



HYDRAULIC CALCULATION

Bruce Fire Protection Ltd
400 Applewood Cres
Suite 100
Vaughan, ON L4K 0C3
905 482 8099



Job Name : FIREARMS OUTLET CANADA
Drawing : 25-5143-SP
Location : 725 WESTNEY DR. S, AJAX, ON.
System : 3
Contract :
Data File : 25-5143-3.WXF

HYDRAULIC CALCULATIONS
for

JOB NAME FIREARMS OUTLET CANADA
Location 725 WESTNEY DR. S, AJAX, ON.
Drawing # 25-5143-SP
Contract #
Date MAY 26/25

DESIGN

Remote area # 3
Remote area location WHAREHOUSE
Occupancy classification ORDINARY HAZARD GR2
Density 0.2 - Gpm/SqFt
Area of application 900 - SqFt
Coverage/sprinkler 125 - SqFt
Type of sprinkler calculated SS, QR,
Sprinklers calculated 10
In-rack demand N/A - GPM
Hose streams 250 - GPM
Total water required (including hose streams) 508.926 - GPM @ 48.9533 - Psi
Type of system WET
Volume of system (dry or pre-action) N/A - Gal

WATER SUPPLY INFORMATION

Test date MAY 22/25
Location ON SITE
Source of info Bruce Fire Protection Ltd

CONTRACTOR INFO

Address
Phone #
Name of designer
Authority having jurisdiction CITY OF AJAX
NOTES:

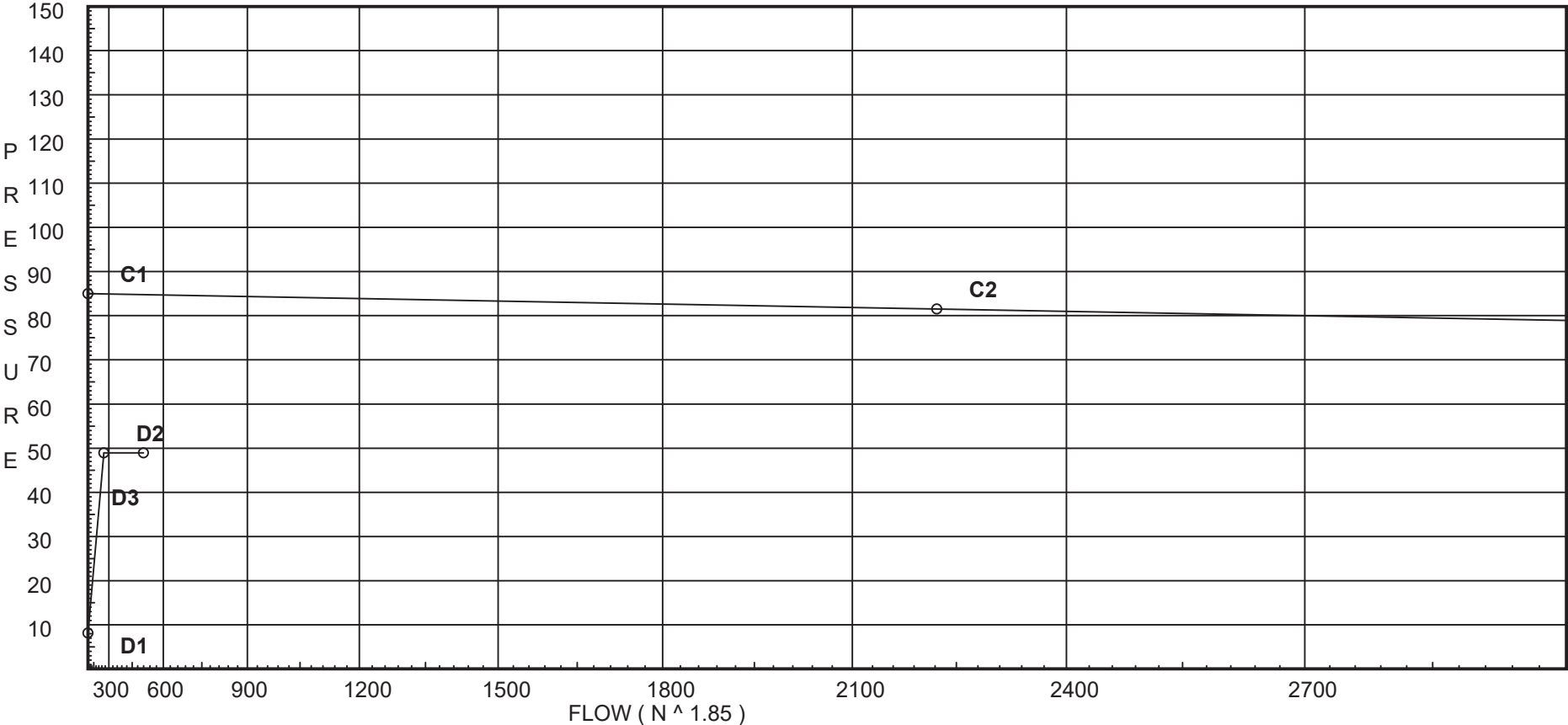
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Water Supply Curve

Bruce Fire Protection Ltd
FIREARMS OUTLET CANADA

City Water Supply:
C1 - Static Pressure : 85
C2 - Residual Pressure: 81.5
C2 - Residual Flow : 2222.4

Demand:
D1 - Elevation : 8.155
D2 - System Flow : 258.926
D2 - System Pressure : 48.953
Hose (Demand) : 250
D3 - System Demand : 508.926
Safety Margin : 35.818



Flow Summary - NFPA

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SUPPLY ANALYSIS

<i>Node at Source</i>	<i>Static Pressure</i>	<i>Residual Pressure</i>	<i>Flow</i>	<i>Available Pressure</i>	<i>Total Demand</i>	<i>Required Pressure</i>
TEST	85.0	81.5	2222.4	84.771	508.93	48.953

NODE ANALYSIS

<i>Node Tag</i>	<i>Elevation</i>	<i>Node Type</i>	<i>Pressure at Node</i>	<i>Discharge at Node</i>	<i>Notes</i>	
301	18.83	5.6	23.96	27.41	0.2	125
302	18.83	5.6	19.93	25.0	0.2	125
303	18.83	5.6	20.35	25.26	0.2	125
304	18.83	5.6	20.8	25.54	0.2	125
305	18.83	5.6	21.0	25.66	0.2	125
306	18.83	5.6	20.81	25.55	0.2	125
307	18.83	5.6	21.03	25.68	0.2	125
308	18.83	5.6	20.8	25.54	0.2	125
309	18.83	5.6	20.99	25.66	0.2	125
310	18.83	5.6	24.34	27.63	0.2	125
L30	18.83		24.41			
L31	18.83		21.79			
L32	18.83		21.79			
L33	18.83		24.59			
M30	17.83		25.09			
M31	17.83		25.1			
M32	17.83		25.14			
M33	17.83		25.29			
M34	17.83		26.51			
M24	17.83		28.48			
M25	1.0		39.3			
UG	1.0		45.41			
TEST	0.0		48.95	250.0		

Final Calculations : Hazen-Williams

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Node1 to Node2	Elev1 Elev2	K Fact	Qa Qt	Nom Act	Fitting or Equiv Len	Pipe Ftngs Total	CFact Pf/Ft	Pt Pe Pf	*****	Notes	*****
301 to L30	18.830 18.830	5.60	27.41 27.41	1.5 1.682	T 9.9	9.000 9.900 18.900	120 0.0234	23.964 0.0 0.442			
			0.0						Vel =	3.96	
L30			27.41					24.406	K Factor =	5.55	
302 to 303	18.830 18.830	5.60	25.00 25.0	1.5 1.682	2E 9.9	11.240 9.900 21.140	120 0.0197	19.930 0.0 0.417			
									Vel =	3.61	
303 to L31	18.830 18.830	5.60	25.26 50.26	1.5 1.682	T 9.9	10.250 9.900 20.150	120 0.0718	20.347 0.0 1.447			
			0.0						Vel =	7.26	
L31			50.26					21.794	K Factor =	10.77	
304 to 305	18.830 18.830	5.60	25.54 25.54	1.5 1.682		9.580 9.580	120 0.0205	20.800 0.0 0.196			
									Vel =	3.69	
305 to L31	18.830 18.830	5.60	25.66 51.2	1.5 1.682	T 9.9	0.830 9.900 10.730	120 0.0744	20.996 0.0 0.798			
			0.0						Vel =	7.39	
L31			51.20					21.794	K Factor =	10.97	
306 to 307	18.830 18.830	5.60	25.55 25.55	1.5 1.682		10.500 10.500	120 0.0205	20.813 0.0 0.215			
									Vel =	3.69	
307 to L32	18.830 18.830	5.60	25.68 51.23	1.5 1.682		10.250 10.250	120 0.0744	21.028 0.0 0.763			
			0.0						Vel =	7.40	
L32			51.23					21.791	K Factor =	10.97	
308 to 309	18.830 18.830	5.60	25.54 25.54	1.5 1.682		9.580 9.580	120 0.0206	20.797 0.0 0.197			
									Vel =	3.69	
309 to L32	18.830 18.830	5.60	25.66 51.2	1.5 1.682	T 9.9	0.830 9.900 10.730	120 0.0743	20.994 0.0 0.797			
			0.0						Vel =	7.39	
L32			51.20					21.791	K Factor =	10.97	
310 to L33	18.830 18.830	5.60	27.63 27.63	1.5 1.682	T 9.9	0.830 9.900 10.730	120 0.0238	24.339 0.0 0.255			
									Vel =	3.99	
L33			27.63					24.594	K Factor =	5.57	
L30 to M30	18.830 17.830		27.41 27.41	1.5 1.682	T 9.9	1.000 9.900 10.900	120 0.0235	24.406 0.433 0.256			
			0.0						Vel =	3.96	
M30			27.41					25.095	K Factor =	5.47	
L31 to M31	18.830 17.830		101.46 101.46	1.5 1.682	T 9.9	1.000 9.900 10.900	120 0.2633	21.794 0.433 2.870			
									Vel =	14.65	

Final Calculations : Hazen-Williams

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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	*****
M31			0.0 101.46						25.097		K Factor = 20.25	
L32 to M32	18.830 17.830		102.42 102.42	1.5 1.682	T	9.9	1.000 9.900 10.900	120 0.2680	21.791 0.433 2.921		Vel = 14.79	
M32			0.0 102.42						25.145		K Factor = 20.42	
L33 to M33	18.830 17.830		27.63 27.63	1.5 1.682	T	9.9	1.000 9.900 10.900	120 0.0238	24.594 0.433 0.259		Vel = 3.99	
M33			0.0 27.63						25.286		K Factor = 5.49	
M30 to M31	17.830 17.830		27.41 27.41	4 4.26			10.750 10.750	120 0.0002	25.095 0.0 0.002		Vel = 0.62	
M31 to M32	17.830 17.830		101.46 128.87	4 4.26			10.750 10.750	120 0.0045	25.097 0.0 0.048		Vel = 2.90	
M32 to M33	17.830 17.830		102.43 231.3	4 4.26			10.750 10.750	120 0.0131	25.145 0.0 0.141		Vel = 5.21	
M33 to M34	17.830 17.830		27.63 258.93	4 4.26	2E T	26.334 26.334	23.170 52.668 75.838	120 0.0161	25.286 0.0 1.224		Vel = 5.83	
M34 to M24	17.830 17.830		0.0 258.93	4 4.26	2T E	52.668 13.167	56.590 65.835 122.425	120 0.0161	26.510 0.0 1.975		Vel = 5.83	
M24 to M25	17.830 1		0.0 258.93	4 4.26	B Fsp	15.8 0.0	16.830 15.800 32.630	120 0.0162	28.485 10.289 0.527		* * Fixed Loss = 3 Vel = 5.83	
M25 to UG	1 1		0.0 258.93	4 4.26			7.000 7.000	120 0.0161	39.301 6.000 0.113		* * Fixed Loss = 6 Vel = 5.83	
UG to TEST	1 0		0.0 258.93	4 4.1	E G T	14.534 2.907 29.067	166.000 46.508 212.508	140 0.0146	45.414 0.433 3.106		Vel = 6.29	
TEST			250.00 508.93						48.953		Qa = 250.00 K Factor = 72.74	