	2.157			12.000	0.0162	0.194	Vel = 3.80
207	12.500	8.00	43.39	2			11.000	120	29.418	
to									0.0	
208	12.500		86.64	2.157			11.000	0.0585	0.644	Vel = 7.61
208	12.500	8.00	43.86	2			12.000	120	30.062	
to									0.0	
209	12.500		130.5	2.157			12.000	0.1250	1.500	Vel = 11.46
209	12.500	8.00	44.95	2	E	6.153	5.500	120	31.562	
to							6.153		0.0	
T202	12.500		175.45	2.157			11.653	0.2160	2.517	Vel = 15.40
T202	12.500		0.0	2	T	12.307	1.000	120	34.079	
to							12.307		0.217	
B202	12		175.45	2.157			13.307	0.2160	2.874	Vel = 15.40
			0.0							
B202			175.45						37.170	K Factor = 28.78
210	12.500	8.00	40.02	1.5	T	9.9	2.167	120	25.025	
to							9.900		0.0	
232	12.500		40.02	1.682			12.067	0.0471	0.568	Vel = 5.78
232	12.500		0.0	2			10.500	120	25.593	
to									0.0	
211	12.500		40.02	2.157			10.500	0.0141	0.148	Vel = 3.51
211	12.500	8.00	40.59	2			12.000	120	25.741	
to									0.0	
212	12.500		80.61	2.157			12.000	0.0512	0.615	Vel = 7.08

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
212	12.500	8.00	41.07	2			11.000	120	26.356	
to									0.0	
213	12.500		121.68	2.157			11.000	0.1097	1.207	Vel = 10.68
213	12.500	8.00	42.00	2			12.000	120	27.563	
to									0.0	
214	12.500		163.68	2.157			12.000	0.1899	2.279	Vel = 14.37
214	12.500	8.00	43.70	2	E	6.153	5.600	120	29.842	
to							6.153		0.0	
T203	12.500		207.38	2.157			11.753	0.2944	3.460	Vel = 18.21
T203	12.500		0.0	2	T	12.307	1.000	120	33.302	
to							12.307		0.217	
B203	12		207.38	2.157			13.307	0.2943	3.916	Vel = 18.21
			0.0							
B203			207.38						37.435	K Factor = 33.89
215	12.500	8.00	49.34	2	E	6.153	1.000	120	38.046	
to							6.153		0.0	
T204	12.500		49.34	2.157			7.153	0.0207	0.148	Vel = 4.33
T204	12.500		0.0	2	T	12.307	1.000	120	38.194	
to							12.307		0.217	
B204	12		49.34	2.157			13.307	0.0206	0.274	Vel = 4.33
			0.0							
B204			49.34						38.685	K Factor = 7.93
B201	12		206.57	4			8.000	120	37.085	
to									0.0	
B202	12		206.57	4.26			8.000	0.0106	0.085	Vel = 4.65
B202	12		175.45	4			8.000	120	37.170	
to									0.0	
B203	12		382.02	4.26			8.000	0.0331	0.265	Vel = 8.60
B203	12		207.38	4	E	13.167	3.750	120	37.435	
to							13.167		0.0	
B204	12		589.4	4.26			16.917	0.0739	1.250	Vel = 13.27
B204	12		49.34	4	T	26.334	2.000	120	38.685	
to							26.334		0.0	
B205	12		638.74	4.26			28.334	0.0858	2.430	Vel = 14.38
B205	12		0.0	6	E	17.603	3.333	120	41.115	
to							17.603		0.866	
BMG	10		638.74	6.357			20.936	0.0122	0.256	Vel = 6.46
BMG	10		0.0	6	2E	35.205	20.000	120	42.237	
to					T	37.72	72.925		0.0	
TOR	10		638.74	6.357			92.925	0.0122	1.134	Vel = 6.46
TOR	10		0.0	6	B	12.573	10.000	120	43.371	
to					S	40.235	108.131		3.465	
BOR	2		638.74	6.357	T	37.72	118.131	0.0122	1.442	Vel = 6.46
					E	17.603				
BOR	2	H100	100.00	6	2E	35.205	20.000	120	48.278	
to					2T	75.44	110.645		0.0	
DC	2		738.74	6.357			130.645	0.0160	2.088	Vel = 7.47
DC	2		0.0	8	E	21.141	25.000	120	50.366	
to					Zca	0.0	62.249		4.071	* * Fixed Loss = 3.205
UG	0		738.74	8.249	T	41.108	87.249	0.0045	0.392	Vel = 4.43

Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Eqiv	Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	******* Notes ******
UG	0		0.0	8	E	27.183	10.000	150	54.829	
to							27.182		0.0	
UG1	0		738.74	7.98			37.182	0.0035	0.130	Vel = 4.74
UG1	0		0.0	10	G	6.747	100.000	150	54.959	
to					2E	59.378	133.599		0.0	
UG2	0		738.74	9.79	T	67.474	233.599	0.0013	0.301	Vel = 3.15
UG2	0		0.0	12	G	8.05	100.000	150	55.260	
to					2E	72.448	241.494		0.0	
TEST	0		738.74	11.65	2T	160.996	341.494	0.0006	0.189	Vel = 2.22
			400.00							Qa = 400.00
TEST			1138.74						55.449	K Factor = 152.92